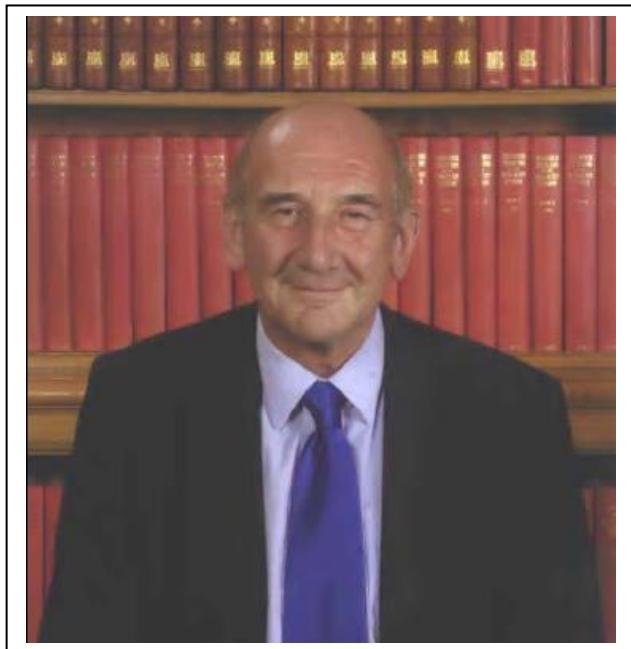


## **CURRICULUM VITAE**

**Sir Peter BARNES MA, DM, DSc, FRCP, Master FCCP, MAE, FMedSci, FRS**



### **Short biography**

Peter Barnes is Professor of Thoracic Medicine at the National Heart and Lung Institute, was Head of Respiratory Medicine at Imperial College 1987-2017 and Honorary Consultant Physician at Royal Brompton Hospital, London. He qualified at Cambridge and Oxford Universities (first class honours). He has published >1500 peer-review papers on asthma, COPD and related topics and has written or edited over 50 books. He was recently named as in the top 40 most highly cited researchers in the world and has an h-index of 220 with >150,000 citations. He was elected a Fellow of the Royal Society in 2007, the first respiratory researcher for over 150 years. He is currently a member of the Scientific Committee of the global guidelines on COPD (GOLD). He also serves on the Editorial Board of over 30 journals and is currently an respiratory Editor of Up-to-Date. He has given several prestigious lectures, including the Amberson Lecture at the American Thoracic Society, the Sadoul Lecture at the European Respiratory Society and the Croonian Lecture at the Royal College of Physicians, London. He has been received honorary MD degrees from the Universities of Ferrara (Italy), Athens (Greece), Tampere (Finland), Leuven (Belgium) and Maastricht (Netherlands). He was elected a Master Fellow of the American College of Chest Physicians and elected to the Academy of Europe. He was President of the ERS 2013/14. In 2020 he was awarded the Trudeau Medal of the ATS and elected to Honorary Fellowship of the British Pharmacological Society. He was awarded the Imperial College Medal in 2022. He was knighted in the 2023 Birthday Honours for services to respiratory science. His research has focused on cellular and molecular mechanisms of asthma and COPD and their treatments.

### **Websites**

Imperial College: <http://www.imperial.ac.uk/people/p.j.barnes>

Wikipedia: [https://en.wikipedia.org/wiki/Peter\\_J.\\_Barnes\\_\(respiratory\\_scientist\)](https://en.wikipedia.org/wiki/Peter_J._Barnes_(respiratory_scientist))

# **Sir Peter BARNES MA, DM, DSc, FRCP, Master FCCP, MAE, FMedSci, FRS**

**Date of Birth:** 29/10/46

**Address:** Airway Disease Section, National Heart and Lung Institute,  
Dovehouse St, London SW3 6LY  
(tel: +44 20 7594 7959 mobile: +44 7949 343188  
e-mail: [p.j.barnes@imperial.ac.uk](mailto:p.j.barnes@imperial.ac.uk))

**Home:** 28 Kempsford Gardens, London SW5 9LH

**Civil Status:** Married to Olivia (psychotherapist), 3 children.

**Education:** 1966-69 Preclinical: Cambridge University (St Catharine's College)  
1969-72 Clinical: Oxford University Medical School

## **Previous Appointments:**

Aug 72-Jan 73: House Physician, Nuffield Department of Medicine, Radcliffe Infirmary, Oxford  
Feb 73-Aug 74: House Surgeon, Radcliffe Infirmary, Oxford  
Oct 73-Dec 73: S.H.O., Brompton Hospital, Frimley  
Jan 74-Jul 74: S.H.O. (Thoracic Medicine), Brompton Hospital, London  
Aug 74-Jul 75: S.H.O. (Neurology), National Hospital (Queen Square), London  
Sep 75-Mar 78: Registrar (General Medical Rotation), University College Hospital, London  
Apr 78-Oct 79: MRC Research Fellow and Honorary Senior Registrar, Dept of Clinical Pharmacology,  
Royal Postgraduate Medical School, London  
Nov 79-Dec 82: Senior Registrar (General and Respiratory Medicine), Hammersmith Hospital, London  
Aug 81-Sep 82: MRC Travelling Fellowship, Cardiovascular Research Institute,  
University of California, San Francisco, USA (Dr JA Nadel).  
Dec 82-Oct 83: Senior Lecturer and Honorary Consultant Physician, Department of Medicine,  
Royal Postgraduate Medical School and Hammersmith Hospital, London  
Nov 83-Sep 85: Consultant Physician, Hammersmith and Ealing Hospitals,  
Hon Senior Lecturer, Department of Medicine, RPMS.  
Oct 85-Sep 87: Asthma Research Council Professor of Clinical Pharmacology, Cardiothoracic Institute  
Honorary Consultant Physician, Royal Brompton Hospital, London  
Oct 87-Sep 17: Head of Respiratory Medicine, Imperial College London,  
Jun 13-Oct 22: Margaret Turner-Warwick Chair of Medicine

## **Current Appointment:**

**Oct 1987- present : Professor of Thoracic Medicine and Senior Research Fellow, NHLI**

## **Degrees:**

BA Medical Sciences: Cambridge University (1969, Open Scholarship, first class honours)  
MA: Cambridge University  
BM, BCh: Oxford University (1972, Clinical Scholarship);  
DM: Oxford University (1982); DSc: Oxford University (1987)  
Honorary degrees from 5 European Universities (Ferrara 1998, Athens 2001, Tampere 2004, Leuven 2010, Maastricht 2014)

## **Fellowships:**

FRCP (1986)  
FMedSci (Foundation Fellow 1998, Member of Council x 2)  
Master FCCP (American College of Chest Physicians, one of only two ever elected outside N. America, 2012)  
FRS (2007, only respiratory scientist elected in over 150 years, Chair of selection committee for medical sciences SC10)

Honorary Fellow of Association of Physicians (Hon FAoP, 2007)  
Honorary Fellow St Catharine's College Cambridge (2011)  
Member of Academy of Europe (MAE, 2012)  
Elected Member of American Association of Physicians (2014)  
Fellow of European Respiratory Society (FERS, 2014)  
Fellow of American Thoracic Society (ATSF, 2018)  
Honorary Fellow Academy of Athens (2019, one of less than ten non-Greek fellows)  
Honorary Fellow British Pharmacological Society (Hon FBPharmS, 2020)  
*Honorary Fellowships of National Respiratory Societies:* South African Pulmonary Society, German Thoracic Society, Chilean Thoracic Society, Hungarian Pulmonology Society, Peruvian Thoracic Society

**Prestigious Lectures:**

*American Thoracic Society:* Amberson Lecture (1996): most prestigious lecture of ATS and only invitee from outside N. America  
*American College of Chest Physicians:* Manuel Albertal Lecture (2000), Marks Lecture (1996), College Medal Lecture (2002), Rosenow Lecture (2018)  
*European Respiratory Society:* Sadoul Lecture (1999): most prestigious lecture of ERS  
*Royal College of Physicians:* Linacre Lecture (1991), William Withering Lecture (1997), Croonian Lecture (2009)  
*Royal College of Physicians of Edinburgh:* Robert Philip Memorial Lecture (1992)  
*Royal College of Physicians and Surgeons of Glasgow:* Burns Lecture (2007)  
*American Academy of Allergy:* Leo Creip Lectureship (1987, 1993)  
*Royal Society of Medicine:* Wellcome Lecture (2014)  
*British Thoracic Society:* Altounyan Lecture (1988, 2001), BTS Lecture (2009)  
*British Pharmacological Society:* Quintiles Prize Lecture (2006)  
*British Society of Allergy and Clinical Immunology:* Annual Jack Pepys Lecture (1997)  
*Norwegian Pharmacology Society:* Poullson Lecture and Medal (2001)  
*Dutch Medical Federation:* Annual Prize (1995)  
*University of Hong Kong:* Macfazdean Lecture (1987)  
*University of Milan:* Trabucchi Lecture and Medal (1995,)  
*George Washington University, Washington D.C.:* Distinguished Scientist Lecture (1998)  
*University of Brussels:* Erasmus Lecture (1998)  
*University of Amsterdam:* Ruysch Lecture (2011)

**Prizes and Medals:**

Open Scholarship, St Catharine's College, Cambridge (1966)  
Scholar, St Catharine's College, Cambridge (1969)  
Belfield-Clark Prize, Cambridge University (1969)  
Clinical Scholar, Oxford University (1969-72)  
Worts Travelling Scholarship, Oxford University (1970)  
University of Chicago: Leon Goldberg Prize (1994)  
British Thoracic Society Medal (2007)  
European Respiratory Society: Presidential Award (2007)  
Galen Medal: Society of Apothecaries (2015)  
Trudeau Medal, American Thoracic Society (2020): most prestigious award of ATS and only medallist outside N America since its inauguration in 1926  
The Imperial College Medal (2022)  
Imperial College Global Impact Award (2023)

**Societies and Organizations:**

European Respiratory Society: President 2013/14: largest respiratory society in the world  
British Association for Lung Research (BALR): President (2018-2023), Honorary Member 2023  
NIHR: Senior Investigator (2009), Emeritus Senior Investigator (2019)

Global guidelines: member of Science Committee for Asthma (GINA) 2000-2013, COPD (GOLD) 2002-2023

Fellowship of Postgraduate medicine: member of council (1997-present)

**National Honours:**

Knighthood (King's Birthday Honours 2023) for "services to respiratory science"

**Editorial Boards:**

New England Journal of Medicine (1994-2005)  
Thorax (1983-1990, *Advisory Board 1992-2009*)  
Journal of Applied Physiology (1984-90, **Associate editor** 1992-95)  
European Journal of Respiratory Diseases (**Associate Editor** 1986-7)  
European Journal of Clinical Pharmacology (1985-2000)  
International Archives of Pharmacodynamics and Therapy (1986-2000)  
British Journal of Clinical Pharmacology (**Associate Editor** 1988-93)  
Pulmonary Pharmacology (**Founding Editor** 1988-92)  
Postgraduate Medical Journal (1989-2002)  
European Journal of Internal Medicine (1989- )  
Drugs (1990- 2022)  
Respiration (1990- )  
Journal of Autonomic Pharmacology (1990-2000)  
European Respiratory Journal (**Associate Editor** 1990-1995)  
Allergy Digests (1988-2000)  
European Journal of Pharmacology (1991-2000)  
American J Respiratory and Critical Care Medicine (1993-present)(**Associate Editor** 1999-2004; 2010-2015)  
Pharmacology and Toxicology (1992-2000)  
Allergy (1992-2000)  
Endothelium (1992-2000)  
Journal of Pathophysiology (1993-2000)  
Respiratory Research (**Founding Editor**: 2000-2003)  
Current Opinion in Pharmacology (2001- )  
Annals of Medicine (2002- )  
Chest (**Associate Editor** 2003-2020)  
Journal of COPD (**Editor** 2002-2013 )  
Applied Genomics and Proteomics (2002- present)  
Public Library of Science Medicine: **Respiratory Editor** (2004-12 )  
Pharmacological Research (2008- )  
Journal of Breath Research (2008-present )  
European Journal of Clinical Investigation: **Editor** (2009- 2011)  
Journal of Experimental and Integrative Medicine: **Associate Editor** (2011-2020 )  
Faculty of 1000: **Head of Faculty** – Respiratory Disorders (2005- )  
Up-to-Date: Pulmonary Disease **Editor in Chief** (2005-present )  
Journal of COPD Foundation: (**Editor** 2014-2023)  
Journal of Allergy and Clinical Immunology In Practice (2017-present)

**Publications summary (see full list following):**

Over 1500 peer reviewed publications. Most highly cited respiratory researcher in the world and over last 30 years (*h*-index >200, with >150,000 citations)

In top 10 most highly cited scientists in UK (Clarivate)

Editor and author of over 50 books on airway disease and pharmacology.

Full list: [https://scholar.google.com/citations?user=z5PuQ\\_0AAAAJ&hl](https://scholar.google.com/citations?user=z5PuQ_0AAAAJ&hl)

**Websites**

<http://www1.imperial.ac.uk/medicine/people/p.j.barnes.html>

[https://en.wikipedia.org/wiki/Peter\\_J.\\_Barnes\\_\(respiratory\\_scientist\)](https://en.wikipedia.org/wiki/Peter_J._Barnes_(respiratory_scientist))

# Professor Sir Peter Barnes: PUBLICATIONS

## PEER REVIEWED

### 1970-77

1. Barnes PJ, Smith LM, Latto R. Orientation and the superior colliculus. *Q J Exp Psychol* 1970; **22**:239-247.
2. Barnes PJ, Griffiths D. Hazards of gastric surgery in peripheral vascular disease. *J Roy Coll Surg* 1975; **20**:63-65.
3. Barnes P, Waterworth PM. A new cause of penicillin treatment failure. *Br Med J* 1977; **1**:991-993.
4. Barnes PJ, Shaw K, Ross EJ. Cushing's disease: successful treatment with cyproheptadine. *Lancet* 1977; i:1145-1146.
5. Barnes PJ, Stern GM. Helping dysphasics. *Mod Geriatrics* 1977; **11**:23-24.

### 1979

6. Barnes PJ, Weatherstone R. Tuberculosis of the thyroid: 2 case reports. *Br J Dis Chest* 1979; **73**:187-189.
7. Barnes PJ, Karliner J, Hamilton C, Dollery CT. Demonstration of  $\alpha$ -adrenoceptors in guinea pig lung using [ $^3$ H]prazosin. *Life Sci* 1979; **25**: 1207-1214.
8. Hensby CN, Barnes PJ, Dargie H, Dollery CT. Production of 6-oxo-F<sub>1 $\alpha$</sub>  in human lung *in vivo*. *Lancet* 1979; ii:1162-1163.
9. Karliner JS, Barnes PJ, Hamilton C, Dollery CT. Alpha<sub>1</sub>-adrenergic receptors in guinea pig myocardium: identification by binding of a new radioligand,  $^3$ H-prazosin. *Biochem Biophys Res Commun* 1979; **90**:142-149.

### 1980

10. Barnes PJ, Dollery CT, Hensby CN. The metabolism of tritiated arachidonic acid by male dog lung *in vitro* using a perfusion system designed to mimic physiological conditions. *Adv Prostaglandin Thromboxane Res* 1980; **7**: 933-935.
11. Barnes PJ, Koppel H, Lewis P, Hutson C, Blair I, Dollery CT. A fluorescent analogue of propranolol does not label  $\beta$ -adrenoceptor sites. *Brain Res* 1980; **181**: 209-213.
12. Barnes PJ, Karliner JS, Dollery CT. Human lung adrenoceptors studied by radioligand binding. *Clin Sci* 1980; **58**:457-461.
13. Barnes PJ, Dollery CT, MacDermot J. Increased pulmonary  $\alpha$ -adrenergic and reduced  $\beta$ -adrenergic receptors in experimental asthma. *Nature* 1980; **285**: 569-571.
14. Barnes PJ, Fitzgerald G, Brown M, Dollery C. Nocturnal asthma and changes in circulating epinephrine, histamine and cortisol. *N Engl J Med* 1980; **303**: 263-267.
15. Brown MJ, Ind PW, Barnes PJ, Jenner DA, Dollery CT. A sensitive and specific radiometric method for the measurement of plasma histamine in normal individuals. *Anal Biochem* 1980; **109**: 142-146.
16. MacDermot J, Barnes PJ. Activation of guinea pig pulmonary adenylate cyclase by prostacyclin. *Eur J Pharmacol* 1980; **67**:419-425.

17. Karliner JS, **Barnes P**, Brown M, Dollery C. Chronic heart failure in guinea pig increases cardiac  $\alpha_1$ -and  $\beta$ -adrenoceptors. *Eur J Pharmacol* 1980; **67**: 115-118.
18. FitzGerald GA, **Barnes P**, Hamilton CA, Dollery CT. Circulating adrenaline and blood pressure: the metabolic effects and kinetics of infused adrenaline in man. *Eur J Clin Invest* 1980; **10**: 401-406.
19. FitzGerald GA, **Barnes P**, Brown MJ, Dollery CT. The circadian variability in circulating adrenaline and bronchomotor reactivity in asthma. In: *Recent Advances in the Chronobiology of Allergy and Immunology*. M.H. Smolensky, ed: Pergamon Press, New York. 1980; pp 89-94.

## 1981

20. **Barnes PJ**, Ind PW, Dollery CT. Inhaled prazosin in asthma. *Thorax* 1981; **36**:378-381.
21. **Barnes PJ**, Brown MJ, Silverman M, Dollery CT. Circulating catecholamines in exercise and hyperventilation-induced asthma. *Thorax* 1981; **36**:435-440.
22. **Barnes PJ**, Gribbin HR, Osmanliev D, Pride NB. Partial flow-volume curves to measure bronchodilator dose-response curves in normal man. *J Appl Physiol* 1981; **50**:1193-1197.
23. **Barnes PJ**, Brown MJ. Venous plasma histamine in exercise and hyperventilation-induced asthma in man. *Clin Sci* 1981; **61**:159-162.
24. Karliner JS, Alabaster C, Stephens H, **Barnes P**, Dollery C. Enhanced noradrenaline response in cardiomyopathic hamsters: possible relation to changes in adrenoceptors studied by radioligand binding. *Cardiovasc Res* 1981; **15**:296-304.
25. **Barnes PJ**, Wilson NM, Vickers H. Prazosin, an  $\alpha_1$ -adrenoceptor antagonist partially inhibits exercise-induced asthma. *J Allergy Clin Immunol* 1981; **68**:411-419.
26. **Barnes PJ**, Wilson NM, Brown MJ. A calcium antagonist nifedipine modifies exercise-induced asthma. *Thorax* 1981; **36**: 726-730.
27. MacDermot J, **Barnes PJ**, Wadell K, Dollery CT, Blair IA. Prostacylin binding to guinea pig pulmonary receptors. *Eur J Pharmacol* 1981; **68**: 127-130.
28. Williams DO, **Barnes PJ**, Vickers HP, Rudolf M. Effect of nifedipine on bronchomotor tone and histamine reactivity in asthma. *Br Med J* 1981; **283**:348-349.

## 1982

29. **Barnes PJ**, Ind PW, Brown MJ. Plasma histamine and catecholamines in stable asthmatic subjects. *Clin Sci* 1982; **62**: 661-665.
30. **Barnes PJ**, FitzGerald GA, Dollery CT. Circadian variation in adrenergic responses in asthmatic subjects. *Clin Sci* 1982; **62**: 349-354.
31. **Barnes PJ**, Karliner JS. *In vivo* identification and distribution of  $\alpha$ - and  $\beta$ -adrenoceptors in rat heart and lung. *Pharmacology* 1982; **24**:321-327.
32. **Barnes PJ**, Greening AP, Neville L, Timmers J, Poole GW. Single dose slow-release aminophylline at night prevents nocturnal asthma. *Lancet* 1982; i:299-301.
33. Stradling JR, **Barnes P**, Pride NB. The effects of almitrine on the ventilatory response to hypoxia and hypercapnia in normal subjects. *Clin Sci* 1982; **63**:401-404.
34. Tabona MVZ, Ambrosino N, **Barnes PJ**. Endogenous opiates and the control of breathing in normal subjects and patients with chronic airflow obstruction. *Thorax* 1982; **37**:834-839.

35. Wilson NM, Barnes PJ, Vickers H, Silverman M. Hyperventilation-induced asthma: evidence for two mechanisms. *Thorax* 1982; **37**:657-662.
36. Barnes PJ, Basbaum CB, Nadel JA, Roberts JM. Localization of  $\beta$ -adrenoceptors in mammalian lung by light microscopic autoradiography. *Nature* 1982; **299**:444-447.
37. Barnes PJ, Nadel JA, Roberts JM, Basbaum CB. Muscarinic receptors in lung and trachea: autoradiographic localization using [ $^3$ H]quinuclidinyl benzilate. *Eur J Pharmacol* 1982; **86**: 103-106.

## 1983

38. Basbaum CB, Barnes PJ, Grillo M, Widdicombe JH, Nadel JA. Adrenergic and cholinergic receptors in submucosal glands of the ferret trachea: autoradiographic localization. *Eur J Respir Dis* 1983; **64**:433-435.
39. Nathanson I, Widdicombe JH, Barnes PJ. Effect of vasoactive intestinal peptide on ion transport across dog tracheal epithelium. *J Appl Physiol* 1983; **55**:1844-1848.
40. Ind PW, Barnes PJ, Brown MJ, Causon R, Dollery CT. Measurement of plasma histamine. *Clin Allergy* 1983; **13**:61-67.
41. Barnes PJ, Basbaum CB, Nadel JA, Roberts JM. Pulmonary  $\alpha$ -adrenoceptors: autoradiographic localization using [ $^3$ H]prazosin. *Eur J Pharmacol* 1983; **88**:57-62.
42. Barnes PJ, Skoogh B-E, Brown JK, Nadel JA. Activation of  $\alpha$ -adrenergic responses in tracheal smooth muscle: a post-receptor mechanism. *J Appl Physiol* 1983; **54**:1469-1476.
43. Barnes PJ, Skoogh B-E, Nadel JA, Roberts JM. Postsynaptic  $\alpha_2$ -adrenoceptors predominate over  $\alpha_1$  adrenoceptors in canine tracheal smooth muscle and mediate neuronal and humoral  $\alpha$ -adrenergic contraction. *Mol Pharmacol* 1983; **23**:570-575.
44. Barnes PJ, Basbaum CB, Nadel JA. Autoradiographic localization of autonomic receptors in airway smooth muscle: marked differences between large and small airways. *Am Rev Respir Dis* 1983; **127**:758-762.
45. Barnes PJ, Nadel JA, Skoogh B-E, Roberts JM. Characterization of  $\beta$ -adrenoceptor subtypes in canine airway smooth muscle by radioligand binding and physiologic responses. *J Pharmacol Exp Ther* 1983; **225**:456-461.
46. Barnes PJ, Basbaum CB. Mapping f adrenergic receptors in the trachea by autoradiography. *Exp Lung Res* 1983; **5**:183-192.
47. Barnes PJ, Pride NB. Dose-response curves to inhaled  $\beta$ -adrenoceptor agonists in normal and asthmatic subjects. *Br J Clin Pharmacol* 1983; **15**:677-682.
48. Peatfield AC, Barnes PJ, Bratcher C, Nadel JA, Davis B. Vasoactive intestinal peptide stimulates tracheal submucosal gland secretion in ferret. *Am Rev Respir Dis* 1983; **128**:89-93.

## 1984

49. Barnes PJ, Dixon CMS. The effect of inhaled vasoactive intestinal peptide on bronchial hyperreactivity in man. *Am Rev Respir Dis* 1984; **130**:162-166.
50. Carstairs JR, Nimmo AJ, Barnes PJ. Autoradiographic localisation of  $\beta$ -adrenoceptors in human lung. *Eur J Pharmacol* 1984; **103**:189-190.
51. Braude S, Royston D, Coe C, Barnes PJ. Histamine increases lung permeability by an  $H_2$ -receptor mechanism. *Lancet* 1984; **ii**:372-374.
52. Barnes PJ, Jacobs MM, Roberts JM. Glucocorticoids preferentially increase fetal alveolar  $\beta$ -receptors: autoradiographic evidence. *Paediatr Res* 1984; **18**:1191-1194.

## 1985

53. Ind PW, Barnes PJ, Brown MJ, Dollery CT. Propranolol-induced bronchoconstriction is not associated with histamine release in asthma. *Thorax* 1985; **40**:903-909.
54. Fuller RW, Dixon CMS, Barnes PJ. The bronchoconstrictor response to inhaled capsaicin in humans. *J Appl Physiol* 1985; **85**:1080-1084.
55. Cuss FMC, Barnes PJ. The effect of inhaled nifedipine on bronchial reactivity to histamine. *J Allergy Clin Immunol* 1985; **76**:718-723.
56. Ind PW, Causon RC, Brown MJ, Barnes PJ. Circulating catecholamines in acute asthma. *Br Med J* 1985; **290**:267-279.
57. Carstairs JR, Nimmo A, Barnes PJ. Autoradiographic visualization of  $\beta$ -adrenoceptor subtypes in human lung. *Am Rev Respir Dis* 1985; **132**:541-547.
58. Warren JB, Cuss F, Barnes PJ. Posture and theophylline kinetics. *Br J Clin Pharmacol* 1985; **19**:707-709.
59. Phillips MJ, Barnes PJ, Gold WM. Characterization of purified dog mastocytoma cells: autonomic membrane receptors and pharmacologic modulation of histamine release. *Am Rev Respir Dis* 1985; **132**:1019-1026.
60. Cuss FMC, Palmer JB, Barnes PJ. Rapid estimation of plasma theophylline in the clinical setting. *Br Med J* 1985; **291**:384-385.
61. Barnes PJ, Cuss FMC, Palmer JBD. The effect of airway epithelium on smooth muscle contractility in bovine trachea. *Br J Pharmacol* 1985; **86**:685-691.
62. Valind S, Rhodes CG, Brodin L, Barnes PJ, Suzuki T, Wollmer P, Buckingham PD, Hughes JM. Quantitative measurement of regional ventilation/perfusion ratios by means of position emission tomography. *Clin Physiol* 1985; **5**:117-121.
63. Roberts JM, Jacobs MM, Cheng JB, Barnes PJ, O'Brien AT, Ballard PJ. Fetal pulmonary  $\beta$ -adrenergic receptors: characterization in human and *in vitro* modulation by glucocorticoids in rabbit. *Pediatr Pulmonol* 1985; **1**:569-576.

## 1986

64. Braude S, Nolop K, Hughes JMB, Barnes PJ, Royston D. Comparison of lung vascular and epithelial indices in adult respiratory distress syndrome. *Am Rev Respir Dis* 1986; **133**:1002-1005.
65. Grandordy BM, Cuss FM, Sampson AS, Palmer JB, Barnes PJ. Phosphatidylinositol response to cholinergic agonists in airway smooth muscle: relationship to contraction and muscarinic receptor occupancy. *J Pharm Exp Ther* 1986; **238**:273-279.
66. Barnes PJ. Asthma as an axon reflex. *Lancet* 1986; **i**:242-245.
67. Lazarus SC, Basbaum CB, Barnes PJ, Gold WM. Cyclic AMP immunocytochemistry provides evidence for functional VIP receptors in trachea. *Am J Physiol* 1986; **251**:C115-C119.
68. Fuller RW, Dixon CMS, Dollery CT, Barnes PJ. Prostaglandin D<sub>2</sub> potentiates airway responses to histamine and methacholine. *Am Rev Respir Dis* 1986; **133**:252-254.
69. Palmer JB, Cuss FMC, Barnes PJ. VIP and PHM and their role in non-adrenergic inhibitory responses in isolated human airways. *J Appl Physiol* 1986; **61**:1322-1328.
70. Palmer JBD, Cuss FMC, Warren JB, Barnes PJ. The effect of infused vasoactive intestinal peptide on airway function in normal subjects. *Thorax* 1986; **41**:663-666.
71. Carstairs JR, Barnes PJ. Visualization of vasoactive intestinal peptide receptors in human and guinea pig lung. *J Pharmacol Exp Ther* 1986; **239**: 249-255.

72. Barnes PJ, Cadieux A, Carstairs JR, Greenberg B, Polak JM, Rhoden K. Vasoactive intestinal peptide in bovine pulmonary artery: localisation, function and receptor autoradiography. *Br J Pharmacol* 1986; **89**:157-162.
73. Coe CI, Barnes PJ. An inhaled anticholinergic drug reduces nocturnal asthma. *Chest* 1986; **90**: 485-488.
74. Carstairs JR, Barnes PJ. Autoradiographic mapping of substance P receptors in lung. *Eur J Pharmacol* 1986; **127**: 295-296.
75. Cuss FM, Dixon CMS, Barnes PJ. Effects of inhaled platelet activating factor on pulmonary function and bronchial responsiveness in man. *Lancet* 1986; ii:189-192.
76. Barnes PJ, Brown MJ, Dollery CT, Fuller RW, Heavey DJ, Ind PW. Histamine is released from skin by substance P but does not act as the final vasodilator in the axon reflex. *Br J Pharmacol* 1986; **88**:741-745.
77. Greenberg B, Rhoden K, Barnes PJ. Activated oxygen molecules generated by electrical stimulation affect vascular smooth muscle. *J Mol Cell Cardiol* 1986; **18**:975-981.

## 1987

78. Fuller RW, Dixon CMS, Cuss FMC, Barnes PJ. Bradykinin-induced bronchoconstriction in man: mode of action. *Am Rev Respir Dis* 1987; **135**:176-180.
79. Fuller RW, Maxwell DL, Dixon CMS, McGregor GP, Barnes VF, Bloom SR, Barnes PJ. The effect of substance P on cardiovascular and respiratory function in subjects. *J Appl Physiol* 1987; **62**:1473-1479.
80. Dixon CMS, Fuller RW, Barnes PJ. The effect of an angiotensin converting enzyme inhibitor, ramipril, on bronchial responses to inhaled histamine and bradykinin in asthmatic subjects. *Br J Clin Pharmacol* 1987; **23**:91-93.
81. Dixon CMS, Fuller RW, Barnes PJ. The effect of nedocromil sodium on sulphur dioxide induced bronchoconstriction. *Thorax* 1987; **42**:462-465.
82. Barnes PJ, Grandordy BM, Page CP, Rhoden KJ, Robertson DN. The effect of platelet activating factor on pulmonary  $\beta$ -adrenoceptors. *Br J Pharmacol* 1987; **90**:709-715.
83. Evans TW, Chung KF, Rogers DF, Barnes PJ. Effect of platelet activating factor on airway vascular permeability: possible mechanisms. *J Appl Physiol* 1987; **63**:479-484.
84. Chung KF, Dent G, McCusker M, Guinot Ph, Page CP, Barnes PJ. Effect of a ginkgolide mixture (BN 52063) in antagonising skin and platelet responses to platelet activating factor in man. *Lancet* 1987; i:248-251.
85. Greenberg B, Rhoden K, Barnes PJ. Vasoactive intestinal peptide causes non-endothelial cell dependent relaxation in human and bovine pulmonary arteries. *Blood Vessels* 1987; **24**:45-50.
86. Palmer JBD, Cuss FMC, Mulderry PK, Ghatei MA, Springall DR, Cadieux A, Bloom SR, Polak JM, Barnes PJ. Calcitonin gene-related peptide is localised to human airway nerves and potently constricts human airway smooth muscle. *Br J Pharmacol* 1987; **91**:95-101.
87. Clarke B, Till J, Rowland E, Barnes PJ, Shinebourne EA. Rapid and safe supraventricular tachycardia in children by adenosine. *Lancet* 1987; i:299-301.
88. Greenberg B, Rhoden K, Barnes PJ. Endothelium-dependent relaxation of human pulmonary arteries. *Am J Physiol* 1987; **252**:H434-H438.
89. Coupe MO, Guly U, Brown E, Barnes PJ. Nebulised adrenaline in acute severe asthma: comparison with salbutamol. *Eur J Respir Dis* 1987; **71**:227-232.
90. Fuller RW, Maxwell DL, Conradson T-B, Dixon CMS, Barnes PJ. Circulatory and respiratory effects of infused adenosine in conscious man. *Br J Clin Pharmacol* 1987; **24**:309-317.

91. Conradson T-B, Dixon C, Clarke B, **Barnes PJ**. Cardiovascular effects of adenosine in man: potentiation by dipyridamole. *Acta Physiol Scand* 1987; **129**:387-391.
92. Grandordy BM, Cuss FM, **Barnes PJ**. Breakdown of phosphoinositides in airway smooth muscle: influence of anti-asthmatic drugs. *Life Sci* 1987; **41**:1661-1667.
93. Maxwell DL, Fuller RW, Conradson T-B, Dixon CMS, Hughes JMB, **Barnes PJ**. Contrasting effect of two xanthines, theophylline and enprofylline, on the cardio-respiratory stimulation of infused adenosine in man. *Acta Physiol Scand* 1987; **131**:459-465.
94. Conradson T-B, Clarke B, Dixon CMS, Dalton RN, **Barnes PJ**. Effects of adenosine on autonomic control of heart rate in man. *Acta Physiol Scand* 1987; **131**:525-531.
95. Frossard N, **Barnes PJ**.  $\mu$ -Opioid receptors modulate non-cholinergic constrictor nerves in guinea-pig airways. *Eur J Pharmacol* 1987; **141**:519-521.
96. Smolensky MH, D'Alonzo GE, Kunkel G, **Barnes PJ**. Day-night patterns in bronchial potency and dyspnea: basis for once-daily and unequally divided twice-daily theophylline dosing schedules. *Chronobiol Int* 1987; **4**:303-317.
97. Wilson NM, Green S, Coe C, **Barnes PJ**. Anticholinergic therapy: duration of protection of oxitropium bromide. *Eur J Respir Dis* 1987; **71**:455-458.
98. Fuller RW, Conradson T-B, Dixon CMS, Crossman DC, **Barnes PJ**. Sensory neuropeptide effects in human skin. *Br J Pharmacol* 1987; **92**:781-788.
99. Greenberg B, Rhoden K, **Barnes PJ**. Calcitonin gene-related peptide is a potent and endothelium-dependent inhibitor of coronary vasomotor tone. *Br J Pharmacol* 1987; **92**:789-794.
100. Norman P, Carstairs JR, Abram TS, **Barnes PJ**. Differential autoradiographic localization of leukotriene binding sites in guinea-pig airways. *Adv Prostaglandin Thromboxane Leukotriene Res* 1987; **17**:505-507.

## 1988

101. Evans TW, Dixon CMS, Clarke B, Conradson T-B, **Barnes PJ**. Comparison of neurokinin A and substance P on cardiovascular and airway function in man. *Br J Clin Pharmacol* 1988; **25**:273-275.
102. Stretton D, **Barnes PJ**. Modulation of cholinergic neurotransmission in guinea-pig trachea by neuropeptide Y. *Br J Pharmacol* 1988; **93**:672-678.
103. Roberts NM, Page CP, Chung KF, **Barnes PJ**. The effect of a specific PAF antagonist, BN 52063, on antigen-induced cutaneous responses in man. *J Allergy Clin Immunol* 1988; **82**:236-241.
104. Evans TW, Dent G, Rogers DF, Aursukij B, Chung KF, **Barnes PJ**. Effect of a PAF antagonist, WEB 2086, on airway microvascular leakage in the guinea pig and platelet aggregation in man. *Br J Pharmacol* 1988; **94**:164-168.
105. Robertson DN, Rhoden KJ, Grandordy B, Page CP, **Barnes PJ**. The effect of platelet activating factor on histamine and muscarinic receptor function in guinea-pig airways. *Am Rev Respir Dis* 1988; **137**:1317-1322.
106. Minette PA, **Barnes PJ**. Prejunctional inhibitory muscarinic receptors on cholinergic nerves in human and guinea-pig airways. *J Appl Physiol* 1988; **64**:2532-2537.
107. Lammers J-W, Minette P, McCusker MT, Chung KF, **Barnes PJ**. Nonadrenergic bronchodilator mechanisms in normal human subjects *in vivo*. *J Appl Physiol* 1988; **64**:1817-1822.
108. Chung KF, Minette P, McCusker M, **Barnes PJ**. Ketotifen inhibits the cutaneous but not the airway responses to platelet-activating factor in man. *J Allergy Clin Immunol* 1988; **81**:1192-1198.

109. Rhoden KJ, Meldrum LA, **Barnes PJ**. Inhibition of cholinergic neurotransmission in human airways by  $\beta_2$ -adrenoceptors. *J Appl Physiol* 1988; **65**:700-705.
110. Roberts NM, McCusker MT, **Barnes PJ**. Effect of a PAF antagonist BN 52063 on PAF-induced bronchoconstriction in normal subjects. *Br J Clin Pharmacol* 1988; **26**:65-72.
111. Grandordy BM, Frossard N, Rhoden KJ, **Barnes PJ**. Tachykinin-induced phosphoinositide breakdown in airway smooth muscle and epithelium: relationship to contraction. *Mol Pharmacol* 1988; **33**:515-519.
112. Carstairs JR, Norman P, Abram T, **Barnes PJ**. Autoradiographic localization of leukotriene C<sub>4</sub> and D<sub>4</sub> binding sites in guinea-pig lung. *Prostaglandins* 1988; **35**:503-514.
113. Clarke B, Conradson T-B, Dixon CMS, **Barnes PJ**. Reproducibility of the cardiovascular effects of adenosine infusion in man. *Eur J Clin Pharmacol* 1988; **35**:309-311.
114. Evans TW, Rogers DF, Aursudkij B, Chung KF, **Barnes PJ**. Inflammatory mediators involved in antigen-induced airway microvascular leakage in guinea-pigs. *Am Rev Respir Dis* 1988; **138**:395-399.
115. Ukena D, Dent G, Birke FW, Robaut C, Sybrecht GW, **Barnes PJ**. Radioligand binding of antagonists of platelet-activating factor to intact human platelets. *FEBS Lett* 1988; **2**:285-289.
116. Kroegel C, Yukawa T, Dent G, Chanez P, Chung KF, **Barnes PJ**. Platelet activating factor induces eosinophil peroxidase release from purified human eosinophils. *Immunology* 1988; **64**:559-562.
117. Belvisi MG, Chung KF, Jackson DM, **Barnes PJ**. Opioid modulation of non-cholinergic neural bronchoconstriction in guinea-pig *in vivo*. *Br J Pharmacol* 1988; **95**:413-418.
118. Beynon HLC, Garbett ND, **Barnes PJ**. Severe premenstrual exacerbations of asthma: effect of intramuscular progesterone. *Lancet* 1988; **ii**:370-372.
119. Rogers DF, Belvisi MG, Aursudkij B, Evans TW, **Barnes PJ**. Effects and interactions of sensory neuropeptides on airway microvascular leakage in guinea pigs. *Br J Pharmacol* 1988; **95**:1109-1116.
120. Coupe MO, Clarke B, Robson A, Oldershaw PJ, **Barnes PJ**. The cardiovascular effects of nebulized adenosine in man. *Eur J Clin Pharmacol* 1988; **34**:645-647.
121. Kioumis I, Lammers JW, Dent G, Chung KF, **Barnes PJ**. Effect of inhaled platelet-activating factor on circulating neutrophils and platelets *in vivo* and *ex vivo* in man. *Prostaglandins* 1988; **36**:343-354.
122. Mak JCM, **Barnes PJ**. Autoradiographic localization of calcitonin gene-related peptide binding sites in human and guinea pig lung. *Peptides* 1988; **9**:957-964.
123. McCormack DG, Mak JC, Minette P, **Barnes PJ**. Muscarinic receptor subtypes mediating vasodilation in the pulmonary artery. *Eur J Pharmacol* 1988; **158**:293-297.

## 1989

124. Boschetto P, Roberts NM, Rogers DF, **Barnes PJ**. The effect of antiasthma drugs on microvascular leakage in guinea-pig airways. *Am Rev Respir Dis* 1989; **139**:416-421.
125. Frossard N, Rhoden KJ, **Barnes PJ**. Influence of epithelium on guinea pig airway responses to tachykinins: role of endopeptidase and cyclooxygenase. *J Pharmacol Exp Ther* 1989; **248**:292-298.
126. Chung KF, **Barnes PJ**. Effects of platelet activating factor on airway calibre, airway responsiveness and circulating cells in asthmatic subjects. *Thorax* 1989; **44**:108-115.
127. McCormack DG, Clarke B, **Barnes PJ**. Characterization of adenosine receptors in human pulmonary arteries. *Am J Physiol* 1989; **256**:H41-H46.
128. Dent G, Ukena D, Chanez P, Sybrecht G, **Barnes PJ**. Characterization of PAF receptors on human neutrophils using the specific antagonist WEB 2086; correlation between receptor binding and function. *FEBS Lett* 1989; **244**:365-368.

129. Bush A, Busst CM, Clarke B, **Barnes PJ**. Effect of infused adenosine on cardiac output and systemic resistance in normal subjects. *Br J Clin Pharmacol* 1989; **27**:165-171.
130. Chung KF, Dent G, **Barnes PJ**. Effects of salbutamol on broncho- constriction, bronchial hyperresponsiveness and leucocyte responses induced by platelet activating factor in man. *Thorax* 1989; **44**: 102-107.
131. Kroegel C, Pleass R, Yukawa T, Chung KF, Westwick J, **Barnes PJ**. Characterization of platelet-activating factor-induced elevation of cytosolic free calcium concentrations in eosinophils. *FEBS Lett* 1989; **243**:41-46.
132. Lammers J-W, Minette P, McCusker M, **Barnes PJ**. The role of pirenzepine-sensitive ( $M_1$  muscarinic receptors in vagally mediated bronchoconstriction in humans. *Am Rev Respir Dis* 1989; **139**:446-449.
133. Dixon CMS, **Barnes PJ**. Bradykinin-induced bronchoconstriction: inhibition by nedocromil sodium and sodium cromoglycate. *Br J Clin Pharmacol* 1989; **27**:831-836.
134. Evans TW, Rogers DF, Aursudkij B, Chung KF, **Barnes PJ**. Regional and time-dependent effects of inflammatory mediators on airway microvascular permeability in guinea pigs. *Clin Sci* 1989; **76**:479-485.
135. Belvisi MG, Rogers DF, **Barnes PJ**. Neurogenic plasma extravasation: inhibition by morphine in guinea pig airways *in vivo*. *J Appl Physiol* 1989; **66**:268-272.
136. Stretton CD, **Barnes PJ**. Cholecystokinin octapeptide constricts guinea-pig and human airways. *Br J Pharmacol* 1989; **97**:675-682.
137. Kioumis I, Ukena D, **Barnes PJ**. The effect of nedocromil sodium on down-regulation of pulmonary  $\beta$ -adrenoceptors. *Clin Sci* 1989; **76**:599-602.
138. Rogers DF, Boschetto P, **Barnes PJ**. Plasma exudation: correlation between Evans blue dye and radiolabelled albumin in guinea pig airways *in vivo*. *J Pharmacol Meth* 1989; **21**:309-315.
139. Hall AK, **Barnes PJ**, Meldrum LA, Maclagan J. Facilitation by tachykinins of neurotransmission in guinea-pig pulmonary parasympathetic nerves. *Br J Pharmacol* 1989; **97**:274-280.
140. Ichinose M, Stretton CD, Schwartz J-C, **Barnes PJ**. Histamine  $H_3$  receptors inhibit cholinergic neurotransmission in guinea pig airways. *Br J Pharmacol* 1989; **97**:13-15.
141. Ukena D, Kroegel C, Dent G, Yukawa T, Sybrecht G, **Barnes PJ**. PAF-receptors on eosinophils: identification with a novel ligand [ $^3$ H] WEB 2086. *Biochem Pharmacol* 1989; **38**:1702-1705.
142. Mak JCW, **Barnes PJ**. Muscarinic receptor subtypes in guinea pig and human lung. *Eur J Pharmacol* 1989; **164**:223-230.
143. Rogers DF, **Barnes PJ**. Opioid inhibition of neurally mediated mucus secretion in human bronchi. *Lancet* 1989; **i**:930-932.
144. Kroegel C, Yukawa T, Dent G, Venge P, Chung KF, **Barnes PJ**. Stimulation of degranulation from human eosinophils by platelet activating factor. *J Immunol* 1989; **142**:3518-3526.
145. McCormack DG, **Barnes PJ**, Evans TW. Purinoceptors in the pulmonary circulation of the rat and their role in hypoxic vasoconstriction. *Br J Pharmacol* 1989; **98**:367-372.
146. Belvisi MG, Ichinose M, **Barnes PJ**. Modulation of non-adrenergic non-cholinergic neural bronchoconstriction in guinea-pig airways via GABA<sub>B</sub>-receptors. *Br J Pharmacol* 1989; **97**:1225-1231.
147. Engels F, Carstairs JR, **Barnes PJ**, Nijkamp FP. Autoradiographic localization of changes in pulmonary  $\beta$ -adrenergic receptors in an animal model of atopy. *Eur J Pharmacol* 1989; **164**:139-146.
148. Ichinose M, **Barnes PJ**. Inhibitory histamine  $H_3$ -receptors on cholinergic nerves in human airways. *Eur J Pharmacol* 1989; **163**:383-386.

149. McCusker MT, Chung KF, Roberts NM, **Barnes PJ**. Effect of topical capsaicin on the cutaneous responses to inflammatory mediators and to antigen in man. *J Allergy Clin Immunol* 1989; **83**:1116-1123.
150. Lammers J-W, Minette P, McCusker MT, Chung KF, **Barnes PJ**. Capsaicin-induced bronchodilation in asthmatic patients: role of the nonadrenergic inhibitory system. *J Appl Physiol* 1989; **67**:856-861.
151. Rhoden KJ, **Barnes PJ**. Effect of hydrogen peroxide on responses of guinea-pig tracheal smooth muscle *in vitro*: role of cyclo-oxygenase and airway epithelium. *Br J Pharmacol* 1989; **98**:325-330.
152. McCormack D, **Barnes PJ**, Evans TW. Evidence against a role for platelet-activating factor in hypoxic vasoconstriction in the rat. *Clin Sci* 1989; **77**:439-443.
153. McCormack DG, Mak JC, Coupe MO, **Barnes PJ**. Calcitonin gene-related peptide vasodilation of human pulmonary vessels: receptor mapping and functional studies. *J Appl Physiol* 1989; **67**:1265-1270.
154. Kroegel C, Yukawa T, Westwick J, **Barnes PJ**. Evidence for two platelet activating factor receptors on eosinophils: dissociation between PAF induced intracellular calcium mobilization, degranulation and superoxide anion generation. *Biochem Biophys Res Commun* 1989; **162**:511-521.
155. Black PN, Fuller RW, Taylor GW, **Barnes PJ**, Dollery CT. Effect of inhaled leukotriene B<sub>4</sub> alone and in combination with prostaglandin D<sub>2</sub> on bronchial responsiveness to histamine in normal subjects. *Thorax* 1989; **44**:491-495.
156. Chilvers ER, Challiss RAJ, **Barnes PJ**, Nahorski SR. Mass changes of inositol (1,4,5)trisphosphate in trachealis muscle following agonist stimulation. *Eur J Pharmacol* 1989; **164**:587-590.
157. Yukawa T, Kroegel C, Evans P, Fukuda T, Chung KF, **Barnes PJ**. Density heterogeneity of eosinophil leukocytes: induction of hypodense eosinophils by platelet activating factor. *Immunology* 1989; **68**:140-143.
158. Warren J, Maltby NH, McCormack D, **Barnes PJ**. Pulmonary endothelium derived relaxing factor is impaired in hypoxia. *Clin Sci* 1989; **77**:671-676.
159. Ind PW, Dixon CMS, Fuller RW, **Barnes PJ**. Anticholinergic blockade of β-blocker induced bronchoconstriction. *Am Rev Respir Dis* 1989; **139**:1390-1394.
160. Dent G, Ukena D, Sybrecht GW, **Barnes PJ**. [<sup>3</sup>H]WEB 2086 labels platelet activating factor receptors in guinea pig and human lung. *Eur J Pharmacol* 1989; **169**:313-316.
161. Liu SF, McCormack DG, Evans TW, **Barnes PJ**. Evidence for two P<sub>2</sub>-purinocceptor subtypes in human small pulmonary arteries. *Br J Pharmacol* 1989; **98**:1014-1020.
162. Ichinose M, **Barnes PJ**. Histamine H<sub>3</sub>-receptors modulate non-adrenergic non-cholinergic bronchoconstriction in guinea pig *in vivo*. *Eur J Pharmacol* 1989; **174**:49-55.
163. Rhoden KJ, **Barnes PJ**. Epithelial modulation of NANC and VIP-induced responses: role of neutral endopeptidase. *Eur J Pharmacol* 1989; **171**:247-250.
164. Chilvers ER, **Barnes PJ**, Nahorski SR. Characterisation of agonist-stimulated incorporation of [<sup>3</sup>H]myo-inositol into inositol phospholipids and [<sup>3</sup>H]inositol phosphate formation in tracheal smooth muscle. *Biochem J* 1989; **262**: 739-746.
165. Yukawa T, Kroegel C, Dent G, Chaney P, Ukena D, Chung KF, **Barnes PJ**. Effect of theophylline and adenosine on eosinophil function. *Am Rev Respir Dis* 1989; **140**:327-333.
166. Chung KF, Lammers J-W, McCusker M, Roberts NM, Nichol GM, **Barnes PJ**. Effect of theophylline on airway responses to inhaled platelet activating factor. *Eur J Respir Dis* 1989; **2**:763-768.
167. McCormack DG, Salonen RO, **Barnes PJ**. Effect of sensory neuropeptides on canine bronchial and pulmonary vessels *in vitro*. *Life Sci* 1989; **45**:2405-2412.
168. Rogers DF, Aursudkij B, **Barnes PJ**. Effects of tachykinins on mucus secretion in human bronchi *in vitro*. *Eur J Pharmacol* 1989; **174**:283-286.

169. Barnes PJ. A new approach to asthma therapy. *N Engl J Med* 1989; **321**:1517-1527.
170. Liu SF, McCormack DG, Evans TW, Barnes PJ. Characterization and distribution of P<sub>2</sub>-purinoceptor subtypes in rat pulmonary vessels. *J Pharmacol Exp Ther* 1989; **251**:1204-1210.
171. Minette PAH, Lammers J, Dixon CMS, McCusker MT, Barnes PJ. A muscarinic agonist inhibits reflex bronchoconstriction in normal but not in asthmatic subjects. *J Appl Physiol* 1989; **67**:2461-5.
172. Nichol GM, Nix A, Chung KF, Barnes PJ. Characterisation of bronchoconstrictor responses to sodium metabisulphite aerosol in atopic asthmatic and non asthmatic subjects. *Thorax* 1989; **44**:1009-1014.

## 1990

173. Ichinose M, Barnes PJ. A potassium channel activator modulates both non-cholinergic and cholinergic neurotransmission in guinea pig airways. *J Pharmacol Exp Ther* 1990; **252**:1207-1212.
174. Wardlaw AJ, Chung KF, Moqbel R, MacDonald AJ, Hartell A, McCusker M, Collins JV, Barnes PJ, Kay AB. Effects of inhaled PAF in man on circulating and bronchoalveolar lavage neutrophils: relationship to bronchoconstriction and changes in airway responsiveness. *Am Rev Respir Dis* 1990; **141**:386-392.
175. Coupe M, Mak JCW, Oldershaw PJ, Yacoub M, Barnes PJ. Autoradiographic mapping of calcitonin gene-related peptide receptors in human and animal heart. *Circulation* 1990; **81**:741-747.
176. Ichinose M, Belvisi MG, Barnes PJ. Histamine H<sub>3</sub>-receptors inhibit neurogenic microvascular leakage in airways. *J Appl Physiol* 1990; **68**:21-25.
177. Rhoden KJ, Barnes PJ. Potentiation of non-adrenergic neural relaxation in guinea pig airways by a cAMP phosphodiesterase inhibitor. *J Pharmacol Exp Ther* 1990; **282**:396-402.
178. Mak JCW, Barnes PJ. Peripheral type benzodiazepine receptors in human and guinea pig lung: characterization and autoradiographic mapping. *J Pharmacol Exp Ther* 1990; **252**:880-885.
179. Lammers J-WJ, Kioumis I, McCusker M, Nichol GM, Barnes PJ, Chung KF. Effects of prostacyclin on bronchoconstriction and neutropenia induced by inhaled platelet-activating factor in man. *J Allergy Clin Immunol* 1990; **85**:763-769.
180. Maxwell DL, Fuller RW, Dixon CMS, Cuss FMC, Barnes PJ. Ventilatory effects of substance P, vasoactive intestinal peptide and nitroprusside in humans. *J Appl Physiol* 1990; **68**:295-301.
181. Yukawa T, Ukena D, Chanez P, Dent G, Chung KF, Barnes PJ. Beta-adrenergic receptors in eosinophils: binding and functional studies. *Am Rev Respir Dis* 1990; **141**:1446-1452.
182. Lötvall JO, Skoog B-E, Barnes PJ, Chung KF. Effects of aerosolised substance P on lung resistance in guinea pigs: a comparison between inhibition of neutral endopeptidase and angiotensin-converting enzyme. *Br J Pharmacol* 1990; **100**:69-72.
183. Chilvers ER, Challiss RAJ, Willcocks AL, Potter BVL, Barnes PJ, Nahorski SR. Characterisation of stereospecific binding sites for inositol 1,4,5-trisphosphate in airway smooth muscle. *Br J Pharmacol* 1990; **99**:297-302.
184. Ichinose M, Belvisi MG, Barnes PJ. Bradykinin-induced broncho- constriction in guinea-pig *in vivo*: role of neural mechanisms. *J Pharmacol Exp Ther* 1990; **253**:1207-1212.
185. Belvisi M, Stretton CD, Barnes PJ. Modulation of cholinergic neurotransmission in guinea pig airways by opioids. *Br J Pharmacol* 1990; **100**:131-137.
186. Nichol GM, Alton EWFW, Nix A, Geddes DM, Chung KF, Barnes PJ. Effect of inhaled furosemide on metabisulfite- and methacholine-induced bronchoconstriction and nasal potential difference asthmatic subjects. *Am Rev Respir Dis* 1990; **142**:576-580.

187. Giembycz MA, Kroegel C, **Barnes PJ**. Platelet activating factor stimulates cyclo-oxygenase activity in guinea-pig eosinophils. *J Immunol* 1990; **144**:3489-3497.
188. Mak JCW, **Barnes PJ**. Autoradiographic visualization of muscarinic receptor subtypes in human and guinea pig lung. *Am Rev Respir Dis* 1990; **141**:1559-1568.
189. Belvisi MG, **Barnes PJ**, Rogers DF. Neurogenic inflammation in the airways: characterisation of electrical parameters for vagus nerve stimulation in the guinea pig. *Neurosci Meth* 1990; **32**:159-167.
190. Nix A, Nichol GM, Robson A, **Barnes PJ**, Chung KF. Effect of formoterol, a long-lasting  $\beta_2$ -adrenoceptor agonist, against methacholine-induced bronchoconstriction. *Br J Clin Pharmacol* 1990; **29**:321-324.
191. Tokuyama K, Kuo H-P, Rhode JAL, **Barnes PJ**, Rogers DF. Neural control of goblet cell secretion in guinea pig airways. *Am J Physiol* 1990; **259**:L108-L115.
192. Liu SF, Yacoub M, **Barnes PJ**. Effect of histamine on human bronchial arteries *in vitro*. *Naunyn-Schmiedeberg's Arch Pharmacol* 1990; **342**:90-93.
193. Rogers DF, Alton E, **Barnes PJ**. Tracheal potential difference in the reserpine and isoproterenol rat models of cystic fibrosis. *Exp Lung Res* 1990; **16**:661-670.
194. Evans TW, Rogers DF, Belvisi MG, Rohde JAL, Chung KF, **Barnes PJ**. Endotoxin-induced plasma exudation in guinea-pig airways *in vivo* and the effect of neutrophil depletion. *Eur Respir J* 1990; **3**:299-303.
195. Frossard N, Stretton CD, **Barnes PJ**. Modulation of bradykinin responses in airway smooth muscle by epithelial factors. *Agents Actions* 1990; **31**:204-209.
196. Ichinose M, **Barnes PJ**. The effect of peptidase inhibitors on bradykinin-induced bronchoconstriction in guinea pigs *in vivo*. *Br J Pharmacol* 1990; **101**:77-80.
197. Ichinose M, **Barnes PJ**. Bradykinin-induced airway microvascular leakage and bronchoconstriction are mediated via a bradykinin  $B_2$ -receptor. *Am Rev Respir Dis* 1990; **142**:1104-1107.
198. Chilvers ER, Batty IH, **Barnes PJ**, Nahorski SR. Formation of inositol polyphosphates in airway smooth muscle after muscarinic receptor stimulation. *J Pharmacol Exp Ther* 1990; **252**:786-791.
199. Crawley DF, Liu SF, Evans TW, **Barnes PJ**. Inhibitory role of endothelium-derived nitric oxide in rat and human pulmonary arteries. *Br J Pharmacol* 1990; **101**:166-170.
200. Yukawa T, Read RC, Kroegel C, Rutman A, Chung KF, Wilson R, Cole PJ, **Barnes PJ**. The effects of activated eosinophils and neutrophils on guinea pig airway epithelium *in vitro*. *Am J Resp Cell Mol Biol* 1990; **2**:341-354.
201. **Barnes PJ**. Muscarinic receptors in airways: recent developments. *J Appl Physiol* 1990; **68**: 1777-1785.
202. McCormack DG, **Barnes PJ**, Evans TW. Effects of dopexamine hydrochloride on hypoxic pulmonary vasoconstriction in isolated rat lung. *Crit Care Med* 1990; **18**:520-523.
203. Kuo H-P, Rohde JAL, Tokuyama K, **Barnes PJ**, Rogers DF. Capsaicin and sensory neuropeptide stimulation of goblet cell secretion in guinea pig trachea. *J Physiol* 1990; **431**:629-641.
204. Evans TW, McAnulty RJ, Rogers DF, Chung KF, **Barnes PJ**, Laurent GJ. Bleomycin-induced lung injury in the rat: effects of the platelet-activating factor receptor antagonist BN 52021 and platelet depletion. *Environ Health Perspect* 1990; **85**:65-69.
205. Lötvall JO, Skoogh B-E, Lemen RJ, Elwood W, **Barnes PJ**, Chung KF. Bronchoconstriction induced by inhaled sodium metabisulfite in guinea pig: effect of capsaicin pretreatment and of neutral endopeptidase inhibition. *Am Rev Respir Dis* 1990; **142**:1390-1395.
206. Kroegel C, Giembycz MA, **Barnes PJ**. Characterization of eosinophil cell activation in peptides. Differential effects of substance P, melittin and f-Met-Leu-Phe. *J Immunol* 1990; **145**:2581-2587.

207. Rogers DF, Alton EFW, Aursudkij B, Boschetto P, Dewar A, **Barnes PJ**. Effect of platelet activating factor on formation and composition of airway fluid in the guinea pig trachea. *J Physiol* 1990; **431**:643-658.
208. Black JL, Armour CL, Johnson PRA, Alouan LA, **Barnes PJ**. The action of a potassium channel activator BRL 38227 (lemakalim) on human airway smooth muscle. *Am Rev Respir Dis* 1990; **142**:1384-1389.
209. Ventresca GP, Nichol GM, **Barnes PJ**, Chung KF. Inhaled furosemide inhibits cough induced by low chloride content solutions but not by capsaicin. *Am Rev Respir Dis* 1990; **142**:143-146.
210. Rogers DF, Dijk S, **Barnes PJ**. Bradykinin-induced plasma exudation in guinea pig airways: involvement of platelet activating factor. *Br J Pharmacol* 1990; **101**:739-745.
211. Stretton CD, Belvisi MG, **Barnes PJ**. Neuropeptide Y modulates non-adrenergic non-cholinergic neural bronchoconstriction *in vivo* and *in vitro*. *Neuropeptides* 1990; **17**:163-170.
212. Stretton CD, Belvisi MG, **Barnes PJ**. Sensory nerve depletion potentiates inhibitory NANC nerves in guinea pig airways. *Eur J Pharmacol* 1990; **184**:333-337.
213. Nichol G, Nix A, **Barnes PJ**, Chung KF. Prostaglandin F<sub>2</sub> enhancement of capsaicin induced cough in man: modulation by β<sub>2</sub>-adrenergic and anticholinergic drugs. *Thorax* 1990; **45**:694-698.
214. Ichinose M, **Barnes PJ**. Histamine H<sub>3</sub>-receptors modulate antigen-induced bronchoconstriction in guinea pigs. *J Allergy Clin Immunol* 1990; **86**:491-495.
215. Stretton CD, Mak JCW, Belvisi MG, Yacoub MH, **Barnes PJ**. Cholinergic control of human airways *in vitro* following extrinsic denervation of the human respiratory tract by heart-lung transplantation. *Am Rev Respir Dis* 1990; **142**:1030-1033.
216. Chaney P, Dent G, Yukawa T, **Barnes PJ**, Chung KF. Generation of oxygen free radicals from blood eosinophils from asthma patients after stimulation with PAF or phorbol ester. *Eur Respir J* 1990; **3**:1002-1007.
217. Liu S, Cai Y, Evans TW, McCormack DG, Barer GR, **Barnes PJ**. Ligustrazine is a vasodilator of human pulmonary and bronchial arteries. *Eur J Pharmacol* 1990; **191**:345-350.
218. Lötvall JO, Lemen RJ, Hui KP, **Barnes PJ**, Chung KF. Airflow obstruction after substance P aerosol: contribution of airway and pulmonary edema. *J Appl Physiol* 1990; **69**:1473-1478.
219. McCormack DM, **Barnes PJ**, Evans TW. Platelet-activating factor and hypoxic pulmonary vasoconstriction in the pig. *Crit Care Med* 1990; **18**:1398-1402.

## 1991

220. Verleden GM, Belvisi MG, Stretton CD, **Barnes PJ**. Nedocromil sodium modulates non-adrenergic non-cholinergic bronchoconstrictor nerves in guinea-pig airways *in vitro*. *Am Rev Respir Dis* 1991; **143**:114-118.
221. Liu SF, Crawley DE, **Barnes PJ**, Evans TW. Endothelium-derived nitric oxide inhibits hypoxic pulmonary vasoconstriction in isolated blood perfused rat lungs. *Am Rev Respir Dis* 1991; **143**:32-37.
222. Hui KP, Lötvall J, Chung KF, **Barnes PJ**. Attenuation of inhaled allergen induced airflow obstruction and airway microvascular leak in actively sensitized guinea pigs by 5-lipoxygenase inhibition (A-63162). *Am Rev Respir Dis* 1991; **143**:1015-1019.
223. Chilvers ER, Giembycz MA, Challiss J, **Barnes PJ**, Nahorski SR. Lack of effect of zaprinast on methacholine-induced contraction and inositol 1,4,5-trisphosphate accumulation in bovine tracheal smooth muscle. *Br J Pharmacol* 1991; **103**:1119-1125.
224. Frossard N, **Barnes PJ**. Effect of tachykinins in small human airways. *Neuropeptides* 1991; **19**:157-162.

225. O'Connor BJ, Chung KF, Chen-Worsdell YM, Fuller RW, **Barnes PJ**. Effect of inhaled furosemide and bumetanide on adenosine 5'-monophosphate- and sodium metabisulfite-induced bronchoconstriction in asthmatic subjects. *Am Rev Respir Dis* 1991; **143**:1329-1333.
226. Hui KP, Taylor IK, Taylor GW, Rubin P, Kesterson J, Barnes NC, **Barnes PJ**. Effect of a 5-lipoxygenase inhibitor on leukotriene generation and airway responses after allergen challenge in asthmatics. *Thorax* 1991; **46**:184-189.
227. Chilvers ER, Batty IH, Challiss RAJ, **Barnes PJ**, Nahorski SR. Development of mass changes in phosphoinositol 4,5 bisphosphate and evidence for agonist-stimulated metabolism of inositol 1,4,5 trisphosphate in airway smooth muscle. *Biochem J* 1991; **275**:373-379.
228. Mak JCW, **Barnes PJ**. Autoradiographic visualization of bradykinin receptors in human and guinea pig lung. *Eur J Pharmacol* 1991; **194**:37-44.
229. Chung KF, Podgorski MR, Goulding NJ, Godolphin JL, Sharland PR, O'Connor B, Flower RJ, **Barnes PJ**. Circulating autoantibodies to recombinant lipocortin-1 in asthma. *Resp Med* 1991; **85**:121-124.
230. Boschetto P, Rogers DF, Fabbri LM, **Barnes PJ**. Corticosteroid inhibition of airway microvascular leakage. *Am Rev Respir Dis* 1991; **143**:605-609.
231. Hamid QA, Mak JCW, Sheppard, MN, Corrin BC, Venter JC, **Barnes PJ**. Localization of  $\beta_2$ -adrenoceptor messenger RNA in human and rat lung using *in situ* hybridization: correlation with receptor autoradiography. *Eur J Pharmacol (Mol Pharmacol Section)* 1991; **206**:133-138.
232. Lötval JO, Elwood W, Tokuyama K, **Barnes PJ**, Chung KF. Plasma exudation into airways induced by inhaled platelet-activating factor: effect of peptidase inhibition. *Clin Sci* 1991; **80**:241-247.
233. Lötval JO, Hui KP, Löfdahl C-G, **Barnes PJ**, Chung KF. Capsaicin pretreatment does not inhibit allergen-induced airway microvascular leakage in guinea pig. *Allergy* 1991; **46**:105-108.
234. Tokuyama K, Lötval JO, Löfdahl C-G, **Barnes PJ**, Chung KF. Inhaled formoterol inhibits histamine-induced airflow obstruction and airway microvascular leakage. *Eur J Pharmacol* 1991; **193**:35-40.
235. Kroegel C, Chilvers ER, Giembycz MA, Challiss RAJ, **Barnes PJ**. Platelet activating factor stimulates a rapid accumulation of inositol (1,4,5) trisphosphate in guinea pig eosinophils: relationship to calcium mobilization and degranulation. *J Allergy Clin Immunol* 1991; **88**:114-124.
236. Belvisi MG, Stretton CD, **Barnes PJ**. Bombesin-induced bronchoconstriction in the guinea pig: mode of action. *J Pharmacol Exp Ther* 1991; **258**:36-41.
237. Elwood W, Lötval JO, **Barnes PJ**, Chung KF. Loop diuretics inhibit cholinergic and non-cholinergic nerves in guinea pig airways. *Am Rev Respir Dis* 1991; **143**:1340-1344.
238. Stretton CD, Belvisi MG, **Barnes PJ**. Modulation of neural bronchoconstrictor responses in the guinea pig respiratory tract by vasoactive intestinal peptide. *Neuropeptides* 1991; **18**:149-157.
239. Dent G, Giembycz MA, Rabe RF, **Barnes PJ**. Inhibition of eosinophil cyclic nucleotide PDE activity and opsonized zymosan-stimulated respiratory burst by 'type IV' PDE inhibitors. *Br J Pharmacol* 1991; **103**:1339-1346.
240. Hayes J, Ridge SM, Griffiths S, **Barnes PJ**, Chung KF. Inhibition of cutaneous and platelet responses to platelet activating factor by oral WEB 2086 in man. *J Allergy Clin Immunol* 1991; **88**:83-88.
241. Giembycz MA, **Barnes PJ**. Selective inhibition of a high affinity type IV phosphodiesterase in bovine trachealis by AH 21-132. *Biochem Pharmacol* 1991; **42**:663-677.
242. Lötval JO, Tokuyama K, Löfdahl C-G, Ullman A, **Barnes PJ**, Chung KF. Peptidase modulation on noncholinergic vagal bronchoconstriction and airway microvascular leakage. *J Appl Physiol* 1991; **70**:2730-2735.
243. Belvisi MG, Stretton CD, **Barnes PJ**. Nitric oxide as an endogenous modulator of cholinergic neurotransmission in guinea pig airways. *Eur J Pharmacol* 1991; **198**:219-221.

244. Tokuyama K, Lötvall JO, **Barnes PJ**, Chung KF. Mechanism of airway narrowing caused by platelet activating factor: role of airway microvascular leakage. *Am Rev Respir Dis* 1991; **143**:1345-1349.
245. Hamid Q, Belvisi MG, Stretton CD, Rohde J, Harmar AJ, **Barnes PJ**. Localization of  $\beta$ -preprotachykinin mRNA in nodose ganglion. *Neuropeptides* 1991; **20**:145-150.
246. Liu SF, Crawley DE, Evans TW, **Barnes PJ**. Endogenous nitric oxide modulates adrenergic neural vasoconstriction in guinea pig pulmonary artery. *Br J Pharmacol* 1991; **104**:565-569.
247. Lötvall JO, Tokuyama K, **Barnes PJ**, Chung KF. Bradykinin-induced microvascular leakage is potentiated by captopril and phosphoramidon. *Eur J Pharmacol* 1991; **200**:211-218.
248. Lötvall JO, Elwood W, Tokuyama K, **Barnes PJ**, Chung KF. Differential effects of phosphoramidon on neurokinin A and substance P-induced airflow obstruction and airway microvascular leakage in guinea pig. *Br J Pharmacol* 1991; **104**:945-949.
249. Shock A, Rabe K, Dent G, Chambers RC, Gray AJ, Chung KF, **Barnes PJ**, Laurent GJ. Eosinophils adhere to and stimulate replication of lung fibroblasts *in vitro*. *Clin Exp Immunol* 1991; **86**:185-190.
250. Morgan JM, McCormack DG, Griffiths MJD, Morgan CJ, **Barnes PJ**, Evans TW. Adenosine as a selective pulmonary vasodilator. *Circulation* 1991; **84**:1145-1149.
251. **Barnes PJ**, Baraniuk J, Belvisi MG. State of the Art. Neuropeptides in the respiratory tract. *Am Rev Respir Dis* 1991; **144**:Part 1-1187-1198, part 2-1391-1399.

## 1992

252. Tokuyama K, Lötvall JO, Morikawa A, **Barnes PJ**, Chung KF. Role of thromboxane A<sub>2</sub> on airway microvascular leakage induced by inhaled platelet activating factor. *J Appl Physiol* 1992; **71**:1729-1734.
253. Elwood W, Lötvall JO, **Barnes PJ**, Chung KF. Characterization of allergen-induced bronchial hyperresponsiveness and airway inflammation in actively sensitized Brown Norway rats. *J Allergy Clin Immunol* 1992; **88**:951-960.
254. Sakamoto T, Elwood W, **Barnes PJ**, Chung KF. Effect of HOE 140, a new bradykinin antagonist, on bradykinin- and platelet activating factor-induced bronchoconstriction and airway microvascular leakage in guinea pig. *Eur J Pharmacol* 1992; **213**:376-373.
255. Lötvall JO, Rabe K, Tokuyama K, Löfdahl C-G, **Barnes PJ**, Chung KF. Neutrophil influx into guinea pig airway lumen during cholinergic and non-cholinergic bronchoconstriction in the guinea pig. *Acta Physiol Scand* 1992; **144**:101-106.
256. Lötvall JO, Elwood W, Tokuyama K, **Barnes PJ**, Chung KF. A thromboxane mimetic U46619 increases airway microvascular leakage. *J Appl Physiol* 1992; **72**:2415-2419.
257. Belvisi MG, Stretton CD, **Barnes PJ**. Nitric oxide is the endogenous neurotransmitter of bronchodilator nerves in human airways. *Eur J Pharmacol* 1992; **210**:221-222.
258. Liu SF, Dewar A, Crawley DE, **Barnes PJ**, Evans TE. Effect of tumor necrosis factor on hypoxic pulmonary vasoconstriction. *J Appl Physiol* 1992; **72**:1044-1049.
259. Belvisi MG, Stretton CD, Verleden GM, Ledingham SJL, Yacoub MH, **Barnes PJ**. Inhibition of cholinergic neurotransmission in human airways by opioids. *J Appl Physiol* 1992; **72**:1096-1100.
260. **Barnes PJ**. Modulation of neurotransmission in airways. *Physiol Rev* 1992; **72**:699-729.
261. Watson N, **Barnes PJ**, Maclagan J. Actions of methocramine, a muscarinic M<sub>2</sub>-receptor antagonist, on muscarinic and nicotinic cholinoreceptors in guinea pig airways *in vivo* and *in vitro*. *Br J Pharmacol* 1992; **105**:107-112.

262. Stretton CD, Miura M, Belvisi MG, **Barnes PJ**. Calcium-activated potassium channels mediate prejunctional inhibition of peripheral sensory nerves. *Proc Natl Acad Sci USA* 1992; **89**:1325-1329.
263. Miura M, Belvisi MG, Stretton CD, Yacoub MH, **Barnes PJ**. Role of potassium channels in bronchodilator responses in human airways. *Am Rev Respir Dis* 1992; **146**:132-136.
264. Boschetto P, Musajo F, Togetto L, Boscaro M, Mapp CE, **Barnes PJ**, Fabbri LM. Increase in vascular permeability produced in rat airways by PAF - potentiation by adrenalectomy. *Br J Pharmacol* 1992; **105**:388-392.
265. Kuo H-P, Rohde JAL, **Barnes PJ**, Rogers DF. Differential effects of opioids on cigarette smoke, capsaicin and electrically-induced goblet cell secretion in guinea pig trachea. *Br J Pharmacol* 1992; **105**:361-366.
266. Parsons GH, Nichol GM, **Barnes PJ**, Chung KF. Peptide mediator effects on bronchial blood velocity and lung resistance in conscious sheep. *J Appl Physiol* 1992; **72**:1118-1122.
267. Crawley DE, Zhao L, Giembycz MA, Liu S-F, **Barnes PJ**, Winter R, Evans TW. Chronic hypoxia impairs soluble guanylyl cyclase-mediated pulmonary arterial relaxation in the rat. *Am J Physiol* 1992; **262**:L325-L332.
268. Stretton CD, Belvisi MG, **Barnes PJ**. The effect of sensory nerve depletion on cholinergic neurotransmission in guinea pig airways. *J Pharmacol Exp Ther* 1992; **260**:1073-1080.
269. Lei Y-H, **Barnes PJ**, Rogers DF. Inhibition of neurogenic plasma exudation in guinea pig airways by CP-96,345, a new non-peptide NK<sub>1</sub>-receptor antagonist. *Br J Pharmacol* 1992; **105**:261-262.
270. Liu SF, Crawley DE, Evans TE, **Barnes PJ**. Endothelium-dependent non-adrenergic non-cholinergic neural relaxation in guinea pig pulmonary artery. *J Pharmacol Exp Ther* 1992; **260**:541-548.
271. Baraniuk JN, Silver PB, Lundgren JD, Cole P, Kaliner MA, **Barnes PJ**. Bombesin stimulates mucous cell and serous cell secretion in human nasal provocation tests. *Am J Physiol* 1992; **261**:L415-L423.
272. Stone RA, **Barnes PJ**, Fuller RW. Contrasting effects of PGF<sub>2α</sub> and PGE<sub>2</sub> on the sensitivity of the human cough reflex. *J Appl Physiol* 1992; **73**: 92-99.
273. Baraniuk JN, Silver PB, Kaliner MA, **Barnes PJ**. Ibuprofen augments bradykinin-induced glycoconjugate secretion in human nasal mucosa *in vivo*. *J Allergy Clin Immunol* 1992; **89**:1032-1039.
274. McCormack DG, Crawley DE, **Barnes PJ**, Evans TW. Bleomycin-induced lung injury in rats selectively abolishes hypoxic pulmonary vasoconstriction: evidence against a role for platelet activating factor. *Clin Sci* 1992; **82**:259-264.
275. Kuo H-P, Rohde JAL, **Barnes PJ**, Rogers DF. K<sup>+</sup> channel activator inhibition of neurogenic goblet cell secretion in guinea pig trachea. *Eur J Pharmacol* 1992; **215**:297-300.
276. Kuo H-P, **Barnes PJ**, Rogers DF. Cigarette smoke-induced airway goblet cell secretion: dose-dependent differential nerve activation. *Am J Physiol* 1992; **7**:L161-L167.
277. Miura M, Belvisi MG, **Barnes PJ**. Effect of bradykinin on airway neural responses *in vitro*. *J Appl Physiol* 1992; **73**:1537-1541.
278. Belvisi MG, Miura M, Stretton D, **Barnes PJ**. Capsazepine as a selective antagonist of capsaicin-induced activation of C-fibres in guinea pig bronchi. *Eur J Pharmacol* 1992; **215**:341-344.
279. Mak JCW, Baraniuk JN, **Barnes PJ**. Localization of muscarinic receptor subtype mRNAs in human lung. *Am J Resp Cell Mol Biol* 1992; **7**:344-348.
280. Miura M, Belvisi MG, Stretton CD, Yacoub MH, **Barnes PJ**. Role of K<sup>+</sup> channels in the modulation of cholinergic neural responses in guinea pig and human airways. *J Physiol* 1992; **455**:1-15.
281. Bai TR, Mak JCW, **Barnes PJ**. A comparison of beta-adrenergic receptors and *in vitro* relaxant responses to isoproterenol in asthmatic airway smooth muscle. *Am J Resp Cell Mol Biol* 1992; **6**:647-651.

282. Arakawa H, Tokuyama K, Morikawa A, Kuroume T, **Barnes PJ**. Effect of maturation on histamine-induced airflow obstruction and airway microvascular leakage in guinea pig airways. *Eur J Pharmacol* 1992; **251**:51-56.
283. Liu SF, Hislop AA, Haworth SG, **Barnes PJ**. Development changes in endothelium-dependent pulmonary vasodilatation. *Br J Pharmacol* 1992; **106**:324-330.
284. Ventresca PG, Nichol GM, **Barnes PJ**, Chung KF. Effect of frusemide on the induction and potentiation of cough produced by PGF<sub>2α</sub>. *Br J Clin Pharmacol* 1992; **33**:514-516.
285. Nichol GM, O'Connor BJ, Le Compte JM, Chung KF, **Barnes PJ**. Effect of a neutral endopeptidase inhibitor on airway function and bronchial responsiveness in asthmatic subjects. *Eur J Clin Pharmacol* 1992; **42**:495-498.
286. Baraniuk JN, Kaliner MA, **Barnes PJ**. Muscarinic M<sub>3</sub>-receptor mRNA in *in situ* hybridization in human nasal mucosa. *Am J Rhinol* 1992; **6**:145-148.
287. Elwood W, Lötvall JO, **Barnes PJ**, Chung KF. Effect of dexamethasone and cyclosporin A on allergen-induced airway hyperresponsiveness and inflammatory cell responses in sensitized Brown Norway rats. *Am Rev Resp Dis* 1992; **145**:1289-1294.
288. O'Connor BJ, Aikman SL, **Barnes PJ**. Tolerance to the non-bronchodilator effects of inhaled β<sub>2</sub>-agonists. *N Engl J Med* 1992; **327**:1204-1208.
289. Hui KP, Lötvall J, Rogers DF, **Barnes PJ**, Chung KF. Ovalbumin aerosol challenge in actively sensitized guinea pigs: relationship between airway microvascular leak and airway obstruction. *Allergy* 1992; **47**:527-531.
290. Crawley DE, Liu S-F, **Barnes PJ**, Evans TW. Endothelin-3 is a potent pulmonary vasodilator in the rat. *J Appl Physiol* 1992; **72**:1425-1431.
291. Alton EWFW, Rogers DF, Logan-Sinclair R, Yacoub M, **Barnes PJ**, Geddes DM. Bioelectric properties of cystic fibrosis airways obtained at heart-lung transplantation. *Thorax* 1992; **47**:1010-1014.
292. Crawley DE, Barnes J, Evans TW. Pulmonary endothelial responses *in vitro* in bleomycin-induced lung injury. *Crit Care Med* 1992; **20**:641-644.
293. Hayes JP, Lötvall JO, **Barnes PJ**, Newman-Taylor AJ, Chung KF. Involvement of inflammatory mediators in the airway responses to trimellitic anhydride in sensitized guinea pigs. *Br J Pharmacol* 1992; **106**:828-832.
294. Perkins R, Dent G, Chung KF, **Barnes PJ**. Effect of anion transport inhibitors and extracellular Cl<sup>-</sup> concentrations on eosinophil respiratory burst activity. *Biochem Pharmacol* 1992; **43**:2480-2482.
295. Sakamoto T, Elwood W, **Barnes PJ**, Chung KF. Pharmacological modulation of inhaled metabisulphite-induced airway microvascular leakage and bronchoconstriction in guinea pig. *Br J Pharmacol* 1992; **107**:481-488.
296. Kuo H-P, Liu S, **Barnes PJ**. The effect of endogenous nitric oxide on neurogenic plasma exudation in guinea pig airways. *Eur J Pharmacol* 1992; **221**:385-388.
297. O'Connor BJ, Ridge SM, **Barnes PJ**, Fuller RW. Greater effect of inhaled budesonide on adenosine 5'-monophosphate-induced than on metabisulfite-induced bronchoconstriction in asthma. *Am Rev Respir Dis* 1992; **146**:560-564.
298. Liu SF, Crawley DE, Rohde JAL, **Barnes PJ**. Role of nitric oxide and guanosine 3',5'-cyclic monophosphate in mediating nonadrenergic noncholinergic neural relaxation in guinea pig pulmonary arteries. *Br J Pharmacol* 1992; **107**:861-866.
299. Stone RA, **Barnes PJ**, Fuller RW. The low chloride cough response is not inhibited by a single high dose of aspirin. *Br J Clin Pharmacol* 1992; **34**:370-373.
300. Elwood W, **Barnes PJ**, Chung KF. Airway hyperresponsiveness is associated with inflammatory cell infiltration in allergic Brown-Norway rats. *Int Arch Allergy Immunol* 1992; **89**:91-97.

301. Hui KP, Ventresca P, Brown AC, **Barnes PJ**, Chung KF. Modulation of neurally mediated airway microvascular leak in guinea pig airways by beta-2 adrenoceptor agonists. *Agents Actions* 1992; **32**:29-33.
302. Hayes JP, Daniel R, Tee RD, **Barnes PJ**, Chung KF, Newman-Taylor A. Specific immunological and airway responses in guinea pigs following intradermal sensitisation to trimellitic anhydride. *Clin Exp Allergy* 1992; **22**:694-700.
303. Hayes JP, Lötvall JO, Baraniuk J, Daniel R, **Barnes PJ**, Newman-Taylor A, Chung KF. Bronchoconstriction and airway microvascular leakage in guinea pigs sensitized with trimellitic anhydride. *Am Rev Respir Dis* 1992; **146**:1306-1310.
304. Hayes JP, Daniel R, Tee RD, **Barnes PJ**, Newman-Taylor A, Chung KF. Bronchial hyperreactivity after inhalation of trimellitic anhydride dust in guinea pigs after intradermal sensitization with free hapten. *Am Rev Respir Dis* 1992; **146**:1311-1314.
305. Yeo CT, O'Connor BJ, Chen-Worsdell M, **Barnes PJ**, Chung KF. Protective effect of loop diuretics, piretanide and frusemide, against sodium metabisulphite-induced bronchoconstriction in asthma. *Eur Resp J* 1992; **5**:1184-1188.
306. Hayes JP, Chung KF, **Barnes PJ**. Attenuation of platelet-activating factor induced bronchoconstriction by nedocromil sodium. *Eur Resp J* 1992; **5**:1193-1196.
307. Hirst SJ, **Barnes PJ**, Twort CHC. Quantifying proliferation of cultured human and rabbit airway smooth muscle cells in response to serum and platelet-derived growth factor. *Am J Resp Cell Mol Biol* 1992; **7**:574-581.
308. Baraniuk JN, Silver PB, Kaliner MA, **Barnes PJ**. Neuropeptide Y is a vasoconstrictor in human nasal mucosa. *J Appl Physiol* 1992; **73**:1867-1872.
309. Belvisi MG, Stretton CD, Miura M, Verleden GM, Tadjkarimi S, Yacoub MH, **Barnes PJ**. Inhibitory NANC nerves in human tracheal smooth muscle: a quest for the neurotransmitter. *J Appl Physiol* 1992; **73**:2505-2510.
310. Rabe KF, Giembycz MA, Dent G, **Barnes PJ**. Activation of guinea pig eosinophil respiratory burst by leukotriene B<sub>4</sub>: role of protein kinase C. *Fund Clin Pharmacol* 1992; **6**:353-358.

## 1993

311. Liu S, Adcock IM, Old RW, **Barnes PJ**, Evans TW. Lipopolysaccharide treatment *in vivo* induces widespread expression of inducible nitric oxide synthase mRNA. *Biochem Biophys Res Commun* 1993; **196**: 1208-1213.
312. Belvisi MG, Miura M, Stretton CD, **Barnes PJ**. Endogenous vasoactive intestinal peptide and nitric oxide modulate cholinergic neurotransmission in guinea pig trachea. *Eur J Pharmacol* 1993; **231**:97-102.
313. Lei Y-H, **Barnes PJ**, Rogers DF. Regulation of NANC bronchoconstriction *in vivo* in guinea pig: involvement of NO, VIP and soluble guanylyl cyclase. *Br J Pharmacol* 1993; **108**:228-235.
314. Hirayama Y, Lei Y-H, **Barnes PJ**, Rogers DF. Effects of two novel tachykinin antagonists, FK224 and FK888, on neurogenic plasma exudation, bronchoconstriction and systemic hypotension in guinea pigs *in vivo*. *Br J Pharmacol* 1993; **108**:844-851.
315. Evans PM, O'Connor BJ, Fuller RW, **Barnes PJ**, Chung KF. Effect of inhaled corticosteroids on peripheral eosinophil counts and density profiles in asthma. *J Allergy Clin Immunol* 1993; **91**:643-649.
316. Baraniuk JN, Ohkubo K, Kwon OJ, Mak J, Rohde J, Durham SR, **Barnes PJ**. Localization of neutral endopeptidase mRNA in human nasal mucosa. *J Appl Physiol* 1993; **74**:272-279.
317. Rabe KF, Giembycz MA, Dent G, Perkins RS, Evans P, **Barnes PJ**. Salmeterol is a competitive antagonist at  $\beta$ -adrenoceptors modulating inhibition of respiratory burst in guinea pig eosinophils. *Eur J Pharmacol* 1993; **231**:305-308.

318. Watson N, Maclagan J, **Barnes PJ**. Vagal control of guinea pig tracheal smooth muscle: lack of involvement of VIP and nitric oxide. *J Appl Physiol* 1993; **74**:1964-1971.
319. Miura M, Belvisi MG, Ward JK, Tadjkarimi S, Yacoub MH, **Barnes PJ**. Bronchodilating effects of the novel potassium channel opener HOE 234 in human airways *in vitro*. *Br J Clin Pharmacol* 1993; **35**:318-312.
320. Ring PC, Seldon PM, **Barnes PJ**, Giembycz MA. Pharmacological characterization of a receptor from platelet-activating factor on guinea pig macrophages using [<sup>3</sup>H]apafant, a selective and competitive platelet-activating factor antagonist. *Mol Pharmacol* 1993; **43**:302-312.
321. O'Connor BJ, Lecomte JM, **Barnes PJ**. Effect of an inhaled H<sub>3</sub>-receptor agonist in airway responses to sodium metabisulphite in asthma. *Br J Clin Pharmacol* 1993; **35**:55-57.
322. Tokuyama K, Yokoyama A, Morikawa A, Mochizuki H, Kuroume J, **Barnes PJ**. Alteration of tachykinin-induced airflow obstruction and microvascular leak in immature airways. *Br J Pharmacol* 1993; **108**:23-29.
323. Watson N, Maclagan J, **Barnes PJ**. Endogenous tachykinins facilitate transmission through parasympathetic ganglia in guinea pig trachea. *Br J Pharmacol* 1993; **109**:751-759.
324. Sakamoto T, **Barnes PJ**, Chung KF. Effect of CP-96,345, a non-peptide NK<sub>1</sub>-receptor antagonist against substance P-, bradykinin- and allergen-induced airway microvascular leak and bronchoconstriction in the guinea pig. *Eur J Pharmacol* 1993; **231**:31-38.
325. Kidney JC, Ridge SM, Chung KF, **Barnes PJ**. Inhibition of platelet-activating factor induced bronchoconstriction by the leukotriene D<sub>4</sub> receptor antagonist ICI 204,215. *Am Rev Respir Dis* 1993; **147**:215-217.
326. Kato M, Tokuyama K, Morikawa A, Kuroume T, **Barnes PJ**. Platelet-activating factor-induced enhancement of superoxide anion generation in guinea pigs. *Eur J Pharmacol* 1993; **232**:7-12.
327. Kidney JC, Fuller RW, Worsdell Y-M, Lavender EA, Chung KF, **Barnes PJ**. Effect of an oral potassium channel activator BRL 38227 on airway function and responsiveness in asthmatic patients: comparison with oral salbutamol. *Thorax* 1993; **48**:130-134.
328. Ward JK, Belvisi MG, Fox AJ, Miura M, Tadjkarimi S, Yacoub MH, **Barnes PJ**. Modulation of cholinergic neural bronchoconstriction by endogenous nitric oxide and vasoactive intestinal peptide in human airways *in vitro*. *J Clin Invest* 1993; **92**:736-742.
329. Fox AJ, **Barnes PJ**, Urban L, Dray A. An *in vitro* study of the properties of single vagal afferents innervating guinea-pig airways. *J Physiol* 1993; **469**:21-35.
330. Stone RA, Worsdell Y-M, Fuller RW, **Barnes PJ**. Effects of 5-hydroxytryptamine and 5-hydroxytryptophan infusions on the human cough reflex. *J Appl Physiol* 1993; **74**:396-401.
331. Rogers DF, Alton EWFW, Dewar A, Lethem MI, **Barnes PJ**. Impaired stimulus evoked mucus secretion in cystic fibrosis bronchi. *Exp Lung Res* 1993; **19**:37-53.
332. Verleden GM, Belvisi MG, Rabe KF, Miura M, **Barnes PJ**.  $\beta_2$ -Adrenoceptors inhibit NANC neural bronchoconstrictor responses *in vitro*. *J Appl Physiol* 1993; **74**:1195-1199.
333. Kroegel C, Dewar A, Yukawa T, Venge P, **Barnes PJ**, Chung KF. Ultrastructural characterisation of platelet-activating factor stimulated human eosinophils from subjects with asthma. *Clin Sci* 1993; **84**:391-399.
334. Sakamoto T, Elwood W, **Barnes PJ**, Chung KF. Effect of inhaled lyso-platelet activating factor in airway microvascular leakage in guinea pig. *J Appl Physiol* 1993; **74**:1117-1122.
335. Hayes JP, **Barnes PJ**, Newman-Taylor AJ, Chung KF. Effect of topical corticosteroids on airway hyperresponsiveness and eosinophilic inflammation induced by trimellitic anhydride exposure in sensitized guinea pigs. *J Allergy Clin Immunol* 1993; **92**:450-456.
336. Stone RA, **Barnes PJ**, Chung KF. Effect of frusemide on cough responses to chloride-deficient solutions in normal and asthmatic subjects. *Eur Resp J* 1993; **6**:862-867.

337. Adcock IM, Peters M, Gelder C, Shirasaki H, Brown CR, **Barnes PJ**. Increased tachykinin receptor gene expression in asthmatic lung and its modulation by steroids. *J Mol Endocrinol* 1993; **11**: 1-7.
338. McCormack DG, Rees RG, Crawley D, **Barnes PJ**, Evans TW. Sensory neuropeptides and hypoxic pulmonary vasoconstriction in the rat. *Thorax* 1993; **48**:554-557.
339. Lei Y-H, **Barnes PJ**, Rogers DF. Inhibition of neurogenic plasma exudation and bronchoconstriction by K<sup>+</sup> channel activator BRL 38227 in guinea pig airways *in vivo*. *Eur J Pharmacol* 1993; **239**:257-259.
340. Miyayasu K, Mak JCW, Nishikawa M, **Barnes PJ**. Characterization of pulmonary NK<sub>1</sub>-receptors using a novel antagonist ligand [<sup>3</sup>H]-FK888. *Mol Pharmacol* 1993; **44**:539-544.
341. Mak JCW, Haddad E-B, Buckley NJ, **Barnes PJ**. Visualization of muscarinic m<sub>4</sub> mRNA and M<sub>4</sub>-receptor subtypes in rabbit lung. *Life Sci* 1993; **53**: 1501-1508.
342. Elwood W, Sakamoto T, **Barnes PJ**, Chung KF. Allergen-induced airway hyperresponsiveness in Brown-Norway rat: role of parasympathetic mechanisms. *J Appl Physiol* 1993; **75**: 279-284.
343. Nishikawa M, Mak JCW, Shirasaki H, **Barnes PJ**. Differential down-regulation of pulmonary β<sub>1</sub>- and β<sub>2</sub>-adrenoceptor messenger RNA with prolonged *in vivo* infusion of isoprenaline. *Eur J Pharmacol (Molecular Section)* 1993; **247**:131-138.
344. Njuki F, Nichol CG, Howard A, Mak JCW, **Barnes PJ**, Girgis SI, Legon S. A new calcitonin-receptor like sequence in rat pulmonary blood vessels. *Clin Sci* 1993; **85**: 385-388.
345. Sun J, Elwood W, **Barnes PJ**, Chung KF. Effect of thiazide diuretics against neurally mediated contraction of guinea pig airways. Contribution of carbonic anhydrase. *Am Rev Respir Dis* 1993; **148**:502-508.
346. Elwood W, Lötvall JO, **Barnes PJ**, Chung KF. Airway hyperresponsiveness to acetylcholine and to tachykinins after respiratory virus infection in guinea pig. *Ann Allergy* 1993; **70**:731-736.
347. Sakamoto T, Tsukagoshi H, **Barnes PJ**, Chung KF. Role played by NK<sub>2</sub>-receptors and cyclo-oxygenase activation in bradykinin B<sub>2</sub>-receptor-mediated airway effects. *Agents Actions* 1993; **39**:111-117.
348. Sakamoto T, **Barnes PJ**, Chung KF. Effects of β<sub>2</sub>-adrenoceptor agonists against platelet-activating factor-induced airway microvascular leakage and bronchoconstriction in the guinea pig. *Agents Actions* 1993; **40**:50-56.
349. Dent G, **Barnes PJ**. Platelet activating factor stimulates a receptor-coupled membrane GTPase in guinea-pig eosinophils. *Life Sci* 1993; **52**:1635-1640.

## 1994

350. Rodriguez-Roisin R, Félez MA, Chung KF, Wagner PD, **Barnes PJ**, Roca J. Effect of platelet-activating factor on pulmonary gas exchange. *J Clin Invest* 1994; **93**:188-194.
351. Takahashi T, Belvisi MG, **Barnes PJ**. Modulation of neurotransmission in guinea-pig airways by galanin and the effect of a new antagonist galantide. *Neuropeptides* 1994; **26**:245-251.
352. Kroegel C, Giembycz MA, Matthys H, Westwick J, **Barnes PJ**. Modulatory role of protein kinase C in the signal transduction pathway utilized by platelet-activating factor in eosinophil activation. *Am J Resp Cell Mol Biol* 1994; **11**:593-599.
353. Kwon OJ, Au BT, Collins PD, Baraniuk JN, Adcock IM, Chung KF, **Barnes PJ**. Inhibition of interleukin-8 expression by dexamethasone in human cultured airway epithelial cells. *Immunology* 1994; **81**:389-394.
354. O'Connor BJ, Uden S, Carty TJ, Eskra D, **Barnes PJ**, Chung KF. Effect of a potent and specific platelet activating factor (PAF) receptor antagonist on airway and systemic responses to PAF in man. *Am J Resp Crit Care Med* 1994; **150**:35-40.

355. Nishikawa M, Mak JCW, Shirasaki H, Harding SE, **Barnes PJ**. Long-term exposure to norepinephrine results in down-regulation and reduced mRNA expression of pulmonary  $\beta$ -adrenergic receptors in guinea pigs. *Am J Resp Mol Cell Biol* 1994; **10**:91-99.
356. Belvisi MG, Patacchini R, **Barnes PJ**, Maggi CA. Facilitatory effects of selective agonists for tachykinin receptors on cholinergic neurotransmission: evidence for species differences. *Br J Pharmacol* 1994; **111**:103-110.
357. Tsukagoshi H, Sakamoto T, Xu W, **Barnes PJ**, Chung KF. Effect of interleukin-1 $\beta$  on airway hyperresponsiveness and inflammation in sensitized and non-sensitized Brown-Norway rats. *J Allergy Clin Immunol* 1994; **93**:464-469.
358. Grandordy BM, Mak JCW, **Barnes PJ**. Modulation of airway smooth muscle  $\beta$ -adrenoceptor function by a muscarinic antagonist. *Life Sci* 1994; **54**:185-191.
359. Dent G, Giembycz MA, Rabe KF, Wolf B, **Barnes PJ**, Magnussen H. Theophylline suppresses human alveolar macrophage respiratory burst through phosphodiesterase inhibition. *Am J Resp Cell Mol Biol* 1994; **10**:565-572.
360. Ward JK, Fox AJ, **Barnes PJ**, Belvisi MG. Activation of a 5HT<sub>1</sub>-like receptor inhibits excitatory nonadrenergic noncholinergic bronchoconstriction in guinea-pig airways *in vitro*. *Br J Pharmacol* 1994; **111**:1095-1102.
361. Kharitonov SA, Yates D, Robbins RA, Logan-Sinclair R, Shinebourne E, **Barnes PJ**. Increased nitric oxide in exhaled air of asthmatic patients. *Lancet* 1994; **343**:133-135.
362. Sakamoto T, Sun J, **Barnes PJ**, Chung KF. Effect of a bradykinin receptor antagonist HOE 140 against bradykinin- and vagal stimulation-induced airway responses in the guinea pig. *Eur J Pharmacol* 1994; **251**:137-142.
363. Robbins RA, Springall DR, Warren JB, Kwon OJ, Buttery LDK, Wilson AJ, Adcock IM, Riveros-Moreno V, Moncada S, Polak J, **Barnes PJ**. Inducible nitric oxide synthase is increased in murine lung epithelial cells by cytokine stimulation. *Biochem Biophys Res Commun* 1994; **198**:1027-1033.
364. Miura M, Belvisi MG, **Barnes PJ**. Modulation of nonadrenergic noncholinergic neural bronchoconstriction by bradykinin in anesthetized guinea pigs *in vivo*. *J Pharmacol Exp Ther* 1994; **268**:482-486.
365. Adcock IM, Brown CR, Kwon O, **Barnes PJ**. Oxidative stress induces NF- $\kappa$ B DNA binding and inducible NOS mRNA in human epithelial cells. *Biochem Biophys Res Commun* 1994; **199**:1518-1524.
366. Haddad E-B, Mak JCW, **Barnes PJ**. Characterization of [<sup>3</sup>H]Ba 679, a slow-dissociating muscarinic receptor antagonist, in human lung: radioligand binding and autoradiographic mapping. *Mol Pharmacol* 1994; **45**:899-907.
367. Shirasaki H, Nishikawa M, Adcock IM, Mak JCW, Sakamoto T, Shimizu T, **Barnes PJ**. Expression of platelet-activating factor receptor mRNA in human and guinea pig lung. *Am J Resp Cell Mol Biol* 1994; **10**:533-537.
368. Rabe KF, Perkins RS, Dent G, Gustmann H, **Barnes PJ**. Inhibitory effects of sulfonated shale oil fractions on the oxidative burst and Ca<sup>++</sup> mobilization in stimulated macrophages. *Drug Res* 1994; **44**:166-170.
369. O'Connor BJ, Fuller RW, **Barnes PJ**. Non-bronchodilator effects of inhaled  $\beta_2$ -agonists. *Am J Resp Crit Care Med* 1994; **150**:381-387.
370. Baraniuk JN, Silver PB, Kaliner MA, **Barnes PJ**. Perennial rhinitis subjects have altered vascular, glandular and neural responses to bradykinin nasal provocation. *Int Arch Allergy Immunol* 1994; **103**:202-208.
371. Liu S.F., Kuo H-P, Sheppard MN, **Barnes PJ**, Evans TW. Vagal stimulation induces increased pulmonary vascular permeability. *Am J Resp Crit Care Med* 1994; **149**:744-750.
372. O'Connor BJ, **Barnes PJ**, Chung KF. Inhibition of sodium metabisulphite-induced bronchoconstriction by frusemide in asthma: role of cyclooxygenase products. *Thorax* 1994; **49**:307-311.
373. Tsukagoshi H, Robbins RA, **Barnes PJ**, Chung KF. Role of nitric oxide and superoxide anions in interleukin-1 $\beta$ -induced airway hyperresponsiveness to bradykinin. *Am J Resp Crit Care Med* 1994; **150**:1019-1025.

374. Haddad E-B, Mak JCW, Hislop A, Haworth SG, **Barnes PJ**. Characterization of muscarinic receptor subtypes in pig airways: radioligand binding and Northern blotting studies. *Am J Physiol* 1994; **10**:L642-648.
375. **Barnes PJ**. Endothelins and pulmonary disease. *J Appl Physiol* 1994; **77**:1051-1059.
376. Kwon OJ, Au BT, Collins PD, Adcock IM, Mak JC, Robbins RA, Baraniuk JM, Chung KF, **Barnes PJ**. Tumor necrosis factor-induced interleukin 8 expression in cultured human epithelial cells. *Am J Physiol* 1994; **11**:L398-L405.
377. Mitchell JA, Belvisi MG, Akarasereenont P, Robbins RA, Kwon OJ, Croxell J, **Barnes PJ**, Vane JR. Induction of cyclo-oxygenase-2 by cytokines in human pulmonary epithelial cells: regulation by dexamethasone. *Br J Pharmacol* 1994; **113**:1008-1014.
378. O'Connor BJ, Yeo CT, Chen-Worsdell YM, **Barnes PJ**, Chung KF. Effect of acetazolamide and amiloride against sodium metabisulphite bronchoconstriction in mild asthma. *Thorax* 1994; **49**:1096-1098.
379. Mak JCW, Grandordy B, **Barnes PJ**. High affinity [ $^3$ H]formoterol binding sites in lung: characterization and autoradiographic mapping. *Eur J Pharmacol Mol Pharmacol* 1994; **269**:35-41.
380. Robbins RA, **Barnes PJ**, Springall DR, Warren JB, Kwon OJ, Buttery LDK, Wilson AJ, Geller DA, Polak JM. Expression of inducible nitric oxide synthase in human bronchial epithelial cells. *Biochem Biophys Res Commun* 1994; **203**:209-218.
381. Ramnarine SI, Hirayama Y, **Barnes PJ**, Rogers DF. 'Sensory-efferent' neural control of mucus hypersecretion: characterization using tachykinin receptor antagonists in ferret trachea *in vitro*. *Br J Pharmacol* 1994; **113**:1183-1190.
382. Sun J, Elwood W, Haczko A, **Barnes PJ**, Hellewell PG, Chung KF. Contribution of intercellular adhesion molecule-1 in allergen-induced airway hyperresponsiveness and inflammation in sensitised Brown-Norway rats. *Int Arch All Immunol* 1994; **104**:291-295.
383. Adcock IM, Shirasaki H, Gelder CM, Peters MJ, Brown CR, **Barnes PJ**. The effects of glucocorticoids on phorbol ester and cytokine stimulated transcription factor activation in human lung. *Life Sci* 1994; **55**:1147-1153.
384. Sakamoto T, Tsukagoshi H, **Barnes PJ**, Chung KF. Involvement of tachykinin receptors (NK<sub>1</sub> and NK<sub>2</sub>) in sodium metabisulfite-induced airway effects. *Am J Resp Crit Care Med* 1994; **149**:387-391.
385. Elwood W, Sakamoto T, **Barnes PJ**, Chung KF. Role of cyclo-oxygenase and 5-lipoxygenase metabolites, platelet-activating factor and 5-hydroxytryptamine in allergen-induced airway responses in the Brown Norway rat. *Int Arch Allergy Immunol* 1994; **103**:62-72.
386. Haczko A, Moqbel R, Elwood W, Sun J, Kay AB, **Barnes PJ**, Chung KF. Effects of prolonged exposure to ovalbumin in sensitized Brown Norway rats. *Am J Resp Crit Care Med* 1994; **150**:23-27.
387. Spiteri MA, Knight RA, Jeremy JY, **Barnes PJ**, Chung KF. Alveolar macrophage-induced suppression of peripheral blood mononuclear cell responsiveness is reversed by *in vitro* allergen exposure. *Eur Resp J* 1994; **7**:1431-1438.
388. Shirasaki H, Adcock IM, Kwon OJ, Nishikawa M, Mak JC, **Barnes PJ**. Agonist-induced up-regulation of platelet-activating factor receptor messenger RNA in human monocytes. *Eur J Pharmacol (Mol Pharmacol Section)* 1994; **268**:263-266.
389. Dent G, Giembycz MA, Rabe KF, Evans P, **Barnes PJ**. Suppression of respiratory burst activity in human eosinophils by phosphodiesterase inhibitors: interaction with the  $\beta$ -adrenoceptor agonist albuterol. *J Pharmacol Exp Ther* 1994; **271**:1167-1174.
390. Takahashi T, Belvisi MG, Patel H, Ward JK, Tadjkarimi S, Yacoub MH, **Barnes PJ**. Effect of Ba 679 BR, a novel long-acting anticholinergic agent, on cholinergic neurotransmission in guinea-pig and human airways. *Am J Resp Crit Care Med* 1994; **150**:1640-1645.

391. Adcock IM, Brown CR, Shirasaki H, **Barnes PJ**. Effects of dexamethasone on cytokine and phorbol ester stimulated c-Fos and c-Jun DNA binding and gene expression in human lung. *Eur Resp J* 1994; **7**:2117-2123.

## 1995

392. Adcock IM, Brown CR, Gelder CM, Shirasaki H, Peters MJ, **Barnes PJ**. The effects of glucocorticoids on transcription factor activation in human peripheral blood mononuclear cells. *Am J Physiol* 1995; **37**:C331-C338.
393. **Barnes PJ**. Inhaled glucocorticoids for asthma. *New Engl J Med* 1995; **332**:868-875.
394. **Barnes PJ**, Liew FY. Nitric oxide and asthmatic inflammation. *Immunol Today* 1995; **16**:128-130.
395. Fox AJ, **Barnes PJ**, Dray A. Stimulation of guinea-pig tracheal afferent fibres by non-isosmotic and low-chloride stimuli and the effect of frusemide. *J Physiol* 1995; **482**:179-187.
396. Kidney J, Dominguez M, Taylor PM, Rose M, Chung KF, **Barnes PJ**. Immunomodulation by theophylline in asthma: demonstration by withdrawal of therapy. *Am J Resp Crit Care Med* 1995; **151**:1907-1914.
397. Mak JCW, Nishikawa M, **Barnes PJ**. Glucocorticosteroids increase  $\beta_2$ -adrenergic receptor transcription in human lung. *Am J Physiol* 1995; **12**:L41-L46.
398. Tsukagoshi H, Kwon OJ, **Barnes PJ**, Chung KF. Role of neutral endopeptidase in bronchial hyperresponsiveness to bradykinin induced by interleukin-1 $\beta$ . *J Appl Physiol* 1995; **78**:921-927.
399. Tsukagoshi H, Haddad E-B, Sun J, **Barnes PJ**, Chung KF. Ozone-induced airway hyperresponsiveness: role of superoxide anions, neutral endopeptidase and bradykinin receptors. *J Appl Physiol* 1995; **78**:1015-1022.
400. Kharitonov SA, Lubec G, Lubec B, Hjelm M, **Barnes PJ**. L-arginine increases exhaled nitric oxide in normal human subjects. *Clin Sci* 1995; **88**:135-139.
401. Ward JK, **Barnes PJ**, Tadjkarimi S, Yacoub MH, Belvisi MG. Evidence for the involvement of cGMP in neural bronchodilator responses in human trachea. *J Physiol* 1995; **483**:525-536.
402. Kharitonov SA, Robbins RA, Yates D, Keatings V, **Barnes PJ**. Acute and chronic effects of cigarette smoking on exhaled nitric oxide. *Am J Resp Crit Care Med* 1995; **152**:609-612.
403. Kharitonov SA, Wells AU, O'Connor BJ, Hansell D, Cole PJ, **Barnes PJ**. Elevated levels of exhaled nitric oxide in bronchiectasis. *Am J Resp Crit Care Med* 1995; **151**:1889-1893.
404. Ward JK, Belvisi MG, Springall DR, Abelli L, Tadjkarimi S, Yacoub MH, Polak JM, **Barnes PJ**. Human iNANC bronchodilatation and nitric oxide-immunoreactive nerves are reduced in distal airways. *Am J Resp Cell Mol Biol* 1995; **13**:175-184.
405. Kharitonov SA, O'Connor BJ, Evans DJ, **Barnes PJ**. Allergen-induced late asthmatic reactions are associated with elevation of exhaled nitric oxide. *Am J Resp Crit Care Med* 1995; **151**:1894-1899.
406. Adcock IM, Lane SJ, Brown CR, Peters MJ, Lee TH, **Barnes PJ**. Differences in binding of glucocorticoid receptor to DNA in steroid-resistant asthma. *J Immunol* 1995; **154**:3500-3505.
407. Harrison NK, Dawes KE, Kwon OJ, **Barnes PJ**, Laurent GJ, Chung KF. Effects of neuropeptides in human lung fibroblast proliferation and chemotaxis. *Am J Physiol* 1995; **12**:L278-283.
408. Kwon OJ, Jose PJ, Robbins RA, Schall TJ, Williams TJ, **Barnes PJ**. Glucocorticoid inhibition of RANTES expression in human lung epithelial cells. *Am J Resp Cell Mol Biol* 1995; **12**:488-496.
409. **Barnes PJ**, O'Connor BJ. Use of a fixed combination  $\beta_2$ -agonist and steroid dry powder inhaler in asthma. *Am J Resp Crit Care Med* 1995; **151**:1053-1057.

410. Rousell J, Haddad E-B, Mak JCW, **Barnes PJ**. Transcriptional down-regulation of m<sub>2</sub> muscarinic receptor gene expression in human embryonic lung (HEL299) cells by protein kinase C. *J Biol Chem* 1995; **270**:7213-7218.
411. Kuitert LM, Angus RM, Barnes NC, **Barnes PJ**, Bone MF, Chung KF, Higenbotham T, O'Connor BJ, Piotowski B, Rozniek J, Uden S, Walters EH, Willard CJ. The effect of a novel PAF antagonist, modipafant, in chronic asthma. *Am J Respir Crit Care Med* 1995; **151**:1331-1335.
412. Hirst SJ, Webb BLJ, Giembycz MA, **Barnes PJ**, Twort CHC. Inhibition of fetal calf serum stimulated proliferation of rabbit cultured tracheal smooth muscle cells by selective inhibitors of protein kinase C and protein tyrosine kinase. *Am J Respir Crit Care Med* 1995; **152**:149-161.
413. Kharitonov SA, Yates DH, **Barnes PJ**. Increased nitric oxide in exhaled air of normal human subjects with upper respiratory tract infections. *Eur Resp J* 1995; **8**:295-297.
414. Yates DH, Kharitonov SA, Robbins RA, Thomas PS, **Barnes PJ**. Effect of a nitric oxide synthase inhibitor and a glucocorticosteroid on exhaled nitric oxide. *Am J Respir Crit Care Med* 1995; **152**:892-896.
415. Hayes JP, Kuo H-P, Rohde JAL, Newman-Taylor AJ, **Barnes PJ**, Chung KF, Rogers DF. Neurogenic goblet cell secretion and bronchodilatation in guinea pigs sensitized to trimellitic anhydride. *Eur J Pharmacol: Env Toxicol Pharmacol Section* 1995; **292**:127-134.
416. **Barnes PJ**, Liu S-F. Regulation of pulmonary vascular tone. *Pharmacol Rev* 1995; **47**:87-118.
417. **Barnes PJ**. Beta-adrenergic receptors and their regulation. State of the Art. *Am J Respir Crit Care Med* 1995; **152**:838-860.
418. Patel HJ, **Barnes PJ**, Takahashi T, Tadjkarimi S, Yacoub MH, Belvisi MG. Characterization of prejunctional muscarinic autoreceptors in human and guinea-pig trachea *in vitro*. *Am J Respir Crit Care Med* 1995; **152**:872-878.
419. Zhang X-L, Mak JCW, **Barnes PJ**. Characterization and autoradiographic mapping of [<sup>3</sup>H]CP96,345, a non-peptide selective NK-1 receptor antagonist in guinea-pig lung. *Peptides* 1995; **16**:867-872.
420. Mak JCW, Nishikawa M, Shirasaki H, Miyayasu K, **Barnes PJ**. Protective effects of a glucocorticoid on down-regulation of pulmonary  $\beta_2$ -adrenergic receptors *in vivo*. *J Clin Invest* 1995; **96**:99-106.
421. Fox AJ, Urban L, **Barnes PJ**, Dray A. Effects of capsazepine against capsaicin- and proton-evoked excitation of single airway C-fibres and vagus nerve from the guinea pig. *Neurosci* 1995; **67**:741-752.
422. Peters MJ, Adcock IM, Brown CR, **Barnes PJ**.  $\beta$ -Adrenergic agonists interfere with glucocorticoid receptor DNA binding in rat lung. *Eur J Pharmacol (Mol Pharmacol Sect)* 1995; **289**:275-281.
423. Haddad E-B, Salmon M, Sun J, Liu S, Das A, Adcock IM, **Barnes PJ**, Chung KF. Dexamethasone inhibits ozone-induced gene expression of macrophage inflammatory protein-1 in rat lung. *FEBS Lett* 1995; **363**:285-288.
424. Yates DH, O'Connor BJ, Yilmaz G, Aikman S, Chen-Worsdell M, **Barnes PJ**, Chung KF. Effect of acute and chronic inhaled furosemide on bronchial hyperresponsiveness in mild asthma. *Am J Respir Crit Care Med* 1995; **152**:892-896.
425. Nicholson CD, Shahid M, Bruun J, Barron BE, Spiers I, de Boer J, van Amsterdam RGM, Zaagsma J, Kelly JJ, Dent G, Giembycz MA, **Barnes PJ**. Characterization of ORG 20241, a combined phosphodiesterase IV/III cyclic nucleotide phosphodiesterase inhibitor for asthma. *J Pharmacol Exp Ther* 1995; **247**:1678-1687.
426. Lei Y-H, **Barnes PJ**, Rogers DF. Mechanism and modulation of airway plasma exudation after direct inhalation of cigarette smoke. *Am J Respir Crit Care Med* 1995; **151**:1752-1762.
427. Takahashi T, Ward JK, Tadjkarimi S, Yacoub MH, **Barnes PJ**, Belvisi MG. 5-Hydroxytryptamine facilitates cholinergic bronchoconstriction in human and guinea pig airways. *Am J Respir Crit Care Med* 1995; **152**:377-380.

428. Thomas PS, Yates DH, **Barnes PJ**. Tumor necrosis factor- $\alpha$  increases airway responsiveness and sputum eosinophils in normal human subjects. *Am J Respir Crit Care Med* 1995; **152**:76-80.
429. Adcock IM, Lane SJ, Brown CA, Lee TH, **Barnes PJ**. Abnormal glucocorticoid receptor/AP-1 interaction in steroid resistant asthma. *J Exp Med* 1995; **182**:1951-1958.
430. Tsukagoshi H, Haddad E-B, **Barnes PJ**, Chung KF. Bradykinin receptor subtypes in rat lung: effect of interleukin-1 $\beta$ . *J Pharmacol Exp Ther* 1995; **273**:1257-1263.
431. Berkman N, Jose P, Wiliams TJ, **Barnes PJ**, Chung KF. Inhibition of induced expression of macrophage inflammatory protein-1 $\alpha$  in human blood monocytes and alveolar macrophages by corticosteroids. *Am J Physiol* 1995; **13**:L443-L452.
432. Seldon PM, **Barnes PJ**, Meja K, Giembycz MA. Suppression of lipopolysaccharide-induced tumor necrosis factor- $\alpha$  generation from human peripheral blood monocytes by inhibition of phosphodiesterase 4: interaction with stimulants of adenylyl cyclase. *Mol Pharmacol* 1995; **48**:747-757.
433. Yates DH, Peters MJ, Keatings VM, Thomas PS, **Barnes PJ**. Reduced dose salbutamol in comparison with standard dosage for symptom relief in asthma. *Eur Respir J* 1995; **8**:1847-1851.
434. Haczku A, Chung KF, Sun J, **Barnes PJ**, Kay AB, Moqbel R. Airway hyperresponsiveness, elevation of serum-specific IgE and activation of T cells following allergen exposure in sensitized Brown-Norway rats. *Immunology* 1995; **85**:598-603.
435. Belvisi M, **Barnes PJ**, Larkin S, Yacoub M, Tadjkarimi S, Williams TJ, Mitchell JA. Nitric oxide synthase activity is elevated in inflammatory lung disease in humans. *Eur J Pharmacol* 1995; **283**:255-258.
436. Haddad E-B, Rousell J, **Barnes PJ**. Muscarinic M<sub>2</sub> receptor synthesis: study of receptor turnover with propylbenzilylcholine. *Eur J Pharmacol Mol Sect* 1995; **290**:201-205.
437. Haddad E-B, Rousell J, Mak JCW, **Barnes PJ**. Long term carbachol treatment-induced down-regulation of muscarinic M<sub>2</sub> receptors but not m<sub>2</sub> mRNA in a human lung cell line. *Br J Pharmacol* 1995; **116**:2027-2032.
438. Gelder CM, Thomas PS, Yates DH, Adcock IM, Morrison JFJ, **Barnes PJ**. Cytokine expression in normal, atopic and asthmatic subjects using the combination of sputum induction and polymerase chain reaction. *Thorax* 1995; **50**:1033-1037.
439. Baraniuk JN, Ohkubo O, Kwon OJ, Mak JCW, Davies R, Twort C, Kaliner M, Letarte M, **Barnes PJ**. Localization of neutral endopeptidase (NEP) mRNA in human bronchi. *Eur Respir J* 1995; **8**:1458-1464.
440. Yates DH, Sussman HS, Shaw MJ, **Barnes PJ**, Chung KF. Regular formoterol treatment in mild asthma: effect on bronchial responsiveness during and after treatment. *Am J Respir Crit Care Med* 1995; **152**:1170-1174.
441. Xu W-B, Haddad E-B, Tsukagoshi H, Adcock IM, **Barnes PJ**. Induction of macrophage inflammatory protein-2 gene expression by interleukin-1 $\beta$  in rat lung. *Thorax* 1995; **50**:1136-1140.
442. Laloo UG, Fox AJ, Belvisi MG, Chung KF, **Barnes PJ**. Capsazepine inhibits cough induced by capsaicin and citric acid but not by hypertonic saline in guinea pigs. *J Appl Physiol* 1995; **79**:1082-1092.
443. Berkman N, John M, Roesens G, Jose PJ, **Barnes PJ**, Chung KF. Inhibition of macrophage-inflammatory protein-1 $\alpha$  expression by interleukin-10: differential sensitivities in human blood monocytes and alveolar macrophages. *J Immunol* 1995; **155**:4412-4418.
444. Perkins RS, Lindsay MA, **Barnes PJ**, Giembycz MA. Early signalling events implicated in leukotriene B<sub>4</sub>-induced activation of the NADPH oxidase in eosinophils: role of Ca<sup>2+</sup>, protein kinase C and phospholipases C and D. *Biochem J* 1995; **320**: 795-806.
445. Haddad E-B, Liu SF, Salmon M, Robbichaud A, Banres PJ, Chung KF. Expression of inducible nitric oxide synthase mRNA in Brown-Norway rats exposed to ozone and the effect of dexamethasone. *Eur J Pharmacol (Environ Toxicol Section)* 1995; **293**:287-290.

446. Elwood W, Sun J, **Barnes PJ**, Giembycz MA, Chung KF. Inhibition of allergen-induced lung eosinophilia by type IV and combined type III and IV selective phosphodiesterase inhibitors in Brown Norway rats. *Inflammation Res* 1995; **44**:83-86.
447. Haczku A, Moqbel R, Jacobson M, Kay AB, **Barnes PJ**, Chung KF. T-cell subsets and activation in bronchoconstricted Brown Norway rats after single allergen challenge. *Immunology* 1995; **85**:551-557.
448. Cambrey AD, Kwon OJ, Gray AJ, Harrison NK, **Barnes PJ**, Laurent GJ, Chung KF. Production of insulin-like growth factor-1 by primary cultures of human airway epithelial cells: effects on fibroblast proliferation and activity. *Clin Sci* 1995; **89**:611-617.

## 1996

449. Adcock IM, Gilbey T, Gelder CM, Chung KF, **Barnes PJ**. Glucocorticoid receptor localization in normal and asthmatic lung. *Am J Respir Crit Care Med* 1996; **154**:4771-4782.
450. Kharitonov SA, Chung KF, Evans D, O'Connor BJ, **Barnes PJ**. Increased exhaled nitric oxide in asthma is mainly derived from the lower respiratory tract. *Am J Respir Crit Care Med* 1996; **153**:1773-1780.
451. Kharitonov SA, Yates DA, **Barnes PJ**. Regular inhaled budesonide decreases nitric oxide concentrations in the exhaled air of asthmatic patients. *Am J Respir Crit Care Med* 1996; **153**: 454-457.
452. Yates DH, Kharitonov SA, Thomas PS, **Barnes PJ**. Endogenous nitric oxide is decreased in asthmatic patients by an inhibitor of inducible nitric oxide synthase. *Am J Respir Crit Care Med* 1996; **154**:247-250.
453. Lei Y-H, **Barnes PJ**, Rogers DF. Involvement of hydroxyl radicals in neurogenic airway plasma exudation and bronchoconstriction in guinea pigs *in vivo*. *Br J Pharmacol* 1996; **117**:449-454.
454. Kidney JC, Lötvall JO, Lei Y-H, Chung KF, **Barnes PJ**. The effect of inhaled potassium channel openers on bronchoconstriction and airway microvascular leakage in anaesthetised guinea pigs. *Eur J Pharmacol* 1996; **296**:81-88.
455. Kharitonov SA, Yates DH, Chung KF, **Barnes PJ**. Changes in the dose of inhaled steroid affect exhaled nitric oxide in asthmatic patients. *Eur Respir J* 1996; **9**:196-201.
456. Keatings VM, Collins PD, Scott DM, **Barnes PJ**. Differences in interleukin-8 and tumor necrosis factor- $\alpha$  in induced sputum from patients with chronic obstructive pulmonary disease or asthma. *Am J Respir Crit Care Med* 1996; **153**:530-534.
457. Evans DJ, **Barnes PJ**, Coulby LJ, Spaethe SM, van Alstyne EC, Pechous PA, Mitchell MI, O'Connor BJ. The effect of a leukotriene B<sub>4</sub> antagonist LY293111 on allergen-induced responses in asthma. *Thorax* 1996; **51**:1178-1184.
458. Evans DJ, Lindsay MA, O'Connor BJ, **Barnes PJ**. Priming of circulating human eosinophils following exposure to allergen challenge. *Eur Respir J* 1996; **9**:703-708.
459. O'Connor BJ, Towse LJ, **Barnes PJ**. Prolonged effect of tiotropium bromide on methacholine-induced bronchoconstriction in asthma. *Am J Respir Crit Care Med* 1996; **154**:876-880.
460. Rousell J, Haddad E-B, Webb BLJ, Giembycz MA, Mak JCW, **Barnes PJ**.  $\beta$ -Adrenoceptor-mediated down-regulation of M<sub>2</sub>-muscarinic receptors: role of cAMP-dependent protein kinases and protein kinase C. *Mol Pharmacol* 1996; **49**:629-635.
461. Hallsworth MP, Giembycz MA, **Barnes PJ**, Lee TH. Cyclic AMP elevating agents prolong or inhibit eosinophil survival depending on prior exposure to GM-CSF. *Br J Pharmacol* 1996; **117**:79-86.
462. Haddad E-B, Rousell J, Mak JCM, Adcock IM, **Barnes PJ**. Transforming growth factor- $\beta$ <sub>1</sub> induces transcriptional down-regulation of the M<sub>2</sub>-muscarinic receptor gene. *Mol Pharmacol* 1996; **49**:781-787.
463. Haddad E-B, Salmon M, Koto H, **Barnes PJ**, Adcock IM, Chung KF. Ozone induction of cytokine-induced neutrophil chemoattractant and nuclear factor- $\kappa$ B in rat lung: inhibition by corticosteroids. *FEBS Lett* 1996; **379**:265-268.

464. Kawikova I, Takahashi T, Tadjarimi S, Yacoub MH, Belvisi MG. 8-epi-prostaglandin F<sub>2α</sub>, a novel non-cyclooxygenase derived prostaglandin, a potent constrictor of guinea-pig and human airways. *Am J Respir Crit Care Med* 1996; **153**:59-596.
465. Sakamoto T, Barnes PJ, Chung KF. Lack of role for bradykinin in allergen-induced bronchoconstrictor and airway microvascular leak in guinea pig. *Inflammation Res* 1996; **45**:123-126.
466. Berkman N, Robichaud A, Krishnan VL, Barnes PJ, Chung KF. Expression of RANTES in human airway epithelial cells: effect of corticosteroids and interleukin-4, 10 and 13. *Immunology* 1996; **87**:599-603.
467. Liu SF, Newton R, Evans TW, Barnes PJ. Differential regulation of cyclooxygenase-1 and cyclooxygenase-2 gene expression by lipopolysaccharide treatment *in vivo* in the rat. *Clin Sci* 1996; **90**:301-306.
468. Hirst SJ, Barnes PJ, Twort CHC. PDGF isoform-induced proliferation and receptor expression in human cultured airway smooth muscle cells. *Am J Physiol* 1996; **14**:L415-L428.
469. Barnes PJ. Immunotherapy for asthma: is it worth it? *N Engl J Med* 1996; **334**:531-532.
470. Newton R, Adcock IM, Barnes PJ. Superinduction of NF-κB by actinomycin D and cycloheximide in epithelial cells. *Biochem Biophys Res Commun* 1996; **218**:518-523.
471. Ramnarine SI, Khawaja AM, Barnes PJ, Rogers DF. Nitric oxide inhibition of basal and neurogenic mucus secretion. *Br J Pharmacol* 1996; **118**:998-1002.
472. Marks GB, Yates DH, Sist M, Ceyhan B, de Campos M, Scott DM, Barnes PJ. Respiratory sensation during bronchial challenge testing with methacholine, sodium metabisulphite and adenosine monophosphate. *Thorax* 1996; **51**:793-798.
473. Belvisi MG, Patel HJ, Takahashi T, Barnes PJ, Giembycz MA. Paradoxical facilitation of acetylcholine release from parasympathetic nerves innervating guinea-pig trachea by isoprenaline. *Br J Pharmacol* 1996; **117**:1413-1420.
474. Steinkraus V, Mak JCW, Puhlmeier U, Mensing H, Ring J, Barnes PJ. Autoradiographic mapping of beta-adrenoceptors in human skin. *Arch Dermatol* 1996; **288**:549-553.
475. Fox AJ, Laloo UG, Belvisi MG, Chung KF, Barnes PJ. Bradykinin-evoked sensitization of airway sensory nerves: a mechanism of ACE-inhibitor cough. *Nature Med* 1996; **2**: 814-817.
476. Giembycz MA, Corrigan CJ, Seybold J, Newton R, Barnes PJ. Identification of cyclic AMP phosphodiesterases 3, 4 and 7 in human CD4<sup>+</sup> and CD8<sup>+</sup> T-lymphocytes. *Br J Pharmacol* 1996; **118**:1945-1958.
477. Kelly JJ, Barnes PJ, Giembycz MA. Phosphodiesterase 4 in macrophages: relationship between cAMP accumulation, suppression of cAMP hydrolysis and inhibition of [<sup>3</sup>H]R(-)-rolipram binding by selective inhibitors. *Biochem J* 1996; **318**:425-436.
478. Yates DH, Kharitonov SA, Robbins RA, Thomas PS, Barnes PJ. The effect of alcohol ingestion on exhaled nitric oxide. *Eur Respir J* 1996; **9**:1130-1133.
479. Adcock IM, Barnes PJ. Tumor necrosis factor-α causes retention of activated glucocorticoid receptor within the cytoplasm of A549 cells. *Biochem Biophys Res Commun* 1996; **225**:1127-1132.
480. Koto H, Mak JCW, Haddad E-B, Xu WB, Salmon M, Barnes PJ, Chung KF. Mechanisms of impaired β-adrenergic receptor relaxation by interleukin-1β *in vivo* in rat. *J Clin Invest* 1996; **98**:1780-1787.
481. Berkman N, John M, Roesens G, Jose P, Barnes PJ, Chung KF. Interleukin-13 inhibits macrophage inhibitory protein-1α production from human alveolar macrophages and monocytes. *Am J Respir Cell Mol Biol* 1996; **15**:382-389.
482. Nishikawa M, Mak JCW, Barnes PJ. Effect of short- and long-acting β<sub>2</sub>-agonists on pulmonary β<sub>2</sub>-adrenoceptor expression in human lung. *Eur J Pharmacol* 1996; **318**:123-130.

483. Kuitert LM, Newton R, Barnes NC, Adcock IM, **Barnes PJ**. Eicosanoid mediator expression in mononuclear and polymorphonuclear cells in normal subjects and patients with atopic asthma and cystic fibrosis. *Thorax* 1996; **51**:1223-1228.
484. Mak JCW, Nishikawa M, Haddad E-B, Kwon O-J, Hirst SJ, Twort CHC, **Barnes PJ**. Localization and expression of  $\beta$ -adrenergic receptor subtype mRNAs in human lung. *Eur J Pharmacol (Molec Sect)* 1996; **302**:215-221.
485. Haddad E-B, Mak JCW, **Barnes PJ**. Expression of  $\beta$ -adrenergic and muscarinic receptors in asthmatic lung. *Am J Physiol* 1996; **270**:L947-L953..
486. Yates DH, Kharitonov SA, **Barnes PJ**. An inhaled glucocorticoid does not prevent loss of protection against salmeterol. *Am J Respir Crit Care Med* 1996; **154**:1603-1607.
487. Berkman N, Krishnan VL, Gilbey T, O'Connor BJ, **Barnes PJ**, Chung KF. Expression of RANTES mRNA and protein in airways of patients with mild asthma. *Am J Respir Crit Care Med* 1996; **154**:1804-1811.
488. Haddad E-B, Rousell J, Lindsay MA, **Barnes PJ**. Synergy between TNF- $\alpha$  and IL-1 $\beta$  in inducing down-regulation of muscarinic M<sub>2</sub>-receptor gene expression. *J Biol Chem* 1996; **271**:32586-32592.
489. Mak JCW, Astolfi M, Zhang X-L, Evangelista S, Manzini S, **Barnes PJ**. Autoradiographic mapping of NK<sub>1</sub> and NK<sub>2</sub> tachykinin receptors and changes after repeated antigen challenge in guinea pigs. *Peptides* 1996; **17**:1389-1395.

## 1997

490. Keatings VM, Evans DJ, **Barnes PJ**, O'Connor BJ. Cellular profiles in asthmatic lungs: comparison of induced sputum, bronchial washings and bronchoalveolar lavage. *Thorax* 1997; **52**:372-374.
491. Keatings VM, Jatakanon A, Worsdell YM, **Barnes PJ**. Effect of inhaled and oral glucocorticoids on inflammatory indices in asthma and COPD. *Am J Respir Crit Care Med* 1997; **155**:542-548.
492. Keatings VM, **Barnes PJ**. Granulocyte activation markers in induced sputum: comparison between chronic obstructive pulmonary disease, asthma and normal subjects. *Am J Respir Crit Care Med* 1997; **155**:449-453.
493. **Barnes PJ**, Karin M. Nuclear factor- $\kappa$ B: a pivotal transcription factor in chronic inflammatory diseases. *N Engl J Med* 1997; **336**:1066-1071.
494. Fox AJ, **Barnes PJ**, Venkatesan P, Belvisi MG. Activation of large conductance potassium channels inhibits the afferent and efferent function of airway sensory nerves. *J Clin Invest* 1997; **99**:513-519.
495. Kharitonov SA, Rajakulasingam K, O'Connor B, Durham SR, **Barnes PJ**. Nasal nitric oxide is increased in patients with asthma and allergic rhinitis and may be modulated by nasal glucocorticoids. *J Allergy Clin Immunol* 1997; **99**:58-64.
496. Kharitonov SA, Cailes JB, Black CM, du Bois RM, **Barnes PJ**. Decreased nitric oxide in exhaled air of patients with systemic sclerosis with pulmonary hypertension. *Thorax* 1997; **52**:1051-1055.
497. Webb BLJ, Lindsay MA, **Barnes PJ**, Giembycz MA.. Protein kinase C isoforms in airways smooth muscle. *Biochem J* 1997; **324**:167-175.
498. Haczko A, MacAry P, Huang TJ, Tsukagoshi H, **Barnes PJ**, Kay AB, Chung KF, Moqbel R. Adoptive transfer of allergen-specific CD4+ T-cells induces airway eosinophilic inflammation and hyperresponsiveness in Brown-Norway rats. *Immunology* 1997; **91**:176-185.
499. Saunders MA, Mitchell JA, Seldon PM, **Barnes PJ**, Giembycz MA, Belvisi MG. Release of granulocyte-macrophage colony-stimulating factor by human cultured airway smooth muscle cells: suppression by dexamethasone. *Br J Pharmacol* 1997; **120**:545-546.

500. Patel HJ, Giembycz MA, Spicuzza L, **Barnes PJ**, Belvisi MG. Naloxone-insensitive inhibition of acetylcholine release from parasympathetic nerves innervating guinea-pig trachea by the novel opioid, nociceptin. *Br J Pharmacol* 1997; **120**:545-546.
501. Newton R, Kuitert LM, Slater DM, Adcock IM, **Barnes PJ**. Induction of cPLA<sub>2</sub> and COX-2 mRNA by proinflammatory cytokines is suppressed by dexamethasone in human airway epithelial cells. *Life Sci* 1997; **60**:67-78.
502. John M, Hirst SJ, Jose P, Robichaud A, Witt C, Twort C, Berkman N, **Barnes PJ**, Chung KF. Human airway smooth muscle cells express and release RANTES in response to Th1 cytokines: regulation by Th2 cytokines. *J Immunol* 1997; **158**:1841-1847.
503. Belvisi MG, Saunders MA, Haddad E-B, Hirst SJ, Yacoub MH, **Barnes PJ**, Mitchell JA. Induction of cyclooxygenase-2 in human airway smooth muscle cells: novel inflammatory role for this cell type. *Br J Pharmacol* 1997; **120**:910-916.
504. Kharitonov SA, **Barnes PJ**. Nasal contribution to exhaled nitric oxide during exhalation against resistance or during breath holding, *Thorax* 1997; **52**: 540-544.
505. Liu SF, Haddad E, Adcock IM, Salmon M, Koto H, Gilbey T, **Barnes PJ**, Chung KF. Inducible nitric oxide synthase after sensitization and allergen challenge of Brown Norway rat lung. *Br J Pharmacol* 1997; **121**:1241-1246.
506. Keatings VM, O'Connor BJ, Wright LG, Huston D, Corrigan CJ, **Barnes PJ**. Late response to allergen is associated with raised concentrations of TNF- $\alpha$  and interleukin-5 in induced sputum. *J Allergy Clin Immunol* 1997; **99**:693-698.
507. Baraniuk JN, Ali M, Brody D, Maniscalco J, Gaumond E, Fitzgerald T, Wong G, Yuta A, Mak JCW, **Barnes PJ**, Bascom R, Troost T. Glucocorticoids induce  $\beta_2$ -adrenergic receptor function in human nasal mucosa. *Am J Respir Crit Care Med* 1997; **155**:704-710.
508. Saleh D, Furukawa K, Ten MS, Maghazachi A, Corrin B, Yanagisawa M, **Barnes PJ**, Giard A. Elevated expression of endothelin-1 and endothelin-converting enzyme-1 in idiopathic pulmonary fibrosis: possible involvement of proinflammatory cytokines. *Am J Respir Cell Mol Biol* 1997; **16**:187-193.
509. Evans DJ, **Barnes PJ**, Cluzel M, O'Connor BJ. Effects of a potent platelet-activating factor antagonist, SR 27417A, on allergen-induced asthmatic responses. *Am J Respir Crit Care Med* 1997; **156**:11-16.
510. Bernareggi M, Mitchell JA, **Barnes PJ**, Belvisi MG. Dual action of nitric oxide on airway plasma leakage. *Am J Respir Crit Care Med* 1997; **155**:869-874.
511. Takahashi T, **Barnes PJ**, Kawikowa I, Yacoub MH, Warner TD, Belvisi MG. Contraction of human airway smooth muscle by endothelin-1 and IRL 1620: effect of bosentan. *Eur J Pharmacol* 1997; **324**:219-222.
512. Yates DH, Kharitonov SA, **Barnes PJ**. Effect of short- and long-acting inhaled  $\beta_2$ -agonists on exhaled nitric oxide in asthmatic patients. *Eur Respir J* 1997; **10**:1483-1488.
513. Saleh D, **Barnes PJ**, Giard A. Increased production of the potent oxidant peroxynitrite in the lungs of patients with pulmonary fibrosis. *Am J Respir Crit Care Med* 1997; **155**:1763-1769.
514. Meja KK, **Barnes PJ**, Giembycz MA. Characterization of the prostanoid receptor(s) on human blood monocytes at which prostaglandin E<sub>2</sub> inhibits lipopolysaccharide-induced tumour necrosis factor- $\alpha$  generation. *Br J Pharmacol* 1997; **122**:149-157.
515. Stone RA, **Barnes PJ**, Chung KF. Effect of 5-HT<sub>1A</sub> receptor agonist 8-OH-DPAT on cough responses in conscious guinea pig. *Eur J Pharmacol* 1997; **332**:201-208.
516. Newton R, Kuitert L, Bergmann M, Adcock IM, **Barnes PJ**. Evidence for involvement of NF- $\kappa$ B in the transcriptional control of COX-2 gene expression by IL-1 $\beta$ . *Biochem Biophys Res Commun* 1997; **237**:28-32.

517. Mitchell JA, Saunders M, **Barnes PJ**, Newton R, Belvisi MG. Sodium salicylate inhibits cyclooxygenase-2 activity independently of transcription factor nuclear factor- $\kappa$ B activation: role of arachidonic acid. *Mol Pharmacol* 1997; **51**:907-912.
518. Newton R, Stevens DA, Hart LA, Lindsay M, Adcock IM, **Barnes PJ**. Superinduction of COX-2 mRNA by cyclohexamide and interleukin-1 $\beta$  induces increases transcription and correlates with increased NF- $\kappa$ B and JNK activation. *FEBS Lett* 1997; **418**:135-138.
519. Newton R, Seybold J, Liu SF, **Barnes PJ**. Alternate COX-2 transcripts are differentially regulated: implication for post-transcriptional control. *Biochem Biophys Res Commun* 1997; **243**:85-89.
520. Byrnes CA, Dinarevic S, Shinebourne EA, **Barnes PJ**, Bush A. Exhaled nitric oxide measurements in normal and asthmatic children. *Pediatr Pulmonol* 1997; **24**:312-318.
521. Pauwels RA, Lofdahl C-G, Postma DS, Tattersfield AE, O'Byrne P, **Barnes PJ**, Ullman A. Effect of inhaled formoterol and budesonide on exacerbations of asthma. *N Engl J Med* 1997; **337**:1405-1411.
522. Evans DJ, Taylor DA, Zetterstrom O, Chung KF, O'Connor BJ, **Barnes PJ**. A comparison of low dose budesonide plus theophylline and high dose inhaled budesonide for moderate asthma. *N Engl J Med* 1997; **337**:1412-1418.
523. Webb BLJ, Lindsay MA, Seybold J, Brand NJ, Yacoub M, Haddad E-B, **Barnes PJ**, Adcock IM, Giembycz MA. Identification of protein kinase C isoenzymes in human lung and airways smooth muscle at the protein and mRNA level. *Biochem Pharmacol* 1997; **54**:199-205.
524. Taylor DA, Jensen MW, Aikman SL, Harris JG, **Barnes PJ**, O'Connor BJ. Comparison of salmeterol and albuterol-induced bronchoconstriction against adenosine monophosphate and histamine in mild asthma. *Am J Respir Crit Care Med* 1997; **156**:1731-1737.
525. Liu SF, **Barnes PJ**, Evans TW. Time course and cellular localization of lipopolysaccharide-induced inducible nitric oxide synthase messenger RNA expression in the rat *in vivo*. *Crit Care Med* 1997; **25**:512-518.
526. Yates DH, Worsdell M, **Barnes PJ**. Effect of regular salmeterol treatment on albuterol-induced bronchoprotection in mild asthma. *Am J Respir Crit Care Med* 1997; **156**:988-991.

## 1998

527. Katsunuma T, Mak JCW, **Barnes PJ**. Glucocorticoids reduce tachykinin NK<sub>2</sub>-receptor expression in bovine tracheal smooth muscle. *Eur J Pharmacol* 1998; **344**:99-106.
528. Jatakanon A, Lim S, Kharitonov SA, Chung KF, **Barnes PJ**. Correlation between exhaled nitric oxide, sputum eosinophils and methacholine responsiveness. *Thorax* 1998; **53**:91-95.
529. Seldon PM, **Barnes PJ**, Giembycz MA. Interleukin-10 does not mediate the inhibitory effect of PDE4 inhibitors and other cAMP-elevating drugs on lipopolysaccharide-induced tumor necrosis factor- $\alpha$  generation from human peripheral blood monocytes. *Cell Biochem Biophys* 1998; **28**:179-201.
530. Yates DH, Worsdell M, **Barnes PJ**. Effect of an inhaled glucocorticoid on mast cell and smooth muscle  $\beta_2$ -adrenergic tolerance in mild asthma. *Thorax* 1998; **53**:110-113.
531. John M, Lim S, Seybold J, Robichaud A, O'Connor B, **Barnes PJ**, Chung KF. Inhaled corticosteroids increase IL-10 but reduce MIP-1 $\alpha$ , GM-CSF and IFN- $\gamma$  release from alveolar macrophages in asthma. *Am J Respir Crit Care Med* 1998; **157**:256-262.
532. Hart LA, Krishnan VL, Adcock IM, **Barnes PJ**, Chung KF. Activation and localization of transcription factor nuclear factor- $\kappa$ B in asthma. *Am J Respir Crit Care Med* 1998; **158**:1585-1592.
533. Seldon PM, Stevens DA, Adcock IM, O'Connor BJ, **Barnes PJ**, Giembycz MA. Albuterol does not antagonize the inhibitory effect of dexamethasone on monocyte cytokine release. *Am J Respir Crit Care Med* 1998; **157**:803-809.

534. Dowling RB, Newton R, Robichaud A, Cole PJ, **Barnes PJ**, Wilson R. Effect of inhibition of nitric oxide synthase on *Pseudomonas aeruginosa* infection of respiratory mucosa *in vitro*. *Am J Respir Cell Mol Biol*. 1998; **19**:950-958.
535. Nightingale JA, Rogers DF, **Barnes PJ**. Effect of repeated sputum induction on cell counts in normal volunteers. *Thorax* 1998; **53**:87-90.
536. John M, Au B-T, Jose PJ, Lim S, Saunders M, Barnes PJ, Mitchell JA, Belvisi MG, Chung KF. Expression and release of interleukin-8 by human airway smooth muscle cells: inhibition by Th2 cytokines and corticosteroids. *Am J Resp Cell Mol Biol* 1998; **18**:84-90.
537. Bergmann M, Hart L, Lindsay M, **Barnes PJ**, Newton R. IκBα degradation and nuclear factor-κB DNA binding are insufficient for interleukin-1β and tumor necrosis factor-α induced κB-dependent transcription. Requirement for an additional pathway. *J Biol Chem* 1998; **273**:6607-6610.
538. Pype JL, Dupont LJ, Mak JCW, **Barnes PJ**, Verleden GM. Regulation of H<sub>1</sub>-receptor coupling and H<sub>1</sub>-receptor mRNA by histamine in bovine tracheal smooth muscle. *Br J Pharmacol* 1998; **123**:984-990.
539. Adisesh LA, Kharitonov SA, Yates DH, Snashall DC, Newman-Taylor AJ, **Barnes PJ**. Exhaled and nasal nitric oxide is increased in laboratory animal allergy. *Clin Exp Allergy* 1998; **28**:876-880.
540. Lindsay MA, Perkins RS, **Barnes PJ**, Giembycz MA. Leukotriene B<sub>4</sub> activates the NADPH oxidase in eosinophils by a pertussis toxin sensitive mechanism that is largely independent of arachidonic acid mobilization. *J Immunol* 1998; **160**:4526-4534.
541. Sapienza MA, Kharitonov SA, Horvath I, Chung KF, **Barnes PJ**. Effect of inhaled L-arginine on exhaled nitric oxide in normal and asthmatic airways. *Thorax* 1998; **53**:172-175.
542. Maziak W, Loukides S, Culpitt S, Sullivan P, Kharitonov SA, **Barnes PJ**. Exhaled nitric oxide in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 1998; **157**:998-1002.
543. Laloo UG, Lim S, DuBois R, **Barnes PJ**, Chung KF. Increased sensitivity of the cough reflex in progressive systemic sclerosis patients with interstitial lung disease. *Eur Respir J* 1998; **11**:702-705.
544. Salmon M, Koto H, Lynch OT, Haddad E-B, Lamb NJ, Quinlan GJ, **Barnes PJ**, Chung KF. Proliferation of airway epithelium after ozone exposure: effect of apocynin and dexamethasone. *Am J Respir Crit Care Med* 1998; **157**:970-977.
545. Taylor DA, McGrath JL, O'Connor BJ, **Barnes PJ**. Allergen-induced early and late asthmatic responses are not affected by inhibition of endogenous nitric oxide. *Am J Respir Crit Care Med* 1998; **158**:99-106.
546. Kelly JJ, **Barnes PJ**, Giembycz MA. Characterization of phosphodiesterase 4 in guinea-pig macrophages: multiple activities, association states and sensitivity to selective inhibitors. *Br J Pharmacol* 1998; **124**:129-140.
547. Spicuzza L, Giembycz MA, **Barnes PJ**, Belvisi MG. Prostaglandin E<sub>2</sub> suppression of acetylcholine release from parasympathetic nerves innervating guinea-pig trachea by interacting with prostanoid receptors of the EP<sub>3</sub>-subtype. *Br J Pharmacol*. 1998 **123**:1246-1252
548. Taylor DA, McGrath JL, Orr LM, **Barnes PJ**, O'Connor BJ. Effect of endogenous nitric oxide inhibition on airway responsiveness to histamine and adenosine-5'-monophosphate in asthma. *Thorax* 1998; **53**:483-489.
549. Nightingale JA, Rogers DF, Hart LA, Kharitonov SA, Chung KF, **Barnes PJ**. Effect of inhaled endotoxin on induced sputum in normal, atopic and asthmatic subjects. *Thorax* 1998; **53**:563-571.
550. Lim S, Crawley E, Woo P, **Barnes PJ**. Haplotype associated with low interleukin-10 production in patients with severe asthma. *Lancet* 1998; **352**:113.
551. Gomez FP, Barbera JA, Roca J, Iglesia R, Ribas J, **Barnes PJ**, Rodriguez-Roisin R. Effect of nitric oxide synthesis inhibition with nebulized L-NAME on ventilation-perfusion distribution. *Eur Respir J* 1998; **12**:865-871

552. Seybold J, Newton R, Wright L, Finney PA, Suttorp N, Barnes, PJ, Adcock IM, Giembycz MA. Induction of phosphodiesterases 3B, 4A4, 4D1, 4D2, and 4D3 in Jurkat T- cells and in human peripheral blood T-lymphocytes by 8-bromo-cAMP and G<sub>s</sub>-coupled receptor agonists. Potential role in β<sub>2</sub>-adrenoreceptor desensitization. *J Biol Chem* 1998; **273**:20575-20588.
553. Newton R, Hart LA, Stevens DA, Bergmann M, Donnelly LE, Adcock IM, **Barnes PJ**. Effect of dexamethasone on interleukin-1β-(IL-1β)-induced nuclear factor-κB (NF-κB) and κB-dependent transcription in epithelial cells. *Eur J Biochem*. 1998; **254**:81-89.
554. Horvath I, Donnelly LE, Kiss A, Paredi P, Kharitonov SA, **Barnes PJ** Raised levels of exhaled carbon monoxide are associated with an increased expression of heme oxygenase-1 in airway macrophages in asthma: a new marker of oxidative stress. *Thorax* 1998; **53**:668-672.
555. Loukides S, Kharitonov S, Wodehouse T, Cole PJ, **Barnes PJ**. Effect of arginine on mucociliary function in primary ciliary dyskinesia. *Lancet* 1998; **352**:371-372.
556. Saleh D, Ernst P, Lim S, **Barnes PJ**, Giaid A. Increased formation of the potent oxidant peroxynitrite in the airways of asthmatic patients is associated with induction of nitric oxide synthase: effect of inhaled glucocorticoid. *FASEB J*.1998; **12**:929-937.
557. Patel HJ, Giembycz MA, Keeling JE, **Barnes PJ**, Belvisi MG. Inhibition of cholinergic neurotransmission in guinea pig trachea by NS1619, a putative activator of large-conductance, calcium-activated potassium channels. *J.Pharmacol.Exp.Ther.* 1998; **286**:952-958.
558. Wright LC, Seybold J, Robichaud A, Adcock IM, **Barnes PJ**. Phosphodiesterase expression in human epithelial cells. *Am J Physiol* 1998; **275**:L694-L700.
559. Loukides S, Horvath I, Wodehouse T, Cole PJ, **Barnes PJ**. Elevated levels of expired breath hydrogen peroxide in bronchiectasis. *Am.J.Respir.Crit.Care Med.* 1998; **158**:991-994.
560. Lindsay MA, Haddad EB, Rousell J, Teixeira MM, Hellewell PG, **Barnes PJ**, Giembycz MA. Role of the mitogen-activated protein kinases and tyrosine kinases during leukotriene B<sub>4</sub>-induced eosinophil activation. *J.Leukoc.Biol.* 1998; **64**:555-562.
561. Horvath I, Donnelly LE, Kiss A, Kharitonov SA, Lim S, Chung KF, **Barnes PJ**. Combined use of exhaled hydrogen peroxide and nitric oxide in monitoring asthma. *Am J Respir Crit Care Med* 1998; **158**:1046-1048.
562. Paredi P, Loukides S, Ward S, Cramer D, Spicer M, Kharitonov SA, **Barnes PJ**. Exhalation flow and pressure-controlled reservoir collection of exhaled nitric oxide for remote and delayed analysis. *Thorax* 1998; **53**:775-779.
563. Hislop AA, Mak JCW, Reader JA, **Barnes PJ**, Haworth SG. Muscarinic receptor subtypes in porcine lung during postnatal development. *Eur J Pharmacol* 1998; **359**:211-221.
564. Jatakanon A, Lim S, Chung KF, **Barnes PJ**. An inhaled steroid improves markers of inflammation in asymptomatic steroid-naïve asthmatic patients. *Eur Respir J* 1998; **12**:1084-1088.
565. Newton R, Seybold J, Kuitert LME, Bergmann M, **Barnes PJ**. Repression of cyclooxygenase-2 and prostaglandin E<sub>2</sub> Release by dexamethasone occurs by transcriptional and post-transcriptional mechanisms involving loss of polyadenylated mRNA. *J Biol Chem*. 1998; **273**:32312-32321.
566. Montuschi P, Toni GC, Paredi P, Pantelidis P, du Bois RM, Kharitonov SA, **Barnes PJ**. 8-Isoprostanate as a biomarker of oxidative stress in interstitial lung diseases. *Am J Respir Crit Care Med.* 1998; **158**:1524-1527.
567. Kharitonov SA, Sapienza MA, **Barnes PJ**, Chung KF. Prostaglandins E<sub>2</sub> and F<sub>2α</sub> reduce exhaled nitric oxide in normal and asthmatic subjects irrespective of airway caliber changes. *Am J Respir Crit Care Med.* 1998; **158**:1374-1378.
568. Pype JL, Mak JCW, Dupont LJ, Verleden GM, **Barnes PJ**. Desensitization of the histamine H<sub>1</sub>-receptor and transcriptional down-regulation of histamine H<sub>1</sub>-receptor gene expression in bovine tracheal smooth muscle by a protein kinase C-mediated mechanism. *Br J Pharmacol* 1998; **125**:1477-1484.

569. Stirling RG, Kharitonov SA, Campbell D, Robinson D, Durham SR, Chung KF, **Barnes PJ**. Increase in exhaled nitric oxide levels in patients with difficult asthma and correlation with symptoms and disease severity despite treatment with oral and inhaled corticosteroids. *Thorax* 1998; **53**:1030-1034.
570. Lane SJ, Adcock IM, Richards D, Hawrylowicz C, **Barnes PJ**, Lee TH. Corticosteroid-resistant bronchial asthma is associated with increased *c-Fos* expression in monocytes and T-lymphocytes. *J Clin Invest* 1998; **102**:2156-2164.
571. Horvath I, Loukides S, Wodehouse T, Kharitonov SA, Cole PJ, **Barnes PJ**. Increased levels of exhaled carbon monoxide in bronchiectasis: a new marker of oxidative stress. *Thorax* 1998; **53**:867-870.

## 1999

572. Thomas PS, Geddes DM, **Barnes PJ**. Pseudo-steroid resistant asthma. *Thorax* 1999; **54**:352-356.
573. Hall SE, Lim S, Witherden IR, Tetley TD, **Barnes PJ**, Kamal AM, Smith SF. Lung type II cell and macrophage annexin I release: differential effects of two glucocorticoids. *Am J Physiol*. 1999; **276**:L114-L121.
574. Fuhrmann M, Jahn HU, Seybold J, Neurohr C, **Barnes PJ**, Hippenstiel S, Kraemer HJ, Suttorp N. Identification and function of cyclic nucleotide phosphodiesterase isoenzymes in airway epithelial cells. *Am J Respir Cell Mol Biol*. 1999; **20**:292-302.
575. Lim S, Jatakanon A, John M, Gilbey T, O'Connor BJ, Chung KF, **Barnes PJ**. Effect of inhaled budesonide on lung function and airway inflammation. Assessment by various inflammatory markers in mild asthma. *Am J Respir Crit Care Med*. 1999; **159**:22-30.
576. Saunders MA, Belvisi MG, Cirino G, **Barnes PJ**, Warner TD, Mitchell JA. Mechanisms of prostaglandin E<sub>2</sub> release by intact cells expressing cyclooxygenase-2: evidence for a 'two-component' model. *J Pharmacol Exp Ther*. 1999; **288**:1101-1106.
577. Paredi P, Shah P, Montuschi P, Sullivan P, Hodson ME, Kharitonov SA, **Barnes PJ**. Increased carbon monoxide in exhaled air of cystic fibrosis patients. *Thorax* 1999; **54**:917-920.
578. Paredi P, Leckie MJ, Horvath I, Allegra L, Kharitonov SA, **Barnes PJ**. Changes in exhaled carbon monoxide and nitric oxide levels following allergen challenge in patients with asthma. *Eur Respir J* 1999; **13**:48-53.
579. Jatakanon A, Laloo UG, Lim S, Chung KF, **Barnes PJ**. Increased neutrophils and cytokines, TNF-alpha and IL-8, in induced sputum of non-asthmatic patients with chronic dry cough. *Thorax* 1999; **54**:234-237.
580. Jatakanon A, Kharitonov S, Lim S, **Barnes PJ**. Effect of differing doses of inhaled budesonide on markers of airway inflammation in patients with mild asthma. *Thorax* 1999; **54**:108-114.
581. Paredi P, Kharitonov SA, Loukides S, Pantelidis P, du Bois RM, **Barnes PJ**. Exhaled nitric oxide is increased in active fibrosing alveolitis. *Chest* 1999; **115**:1352-1356.
582. Hancox RJ, Stevens DA, Adcock IM, **Barnes PJ**, Taylor DR. Effects of an inhaled β-agonist and corticosteroid treatment on nuclear transcription factors in bronchial mucosa in asthma. *Thorax* 1999; **54**:488-492.
583. Nightingale JA, Rogers DF, **Barnes PJ**. Differential effect of formoterol on adenosine monophosphate and histamine reactivity in asthma. *Am J Respir Crit Care Med*. 1999; **159**:1786-1790.
584. Thomas PS, Yates DH, **Barnes PJ**. Sputum induction as a method of analyzing pulmonary cells: reproducibility and acceptability. *J Asthma* 1999; **36**:335-341.
585. Haddad E-B, Patel H, Keeling JE, Yacoub MH, **Barnes PJ**, Belvisi MG. Pharmacological characterization of the muscarinic receptor antagonist, glycopyrrolate, in human and guinea-pig airways. *Br J Pharmacol* 1999; **127**:413-420.
586. Adcock IM, Nasuhara Y, Stevens DA, **Barnes PJ**. Ligand-induced differentiation of glucocorticoid receptor trans-repression and transactivation: preferential targeting of NF-κB and lack of I-κB involvement. *Br J Pharmacol* 1999; **127**:1003-1011.

587. Kankaanranta H, Giembycz MA, **Barnes PJ**, Lindsay DA. SB203580, an inhibitor of p38 mitogen-activated protein kinase, enhances constitutive apoptosis of cytokine-deprived human eosinophils. *J Pharmacol Exp Ther* 1999; **290**:621-628.
588. Patel HJ, Venkatesan P, Halfpenny J, Yacoub MH, Fox A, **Barnes PJ**, Belvisi MG. Modulation of acetylcholine release from parasympathetic nerves innervating guinea-pig and human trachea by endomorphin-1 and -2. *Eur.J.Pharmacol.* 1999; **374**:21-24.
589. Nasuhara Y, Adcock IM, Catley M, **Barnes PJ**, Newton R. Differential IKK activation and I $\kappa$ Ba degradation by interleukin-1 $\beta$  and tumor necrosis factor- $\alpha$  in human U937 monocytic cells: evidence for additional regulatory steps in  $\kappa$ B-dependent transcription. *J Biol Chem* 1999; **274**:19965-19972.
590. Taylor DA, Jensen MW, Kanabar V, Englestaetter R, Steinjans VW, **Barnes PJ**, O'Connor BJ. A dose-dependent effect of the novel inhaled corticosteroid ciclesonide on airway responsiveness to adenosine-5'-monophosphate in asthmatic patients. *Am J Respir Crit Care Med* 1999; **160**:237-243.
591. Montuschi P, Ciabattoni G, Corradi M, Nightingale JA, Collins JV, Kharitonov SA, **Barnes PJ**. Increased 8-Isoprostanate, a marker of oxidative stress, in exhaled condensates of asthmatic patients. *Am J Respir Crit Care Med* 1999; **160**:216-220.
592. Tattersfield AE, Postma DS, **Barnes PJ**, Svensson K, Bauer CA, O'Byrne PM, Lofdahl C-G, Pauwels RA, Ullman A. Exacerbations of asthma. A descriptive study of 425 severe exacerbations. *Am J Respir Crit Care Med* 1999; **160**:594-599.
593. Evans DJ, Lindsay MA, Webb BL, Kankaanranta H, Giembycz MA, O'Connor BJ, Barnes, P.J. Expression and activation of protein kinase C- $\zeta$  in eosinophils after allergen challenge. *Am J Physiol* 1999; **277**:L233-L239.
594. Hisada T, Adcock IM, Nasuhara Y, Salmon M, Huang TJ, **Barnes PJ**, Chung KF. Inhibition of ozone-induced lung neutrophilia and nuclear factor- $\kappa$ B binding activity by vitamin A in rat. *Eur J Pharmacol* 1999; **377**:63-68.
595. Salmon M, Walsh DA, Huang TJ, **Barnes PJ**, Leonard TB, Hay DW, Chung KF. Involvement of cysteinyl leukotrienes in airway smooth muscle cell DNA synthesis after repeated allergen exposure in sensitized Brown Norway rats. *Br.J.Pharmacol.* 1999; **127**:1151-1158.
596. Katsunuma T, Roffel AF, Elzinga CR, Zaagsma J, **Barnes PJ**, Mak JC.  $\beta_2$ -Adrenoceptor agonist-induced upregulation of tachykinin NK $_2$  receptor expression and function in airway smooth muscle. *Am.J.Respir.Cell Mol.Biol.* 1999; **21**:409-417.
597. **Barnes PJ**. Therapeutic strategies for allergic diseases. *Nature* 1999; **402**: B31-38.
598. Horvath I, **Barnes PJ**. Exhaled monoxides in asymptomatic atopic subjects. *Clin.Exp.Allergy* 1999; **29**:1276-1280.
599. Emelyanov, A., Fedoseev, G., and Barnes, P.J. Reduced intracellular magnesium concentrations in asthmatic subjects. *Eur Respir J* 13:38-40, 1999.
600. Bernareggi MM, Belvisi MG, Patel H, **Barnes PJ**, Giembycz MA. Anti-spasmogenic activity of isoenzyme-selective phosphodiesterase inhibitors in guinea-pig trachealis. *Br.J.Pharmacol.* 1999; **128**:327-336.
601. Fluge T, Forssmann WG, Kunkel G, Schneider B, Mentz P, Forssmann K, **Barnes PJ**, Meyer M. Bronchodilation using combined urodilatin - albuterol administration in asthma: a randomized, double-blind, placebo-controlled trial. *Eur.J.Med.Res* 1999; **4**:411-415.
602. Paredi P, Biernacki W, Invernizzi G, Kharitonov SA, **Barnes PJ**. Exhaled carbon monoxide levels elevated in diabetes and correlated with glucose concentration in blood: A new test for monitoring the disease? *Chest* 1999; **116**:1007-1011.
603. Salmon M, Walsh DA, Koto H, **Barnes PJ**, Chung KF. Repeated allergen exposure of sensitized Brown-Norway rats induces airway cell DNA synthesis and remodelling. *Eur Respir J* 1999; **14**:633-641.

604. Uasaf C, Jatakanon A, James A, Kharitonov SA, Wilson NM, **Barnes PJ**. Exhaled carbon monoxide in childhood asthma. *J Pediatr* 1999; **135**:569-574.
605. Jatakanon A, Uasaf C, Maziak W, Lim S, Chung KF, **Barnes PJ**. Neutrophilic inflammation in severe persistent asthma. *Am J Respir Crit Care Med* 1999; **160**:1532-1539.
606. Culpitt SV, Nightingale JA, **Barnes PJ**. Effect of high dose inhaled steroid on cells, cytokines and proteases in induced sputum in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 1999; **160**:1635-1639.
607. Kharitonov SA, Sapienza MA, Chung KF, **Barnes PJ**. Prostaglandins mediate bradykinin-induced reduction of exhaled nitric oxide in asthma. *Eur Respir J* 1999; **14**:1023-1027.
608. Lynch OT, Giembycz MA, **Barnes PJ**, Hellewell PG, Lindsay MA. 'Outside-in' signalling mechanisms underlying CD11b/CD18-mediated NADPH oxidase activation in human adherent blood eosinophils. *Br.J.Pharmacol.* 1999; **128**:1149-1158.
609. **Barnes PJ**. Anti-IgE antibody therapy for asthma. *N Engl J Med*. 1999; **341**:2006-2008.

## 2000

610. Hart L, Lim S, Adcock I, **Barnes PJ**, Chung KF. Effects of inhaled corticosteroid therapy on expression and DNA-binding activity of nuclear factor- $\kappa$ B in asthma. *Am J Respir Crit Care Med* 2000; **161**:224-231.
611. Jatakanon A, Lim S, **Barnes PJ**. Changes in sputum eosinophils predict loss of asthma control. *Am.J.Respir.Crit.Care Med.* 2000; **161**:64-72.
612. Hanazawa T, Antuni JD, Kharitonov SA, **Barnes PJ**. Intranasal administration of eotaxin increases nasal eosinophils and nitric oxide in patients with allergic rhinitis. *J Allergy Clin Immunol* 2000; **105**:58-64.
613. Antuni JD, Kharitonov SA, Hughes D, Hodson ME, **Barnes PJ**. Increase in exhaled carbon monoxide during exacerbations of cystic fibrosis. *Thorax* 2000; **55**:138-142.
614. Montuschi P, Kharitonov SA, Ciabattoni G, Corradi M, van Rensen L, Geddes DM, Hodson ME, **Barnes PJ**. Exhaled 8-isoprostane as a new non-invasive biomarker of oxidative stress in cystic fibrosis. *Thorax* 2000; **55**:205-209.
615. Lim S, Jatakanon A, Meah S, Oates T, Chung KF, **Barnes PJ**. Relationship between exhaled nitric oxide and mucosal eosinophilic inflammation in mild to moderately severe asthma. *Thorax* 2000; **55** 184-188.
616. Pareti P, Kharitonov SA, Leak D, Shah PL, Cramer D, Hodson ME, **Barnes PJ**. Exhaled ethane is elevated in cystic fibrosis and correlates with carbon monoxide levels and airway obstruction. *Am J Respir Crit Care Med* 2000; **161**:1247-1251.
617. Thomas SR, Kharitonov SA, Scott SF, Hodson ME, **Barnes PJ**. Nasal and exhaled nitric oxide is reduced in adult patients with cystic fibrosis and does not correlate with cystic fibrosis genotype. *Chest* 2000; **117**:1085-1089.
618. Mak JC, Roffel AF, Katsunuma T, Elzinga CR, Zaagsma J, **Barnes PJ**. Up-regulation of airway smooth muscle histamine H<sub>1</sub> receptor mRNA, protein, and function by b<sub>2</sub>-adrenoceptor activation. *Mol.Pharmacol.* 2000; **57**:857-864.
619. Bergmann M, **Barnes PJ**, Newton R. Molecular regulation of granulocyte macrophage colony-stimulating factor in human lung epithelial cells by interleukin (IL)-1 $\beta$ , IL-4, and IL-13 involves both transcriptional and post-transcriptional mechanisms. *Am J Respir Cell Mol.Biol.* 2000; **22**:582-589.
620. Leckie MJ, Bryan SA, Khan J, Dewar A, Aikman SA, McGrath J, Okrongo DA, Burman JF, **Barnes PJ**, Hansel TT. Automated quantitation of circulating neutrophil and eosinophil activation in asthmatic patients. *Thorax* 2000; **55**:471-477.

621. Haddad EB, Fox AJ, Rousell J, Burgess G, McIntyre P, **Barnes PJ**, Chung KF. Post-transcriptional regulation of bradykinin B<sub>1</sub> and B<sub>2</sub> receptor gene expression in human lung fibroblasts by tumor necrosis factor- $\beta$ : modulation by dexamethasone. *Mol.Pharmacol.* 2000; **57**:1123-1131.
622. Lynch OT, Giembycz MA, Daniels I, **Barnes PJ**, Lindsay MA. Pleiotropic role of *lyn* kinase in leukotriene B<sub>4</sub>-induced eosinophil activation. *Blood* 95:3541-3547, 2000.
623. Lim S, John M, Seybold J, Taylor D, Witt C, **Barnes PJ**, Chung KF. Increased interleukin-10 and macrophage inflammatory protein-1a release from blood monocytes *ex vivo* during late-phase response to allergen in asthma. *Allergy* 2000; **55**:489-495.
624. Ranu HK, Mak JC, **Barnes PJ**, Harding SE. G<sub>i</sub>-dependent suppression of  $\beta_1$ -adrenoceptor effects in ventricular myocytes from NE-treated guinea pigs. *Am J Physiol* 2000; **278**:H1807.-H1814.
625. Finney PA, Belvisi MG, Donnelly LE, Chuang TT, Mak JC, Scorer C, **Barnes PJ**, Adcock IM, Giembycz MA. Albuterol-induced down-regulation of G<sub>s $\alpha$</sub>  accounts for pulmonary  $\beta_2$ -adrenoceptor desensitization *in vivo*. *J Clin Invest* 2000; **106**:125-135.
626. Staples KJ, Bergmann M, **Barnes PJ**, Newton R. Stimulus-specific inhibition of IL-5 by cAMP-elevating agents and IL-10 reveals differential mechanisms of action. *Biochem.Biophys.Res Commun.* 2000; **273**:811-815.
627. Katsunuma T, Fujita K, Mak JC, **Barnes PJ**, Ueno K, Iikura I.  $\beta$ -Adrenergic agonists and bronchial hyperreactivity: Role of  $\beta_2$ -adrenergic and tachykinin neurokinin-2 receptors. *J Allergy Clin Immunol* 2000; **106**:104-108.
628. Kankaanranta H, Lindsay MA, Giembycz MA, Zhang X, Moilanen E, **Barnes PJ**. Delayed eosinophil apoptosis in asthma. *J Allergy Clin Immunol* 2000; **106**:77-83.
629. Newton R, Cambridge L, Hart LA, Stevens DA, Lindsay MA, **Barnes PJ**. The MAP kinase inhibitors, PD098059, UO126 and SB203580, inhibit IL-1 $\beta$ -dependent PGE<sub>2</sub> release via mechanistically distinct processes. *Br.J.Pharmacol.* 2000; **130**:1353-1361.
630. Nightingale JA, Maggs R, Cullinan P, Donnelly LE, Rogers DF, Kinnersley R, Chung KF, **Barnes PJ**, Ashmore M, Newman-Taylor A. Airway inflammation after controlled exposure to diesel exhaust particulates. *Am.J.Respir.Crit.Care Med.* 2000; **162**:161-166.,
631. Dennis SM, Sharp SJ, Vickers MR, Frost CD, Crompton GK, **Barnes PJ**, Lee TH. Regular inhaled salbutamol and asthma control: the TRUST randomised trial. *Lancet* 2000; **355**:1675-1679.
632. Spicuzza L, Haddad EB, Birrell M, Ling A, Clarke D, Venkatesan P, **Barnes PJ**, Belvisi MG. Characterization of the effects of cannabinoids on guinea-pig tracheal smooth muscle tone: role in the modulation of acetylcholine release from parasympathetic nerves. *Br.J Pharmacol* 2000; **130**:1720-1726.
633. Paredi P, Kharitonov SA, Leak D, Ward S, Cramer D, **Barnes PJ**. Exhaled ethane, a marker of lipid peroxidation, is elevated in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2000; **162**:369-373.
634. Ito K, **Barnes PJ**, Adcock IM. Glucocorticoid receptor recruitment of histone deacetylase 2 inhibits IL-1 $\beta$ -induced histone H4 acetylation on lysines 8 and 12. *Mol Cell Biol* 2000: 20:6891-6903
635. Bryan SA, O'Connor BJ, Matti S, Leckie MJ, Kanabar V, Khan J, Warrington SJ, Renzetti L, Rames A, Bock JA, Boyce MJ, Hansel TT, Holgate ST and **Barnes PJ**. Effects of recombinant human interleukin-12 on eosinophils, airway hyperresponsiveness and the late asthmatic response. *Lancet* 2003; **356**: 2149-2153.
636. Leckie MJ, ten Brinke A, Khan J, Diamant Z, O'Connor BJ, Walls CM, Mathur AK, Cowley HC, Chung KF, Djukanovic R, Hansel TT, Holgate ST, Sterk PJ and **Barnes PJ**. Effects of an interleukin-5 blocking monoclonal antibody on eosinophils, airway hyperresponsiveness and the late asthmatic response. *Lancet* 2000; **356**:2144-2148.
637. Lim S, Jatakanon A, Gordon D, Macdonald C, Chung KF, **Barnes PJ**. Comparison of high dose inhaled steroids, low dose inhaled steroids plus low dose theophylline, and low dose inhaled steroids alone in chronic asthma in general practice. *Thorax* 2000; **55**: 837-841.

638. Montuschi P, Collins JV, Ciabattoni G, Lazzeri N, Corradi M, Kharitonov SA, **Barnes PJ**. Exhaled 8-isoprostane as an *in vivo* biomarker of lung oxidative stress in patients with COPD and healthy smokers. *Am J Respir Crit Care Med* 2000; **162**:1175-1177.
639. Lim S, Roche N, Oliver BG, Mattos W, **P.Barnes PJ**, Chung KF. Balance of matrix metalloprotease-9 and tissue inhibitor of metalloprotease-1 from alveolar macrophages in cigarette smokers. Regulation by interleukin-10. *Am J Respir Crit Care Med* 2000; **162**:1355-1360.
640. Paredi P, Kharitonov SA, **Barnes PJ**. Elevation of exhaled ethane concentration in asthma. *Am J Respir Crit Care Med* 2000; **162**:1450-1454.
641. Hanazawa H, Kharitonov SA, **Barnes PJ**. Increased nitrotyrosine in exhaled breath condensate of patients with asthma. *Am J Respir Crit Care Med* 2000; **162**:1273-1276.
642. Koch A, Nasuhara Y, **Barnes PJ**, Lindsay MA, Giembycz MA. Extracellular signal-regulated kinase 1/2 control Ca<sup>2+</sup>-independent force development in histamine-stimulated bovine tracheal smooth muscle. *Br J Pharmacol* 2000; **131**:981-989.
643. Newton R, Hart L, Chung KF, **Barnes PJ**. Ceramide induction of COX-2 and PGE<sub>2</sub> in pulmonary A549 cells does not involve activation of NF-κB. *Biochem Biophys Res Commun* 2000; **277**:675-679.
644. Lim S, Groneberg D, Fischer A, Oates T, Caramori G, Mattos W, Adcock I, **Barnes PJ**, Chung KF. Expression of heme oxygenase isoenzymes 1 and 2 in normal and asthmatic airways. effect of inhaled corticosteroids. *Am J Respir Crit Care Med* 2000; **162**:1912-1918.
645. Meja KK, Seldon PM, Nasuhara Y, Ito K, **Barnes PJ**, Lindsay MA, Giembycz MA. p38 MAP kinase and MKK-1 co-operate in the generation of GM-CSF from LPS-stimulated human monocytes by an NF-κB-independent mechanism. *Br J Pharmacol* 2000; **131**:1143-1153.
646. **Barnes PJ**. Chronic obstructive pulmonary disease. *New Engl J Med* 2000; **343**:269-280.
647. Mak JC, Rousell J, Haddad EB, **Barnes PJ**. Transforming growth factor-β1 inhibits β<sub>2</sub>-adrenoceptor gene transcription. *Naunyn Schmiedebergs Arch Pharmacol* 2000; **362**:520-525.

## 2001

648. Paredi P, Kharitonov SA, Hanazawa T, **Barnes PJ**. Local vasodilator response to mobile phones. *Laryngoscope* 2001; **111**:159-162.
649. Ito K, Lim S, Caramori G, Chung KF, **Barnes PJ**, Adcock IM. Cigarette smoking reduces histone deacetylase 2 expression, enhances cytokine expression and inhibits glucocorticoid actions in alveolar macrophages. *FASEB J* 2001; **15**:1100-1102.
650. Finney PA, Donnelly LE, Belvisi MG, Chuang TT, Birrell M, Harris A, Mak JC, Scorer C, **Barnes PJ**, Adcock IM, Giembycz MA. Chronic systemic administration of salmeterol to rats promotes pulmonary β<sub>2</sub>-adrenoceptor desensitization and down-regulation of G<sub>αo</sub>. *Br J Pharmacol* 2001; **132**:1261-1270.
651. Donnelly LE, **Barnes PJ**. Expression of heme oxygenase in human airway epithelial cells. *Am J Respir Cell Mol Biol* 2001; **24**:295-303.
652. Corradi M, Montuschi P, Donnelly LE, Pesci A, Kharitonov SA, **Barnes PJ**. Increased nitrosothiols in exhaled breath condensate in inflammatory airway diseases. *Am.J.Respir.Crit Care Med* 2001; **163**:854-858.
653. Pype JL, Xu H, Schuermans M, Dupont LJ, Wuyts W, Mak JC, **Barnes PJ**, Demedts MG, Verleden GM. Mechanisms of interleukin 1β-induced human airway smooth muscle hyporesponsiveness to histamine. Involvement of p38 MAPK and NF-κB. *Am.J.Respir.Crit Care Med* 2001; **163**:1010-1017.
654. Spicuzza L, **Barnes PJ**, Di Maria GU, Belvisi MG. Effect of 8-iso-prostaglandin F<sub>2α</sub> on acetylcholine release from parasympathetic nerves in guinea pig airways. *Eur.J.Pharmacol.* 2001; **416**:231-234.
655. **Barnes PJ**. Corticosteroids, IgE, and atopy. *J.Clin.Invest* 2001; **107**:265-266.

656. Fujita K, Kasayama S, Hashimoto J, Nagasaka Y, Nakano N, Morimoto Y, **Barnes PJ**, Miyatake A. Inhaled corticosteroids reduce bone mineral density in early postmenopausal but not premenopausal asthmatic women. *J Bone Miner Res*. 2001; **16**:782-787.
657. Balint B, Donnelly LE, Hanazawa T, Kharitonov SA, **Barnes PJ**. Increased nitric oxide metabolites in exhaled breath condensate after exposure to tobacco smoke. *Thorax* 2001; **56**:456-461.
658. Ito K, Jazrawi E, Cosio B, **Barnes PJ**, Adcock IL. p65-activated histone acetyltransferase activity is repressed by glucocorticoids: mifepristone fails to recruit HDAC2 to the p65/HAT complex. *J Biol Chem*. 2001; **276**:30208-30215.
659. Di Stefano A, Capelli A, Lusuardi M, Caramori G, Balbo P, Ioli F, Sacco S, Gnemmi I, Brun P, Adcock IM, Balbi B, **Barnes PJ**, Chung KF, Donner CF. Decreased T lymphocyte infiltration in bronchial biopsies of subjects with severe chronic obstructive pulmonary disease. *Clin Exp Allergy* 2001; **31**:893-902.
660. Andersson F, Stahl E, **Barnes PJ**, Lofdahl CG, O'Byrne PM, Pauwels RA, Postma DS, Tattersfield AE, Ullman A. Adding formoterol to budesonide in moderate asthma - health economic results from the FACET study. *Respir Med* 2001; **95**:505-512.
661. Lim S, Tomita K, Carramori G, Jatakanon A, Oliver B, Keller A, Adcock I, Chung KF, **Barnes PJ**. Low-dose theophylline reduces eosinophilic inflammation but not exhaled nitric oxide in mild asthma. *Am J Respir Crit Care Med* 2001; **164**:273-276.
662. Fox AJ, Patel HJ, **Barnes PJ**, Belvisi MG. Release of nerve growth factor by human pulmonary epithelial cells: role in airway inflammatory diseases. *Eur J Pharmacol* 2001; **424**:159-162.
663. Staples KJ, Bergmann M, Tomita K, Houslay MD, McPhee I, **Barnes PJ**, Giembycz MA, Newton R. Adenosine 3',5'-cyclic monophosphate (cAMP)-dependent inhibition of IL-5 from human T lymphocytes is not mediated by the cAMP-dependent protein kinase A. *J Immunol*. 2001; **167**:2074-2080.
664. Balint B, Kharitonov SA, Hanazawa T, Donnelly LE, Shah PI, Hodson ME, **Barnes PJ**. Increased nitrotyrosine in exhaled breath condensate in cystic fibrosis. *Eur Respir J* 2001; **17**:1201-1207.
665. Spicuzza L, Belvisi MG, Birrell MA, **Barnes PJ**, Hele DJ, Giembycz MA. Evidence that the anti-spasmogenic effect of the beta-adrenoceptor agonist, isoprenaline, on guinea-pig trachealis is not mediated by cyclic AMP-dependent protein kinase. *Br J Pharmacol* 2001; **133**:1201-1212.
666. Montuschi P, Kharitonov SA, **Barnes PJ**. Exhaled carbon monoxide and nitric oxide in COPD. *Chest* 2001; **120**:496-501.
667. Newton R, Staples KJ, Hart L, **Barnes PJ**, Bergmann MW. GM-CSF expression in pulmonary epithelial cells is regulated negatively by posttranscriptional mechanisms. *Biochem Biophys Res Commun* 2001; **287**:249-253.
668. Caramori G, Lim S, Ito K, Tomita K, Oates T, Jazrawi E, Chung KF, **Barnes PJ**, Adcock IM. Expression of GATA family of transcription factors in T-cells, monocytes and bronchial biopsies. *Eur Respir J* 2001; **18**:466-473.
669. Emelyanov A, Fedoseev G, Abulimy A, Rudinski K, Fedoulov A, Karabanov A, **Barnes PJ**. Elevated concentrations of exhaled hydrogen peroxide in asthmatic patients. *Chest* 2001; **120**:1136-1139.
670. Lynch OT, Giembycz MA, **Barnes PJ**, Lindsay MA. Pharmacological comparison of LTB<sub>4</sub>-induced NADPH oxidase activation in adherent and non-adherent guinea-pig eosinophils. *Br J Pharmacol* 2001; **134**:797-806.
671. Kagoshima M, Wilcke T, Ito K, Tsaprouni L, **Barnes PJ**, Punchard N, Adcock IM. Glucocorticoid-mediated transrepression is regulated by histone acetylation and DNA methylation. *Eur J Pharmacol* 2001; **429**:327-334.
672. Oliver B, Tomita K, Keller A, Caramori G, Adcock I, Chung KF, **Barnes PJ**, Lim S. Low-dose theophylline does not exert its anti-inflammatory effects in mild asthma through upregulation of interleukin-10 in alveolar macrophages. *Allergy* 2001; **56**:1087-1090.

673. O'Byrne PM, **Barnes PJ**, Rodriguez-Roisin R, Runnerstrom E, Sandstrom T, Svensson T, Tattersfield A. Low dose ionhaled budesonide and formoterol in mild persistent asthma. The optima randomized trial. *Am J Respir Crit Care Med* 2001; **164**:1392-1397.
674. Stirling RG, van Rensen EL, **Barnes PJ**, Chung KF. Interleukin-5 induces CD34<sup>+</sup> eosinophil progenitor mobilization and eosinophil CCR3 expression in asthma. *Am J Respir Crit Care Med* 2001; **164**:1403-1409.
675. Biernacki WA, Kharitonov SA, **Barnes PJ**. Exhaled carbon monoxide in patients with lower respiratory tract infection. *Respir Med* 2001; **95**:1003-1005.
676. Pulley L, Newton R, Adcock IM, **Barnes PJ**. TGF $\beta$ 1 allele association with asthma severity. *Hum. Genet.* 2001; **109**:623-627.
677. van Rensen EL, Stirling RG, Scheerens J, Staples K, Sterk PJ, P. **Barnes PJ**, Chung KF. Evidence for systemic rather than pulmonary effects of interleukin-5 administration in asthma. *Thorax* 2001; **56**:935-940.

## 2002

678. Donnelly LE, **Barnes PJ**. Expression and regulation of inducible nitric oxide synthase from human primary airway epithelial cells. *Am J Respir Cell Mol. Biol.* 2002; **26**:144-151.
679. Paredi P, Kharitonov SA, **Barnes PJ**. Faster rise of exhaled breath temperature in asthma. A novel marker of airway inflammation? *Am J Respir Crit Care Med* 2002; **165**:181-184.
680. Groneberg DA, Eynott PR, Doring F, Thai DQ, Oates T, **Barnes PJ**, Chung KF, Daniel H, Fischer A. Distribution and function of the peptide transporter PEPT2 in normal and cystic fibrosis human lung. *Thorax* 2002; **57**:55-60.
681. Mak JC, Chuang TT, Harris CA, **Barnes PJ**. Increased expression of G protein-coupled receptor kinases in cystic fibrosis lung. *Eur J Pharmacol* 2002; **436**:165-172.
682. Mak JC, Hisada T, Salmon M, **Barnes PJ**, Chung KF. Glucocorticoids reverse IL-1 $\beta$ -induced impairment of  $\beta$ -adrenoceptor-mediated relaxation and up-regulation of G-protein-coupled receptor kinases. *Br J Pharmacol* 2002; **135**:987-996.
683. Tomita K, Lim S, Hanazawa T, Usmani O, Stirling R, Chung KF, **Barnes PJ**, Adcock IM. Attenuated production of intracellular IL-10 and IL-12 in monocytes from patients with severe asthma. *Clin Immunol* 2002; **102**:258-266.
684. Kankaanranta H, Giembycz MA, **Barnes PJ**, Haddad EB, Saarelainen S, Zhang X, Moilanen E, Lindsay MA. Hydrogen peroxide reverses IL-5 afforded eosinophil survival and promotes constitutive human eosinophil apoptosis. *Int. Arch. Allergy Immunol* 2002; **127**:73-78.
685. Hislop AA, Mak JC, Kelly D, Reader JA, **Barnes PJ**, Haworth SG. Postnatal changes in  $\beta$ -adrenoceptors in the lung and the effect of hypoxia induced pulmonary hypertension of the newborn. *Br J Pharmacol* 2002; **135**:1415-1424.
686. Ravenna F, Caramori G, Panella GK, Papi A, Benea G, Adcock IM, **Barnes PJ**, Ciaccia A. An unusual case of congenital short trachea with very long bronchi mimicking bronchial asthma. *Thorax* 2002; **57**:372-373.
687. Montuschi P, **Barnes PJ**. Exhaled leukotrienes and prostaglandins in asthma. *J Allergy Clin Immunol* 2002; **109**:615-620.
688. Irusen E, Matthews JG, Takahashi A, **Barnes PJ**, Chung KF, Adcock IM. p38 Mitogen-activated protein kinase-induced glucocorticoid receptor phosphorylation reduces its activity: role in steroid-insensitive asthma. *J Allergy Clin Immunol* 2002; **109**:649-657.
689. De Souza PM, Kankaanranta H, Michael A, **Barnes PJ**, Giembycz MA, Lindsay MA. Caspase-catalyzed cleavage and activation of Mst1 correlates with eosinophil but not neutrophil apoptosis. *Blood* 2002; **99**:3432-3438.

690. Russell RE, Culpitt SV, DeMatos C, Donnelly L, Smith M, Wiggins J, **Barnes PJ**. Release and activity of matrix metalloproteinase-9 and tissue inhibitor of metalloproteinase-1 by alveolar macrophages from patients with chronic obstructive pulmonary disease. *Am J Respir Cell Mol Biol* 2002; **26**:602-609.
691. Shahid SK, Kharitonov SA, Wilson NM, Bush A, **Barnes PJ**. Increased interleukin-4 and decreased interferon- $\gamma$  in exhaled breath condensate of asthmatic children. *Am J Respir Crit Care Med* 2002; **165**:1290-1293.
692. Nightingale JA, Rogers DF, **Barnes PJ**. Comparison of the effects of salmeterol and formoterol in patients with severe asthma. *Chest* 2002; **121**:1401-1406.
693. Culpitt SV, de Matos C, Russell RE, Donnelly LE, Rogers DF, **Barnes PJ**. Effect of theophylline on induced sputum inflammatory indices and neutrophil chemotaxis in COPD. *Am J Respir Crit Care Med* 2002; **165**:1371-1376.
694. **Barnes PJ**. New treatments for COPD. *Nature Rev Drug Disc* 2002; **1**:437-445.
695. Birrell MA, Crispino N, Hele DJ, Patel HJ, Yacoub MH, **Barnes PJ**, Belvisi MG. Effect of dopamine receptor agonists on sensory nerve activity: possible therapeutic targets for the treatment of asthma and COPD. *Br J Pharmacol* 2002; **136**:620-628.
696. Bryan SA, Jose PJ, Topping JR, Wilhelm R, Soderberg C, Kertesz D, **Barnes PJ**, Williams TJ, Hansel TT, Sabroe I. Responses of leukocytes to chemokines in whole blood and their antagonism by novel CC-chemokine receptor 3 antagonists. *Am J Respir Crit Care Med* 2002; **165**:1602-1609.
697. Antczak A, Montuschi P, Kharitonov S, Gorski P, **Barnes PJ**. Increased exhaled cysteinyl-leukotrienes and 8-isoprostanone in aspirin-induced asthma. *Am J Respir Crit Care Med* 2002; **166**:301-306.
698. Ito K, Caramori G, Lim S, Oates T, Chung KF, **Barnes PJ**, Adcock IM. Expression and activity of histone deacetylases (HDACs) in human asthmatic airways. *Am J Respir Crit Care Med* 2002; **166**:392-396.
699. Tomita K, Caramori G, Lim S, Ito K, Hanazawa T, Oates T, Chiselita I, Jazrawi E, Chung KF, **Barnes PJ**, Adcock IM. Increased p21<sup>CIP1/WAF1</sup> and B cell lymphoma leukemia-xL expression and reduced apoptosis in alveolar macrophages from smokers. *Am J Respir Crit Care Med* 2002; **166**:724-731.
700. Kharitonov SA, Donnelly LE, Montuschi P, Corradi M, Collins JV, **Barnes PJ**. Dose-dependent onset and cessation of action of inhaled budesonide on exhaled nitric oxide and symptoms in mild asthma. *Thorax* 2002; **57**:889-896.
701. Di Stefano A, Caramori G, Capelli A, Lusuardi M, Gnemmi I, Ioli F, Chung KF, Donner CF, **Barnes PJ**, Adcock IM. Increased expression of NF- $\kappa$ B in bronchial biopsies from smokers and patients with COPD. *Eur Respir J* 2002; **20**:556-563.
702. Emelyanov A, Fedoseev G, Krasnoschekova O, Abulimy A, Trendeleva T, **Barnes PJ**. Treatment of asthma with lipid extract of New Zealand green-lipped mussel: a randomised clinical trial. *Eur Respir J* 2002; **20**:596-600.
703. Eynott P, Groneberg D, Caramori G, Adcock I, Donnelly L, Kharitonov S, Barnes P, Chung K. Role of nitric oxide in allergic inflammation and bronchial hyperresponsiveness. *Eur J Pharmacol* 2002; **452**:123-133.
704. Carpagnano GE, Kharitonov SA, Resta O, Foschino-Barbaro MP, Gramicciioni E, **Barnes PJ**. Increased 8-isoprostanone and interleukin-6 in breath condensate of obstructive sleep apnea patients. *Chest* 2002; **122**:1162-1167.
705. Montuschi P, Nightingale JA, Kharitonov SA, **Barnes PJ**. Ozone-induced increase in exhaled 8-isoprostanone in healthy subjects is resistant to inhaled budesonide. *Free Radic Biol Med* 2002; **33**:1403-1408.
706. Mattos W, Lim S, Russell R, Jatakanon A, Chung KF, **Barnes PJ**. Matrix metalloproteinase-9 expression in asthma: effect of asthma severity, allergen challenge, and inhaled corticosteroids. *Chest* 2002; **122**:1543-1552.
707. Csoma Z, Kharitonov SA, Balint B, Bush A, Wilson NM, **Barnes PJ**. Increased leukotrienes in exhaled breath condensate in childhood asthma. *Am J Respir Crit Care Med* 2002; **166**:1345-1349.

708. Barnes PJ. Scientific rationale for combination inhalers with a long-acting  $\beta_2$ -agonists and corticosteroids. *Eur Respir J* 2002; **19**:182-191.
709. Ito K, Lim S, Caramori G, Cosio B, Chung KF, Adcock IM, Barnes PJ. A molecular mechanism of action of theophylline: Induction of histone deacetylase activity to decrease inflammatory gene expression. *Proc Natl Acad Sci U S A* 2002; **99**:8921-8926.
710. Russell RE, Thorley A, Culpitt SV, Dodd S, Donnelly LE, Demattos C, Fitzgerald M, Barnes PJ. Alveolar macrophage-mediated elastolysis: roles of matrix metalloproteinases, cysteine, and serine proteases. *Am J Physiol Lung Cell Mol Physiol* 2002; **283**:L867-L873.
711. Traves SL, Culpitt C, Russell REK, Barnes PJ, Donnelly LE. Elevated levels of the chemokines GRO- $\alpha$  and MCP-1 in sputum samples from COPD patients. *Thorax* 2002; **57**:590-595.

## 2003

712. Horvath I, Loukides S, Wodehouse T, Csiszer E, Cole PJ, Kharitonov SA, Barnes PJ. Comparison of exhaled and nasal nitric oxide and exhaled carbon monoxide levels in bronchiectatic patients with and without primary ciliary dyskinesia. *Thorax* 2003; **58**:68-72.
713. Leckie MJ, Jenkins GR, Khan J, Smith SJ, Walker C, Barnes PJ, Hansel TT. Sputum T lymphocytes in asthma, COPD and healthy subjects have the phenotype of activated intraepithelial T cells ( $CD69^+ CD103^+$ ). *Thorax* 2003; **58**:23-29.
714. Dennis SM, Price JF, Vickers MR, Frost CD, Levy ML, Barnes PJ. The management of newly identified asthma in primary care in England. *Primary Care Resp J* 2003; **11**:120-122.
715. Barnes PJ. New concepts in COPD. *Ann Rev Med* 2003; **54**:113-129.
716. Smith SJ, Brookes-Fazakerley S, Donnelly LE, Barnes PJ, Barnette MS, Giembycz MA. Ubiquitous expression of phosphodiesterase 7A in human pro-inflammatory and immune cells. *Am J Physiol Lung Cell Mol Physiol* 2003; **284**:L279-L289.
717. Tomita K, Barnes PJ, Adcock IM. The effect of oxidative stress on histone acetylation and IL-8 release. *Biochem Biophys Res Comm* 2003; **301**:572-577.
718. Wodehouse T, Kharitonov SA, Mackay IS, Barnes PJ, Wilson R, Cole PJ. Nasal nitric oxide measurements for the screening of primary ciliary dyskinesia. *Eur Respir J* 2003; **21**:43-47.
719. Nabeyrat E, Jones GE, Fenwick PS, Barnes PJ, Donnelly LE. Mitogen-activated protein kinases mediate peroxynitrite-induced cell death in human bronchial epithelial cells. *Am J Physiol Lung Cell Mol Physiol* 2003; **284**:L1112-L1120.
720. Biddiscombe MF, Usmani OS, Barnes PJ. A system for the production and delivery of monodisperse salbutamol aerosols to the lungs. *Int J Pharm*. 2003; **254**:243-253.
721. Barnes PJ. Theophylline: new perspectives on an old drug. *Am J Respir Crit Care Med* 2003; **167**:813-818.
722. Hoyt JC, Robbins RA, Habib M, Springall DR, Buttery LD, Polak JM, Barnes PJ. Cigarette smoke decreases inducible nitric oxide synthase in lung epithelial cells. *Exp Lung Res* 2003; **29**:17-28.
723. Kharitonov SA, Gonio F, Kelly C, Meah S, Barnes PJ. Reproducibility of exhaled nitric oxide measurements in healthy and asthmatic adults and children. *Eur Respir J* 2003; **21**:433-438.
724. Paredi P, Caramori G, Cramer D, Ward S, Ciaccia A, Papi A, Kharitonov SA, Barnes PJ. Slower rise of exhaled breath temperature in chronic obstructive pulmonary disease. *Eur Respir J* 2003; **21**:439-443.
725. Montuschi P, Ragazzoni E, Valente S, Corbo G, Mondino C, Ciappi G, Barnes PJ, Ciabattoni G. Validation of leukotriene B<sub>4</sub> measurements in exhaled breath condensate. *Inflamm Res* 2003; **52**:69-73.

726. Biernacki WA, Kharitonov SA, **Barnes PJ**. Increased leukotriene B<sub>4</sub> and 8-isoprostanone in exhaled breath condensate of patients with exacerbations of COPD. *Thorax* 2003; **58**:294-298.
727. Caramori G, Romagnoli M, Casolari P, Bellettato C, Casoni G, Boschetto P, Chung KF, **Barnes PJ**, Adcock IM, Ciaccia A, Fabbri LM, Papi A. Nuclear localisation of p65 in sputum macrophages but not in sputum neutrophils during COPD exacerbations. *Thorax* 2003; **58**:348-351.
728. Beeh KM, Kornmann O, Buhl R, Culpitt SV, Giembycz MA, **Barnes PJ**. Neutrophil chemotactic activity of sputum from patients with COPD: role of interleukin 8 and leukotriene B<sub>4</sub>. *Chest* 2003; **123**:1240-1247.
729. Carpagnano GE, **Barnes PJ**, Geddes DM, Hodson ME, Kharitonov SA. Increased leukotriene B<sub>4</sub> and interleukin-6 in exhaled breath condensate in cystic fibrosis. *Am J Respir Crit Care Med* 2003; **167**:1109-1112.
730. Carpagnano GE, Kharitonov SA, Wells AU, Pantelidis P, du Bois RM, **Barnes PJ**. Increased vitronectin and endothelin-1 in the breath condensate of patients with fibrosing lung disease. *Respiration* 2003; **70**:154-160.
731. Hansel TT, Kharitonov SA, Donnelly LE, Erin EM, Currie MG, Moore WM, Manning PT, Recker DP, **Barnes PJ**. A selective inhibitor of inducible nitric oxide synthase inhibits exhaled breath nitric oxide in healthy volunteers and asthmatics. *FASEB J* 2003; **17**:1298-1300.
732. Zhang Y, Leaves NI, Anderson GG, Ponting CP, Broxholme J, Holt R, Edser P, Bhattacharyya S, Dunham A, Adcock IM, Pulley L, **Barnes PJ**, Harper JI, Abecasis G, Cardon L, White M, Burton J, Matthews L, Mott R, Ross M, Cox R, Moffatt MF, Cookson WO. Positional cloning of a quantitative trait locus on chromosome 13q14 that influences immunoglobulin E levels and asthma. *Nature Genet*. 2003; **34**:184-186.
733. Carpagnano GE, Kharitonov SA, Foschino-Barbaro MP, Resta O, Gramicciioni E, **Barnes PJ**. Increased inflammatory markers in the exhaled breath condensate of cigarette smokers. *Eur Respir J* 2003; **21**:589-593.
734. Montuschi P, Kharitonov SA, Ciabattoni G, **Barnes PJ**. Exhaled leukotrienes and prostaglandins in COPD. *Thorax* 2003; **58**:585-588.
735. Zhang X, Moilanen E, Lahti A, Hamalainen M, Giembycz MA, **Barnes PJ**, Lindsay MA, Kankaanranta H. Regulation of eosinophil apoptosis by nitric oxide: role of c-Jun-N-terminal kinase and signal transducer and activator of transcription 5. *J Allergy Clin Immunol*. 2003; **112**:93-101.
736. Baraldi E, Ghigo L, Piovan V, Carraro S, Ciabattoni G, **Barnes PJ**, Montuschi P. Increased exhaled 8-isoprostanone in childhood asthma. *Chest* 2003; **124**:25-31.
737. Catley MC, Chivers JE, Cambridge LM, Holden N, Slater DM, Staples KJ, Bergmann MW, Loser P, **Barnes PJ**, Newton R. IL-1 $\beta$ -dependent activation of NF- $\kappa$ B mediates PGE<sub>2</sub> release via the expression of cyclooxygenase-2 and microsomal prostaglandin E synthase. *FEBS Lett*. 2003; **547**:75-79.
738. Staples KJ, Bergmann MW, **Barnes PJ**, Newton R. Evidence for post-transcriptional regulation of interleukin-5 by dexamethasone. *Immunology* 2003; **109**:527-535.
739. Usmani OS, Biddiscombe MF, Nightingale JA, Underwood SR, **Barnes PJ**. The effects of bronchodilator particle size in asthmatics using monodisperse aerosols. *J Appl Physiol* 2003; **95**:2106-2112.
740. Csoma Z, Bush A, Wilson NM, Donnelly L, Balint B, **Barnes PJ**, Kharitonov SA. Nitric oxide metabolites are not reduced in exhaled breath condensate of patients with primary ciliary dyskinesia. *Chest* 2003; **124**:633-638.
741. von Haehling S, Gentz-Zotz S, Sharma R, Bolger AP, Doehner W, **Barnes PJ**, Coats AJ, Anker SD. The relationship between age and production of tumour necrosis factor- $\alpha$  in healthy volunteers and patients with chronic heart failure. *Int J Cardiol*. 2003; **90**:197-204.
742. **Barnes PJ**, Adcock IM. How do corticosteroids work in asthma? *Ann Intern Med* 2003; **139**:359-370.

743. Ichinose M, Sugiura H, Yamagata S, Koarai A, Tomaki M, Ogawa H, Komaki Y, **Barnes PJ**, Shirato K, Hattori T. Xanthine oxidase inhibition reduces reactive nitrogen species production in COPD airways. *Eur Respir J* 2003; **22**:457-461.
744. Robinson DS, Campbell DA, Durham SR, Pfeffer J, **Barnes PJ**, Chung KF. Systematic assessment of difficult-to-treat asthma. *Eur Respir J* 2003; **22**:478-483.
745. Carpagnano GE, Kharitonov SA, Resta O, Foschino-Barbaro MF, Gramiccioni E, **Barnes PJ**. 8-isoprostane, a marker of oxidative stress, is increased in exhaled breath condensate of patients with obstructive sleep apnea after night and is reduced by continuous positive airway pressure therapy. *Chest* 2003; **124**:1386-1392.
746. Allen M, Heinzmann A, Noguchi E, Abecasis G, Broxholme J, Ponting CP, Bhattacharyya S, Tinsley J, Zhang Y, Holt R, Jones EY, Lench N, Carey A, Jones H, Dickens NJ, Dimon C, Nicholls R, Baker C, Xue L, Townsend E, Kabesch M, Weiland SK, Carr D, von Mutius E, Adcock IM, **Barnes PJ**, Lathrop GM, Edwards M, Moffatt MF, Cookson WO. Positional cloning of a novel gene influencing asthma from Chromosome 2q14. *Nat Genet* 2003; **35**:258-63.
747. **Barnes PJ**, Shapiro SD, Pauwels RA. Chronic obstructive pulmonary disease: molecular and cellular mechanisms. *Eur Respir J* 2003; **22**:672-688.
748. Culpitt SV, Rogers DF, Fenwick PS, Shah P, de Matos C, Russell RE, **Barnes PJ**, Donnelly LE. Inhibition by red wine extract, resveratrol, of cytokine release by alveolar macrophages in COPD. *Thorax* 2003; **58**:942-946.
749. Bucchioni E, Kharitonov SA, Allegra L, **Barnes PJ**. High levels of interleukin-6 in the exhaled breath condensate of patients with COPD. *Respir Med* 2003; **97**:1299-130

## 2004

750. Yuda H, Adachi Y, Taguchi O, Gabazza EC, Hataji O, Fujimoto H, Tamaki S, Nishikubo K, Fukudome K, D'Alessandro-Gabazza CN, Maruyama J, Izumizaki M, Iwase M, Homma I, Inoue R, Kamada H, Hayashi T, Kasper HM, **Barnes PJ**, Suzuki K. Activated protein C inhibits bronchial hyperresponsiveness and Th2 cytokine expression in the mouse. *Blood* 2004; **103**:2196-204.
751. Bergmann MW, Staples KJ, Smith SJ, **Barnes PJ**, Newton R. Glucocorticoid inhibition of GM-CSF from T cells is independent of control by NF- $\kappa$ B and CLEO. *Am J Respir Cell Mol Biol* 2004; **30**:555-563.
752. Koch A, Giembycz M, Ito K, Lim S, Jazrawi E, **Barnes PJ**, Adcock I, Erdmann E, Chung KF. MAP-kinase modulation of NF- $\kappa$ B-induced GM-CSF release from human alveolar macrophages. *Am J Respir Cell Mol Biol*. 2004; **30**:342-349.
753. **Barnes PJ**, Ito K, Adcock IM. A mechanism of corticosteroid resistance in COPD: inactivation of histone deacetylase. *Lancet* 2004; **363**:731-733.
754. Usmani OS, Biddiscombe MF, Underwood SR, **Barnes PJ**. Characterization of the generation of radiolabeled monodisperse albuterol particles using the spinning-top aerosol generator. *J Nucl Med* 2004; **45**:69-73.
755. Meja KK, Catley MC, Cambridge LM, **Barnes PJ**, Lum H, Newton R, Giembycz MA. Adenovirus-mediated delivery and expression of a cAMP-dependent protein kinase inhibitor gene in BEAS-2B epithelial cells abolishes the anti-inflammatory effects of rolipram, salbutamol and prostaglandin E<sub>2</sub>: a comparison with H-89. *J Pharmacol Exp Ther*. 2004; **309**:833-44.
756. **Barnes PJ**. Ceramide lances the lungs. *Nat Med* 2004; **10**:130-131.
757. Holden NS, Catley MC, Cambridge LM, **Barnes PJ**, Newton R. ICAM-1 expression is highly NF- $\kappa$ B-dependent in A549 cells. *Eur J Biochem* 2004; **271**:785-791.
758. Catley MC, Cambridge LM, Nasuhara Y, Ito K, Chivers JE, Beaton A, Holden NS, Bergmann MW, **Barnes PJ**, Newton R. Inhibitors of protein kinase C prevent activated transcription: Role of events downstream of NF- $\kappa$ B DNA binding. *J Biol Chem* 2004; **279**:18457-18466.

759. Bergmann MW, Staples KJ, **Barnes PJ**, Newton R. Nuclear factor- $\kappa$ B does not mediate the inhibitory effects of dexamethasone on granulocyte-macrophage colony-stimulating factor expression. *Immunology* 2004; **111**:430-434.
760. Lim S, Caramori G, Tomita K, Jazrawi E, Oates T, Chung KF, **Barnes PJ**, Adcock IM. Differential expression of IL-10 receptor by epithelial cells and alveolar macrophages. *Allergy* 2004; **59**:505-514.
761. Traves SL, Smith SJ, **Barnes PJ**, Donnelly LE. Specific CXC but not CC chemokines cause elevated monocyte migration in COPD: a role for CXCR2. *J Leukoc.Biol.*, 2004; **76**:441-450.
762. Cosio BG, Mann B, Ito K, Jazrawi E, **Barnes PJ**, Chung KF, Adcock IM. Histone acetylase and deacetylase activity in alveolar macrophages and blood mononocytes in asthma. *Am J Respir Crit Care Med*, 2004; **170**:141-147.
763. Carpagnano GE, **Barnes PJ**, Francis J, Wilson N, Bush A, Kharitonov SA. Breath condensate pH in children with cystic fibrosis and asthma: a new noninvasive marker of airway inflammation? *Chest* 2004; **125**:2005-2010.
764. Donnelly LE, Newton R, Kennedy GE, Fenwick PS, Leung RH, Ito K, Russell RE, **Barnes PJ**. Anti-inflammatory effects of resveratrol in lung epithelial cells: molecular mechanisms. *Am J Physiol Lung Cell Mol.Physiol*, 2004; **287**:L774-83.
765. Ito K, Tomita T, **Barnes PJ**, Adcock IM. Oxidative stress reduces histone deacetylase (HDAC)2 activity and enhances IL-8 gene expression: role of tyrosine nitration. *Biochem Biophys Res Commun* 2004; **315**:240-245.
766. Cap P, Chladek J, Pehal F, Maly M, Petru V, **Barnes PJ**, Montuschi P. Gas chromatography/mass spectrometry analysis of exhaled leukotrienes in asthmatic patients. *Thorax* 2004; **59**:465-470.
767. Atzori L, Caramori G, Lim S, Jazrawi E, Donnelly L, Adcock I, **Barnes PJ**, Chung KF. Effect of cigarette smoking on haem-oxygenase expression in alveolar macrophages. *Respir Med* 2004; **98**:530-535.
768. Leckie MJ, Gomma AH, Purcell IF, Nyawo B, Dewar A, Okrongo D, Burman JF, Hooper J, **Barnes PJ**, Clague JT, Hansel TT. Automated quantitation of peripheral blood neutrophil activation in patients with myocardial ischaemia. *Int.J Cardiol.* 2004; **95**:307-313.
769. Matthews JG, Ito K, **Barnes PJ**, Adcock IM. Defective glucocorticoid receptor nuclear translocation and altered histone acetylation patterns in glucocorticoid-resistant patients. *J Allergy Clin.Immunol.* 2004; **113**:1100-1108.
770. **Barnes PJ**. Small airways in COPD. *New Engl J Med* 2004; **350**:2635-2637.
771. Buccchioni E, Csoma Z, Allegra L, Chung KF, **Barnes PJ**, Kharitonov SA. Adenosine 5'-monophosphate increases levels of leukotrienes in breath condensate in asthma. *Respir Med* 2004; **98**:651-655.
772. Di Stefano A, Caramori G, Capelli A, Gnemmi I, Ricciardolo F, Oates T, Donner CF, Chung KF, **Barnes PJ**, Adcock IM. STAT4 activation in smokers and patients with chronic obstructive pulmonary disease. *Eur Resp J* 2004; **24**:78-85.
773. **Barnes PJ**, Kleinert S. COPD - a neglected disease. *Lancet* 2004; **364**:564-565.
774. Bumbacea D, Campbell D, Nguyen L, Carr D, **Barnes PJ**, Robinson D, Chung KF. Parameters associated with persistent airflow obstruction in chronic severe asthma. *Eur.Respir J* 2004; **24**:122-128.
775. Smith SJ, Cieslinski LB, Newton R, Donnelly LE, Fenwick PS, Nicholson AG, **Barnes PJ**, Barnette MS, Giembycz MA. Discovery of BRL 50481, a selective inhibitor of phosphodiesterase 7: in vitro studies in human monocytes, lung macrophages and CD8<sup>+</sup> T-lymphocytes. *Mol.Pharmacol* 2004;
776. **Barnes PJ**, Hansel TT. Prospects for new drugs for chronic obstructive pulmonary disease. *Lancet* 2004; **364**:985-996.

777. Cosio BG, Tsaprouni L, Ito K, Jazrawi E, Adcock IM, **Barnes PJ**. Theophylline restores histone deacetylase activity and steroid responses in COPD macrophages. *J Exp Med* 2004; **200**:689-695.
778. Donnelly LE, **Barnes PJ**. Acidic mammalian chitinase - a potential target for asthma therapy. *Trends Pharmacol.Sci.* 2004; **25**:509-511.
779. **Barnes PJ**. New drugs for asthma. *Nat.Rev.Drug Discov.* 2004; **3**:831-844.
780. Horvath I, Donnelly LE, Kiss A, Balint B, Kharitonov SA, **Barnes PJ**. Exhaled nitric oxide and hydrogen peroxide concentrations in asthmatic smokers. *Respiration* 2004; **71**:463-468.
781. Chivers JE, Cambridge LM, Catley MC, Mak JC, Donnelly LE, **Barnes PJ**, Newton R. Differential effects of RU486 reveal distinct mechanisms for glucocorticoid repression of prostaglandin E release. *Eur.J Biochem.* 2004; **271**:4042-4052.
782. Mondino C, Ciabattoni G, Koch P, Pistelli R, Trove A, **Barnes PJ**, Montuschi P. Effects of inhaled corticosteroids on exhaled leukotrienes and prostanoids in asthmatic children. *J Allergy Clin.Immunol.* 2004; **114**:761-767.
783. Caramori G, Di Gregorio C, Carlstedt I, Casolari P, Guzzinati I, Adcock IM, **Barnes PJ**, Ciaccia A, Cavallesco G, Chung KF, Papi A. Mucin expression in peripheral airways of patients with chronic obstructive pulmonary disease. *Histopathology* 2004; **45**:477-484.
784. **Barnes PJ**, Cosio MG. Characterization of T lymphocytes in chronic obstructive pulmonary disease. *PLoS Med* 2004; **1**:25-27.
785. Kankaanranta H, Lahdensuo A, Moilanen E, **Barnes PJ**. Add-on therapy options in asthma not adequately controlled by inhaled corticosteroids: a comprehensive review. *Respir Res.* 2004; **5**:17.
786. Carpagnano GE, Kharitonov SA, Foschino-Barbaro MP, Resta O, Gramiccioni E, **Barnes PJ**. Supplementary oxygen in healthy subjects and those with COPD increases oxidative stress and airway inflammation. *Thorax* 2004; **59**:1016-1019.
787. **Barnes PJ**. Mediators of chronic obstructive pulmonary disease. *Pharmacol.Rev* 2004; **56**:515-548.
788. Montuschi P, **Barnes PJ**, Roberts LJ. Isoprostanes: markers and mediators of oxidative stress. *FASEB J* 2004; **18**:1791-1800.
789. **Barnes PJ**. Distribution of receptor targets in the lung. *Proc Am Thorac Soc* 2004; **1**:345-351.
790. **Barnes PJ**. Corticosteroid resistance in airway disease. *Proc Am Thorac Soc* 2004; **1**:264-268.
791. Adcock IM, Ito K, **Barnes PJ**. Glucocorticoids: effects on gene transcription. *Proc Am Thorac Soc* 2004; **1**:247-254.
792. Kharitonov SA, **Barnes PJ**. Effects of corticosteroids on noninvasive biomarkers of inflammation in asthma and chronic obstructive pulmonary disease. *Proc Am Thorac Soc* 2004; **1**:191-199.

## 2005

793. **Barnes PJ**. A single inhaler for asthma? *Am J Respir Crit Care Med* 2005; **171**:95-96.
794. Adcock IM, Cosio B, Tsaprouni L, **Barnes PJ**, Ito K. Redox regulation of histone deacetylases and glucocorticoid-mediated inhibition of the inflammatory response. *Antioxid.Redox.Signal.* 2005; **7**:144-152.
795. Birrell MA, McCluskie K, Wong S, Donnelly LE, **Barnes PJ**, Belvisi MG. Resveratrol, an extract of red wine, inhibits lipopolysaccharide induced airway neutrophilia and inflammatory mediators through an NF-κB-independent mechanism. *FASEB J* 2005; **19**:840-841.

796. Barnes PJ, Adcock IM, Ito K. Histone acetylation and deacetylation: importance in inflammatory lung diseases. *Eur Respir J* 2005; **25**:552-563.
797. Paredi P, Kharitonov SA, Barnes PJ. Correlation of exhaled breath temperature with bronchial blood flow in asthma. *Respir Res*. 2005; **6**:15.
798. Usmani OS, Belvisi MG, Patel HJ, Crispino N, Birrell MA, Korbonits M, Korbonits D, Barnes PJ. Theobromine inhibits sensory nerve activation and cough. *FASEB J* 2005; **19**:231-233.
799. Ito K, Ito M, Elliott WM, Cosio B, Caramori G, Kon OM, Barczyk A, Hayashi M, Adcock IM, Hogg JC, Barnes PJ. Decreased histone deacetylase activity and severity of chronic obstructive pulmonary disease. *New Engl J Med*, 2005; **352**:1967-1976.
800. Usmani OS, Ito K, Maneechotesuwan K, Ito M, Johnson M, Barnes PJ, Adcock IM. Glucocorticoid receptor nuclear translocation in airway cells following inhaled combination therapy. *Am J Respir Crit Care Med*, 2005; **172**:704-12.
801. Culpitt SV, Rogers DF, Traves SL, Barnes PJ, Donnelly LE. Sputum matrix metalloproteases: comparison between chronic obstructive pulmonary disease and asthma. *Respir Med* 2005; **99**:703-710.
802. Haque RA, Usmani OS, Barnes PJ. Chronic idiopathic cough: a discrete clinical entity? *Chest* 2005; **127**:1710-1713.
803. Barnes PJ, Stockley RA. COPD: current therapeutic interventions and future approaches. *Eur Respir J* 2005; **25**:1084-1106.
804. Brindicci C, Ito K, Resta O, Pride NB, Barnes PJ, Kharitonov SA. Exhaled nitric oxide from lung periphery is increased in COPD. *Eur Respir J* 2005; **26**:52-59.
805. Barnes PJ. Will it be steroids for ever? *Clin Exp Allergy* 2005; **35**:843-845.
806. Shahid S, Kharitonov SA, Wilson N, Bush A, Barnes PJ. Exhaled 8-isoprostane in childhood asthma. *Respir Res*. 2005; **6**:79.
807. Kharitonov SA, Walker L, Barnes PJ. Repeatability of standardised nasal nitric oxide measurements in healthy and asthmatic adults and children. *Respir Med* 2005; **99**:1105-1114.
808. Sharma R, Bolger AP, Rauchhaus M, von Haehling M, Doehner W, Adcock IM, Barnes PJ, Poole-Wilson PA, Volk HD, Coats AJ, Lim S, Anker SD. Cellular endotoxin desensitization in patients with severe chronic heart failure. *Eur J Heart Fail*. 2005; **7**:865-868.
809. Horvath I, Hunt J, Barnes PJ. Exhaled breath condensate: report of ERS/ATS Task Force: methodological recommendations and unresolved questions. *Eur Resp J* 2005; **26**:523-54
810. Caramori G, Fabbri M, Paioli D, Falcone F, Severino C, Felisatti G, Arar O, Adcock IM, Chung KF, Barnes PJ, Ciaccia A, Papi A. Asthma is not a common cause of severe chronic respiratory failure in non-smokers: ALOT study. *Monaldi Arch Chest Dis* 2005; **63**:84-87.
811. Montuschi P, Macagno F, Parente P, Valente S, Lauriola L, Ciappi G, Kharitonov SA, Barnes PJ, Ciabattoni G. Effects of cyclo-oxygenase inhibition on exhaled eicosanoids in patients with COPD. *Thorax* 2005; **60**:827-833.
812. Usmani OS, Biddiscombe MF, Barnes PJ. Regional lung deposition and bronchodilator response as a function of  $\beta_2$ -agonist particle size. *Am J Respir Crit Care Med* 2005;
813. Montuschi P, Martello S, Felli M, Mondino C, Barnes PJ, Chiarotti M. Liquid chromatography/mass spectrometry analysis of exhaled leukotriene B<sub>4</sub> in asthmatic children. *Respir Res*. 2005; **6**:119.
814. Basoglu OK, Pelleg A, Essilfie-Quaye S, Brindicci C, Barnes PJ, Kharitonov SA. Effects of aerosolized adenosine 5'-triphosphate vs adenosine 5'-monophosphate on dyspnea and airway caliber in healthy nonsmokers and patients with asthma. *Chest* 2005; **128**:1905-1909.

815. Maneechotesuwan K, Essilfie-Quaye S, Meah S, Kelly C, Kharitonov SA, Adcock IM, **Barnes PJ**. Formoterol attenuates neutrophilic airway inflammation in asthma. *Chest* 2005; **128**:1936-1942.
816. Biernacki WA, Kharitonov SA, Biernacka HM, **Barnes PJ**. Effect of montelukast on exhaled leukotrienes and quality of life in asthmatic patients. *Chest* 2005; **128**:1958-1963.
817. Hansel TT, Neighbour H, Erin EM, Tan AJ, Tenant RC, Maus JG, **Barnes PJ**. Glycopyrrolate causes prolonged bronchoprotection and bronchodilatation in patients with asthma. *Chest* 2005; **128**:1974-1979.
818. Erin EM, Leaker BR, Zacharasiewicz AS, Higgins LA, Williams TJ, Boyce MJ, de Boer P, Durham SR, **Barnes PJ**, Hansel TT. Single dose topical corticosteroid inhibits IL-5 and IL-13 in nasal lavage following grass pollen challenge. *Allergy* 2005; **60**:1524-1529.
819. Ricciardolo FL, Caramori G, Ito K, Capelli A, Brun P, Abatangelo G, Papi A, Chung KF, Adcock I, **Barnes PJ**, Donner CF, Rossi A, di Stefano A. Nitrosative stress in the bronchial mucosa of severe chronic obstructive pulmonary disease. *J Allergy Clin Immunol*. 2005; **116**:1028-1035.
820. Wada H, Kagoshima M, Ito K, **Barnes PJ**, Adcock IM. 5-Azacytidine suppresses RNA polymerase II recruitment to the SLPI gene. *Biochem Biophys Res Commun*. 2005; 331:93-99.
821. **Barnes PJ**. Targeting histone deacetylase 2 in chronic obstructive pulmonary disease treatment. *Expert Opin Ther Targets*. 2005; **9**:1111-1121.
822. Erin EM, Zacharasiewicz AS, Nicholson GC, Tan AJ, Higgins LA, Williams TJ, Murdoch RD, Durham SD, **Barnes PJ**, Hansel TT. Topical corticosteroid inhibits interleukin-4, -5 and -13 in nasal secretions following allergen challenge. *Clin Exp Allergy* 2005; **35**:1608-1614.
823. Adcock IM, Ito K, **Barnes PJ**. Histone deacetylation: an important mechanism in inflammatory lung diseases. *J COPD* 2005; **2**:435-456.

## 2006

824. Varani K, Caramori G, Vincenzi F, Adcock I, Casolari P, Leung E, Maclennan S, Gessi S, Morello S, **Barnes PJ**, Ito K, Chung KF, Cavallesco G, Azzena G, Papi A, Borea PA. Alteration of adenosine receptors in patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2006; **173**:398-406.
825. Ito K, Yamamura S, Essilfie-Quaye S, Cosio B, Ito M, **Barnes PJ**, Adcock IM. Histone deacetylase 2-mediated deacetylation of the glucocorticoid receptor enables NF- $\kappa$ B suppression. *J Exp Med* 2006; **203**:7-13.
826. Lee KY, Ito K, Hayashi R, Jazrawi EP, **Barnes PJ**, Adcock IM. NF- $\kappa$ B and activator protein-1 response elements and the role of histone modifications in IL-1 $\beta$ -induced TGF- $\beta$ 1 gene transcription. *J Immunol* 2006; **176**:603-615.
827. **Barnes PJ**. Novel signal transduction modulators for the treatment of airway diseases. *Pharmacol Ther* 2006; **109**:238-245.
828. **Barnes PJ**. Drugs for asthma. *Br J Pharmacol* 2006; **147 Suppl 1**:S297-S303.
829. **Barnes PJ**. Reduced histone deacetylase in COPD: clinical implications. *Chest* 2006; **129**:151-155.
830. **Barnes PJ**. Corticosteroids: the drugs to beat. *Eur J Pharmacol*, 2006; **533**:2-14.
831. **Barnes PJ**. Corticosteroid effects on cell signalling. *Eur Respir J* 2006; **27**:413-426.
832. Adcock IM, Ford P, **Barnes PJ**, Ito K. Epigenetics and airways disease. *Respir Res*. 2006; **7**:21.
833. Crompton GK, **Barnes PJ**, Broeders M, Corrigan C, Corbetta L, Dekhuijzen R, Dubus JC, Magnan A, Massone F, Sanchis J, Viejo JL, Voshaar T. The need to improve inhalation technique in Europe: A report from the Aerosol Drug Management Improvement Team. *Respir Med*, 2006; **100**:1479-94
834. Rogers DF, **Barnes PJ**. Treatment of airway mucus hypersecretion. *Ann Med* 2006; **38**:116-125.

835. Lex C, Zacharasiewicz A, Payne DN, Wilson NM, Nicholson AG, Kharitonov SA, **Barnes PJ**, Bush A. Exhaled breath condensate cysteinyl leukotrienes and airway remodeling in childhood asthma: a pilot study. *Respir Res* 2006; **7**:63.
836. **Barnes PJ**. How corticosteroids control inflammation: Quintiles Prize Lecture 2005. *Br.J Pharmacol* 2006; **148**:245-254.
837. Hew M, Bhavsar P, Torrego A, Meah S, Khorasani N, **Barnes PJ**, Adcock I, Chung KF. Relative corticosteroid insensitivity of peripheral blood mononuclear cells in severe asthma. *Am J Respir Crit Care Med* 2006; **174**:131-141.
838. Paraskakis E, Brindicci C, Fleming L, Krol R, Kharitonov SA, Wilson NM, **Barnes PJ**, Bush A. Measurement of bronchial and alveolar nitric oxide production in normal and asthmatic children. *Am J Respir Crit Care Med* 2006; **174**:260-267.
839. Erin EM, Leaker BR, Zacharasiewicz A, Higgins LA, Nicholson GC, Boyce MJ, de Boer P, Jones RC, Durham SR, **Barnes PJ**, Hansel TT. Effects of a reversible b-tryptase and trypsin inhibitor (RWJ-58643) on nasal allergic responses. *Clin Exp Allergy* 2006; **36**:458-464.
840. **Barnes PJ**, Chowdhury B, Kharitonov SA, Magnussen H, Page CP, Postma D, Saetta M. Pulmonary biomarkers in chronic obstructive pulmonary disease. *Am J Respir.Crit Care Med* 2006; **174**:6-14.
841. Invernizzi G, Boffi R, Ruprecht AA, **Barnes PJ**, Kharitonov SA, Paredi P. Real-time measurement of particulate matter deposition in the lung. *Biomarkers*. 2006; **11**:221-232.
842. Barczyk A, Pierzchala W, Kon OM, Cosio B, Adcock IM, **Barnes PJ**. Cytokine production by bronchoalveolar lavage T lymphocytes in chronic obstructive pulmonary disease. *J Allergy Clin.Immuno* 2006; **117**:1484-1492.
843. Catley MC, Sukkar MB, Chung KF, Jaffee B, Liao SM, Coyle AJ, Haddad EB, **Barnes PJ**, Newton R. Validation of the anti-inflammatory properties of small molecule IKK2 inhibitors by comparison to adenoviral-mediated delivery of dominant negative IKK1 and IKK2 in human airways smooth muscle. *Mol.Pharmacol.* 2006; **70**:697-705
844. Donnelly LE, **Barnes PJ**. Chemokine receptors as therapeutic targets in chronic obstructive pulmonary disease. *Trends Pharmacol.Sci.* 2006; **27**:546-553.
845. **Barnes PJ**. Transcription factors in airway diseases. *Lab Invest.* 2006; **86**:867-72.
846. **Barnes PJ**. Against the Dutch hypothesis: asthma and chronic obstructive pulmonary disease are distinct diseases. *Am J Respir Crit Care Med.* 2006; **174**:240-243.
847. Hansel TT, Benezet O, Kafe H, Ponitz HH, Cheung D, Engelstatter R, **Barnes PJ**. A multinational, 12-week, randomized study comparing the efficacy and tolerability of ciclesonide and budesonide in patients with asthma. *Clin.Ther.* 2006; **28**:906-920.
848. Erin E, Leaker BR, Nicholson GC, Tan AJ, Green LM, Neighbour H, Zacharasiewicz AS, Turner J, Barnathan ES, Kon OM, **Barnes PJ**, Hansel TT. The effects of a monoclonal antibody directed against tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ) in asthma. *Am J Respir Crit Care Med.* 2006; **174**:253-262.
849. Moreno L, Perez-Vicaino F, Harrington L, Faro R, Sturton G, **Barnes PJ**, Mitchell JA. Pharmacology of airways and vessels in lung slices *in situ*: role of endogenous dilator hormones. *Respir Res.* 2006; **7**:111.
850. Smith SJ, Fenwick PS, Nicholson AG, Kirschenbaum F, Finney-Hayward TK, Higgins LA, Giembycz MA, **Barnes PJ**, Donnelly LE. Inhibitory effect of p38 mitogen-activated protein kinase inhibitors on cytokine release from human macrophages. *Br.J Pharmacol.* 2006; **149**:393-404.
851. Biddiscombe MF, **Barnes PJ**, Usmani OS. Generating monodisperse pharmacological aerosols using the spinning-top aerosol generator. *J.Aerosol Med.* 2006; **19**:245-253.
852. **Barnes PJ**. Treatment with (R)-albuterol has no advantage over racemic albuterol. *Am.J.Respir.Crit Care Med.* 2006; **174**:969-972.

853. Kharitonov SA, **Barnes PJ**. Exhaled biomarkers. *Chest*. 2006; **130**:1541-1546.
854. Vasavda N, Eichholtz T, Takahashi A, Affleck K, Matthews JG, **Barnes PJ**, Adcock IM. Expression of nonmuscle cofilin-1 and steroid responsiveness in severe asthma. *J.Allergy Clin.Immunol.* 2006; **118**:1090-1096.

## 2007

855. Nicholson GC, Tennant RC, Carpenter DC, Sarau HM, Kon OM, **Barnes PJ**, Salmon M, Vessey RS, Tal-Singer R, Hansel TT. A novel flow cytometric assay of human whole blood neutrophil and monocyte CD11b levels: Upregulation by chemokines is related to receptor expression, comparison with neutrophil shape change, and effects of a chemokine receptor (CXCR2) antagonist. *Pulm Pharmacol Ther* 2007; **20**:52-59.
856. **Barnes PJ**. The problem of cough and development of novel antitussives. *Pulm.Pharmacol.Ther* 2007; **20**:416-22.
857. Williams AE, Moschos SA, Perry MM, **Barnes PJ**, Lindsay MA. Maternally imprinted microRNAs are differentially expressed during mouse and human lung development. *Dev.Dyn.* 2007; **236**:572-80.
858. **Barnes PJ**. Scientific rationale for using a single inhaler for asthma control. *Eur Resp J*, 2007; **29**:587-95.
859. Maneechotesuwan K, Xin Y, Ito K, Jazrawi E, Lee KY, Usmani OS, **Barnes PJ**, Adcock IM. Regulation of Th2 cytokine genes by p38 MAPK-mediated phosphorylation of GATA-3. *J Immunol* 2007; **78**:2491-2498.
860. Ford PA, **Barnes PJ**, Usmani OS. Chronic cough and Holmes-Adie syndrome. *Lancet*. 2007; **369**: 342.
861. Newton RS, Holden NS, Catley MC, Oyelusi W, Leigh R, Proud D, **Barnes PJ**. Repression of inflammatory gene expression in human pulmonary epithelial cells by small molecule I $\kappa$ B kinase (IKK) inhibitors. *J Pharmacol.Exp.Ther.* 2007;
862. **Barnes PJ**. New molecular targets for the treatment of neutrophilic diseases. *J Allergy Clin.Immunol.* 2007; **119**:1055-62.
863. Paredi P, Ward S, Cramer D, **Barnes PJ**, Kharitonov SA. Normal bronchial blood flow in COPD is unaffected by inhaled corticosteroids and correlates with exhaled nitric oxide. *Chest*. 2007; **131**:1075-1081.
864. **Barnes PJ**. Unexpected failure of anti-tumor necrosis factor therapy in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med.* 2007; **175**:866-867.
865. **Barnes PJ**. Chronic obstructive pulmonary disease: a growing but neglected epidemic. *PLoS Med* 2007; **4**:e112.
866. Brindicci C, Ito K, **Barnes PJ**, Kharitonov SA. Differential flow analysis of exhaled nitric oxide in patients with asthma of differing severity. *Chest* 2007; **131**:1353-1362.
867. Rabe KF, Hurd S, Anzueto A, **Barnes PJ**, Buist SA, Calverley P, Fukuchi Y, Jenkins C, Rodriguez-Roisin R, van Weel C, Zielinski J. Global strategy for the diagnosis, management, and prevention of COPD - 2006 Update. *Am J Respir Crit Care Med* 2007; **176**:532-55
868. Celli BR, **Barnes PJ**. Exacerbations of chronic obstructive pulmonary disease. *Eur Respir J* 2007; **29**:1224-1238.
869. Brindicci C, Ito K, **Barnes PJ**, Kharitonov SA. Effect of an inducible nitric oxide synthase inhibitor on differential flow exhaled nitric oxide in asthmatic patients and healthy volunteers. *Chest* 2007; **132**:581-8.
870. Maneechotesuwan K, Essilfie-Quaye S, Kharitonov SA, Adcock IM, **Barnes PJ**. Loss of control of asthma following inhaled corticosteroid withdrawal is associated with increased sputum interleukin-8 and neutrophils. *Chest* 2007; **132**:98-105.

871. Moschos SA, Jones SW, Perry MM, Williams AE, Erjefalt JS, Turner JJ, **Barnes PJ**, Sproat BS, Gait MJ, and M. A. Lindsay. Lung delivery studies using siRNA conjugated to TAT(48-60) and penetratin reveal peptide induced reduction in gene expression and induction of innate immunity. *Bioconjug Chem* 2007; **18**:1450-9
872. **Barnes PJ**. Using a combination inhaler (budesonide plus formoterol) as rescue therapy improves asthma control. *BMJ*. 2007; **335**:513.
873. Foschino Barbaro MP, Carpagnano GE, Spanevello A, Cagnazzo MG, **Barnes PJ**. Inflammation, oxidative stress and systemic effects in mild chronic obstructive pulmonary disease. *Int.J Immunopathol.Pharmacol*. 2007; **20**:753-763.
874. Montuschi P, Mondino C, Koch P, Ciabattoni G, **Barnes PJ**, Baviera G. Effects of montelukast treatment and withdrawal on fractional exhaled nitric oxide and lung function in children with asthma. *Chest* 2007; **132**:1876-1881.

## 2008

875. Sturton RG, Nicholson AG, Trifilieff A, **Barnes PJ**. Pharmacological characterisation of indacaterol, a novel once-daily inhaled  $\beta_2$ -adrenoceptor agonist, on small airways in human and rat precision-cut lung slices. *J Pharmacol Exp Ther* 2008; **324**:270-5.
876. Tudhope SJ, Finney-Hayward TK, Nicholson AG, Mayer RJ, Barnette MS, **Barnes PJ**, Donnelly LE. Different MAP-kinase-dependent cytokine responses in cells of the monocyte lineage. *J Pharmacol Exp Ther* 2008; **324**:306-12.
877. Virchow JC, Crompton GK, Dal Negro R, Pedersen S, Magnan A, Seidenberg J, **Barnes PJ**. Importance of inhaler devices in the management of airway disease. *Respir Med*. 2008; **102**:10-19.
878. Costa C, Rufino R, Traves SL, Lapa e Silva JR, **Barnes PJ**, Donnelly LE. CXCR3 and CCR5 chemokines in the induced sputum from patients with COPD. *Chest*. 2008; **133**:26-33.
879. Maneechotesawan K, Supawita S, Kasetsinsombat K, Wongkajornsilp A, **Barnes PJ**. Sputum indoleamine-2, 3-dioxygenase activity is increased in asthmatic airways by using inhaled corticosteroids. *J Allergy Clin.Immunol*. 2008; **121**:43-50.
880. Erin EM, Jenkins GR, Kon OM, Zacharasiewicz AS, Nicholson GC, Neighbour H, Tennant RC, Tan AJ, Leaker BR, Bush A, Jose PJ, **Barnes PJ**, Hansel TT. Optimised dialysis and protease Inhibition of sputum dithiothreitol supernatants. *Am J Respir Crit Care Med*. 2008; **177**:132-41.
881. Tudhope SJ, Finney-Hayward TK, Nicholson AJ, Mayer RJ, Barnette MS, **Barnes PJ**, Donnelly LE. Different mitogen-activated protein kinase-dependent cytokine responses in cells of the monocyte lineage. *J Pharmacol Exp Ther*. 2008; **324**:306-312.
882. Bateman ED, Hurd SS, **Barnes PJ**, Bousquet J, Drazen JM, Fitzgerald M, Gibson P, Ohta K, O'Byrne P, Pedersen SE, Pizzichini E, Sullivan SD, Wenzel SE, Zar HJ. Global strategy for asthma management and prevention: GINA executive summary. *Eur Respir J*. 2008; **31**:143-178.
883. Lavorini F, Magnan A, Dubus JC, Voshaar T, Corbetta L, Broeders M, Dekhuijzen R, Sanchis J, Viejo JL, Barnes P, Corrigan C, Levy M, Crompton GK. Effect of incorrect use of dry powder inhalers on management of patients with asthma and COPD. *Respir Med*. 2008; **102**:593-604.
884. Cazzola M, Macnee W, Martinez FJ, Rabe KF, Franciosi LG, **Barnes PJ**, Brusasco V, Burge PS, Calverley PM, Celli BR, Jones PW, Mahler DA, Make B, Miravitles M, Page CP, Palange P, Parr D, Pistolesi M, Rennard SI, Rutten-van Molken MP, Stockley R, Sullivan SD, Wedzicha JA, Wouters EM. Outcomes for COPD pharmacological trials: from lung function to biomarkers. *Eur Respir J*. 2008; **31**:416-469.
885. Erin EM, Zacharasiewicz AS, Nicholson GC, Tan AJ, Neighbour H, Engelstatter R, Hellwig M, Kon OM, **Barnes PJ**, Hansel TT. Rapid anti-inflammatory effect of inhaled ciclesonide in asthma: a randomised, placebo-controlled study. *Chest* 2008; **134**:740-5
886. **Barnes PJ**. A blood test for lung fibrosis. *PLoS Med*. 2008; **5**:e98.

887. Barnes PJ. Frontrunners in novel pharmacotherapy of COPD. *Curr Opin Pharmacol*. 2008; **8**:300-7.
888. Ahmad T, Barnes PJ, Adcock IM. Overcoming steroid insensitivity in smoking asthmatics. *Curr Opin Investig Drugs*. 2008; **9**:470-477.
889. Ito K, Herbert C, Siegle JS, Vuppusetti C, Hansbro N, Thomas PS, Foster P, Barnes PJ, Kumar RK. Steroid-resistant neutrophilic inflammation in a mouse model of an acute exacerbation of asthma. *Am J Respir Cell Mol Biol*. 2008; **39**:543-50.
890. Bhavsar P, Hew M, Khorasani N, Alfonso T, Barnes PJ, Adcock I, Chung KF. Relative corticosteroid insensitivity of alveolar macrophages in severe asthma compared to non-severe asthma. *Thorax* 2008; **63**:784-90.
891. Pedersen L, Lund TK, Barnes PJ, Kharitonov SA, Backer V. Airway responsiveness and inflammation in adolescent elite swimmers. *J Allergy Clin Immunol* 2008; **122**:322-7, 327.
892. Sturton G, Persson C, Barnes PJ. Small airways: an important but neglected target in the treatment of obstructive airway diseases. *Trends Pharmacol Sci* 2008; **29**:340-5.
893. Leaker BR, O'Connor B, Hansel TT, Barnes PJ, Meng L, Mathur VS, Lieu HD. Safety of regadenoson, an adenosine A2A receptor agonist for myocardial perfusion imaging, in mild asthma and moderate asthma patients: a randomized, double-blind, placebo-controlled trial. *J Nucl Cardiol*. 2008; **15**:329-336.
894. Perttunen H, Moilanen E, Zhang X, Barnes PJ, Kankaanranta H. Beta<sub>2</sub>-agonists potentiate corticosteroid-induced neutrophil survival. *COPD* 2008; **5**:163-169.
895. Kaur M, Holden NS, Wilson SM, Sukkar MB, Chung KF, Barnes PJ, Newton R, Giembycz MA. Effect of β<sub>2</sub>-adrenoceptor agonists and other cAMP-elevating agents on inflammatory gene expression in human airways smooth muscle cells: a role for protein kinase A. *Am J Physiol Lung Cell Mol Physiol*. 2008; **295**:L505-14.
896. Torre O, Olivieri D, Barnes PJ, Kharitonov SA. Feasibility and interpretation of F<sub>e</sub>NO measurements in asthma patients in general practice. *Respir Med* 2008; **102**:1417-24.
897. Lucidi V, Ciabattoni G, Bella S, Barnes PJ, Montuschi P. Exhaled 8-isoprostane and prostaglandin E<sub>2</sub> in patients with stable and unstable cystic fibrosis. *Free Radic Biol Med* 2008; **45**:913-9.
898. Adcock IM, Barnes PJ. Molecular mechanisms of corticosteroid resistance. *Chest* 2008; **134**:394-401.
899. O'Byrne PM, Naya IP, Kallen A, Postma DS, Barnes PJ. Increasing doses of inhaled corticosteroids compared to adding long-acting inhaled β<sub>2</sub>-agonists in achieving asthma control. *Chest* 2008; **134**:1192-1199.
900. Barnes PJ. Role of GATA-3 in allergic diseases. *Curr Mol Med*. 2008; **8**:330-334.
901. Barnes PJ. Defective antioxidant gene regulation in COPD: a case for broccoli. *Am J Respir Crit Care Med*. 2008; **178**:552-554.
902. Sturton G, Persson C, Barnes PJ. Small airways: an important but neglected target in the treatment of obstructive airway diseases. *Trends Pharmacol Sci* 2008; **29**:340-345.
903. Marwick JA, Wallis G, Meja K, Kuster B, Bouwmeester T, Chakravarty P, Fletcher D, Whittaker PA, Barnes PJ, Ito K, Ladcock IM, Kirkham PA. Oxidative stress modulates theophylline effects on steroid responsiveness. *Biochem Biophys Res Commun*. 2008; **377**: 797-802.
904. Barnes PJ. Cytokine networks in asthma and chronic obstructive pulmonary disease. *J Clin Invest* 2008; **118**:3546-3556.
905. Barnes PJ. Immunology of asthma and chronic obstructive pulmonary disease. *Nat Immunol Rev* 2008; **8**:183-192.

906. Barnes PJ. Future treatments for chronic obstructive pulmonary disease and its comorbidities. *Proc Am Thorac Soc*. 2008; **5**:857-864.
907. Barnes PJ Emerging pharmacotherapies for COPD. *Chest* 2008; **134**:1278-1286.
908. O'Byrne PM, Naya IM, Kallen A, Postma DS, Barnes PJ. Increasing doses of inhaled corticosteroids compared to adding long-acting inhaled  $\beta_2$ -agonists in achieving asthma control. *Chest*. 2008; **134**:1192-9.

## 2009

909. Barnes PJ. Role of HDAC2 in the pathophysiology of COPD. *Ann Rev Physiol*, 2009; **71**: 451-464.
910. Brindicci C, Ito K, Torre O, Barnes PJ, Kharitonov SA. Effects of aminoguanidine, an inhibitor of inducible nitric oxide synthase, on nitric oxide production and its metabolites in healthy controls, healthy smokers and COPD patients. *Chest* 2009; **135**:353-67
911. Wenzel SE, Barnes PJ, Bleeker ER, Bousquet J, Busse W, Dahmen SE, Holgate ST, Meyers DA, Rabe KF, Antczak A, Baker J, Horvath I, Mark Z, Bernstein D, Kerwin E, Schlenker-Herceg R, Lo KH, Watt R, Barnathan ES, Chanez P. A randomized, double-blind, placebo-controlled study of TNF- $\alpha$  blockade in severe persistent asthma. *Am J Respir Crit Care Med* 2009; **179**:549-58.
912. Ito K, Barnes PJ. COPD as a disease of accelerated lung aging. *Chest*. 2009; **135**:173-180.
913. Maneechotesuwan K, Wamanuttajinda V, Kasetsinsombat K, Huabprasert S, Yaikwawong M, Barnes PJ, Wongkajornsilp A. Der p 1 suppresses indoleamine 2, 3-dioxygenase in dendritic cells from house dust mite-sensitive patients with asthma. *J Allergy Clin Immunol*. 2009; **123** :239-248.
914. Cosio BG, Iglesias, Rios A, Noguera A, Sala E, Ito K, Barnes PJ, Agusti A. Low-dose theophylline enhances the anti-inflammatory effects of steroids during exacerbations of chronic obstructive pulmonary disease. *Thorax* 2009; **64**:424-9.
915. Marwick JA, Caramor G, Stevenson CC, Casolari P, Jazrawi E, Barnes PJ, Ito K, Adcock IM, Kirkham P, Papi A. Inhibition of PI3K $\delta$  restores glucocorticoid function in smoking-induced airway inflammation in mice. *Am J Respir Crit Care Med* 2009; **179**:542-8
916. Finney-Hayward TJ, Bahra P, Li S, Poll CT, Nicholson AG, Russell RE, Ford PA, Westwick J, Fenwick PS, Barnes PJ, Donnelly LE. LTB<sub>4</sub> release by human lung macrophages via receptor not voltage operated Ca<sup>2+</sup> channels. *Eur Respir J* 2009; **33**:1105-12
917. Pedersen L, Lund TK, Molgaard E, Kharitonov SA, Barnes PJ, Backer V. The acute effect of swimming on airway inflammation in adolescent elite swimmers. *J Allergy Clin Immunol* 2009; **123**:502-504.
918. Spears M, Donnelly I, Jolly L, Brannigan M, Ito K, McSharry C, Lafferty J, Chaudhuri R, Braganza G, Adcock IM, Barnes PJ, Wood S, Thomson NC. Effect of theophylline plus beclometasone on lung function in smokers with asthma-a pilot study. *Eur Respir J* 2009; **33**:1010-7.
919. Osoata GO, Hanazawa T, Brindicci C, Ito M, Barnes PJ, Kharitonov S, Ito K. Peroxynitrite elevation in exhaled breath condensate of COPD and its inhibition by fudosteine. *Chest*:2009; **135**:1513-20.
920. Nakamaru Y, Vuppusetty C, Wada H, Milne JC, Ito M, Rossios C, Elliot M, Hogg J, Kharitonov S, Goto H, Bemis JE, Elliott P, Barnes PJ, Ito K. A protein deacetylase SIRT1 is a negative regulator of metalloproteinase-9. *FASEB J.*, 2009; **23**: 2810-2819.
921. Spears M, Donnelly I, Jolly L, Brannigan M, Ito K, McSharry C, Lafferty J, Chaudhuri R, Braganza G, Bareille P, Sweeney L, Iadcock I, Barnes P, Wood S, Thomson N. Bronchodilatory effect of the PPAR- $\gamma$  agonist rosiglitazone in smokers with asthma. *Clin Pharmacol Ther*.2009; **86**:49-53.
922. Caramori G, Oates T, Nicholson AG, Casolari P, Ito K, Barnes PJ, Papi A, Iadcock IM, Chung KF. Activation of NF- $\kappa$ B transcription factor in asthma death. *Histopathology*. 2009; **54**:507-509.

923. Paredi P, **Barnes PJ**. The airway vasculature: recent advances and clinical implications. *Thorax* 2009; **64**:444-450.
924. **Barnes PJ**, Celli BR. Systemic manifestations and comorbidities of COPD. *Eur Respir J*. 2009; **33**:1165-1185.
925. Osoata GO, Yamamura S, Ito M, Vuppusetty C, IAdcock IM, **Barnes PJ**, Ito K. Nitration of distinct tyrosine residues causes inactivation of histone deacetylase 2. *Biochem Biophys Res Commun*. 2009; **384**:366-71.
926. **Barnes PJ**, Adcock IM. Glucocorticoid resistance in inflammatory diseases. *Lancet* 2009; **342**:1905-1917.
927. Maneechotesuwan K, Yao X, Ito K, Jazrawi E, Usmani OS, Adcock IM, **Barnes PJ**. Suppression of GATA-3 nuclear import and phosphorylation: a novel mechanism of corticosteroid action in allergic disease. *PLoS Med*. 2009; **6**:e1000076.
928. Papi A, CaramoriG, Adcock IM, **Barnes PJ**. Rescue treatment in asthma. More than as-needed bronchodilation. *Chest* 2009; **135**:1628-1633.
929. **Barnes PJ**. Intrinsic asthma: not so different from allergic asthma but driven by superantigens? *Clin Exp Allergy* 2009; **39**:1145-51.
930. Suissa S, **Barnes PJ**. Inhaled corticosteroids in COPD: the case against. *Eur Respir J*. 2009; **34**:13-16
931. Di Stefano A, Caramori G, Gnemmi I, Contoli M, Vicari C, Capelli A, Magno F, D'Anna SE, Zanini A, Brun, Casolari P, Chung KF, **Barnes PJ**, Papi A, Adcock IM, Balbi B. T helper type 17-related cytokine expression is increased in the bronchial mucosa of stable chronic obstructive pulmonary disease patients. *Clin Exp Immunol*. 2009; **157**:316-324.
932. Bateman ED, Rennard S, **Barnes PJ**, P. Dicpinigaitis PV, Gosens R, Gross N, Nadel JA, Pfeifer M, Racke K, Rabe KF, Rubin BK, Welte T, Wessler I. Alternative mechanisms for tiotropium. *Pulm Pharmacol Ther*. 2009; **22**:533-42.
933. Salvi SS, **Barnes PJ**. Chronic obstructive pulmonary disease in non-smokers. *Lancet* 2009; **374**: 733-743.
934. Hansel TT, **Barnes PJ**. New drugs for exacerbations of chronic obstructive pulmonary disease. *Lancet* 2009; **374**:744-755.
935. **Barnes PJ**. The cytokine network in COPD. *Am J Respir Cell Mol Biol*. 2009; **41**:631-8.
936. Caramori G, Casolari P, Di Gregorio C, Saetta M, Baraldo S, Boschetto P, Ito K, Fabbri LM, **Barnes PJ**, Adcock IM, Cavallesco G, Chung KF, Papi A. MUC5AC expression is increased in bronchial submucosal glands of stable COPD patients. *Histopathology* 2009; **55**:321-331.
937. Stockley RA, Mannino D, **Barnes PJ**. Burden and pathogenesis of chronic obstructive pulmonary disease. *Proc Am Thorac Soc*. 2009; **6**:524-526.
938. **Barnes PJ**. Histone deacetylase-2 and airway disease. *Ther Adv Respir Dis*. 2009; **3**:235-243.
939. Charron CE, Chou PC, Coutts DJ, Kumar V, To M, Akashi K, Pinhu L, Griffiths M, Adcock IM, **Barnes PJ**, Ito K. Hypoxia inducible factor 1 alpha (HIF-1 $\alpha$ ) induces corticosteroid-insensitive inflammation via reduction of histone deacetylase-2 (HDAC2) transcription. *J Biol Chem*. 2009; **284**:36047-54
940. Vincken W, Dekhuijzen PR, Barnes P. How to choose inhaler devices for the treatment of COPD. *Prim Care Respir J*. 2009; crj-11.
941. **Barnes PJ**. Targeting the epigenome in the treatment of asthma and chronic obstructive pulmonary disease. *Proc Am Thorac Soc*. 2009; **6**:693-696.

## 2010

942. Brindicci C, Kharitonov SA, Ito M, Elliott MW, Hogg JC, **Barnes PJ**, Ito K. Nitric oxide synthase isoenzyme expression and activity in peripheral lungs of COPD patients. *Am J Respir Crit Care Med*. 2010; **181**:21-30.

943. Montuschi P, **Barnes PJ**, Ciabattoni G. Measurement of 8-isoprostane in exhaled breath condensate. *Methods Mol Biol.* 2010; **594**:73-84.
944. **Barnes PJ**, Pocock SJ, Magnussen H, Iqbal A, Kramer B, Higgins M, Lawrence D. Integrating indacaterol dose selection in a clinical study in COPD using an adaptive seamless design. *Pulm Pharmacol Ther.* 2010; **23**:165-71
945. Cooper PR, Poll CT, **Barnes PJ**, Sturton RG. Involvement of IL-13 in tobacco smoke induced changes in the structure and function of rat intrapulmonary airways. *Am J Respir Cell Mol Biol.* 2010; 43:220-6.
946. Montuschi P, Santonico M, Pennazza G, Mondino C, Mantini G, Martinelli E, Capuano R, Ciabattoni G, Paolesse R, di Natale C, **Barnes PJ**, D'Amico A. Diagnostic performance of an electronic nose, fractional exhaled nitric oxide and lung function testing in asthma. *Chest* 2010; **137**:790-6
947. Taylor AE, Finney-Hayward TK, Quint JK, Thomas CM, Tudhope SJ, Wedzicha JA, **Barnes PJ**, Donnelly LE. Defective macrophage phagocytosis of bacteria in COPD. *Eur Respir J.*, 2010; **35**: 1039-47.
948. Donnelly LE, Tudhope SJ, Fenwick, PS, **Barnes PJ**. Effects of formoterol and salmeterol on cytokine release from monocyte-derived macrophages. *Eur Respir J.*, 2010; **36**:178-86.
949. Varani K, Caramori G, Vincenzi F, Tosi A, Barczyk A, Contoli M, Casolari P, Triggiani M, Hansel T, Leung E, MacLennan S, **Barnes PJ**, Chung KF, Adcock I, Papi A, Borea PA. Oxidative/nitrosative stress selectively altered A2B adenosine receptors in chronic obstructive pulmonary disease. *FASEB J.*, 2010; **24**:1192-204
950. To M, Ito K, Kizawa Y, Failla M, Ito M, Kusama T, Elliot M, Hogg JC, Adcock IM, **Barnes PJ**. Targeting phosphoinositide-3-kinase-δ with theophylline reverses corticosteroid insensitivity in COPD. *Am J Resp Crit Care Med* 2010; **182**:897-904.
951. Finney-Hayward TK, Popa O, Bahra P, Li S, Poll CT, Gosling M, Nicholson AG, Russell RE, Kon OM, Jarai G, Westwick J, **Barnes PJ**, Donnelly LE. Expression of TRPC6 channels in human lung macrophages. *Am J Respir Cell Mol Biol.* 2010; **43**:296-304
952. Ford PA, Durham AL, Russell REK, Gordon F, Adcock IM, **Barnes PJ**. Treatment effects of low dose theophylline combined with an inhaled corticosteroid in COPD. *Chest* 2010; **137**:1338-44.
953. **Barnes PJ**. Mechanisms and resistance in glucocorticoid control of inflammation. *J.Steroid Biochem.Mol.Biol.* 2010; **120**:76-85.
954. **Barnes PJ**. Chronic obstructive pulmonary disease: effects beyond the lungs. *PLoS.Med.* 2010; **7** :e1000220.
955. Rohde G, Wisnevsky GA, van Essen GA, Ompad DC, **Barnes PJ**. Vaccinating high risk patients against influenza: doing more to protect patients with asthma. *Ann Resp Med* 2010; **1**:11-18.
956. Pareti P, Goldman M, Alamen A, Ausin P, Usmani OS, Pride NB, **Barnes PJ**. Comparison of inspiratory and expiratory resistance and reactance in patients with asthma and chronic obstructive pulmonary disease. *Thorax*. 2010; **65**:263-267.
957. **Barnes PJ**. Inhaled corticosteroids in COPD: a controversy. *Respiration* 2010; **80**:89-95.
958. Zhang J, Yao X, Yu R, Bai J, Sun Y, Huang M, Adcock IM, Barnes. Exhaled carbon monoxide in asthmatics: a meta-analysis. *Respir.Res.* 2010;**11**:50.
959. Joos GF, **Barnes PJ**. Inflammatory airway diseases and clinical allergy: Inflammatory Airways Diseases and Clinical Allergy Assembly contribution to the celebration of 20 years of the ERS. *Eur.Respir.J.* 2010; **35**:1197-1199.
960. Salvi S, **Barnes PJ**. Is exposure to biomass smoke the biggest risk factor for COPD globally? *Chest*. 2010; **138**:3-6.
961. Tomita K, Caramori G, Ito K, Lim S, Sano H, Tohda Y, Adcock IM, **Barnes PJ**. Telomere shortening in alveolar macrophages of smokers and COPD patients. *Open Path J* 2010; **4**:23-29.

962. Barnes PJ. New therapies for chronic obstructive pulmonary disease. *Med Princ Pract* 2010; **19**:330-338.
963. Barnes PJ, Dweik RA, Gelb AF, Gibson PG, George SC, Grasemann H, Pavord ID, Ratjen F, Silkoff PE, Taylor DR, Zamel N. Exhaled nitric oxide in pulmonary diseases: a comprehensive review. *Chest*. 2010; **138**:682-692.
964. Maneechotesuwan K, Ekjiratrakul W, Kasetsinsombat K, Wongkajornsilp A, Barnes PJ. Statins enhance the anti-inflammatory effects of inhaled corticosteroids in asthmatic patients through increased induction of indoleamine 2, 3-dioxygenase. *J Allergy Clin.Immunol.* 2010; **126**:754-762.
965. Barnes PJ. Neutrophils find smoke attractive. *Science*. 2010; **330**:40-41.
966. Barnes PJ. New drugs for asthma: is there any progress? *Trends Pharmacol Sci* 2010; **31**:335-343.

## 2011

967. To M, Ito K, Ausin PM, Kharitonov SA, Barnes PJ. Osteoprotegerin in sputum is a potential biomarker in COPD. *Chest*. 2011; **140**:76-83
968. Dooms C, Barnes PJ. Epithelial cell and lung cancer: introduction. *Respiration* 2011; **81**:2-3.
969. Barnes PJ. Glucocorticosteroids: current and future directions. *Br.J Pharmacol.* 2011; **163**:29-43.
970. Mercado N, Thimmulappa R, Thomas CM, Fenwick PS, Chana KK, Donnelly LE, Biswal S, Ito K, Barnes PJ. Decreased histone deacetylase 2 impairs Nrf2 activation by oxidative stress. *Biochem.Biophys.Res.Commun.*, 2011; **406**:292-8
971. Mercado N, To Y, Ito K, Barnes PJ. Nortriptyline reverses corticosteroid insensitivity by inhibition of PI3K-δ. *J Pharmacol.Exp.Ther.*, 2011; **337**:465-70.
972. Pridgeon C, Bugeon L, Donnelly L, Straschil U, Tudhope SJ, Fenwick P, Lamb JR, Barnes PJ, Dallman MJ. Regulation of IL-17 in chronic inflammation in the human lung. *Clin.Sci.* 2011; **120**:515-524
973. Adcock IM, Caramori G, Barnes PJ. Chronic obstructive pulmonary disease and lung cancer: new molecular insights. *Respiration* 2011; **81**:265-284.
974. Teng Y, Sun P, Zhang J, Yu R, Bai J, Yao X, Huang M, Adcock IM, Barnes PJ. Hydrogen peroxide in exhaled breath condensate in asthma: A promising biomarker? *Chest* 2011;
975. Caramori G, Adcock IM, Casolari P, Ito K, Jazrawi E, Tsaprouni L, Villette G, Civelli M, Carnini C, Chung KF, Barnes PJ, Papi A. Unbalanced oxidant-induced DNA damage and repair in COPD: a link towards lung cancer. *Thorax* 2011; **66**:521-527.
976. Lavorini F, Corrigan CJ, Barnes PJ, Dekhuijzen PR, Levy ML, Pedersen S, Roche N, Vincken W, Crompton GK. Retail sales of inhalation devices in European countries: So much for a global policy. *Respir Med*. 2011;
977. Barnes PJ. Pathophysiology of allergic inflammation. *Immunol.Rev.* 2011; **242**:31-50.
978. Kirkham PA, Caramori G, Casolari P, Papi A, Edwards M, Shamji B, Triantaphyllopoulos K, Hussain F, Pinart M, Khan Y, Heinemann L, Stevens L, Yeadon M, Barnes PJ, Chung KF, Adcock IM. Oxidative stress-induced antibodies to carbonyl-modified protein correlate with severity of COPD. *Am J Respir Crit Care Med*. 2011; **184**:796-802.
979. Usmani OS, Barnes PJ. Assessing and treating small airways disease in asthma and chronic obstructive pulmonary disease. *Ann Med.*, 2011;
980. Antczak A, Ciebiada M, Kharitonov SA, Gorski P, Barnes PJ. Inflammatory markers: exhaled nitric oxide and carbon monoxide during the ovarian cycle. *Inflammation* 2011
981. Gajdoci R, Bikov A, Antus B, Horvath I, Barnes PJ, Kharitonov SA. Assessment of reproducibility of exhaled hydrogen peroxide concentration and the effect of breathing pattern in healthy subjects. *J Aerosol Med Pulm.Drug Deliv.* 2011;

982. Nicholson GC, Kariyawasam H, Tan AJ, Hohlfeld JM, Quinn D, Walker C, Rodman D, Westwick J, Jurcevic S, Kon OM, **Barnes PJ**, Krug N, Hansel TT. The effects of an anti-IL-13 monoclonal antibody on cytokine levels and nasal symptoms following nasal allergen challenge. *J Allergy Clin Immunol.* 2011; **128**:800-807
983. Antczak A, Piotrowski W, Marczak J, Ciebiada M, Gorski P, **Barnes PJ**. Correlation between eicosanoids in bronchoalveolar lavage fluid and in exhaled breath condensate. *Dis Markers.* 2011; **30** :213-220.
984. **Barnes PJ**. Triple inhalers for obstructive airways disease: will they be useful? *Expert Rev Respir Med.* 2011; **5**:297-300.
985. Mercado M, To Y, Kobayashi Y, IAdcock IM, **Barnes PJ**, Ito K. p38 MAP Kinase-γ Inhibition by long-acting β<sub>2</sub>-adrenergic agonists reversed steroid Insensitivity in severe asthma. *Mol. Pharmacol.* 2011; **80**:1128-35
986. Malhotra D, Thimmulappa RK, Mercado N, Ito K, Kombairaju P, Kumar S, Ma J, Feller-Kopman D, Wise R, Barnes P, Biswal S. Denitrosylation of HDAC2 by targeting Nrf2 restores glucocorticosteroid sensitivity in macrophages from COPD patients. *J Clin Invest.* 2011; **121**:4289-4302
987. Adcock IM, **Barnes PJ**. Con: genome-wide association studies have not been useful in understanding asthma. *Am J Respir Crit Care Med.* 2011;**184**:633-636.
988. **Barnes PJ**, Adcock IM. Chronic obstructive pulmonary disease and lung cancer: a lethal association. *Am J Respir Crit Care Med.* 2011; **184**:866-867.
989. Rossios C, To Y, To M, Ito M, **Barnes PJ**, Adcock IM, Johnson M, Ito K. Long-acting fluticasone furoate has a superior pharmacological profile to fluticasone propionate in human respiratory cells. *Eur J Pharmacol.* 2011; **670**:244-251.
990. Essilfie-Quaye S, Ito K, Ito M, Kharitonov SA, **Barnes PJ**. Comparison of Symbicort versus Pulmicort on steroid pharmacodynamic markers in asthma patients. *Respir Med.* 2011; **105**:1784-1789
991. Koarai A, Traves SL, Fenwickn PS, Brown SM, Chana KK, Russell RA, Nicholson AG, **Barnes PJ**, Donnelly LE. Expression of muscarinic receptors by human macrophages. *Eur Respir J.*, 2011;
992. Caramori G, Lasagna L, Casalini AG, Adcock IM, Casolari P, Contoli M, Tafuro F, Padovani A, Chung KF, **Barnes PJ**, Papi A, Rindi G, Bertorelli G. Immune response to Mycobacterium tuberculosis infection in the parietal pleura of patients with tuberculous pleurisy. *PLoS.One.* 2011; **6**:e22637.
993. **Barnes PJ**. Biochemical basis of asthma therapy. *J Biol.Chem.* 2011; **286**:32899-32905.
994. Montuschi P, **Barnes PJ**. New perspectives in pharmacological treatment of mild persistent asthma. *Drug Discov.Today* 2011; **16**:1084-1091
995. Montuschi P, Paris D, Melck D, Lucidi V, Ciabattoni G, Raia V, Calabrese C, Bush A, **Barnes PJ**, Motta A. NMR spectroscopy metabolomic profiling of exhaled breath condensate in patients with stable and unstable cystic fibrosis. *Thorax.*2011;
996. To M, Yamamura S, Akashi K, Charron C, Haruki K, **Barnes PJ**, Ito K. Defect of adaptation to hypoxia in COPD patients due to reduction of histone deacetylase 7. *Chest.*2011;
997. O'Connor BJ, Collarini S, Poli G, Brindicci C, Spinola M, Acerbi D, **Barnes PJ**, Leaker B. Rapid effects of extrafine beclomethasone dipropionate/formoterol fixed combination inhaler on airway inflammation and bronchoconstriction in asthma: a randomised controlled trial. *BMC.Pulm.Med.* 2011; **11**:60.
998. Kobayashi Y, Mercado N, **Barnes PJ**, Ito K. Defects of protein phosphatase 2A causes corticosteroid insensitivity in severe asthma. *PLoS.One.* 2011; **6**:e27627.

## 2012

999. **Barnes PJ**. Severe asthma: advances in current management and future therapy. *J Allergy Clin Immunol.* 2012; **129**:48-59.

1000. Rossios C, To Y, Osoata G, Ito M, **Barnes PJ**, Ito K. Corticosteroid insensitivity is reversed by formoterol via phosphoinositide 3-kinase inhibition. *Br.J.Pharmacol.* 2012;
1001. Yao X, Zha W, Song W, He H, Huang M, Jazrawi E, Lavender P, **Barnes PJ**, Adcock IM, Durham AL. Coordinated regulation of IL-4 and IL-13 expression in human T cells: 3C analysis for DNA looping. *Biochem.Biophys.Res.Commun.* 2012; **417**:996-1001.
1002. Usmani OS, **Barnes PJ**. Assessing and treating small airways disease in asthma and chronic obstructive pulmonary disease. *Ann.Med.* 2012; **44**:146-156.
1003. Gelb AF, **Barnes PJ**, George SC, Ricciardolo FL, DiMaria G, Zamel N. Review of exhaled nitric oxide in chronic obstructive pulmonary disease. *J.Breath.Res.* 2012; **6**:047101.
1004. Agusti A, **Barnes PJ**. Update in chronic obstructive pulmonary disease 2011. *Am.J.Respir.Crit Care Med.* 2012; **185**:1171-1176.
1005. **Barnes PJ**, Nicolini G, Bizzi A, Spinola M, Singh D. Do inhaled corticosteroid/long-acting  $\beta_2$ -agonist fixed combinations provide superior clinical benefits compared with separate inhalers? A literature reappraisal. *Allergy Asthma Proc.* 2012; **33**:140-144.
1006. Kobayashi Y, Mercado N, Miller-Larsson A, **Barnes PJ**, Ito K. Increased corticosteroid sensitivity by a long acting  $\beta_2$ -agonist formoterol via  $\beta_2$ -adrenoceptor independent protein phosphatase 2A activation. *Pulm.Pharmacol.Ther.* 2012; **25**:201-207.
1007. Tomita K, Caramori G, Ito K, Sano S, Lim S, Oates T, Cosio B, Chung KF, Tohda Y, **Barnes PJ**, Adcock IM. STAT6 expression in T cells, alveolar macrophages and bronchial biopsies of normal and asthmatic subjects. *J.Inflamm.* 2012; **9**:5.
1008. Gelb AF, **Barnes PJ**, George SC, Ricciardolo FL, DiMaria G, Zamel N. Review of exhaled nitric oxide in chronic obstructive pulmonary disease. *J.Breath.Res.* 2012; **6**:047101.
1009. Donnelly LE, **Barnes PJ**. Defective phagocytosis in airways disease. *Chest* 2012; **141**:1055-1062.
1010. Louis R, Schleich F, **Barnes PJ**. Corticosteroids: still at the frontline in asthma treatment? *Clin.Chest Med.* 2012; **33**:531-541.
1011. Mercado N, Hakim A, Kobayashi Y, Meah S, Usmani OS, Chung KF, **Barnes PJ**, Ito K. Restoration of corticosteroid sensitivity by p38 mitogen activated Protein kinase inhibition in peripheral blood mononuclear cells from severe asthma. *PLoS.One* 2012; **7**e41582.
1012. Mallia P, Footitt J, Sotero R, Jepson A, Contoli M, Trujillo-Torralbo MB, Kebadze T, Aniscenko J, Oleszkiewicz G, Gray K, Message SD, Ito K, **Barnes PJ**, Adcock IM, Papi A, Stanciu LA, Elkin SL, Kon OM, Johnson M, Johnston SL. Rhinovirus infection induces degradation of antimicrobial peptides and secondary bacterial infection in chronic obstructive pulmonary disease. *Am.J.Respir.Crit Care Med.* 2012; **186**:1117-1124.
1013. **Barnes PJ**. New drugs for asthma. *Semin.Respir.Crit Care Med.* 2012; **33**:685-694.
1014. Yuan C, Zhou L, Cheng J, Zhang J, Teng Y, Huang M, Adcock IM, **Barnes PJ**, Yao X. Statins as potential therapeutic drugs for asthma? *Respir.Res.* 2012; **13**:108.
1015. Horvath, R. Dweik, and P. J. Barnes. Exhaled nitric oxide comes of age. *J Breath.Res.* 2012; **6** :040201.
1016. Montuschi P, Paris D, Melck D, Lucidi V, Ciabattoni G, Raia V, Calabrese, C, Bush A, **Barnes PJ**, Motta A. NMR spectroscopy metabolomic profiling of exhaled breath condensate in patients with stable and unstable cystic fibrosis. *Thorax* 2012; **67**: 222-228.

## 2013

1017. Vestbo J, Hurd SS, Agusti AG, Jones PW, Vogelmeier C, Anzueto A, **Barnes PJ**, Fabbri LM, Martinez FJ, Nishimura M, Stockley RA, Sin DD, Rodriguez-Roisin R. Global strategy for the diagnosis, management

and prevention of chronic obstructive pulmonary disease, GOLD Executive Summary. *Am.J.Respir.Crit Care Med.*, 2013; **187**:347-65.

1018. Maneechotesawan K, Kasetsinsombat A, Wongkajornsilp A, **Barnes PJ**. Decreased indoleamine 2,3-dioxygenase activity and IL-10/IL-17A ratio in patients with COPD. *Thorax* 2013; **68**: 330-337.
1019. Brown SA, Koarai A, Sturton RG, Nicholson AG, **Barnes PJ**, Donnelly LE. A role for M<sub>2</sub> and M<sub>3</sub> muscarinic receptors in the contraction of rat and human small airways. *Eur.J Pharmacol.* 2013; **702**: 109-115.
1020. **Barnes PJ**. Corticosteroid resistance in patients with asthma and chronic obstructive pulmonary disease. *J Allergy Clin.Immunol.* 2013; **131**:636-645.
1021. Kimura G, Ueda K, Eto S, Watanabe Y, Masuko T, Kusama Y, **Barnes PJ**, Ito K, Kizawa Y. Toll-like receptor 3 stimulation causes corticosteroid-refractory airway neutrophilia and hyperresponsiveness in mice. *Chest*. 2013; **144**:99-105
1022. Maneechotesawan K, Kasetsinsombat K, Wamanuttajinda V, Wongkajornsilp A, **Barnes PJ**. Statins enhance the effects of corticosteroids on the balance between regulatory T cells and Th17 cells. *Clin.Exp Allergy*. 2013; **43**:212-222.
1023. **Barnes PJ**. Development of New Drugs for COPD. *Curr.Med.Chem.* 2013; **20**:1531-1540
1024. Montuschi P, Mores N, Trove A, Mondino C, **Barnes PJ**. The electronic nose in respiratory medicine. *Respiration* 2013; **85**:72-84.
1025. Binia A, van Stiphout N, Liang L, Michel S, Bhavsar PK, Chung KF, Brightling CE, **Barnes PJ**, Kabesch M, Bush A, Cookson WO, Moffatt MF. A Polymorphism affecting MYB binding within the promoter of the PDCCD4 gene is associated with severe asthma in Children. *Hum.Mutat.* 2013; **34**:1131-1139
1026. To M, Takagi D, Akashi K, Kano I, Haruki K, **Barnes PJ**, Ito K. Sputum PAI-1 elevation by oxidative stress-dependent NF-κB activation in chronic obstructive pulmonary disease. *Chest*. 2013; **144**:515-21.
1027. Durham AL, McLaren A, Hayes BP, Caramori G, Clayton CL, **Barnes PJ**, Chung KF, Adcock IM. Regulation of Wnt4 in chronic obstructive pulmonary disease. *FASEB J.* 2013; **27**:2367-81.
1028. **Barnes PJ**. Chronic obstructive pulmonary disease: important advances. *Lancet Respir* 2013; **1**: e7-e8.
1029. Mortaz E, Adcock IM, Folkerts G, **Barnes PJ**, Vos AP, Garssen J. Probiotics in the management of lung diseases. *Mediators.Inflamm.* 2013; **2013**:751068.
1030. Kobayashi Y, Wada H, Rossiosn C, Takagi D, Higaki M, Mikura S, Goto H, **Barnes PJ**, Ito K. A novel macrolide solithromycin exerts superior anti-inflammatory effect via NF-κB inhibition. *J Pharmacol Exp Ther.* 2013; **345**:76-84.
1031. **Barnes PJ**. Theophylline. *Am.J Respir.Crit Care Med.* 2013; **188**:901-906.
1032. **Barnes PJ**. New anti-inflammatory treatments for chronic obstructive pulmonary disease. *Nat Rev Drug Discov.* 2013; **12**:543-559.
1033. Kirkham PA, **Barnes PJ**. Oxidative stress in COPD. *Chest* 2013; **144**:266-73
1034. Paschalaki KE, Starke RD, Hu Y, Mercado N, Margariti A, Gorgoulis VG, Randi AM, **Barnes PJ**. Dysfunction of endothelial progenitor cells from smokers and COPD patients due to increased DNA damage and senescence. *Stem Cells* 2013; **31**:2813-2826
1035. Papi A, Contoli M, Adcock IM, Bellettato C, Padovani A, Casolari P, Stanciu LA, **Barnes PJ**, Johnston SL, Ito K, Caramori G. Rhinovirus infection causes steroid resistance in airway epithelium through nuclear factor κB and c-Jun N-terminal kinase activation. *J Allergy Clin.Immunol.* 2013; **132**:1075-1085.
1036. Bikov A, Paschalaki K, Logan-Sinclair R, Horvath I, Kharitonov SA, **Barnes PJ**, Usmani OS, Paredi P. Standardised exhaled breath collection for the measurement of exhaled volatile organic compounds by proton transfer reaction mass spectrometry. *BMC Pulm. Med.* 2013; **13**:43.

1037. Kobayashi Y, Wada H, Rossios C, Takagi D, Charron C, **Barnes PJ**, Ito K. A novel macrolide/fluoroketolide, solithromycin (CEM-101), reverses corticosteroid insensitivity via phosphoinositide 3-kinase pathway inhibition. *Br J Pharmacol.* 2013; **169**:1024-1034.
1038. Paredi P, **Barnes PJ**. A breath of hot air? *Int.J.Tuberc.Lung Dis.* 2013; **17**:855
1039. Hakim A, **Barnes PJ**, Adcock IM, Usmani OS. Importin-7 mediates glucocorticoid receptor nuclear import and is impaired by oxidative stress, leading to glucocorticoid insensitivity. *FASEB J.* 2013; **27**:4510-4519.
1040. Haque R, Hakim A, Moodley T, Torrego A, Essilfie-Quaye S, Jazrawi E, Johnson M, **Barnes PJ**, Adcock IM, Usmani OS. Inhaled long-acting  $\beta_2$ -agonists enhance glucocorticoid receptor nuclear translocation and efficacy in sputum macrophages in COPD. *J Allergy Clin Immunol.* 2013; **132**:1166-73.
1041. Leaker BR, **Barnes PJ**, O'Connor B. Inhibition of LPS-induced airway neutrophilic inflammation in healthy volunteers with an oral CXCR2 antagonist." *Respir Res* 2013; **14**: 137.

## 2014

1042. Chana KK, Fenwick PS, Nicholson AG, **Barnes PJ**, Donnelly LE. Identification of a distinct glucocorticosteroid-insensitive pulmonary macrophage phenotype in patients with chronic obstructive pulmonary disease. *J Allergy Clin Immunol.* 2014; **133**:207-216.
1043. Kobayashi Y, Bossley C, Gupta A, Akashi K, Tsartsali L, Mercado N, **Barnes PJ**, Bush A, Ito K. Passive smoking impairs histone deacetylase-2 in children with severe asthma. *Chest* 2014; **145**:305-312.
1044. Wiegman CH, Li F, Clarke CJ, Jazrawi E, Kirkham P, **Barnes PJ**, Adcock IM, Chung KF. A comprehensive analysis of oxidative stress in the ozone-induced lung inflammation mouse model. *Clin Sci (Lond)* 2014; **126**:425-40.
1045. Paredi P, P., Kharitonov SA, Meah S, **Barnes PJ**, Usmani OS. A novel approach to partition central and peripheral airway nitric oxide. *Chest*; 2014; **145**:113-119.
1046. **Barnes PJ**. Cellular and molecular mechanisms of chronic obstructive pulmonary disease. *Clin Chest Med* 2014; **35**:71-86
1047. Dhariwal J, Tenant RC, Hansell DM, Westwick J, Walker C, Ward SP, Proide N, **Barnes PJ**, Kon OM, Hansell TT. Smoking cessation in COPD causes a transient improvement in spirometry and decreases micronodules on HRCT. *Chest* 2014; **145**:1006-15.
1048. Kirkham PA, Whiteman M, Winyard PG, Caramori G, Gordon F, Ford PA, **Barnes PJ**, Adcock IM, Chung KF. Impact of theophylline/corticosteroid combination therapy on sputum hydrogen sulfide levels in patients with COPD. *Eur Respir J* 2014; **43**:1504-6.
1049. Mercado N, Kizawa Y, Ueda K, Xiong Y, Kimura J, Moses A, Curtis AM, Ito K, **Barnes PJ**. Activation of transcription factor Nrf2 signalling by the sphingosine kinase inhibitor SKI-II is mediated by the formation of Keap1 dimers. *PLoS One* 2014; **9**:e88168
1050. Zhu A, Ge D, Zhang J, Adcock IM, **Barnes PJ**, Yao X. Sputum myeloperoxidase in chronic obstructive pulmonary disease. *European J Med Res* 2014; **19**:12.
1051. Kankaanranta H, Ilmarinen P, Zhang X, Adcock IM, Lahti A, **Barnes PJ**, Giembycz MA, Lindsay MA, Moilanen E. Tumour necrosis factor- $\alpha$  regulates human eosinophil apoptosis via ligation of TNF-receptor 1 and balance between NF- $\kappa$ B and AP-1. *PloS one*. 2014; **9**:e90298.
1052. Di Stefano A, Caramori G, Barczyk A, Vicari C, Brun P, Zanini A, Cappello F, Garofano E, Padovani A, Contoli M, Casolari P, Durham AL, Chung KF, **Barnes PJ**, Papi A, Adcock I, Balbi B. Innate immunity but not NLRP3 inflammasome activation correlates with severity of stable COPD. *Thorax* 2014; **69**:516-24.
1053. Liang Z, Zhang Q, Thomas CM, et al. Impaired macrophage phagocytosis of bacteria in severe asthma. *Respir Res* 2014; **15**: 72.

1054. Wu D, Zhou J, Bi H, et al. CCL11 as a potential diagnostic marker for asthma? *J Asthma* 2014; 1-8.
1055. Khan YM, Kirkham P, **Barnes PJ**, Adcock IM. Brd4 is essential for IL-1 $\beta$ -induced inflammation in human airway epithelial cells. *PLoS one* 2014; **9**(4): e95051.
1056. Michaeloudes C, Mercado N, Clarke C, et al. Bromodomain and extraterminal proteins suppress NF-E2-related factor 2-mediated antioxidant gene expression. *J Immunol* 2014; **192**: 4913-20.
1057. Leaker BR, **Barnes PJ**, Jones CR, Tutuncu A, Singh D. Efficacy and safety of nebulised glycopyrrolate for administration using high efficiency nebuliser in patients with COPD. *Br J Clin Pharmacol* 2014; **79**:492-500
1058. Singh R, Mackay AJ, Patel A, Garcha DS, Kowlessar BS, Brill SE, Donnelly LE, **Barnes PJ**, Donaldson GC, Wedzicha JA. Inflammatory thresholds and the species-specific effects of colonising bacteria in stable chronic obstructive pulmonary disease. *Respir Res* 2014; **15**: 114.
1059. **Barnes PJ**, Ward B, Barry M. Breaking down barriers to lung health. *Lancet Respiratory Med* 2014; **2**: 687-9.
1060. Barczyk A, Pierzchala W, Caramori G, Wiaderkiewicz R, Kaminski M, **Barnes PJ**, Adcock IM. Decreased percentage of CD4 $^{+}$ Foxp3 $^{+}$ TGF- $\beta$  $^{+}$  and increased percentage of CD4 $^{+}$ IL-17 $^{+}$  cells in bronchoalveolar lavage of asthmatics. *Journal of Inflammation* 2014; **11**: 22.
1061. Hashemian SM, Mortaz E, Tabarsi P, Jamaati H, Maghsoomi Z, Khosravi A, Garssen J, Masjedi MR, Velayati AA, Folkerts G, **Barnes PJ**, Adcock IM. Elevated CXCL-8 expression in bronchoalveolar lavage correlates with disease severity in patients with acute respiratory distress syndrome resulting from tuberculosis. *Journal of Inflammation* 2014; **11**: 21.
1062. Leaker BR, **Barnes PJ**, O'Connor BJ, Ali FY, Tam P, Neville J, Mackenzie LF, MacRury T. The effects of the novel SHIP1 activator AQX-1125 on allergen-induced responses in mild-to-moderate asthma. *Clin Exp Allergy* 2014; **44**: 1146-53.
1063. **Barnes PJ**, Casale TB, Dahl R, Pavord ID, Wechsler ME. The Asthma Control Questionnaire as a clinical trial endpoint: past experience and recommendations for future use. *Allergy* 2014; **69**: 1119-40.
1064. **Barnes PJ**. Glucocorticoids. *Chemical immunology and allergy* 2014; **100**: 311-6.
1065. **Barnes PJ**. Hepatocyte growth factor deficiency in COPD: a mechanism of emphysema and small airway fibrosis? *Chest* 2014; **146**: 1135-113.
1066. Leaker BR, Singh D, Ali FY, **Barnes PJ**, O'Connor B. The effect of the novel phosphodiesterase-4 inhibitor MEM 1414 on the allergen induced responses in mild asthma. *BMC Pulm Med* 2014; **14**: 166.

## 2015

1067. Mortaz E, Adcock IM, Tabarsi P, Masjedi MR, Mansouri D, Velayati AA, Casanova JL, **Barnes PJ**. Interaction of pattern recognition receptors with Mycobacterium tuberculosis. *J Clin Immunol* 2015; in press.
1068. **Barnes PJ**. Mechanisms of development of multimorbidity in the elderly. *Eur Respir J* 2015; **45**:790-806.
1069. Basoglu OK, **Barnes PJ**, Kharitonov SA, Pelleg A. Effects of aerosolized adenosine 5'-triphosphate in smokers and patients with chronic obstructive pulmonary disease. *Chest* 2015; **148**:430-5.
1070. Bi H, Zhou J, Wu D, Gao W, Li L, Yu L, Liu F, Huang M, Adcock IM, **Barnes PJ**, Yao X. Microarray analysis of long non-coding RNAs in COPD lung tissue. *Inflamm Res* 2015; **64**: 119-126.
1071. Haghgo SM, Allameh A, Mortaz E, Garssen J, Folkerts G, **Barnes PJ**, Adcock IM. Pharmacogenomics and targeted therapy of cancer: Focusing on Non-small cell lung Cancer. *Eur J Pharmacol* 2015; **754**:82-91.

1072. Leaker BR, O'Connor B, Singh D, **Barnes PJ**. The novel inhaled glucocorticoid receptor agonist GW870086X protects against adenosine-induced bronchoconstriction in asthma. *J Allergy Clin Immunol* 2015; **136**:501-2.
1073. Bikov A, Pride NB, Goldman MD, Hull JH, Horvath I, **Barnes PJ**, Usmani OS, Paredi P. Glottal aperture and buccal airflow leaks critically affect forced oscillometry measurements. *Chest* 2015; **148**:731-8.
1074. Mercado N, Ito K, **Barnes PJ**. Accelerated ageing in chronic obstructive pulmonary disease: new concepts. *Thorax* 2015; **70**:482-489
1075. **Barnes PJ**, Bonini S, Seeger W, Belvisi MG, Ward B, Holmes A. Barriers to new drug development in respiratory disease. *Eur Respir J* 2015; **45**:1197-207.
1076. Celli BR, Decramer M, Wedzicha JA, Wilson KC, Agusti A, Criner GJ, MacNee W, Make BJ, Rennard SI, Stockley RA, Vogelmeier C, Anzueto A, Au DH, **Barnes PJ**, Burgel PR, Calverley PM, Casanova C, Clini EM, Cooper CB, Coxson HO, Dusser DJ, Fabbri LM, Fahy B, Ferguson GT, Fisher A, Fletcher MJ, Hayot M, Hurst JR, Jones PW, Mahler DA, Maltais F, Mannino DM, Martinez FJ, Miravitles M, Meek PM, Papi A, Rabe KF, Roche N, Sciurba FC, Sethi S, Siafakas N, Sin DD, Soriano JB, Stoller JK, Tashkin DP, Troosters T, Verleden GM, Verschakelen J, Vestbo J, Walsh JW, Washko GR, Wise RA, Wouters EF, ZuWallack RL.. An official American Thoracic Society/European Respiratory Society statement: research questions in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2015; **191**:e4-e27.
1077. Wiegman CH, Michaeloudes C, Haji G, Narang P, Clarke CJ, Russell KE, et al. Oxidative stress-induced mitochondrial dysfunction drives inflammation and airway smooth muscle remodeling in patients with chronic obstructive pulmonary disease. *J Allergy Clin Immunol* 2015; **136**:769-80.
1078. Fenwick PS, Macedo P, Kilty IC, **Barnes PJ**, Donnelly LE. Effect of JAK Inhibitors on Release of CXCL9, CXCL10 and CXCL11 from Human Airway Epithelial Cells. *PloS One* 2015; **10**: e0128757
1079. Maneechotesawan K, Wongkajornsil A, Adcock IM, **Barnes PJ**. Simvastatin suppresses airway IL-17 and upregulates IL-10 in patients with stable COPD. *Chest* 2015; **148**:1164-76.
1080. **Barnes PJ**. Club Cells, their secretory protein, and COPD. *Chest* 2015; **147**: 1447-1448.
1081. Gao W, Li L, Wang Y, Zhang S, Adcock IM, **Barnes PJ**, Huang M, Yao X. Bronchial epithelial cells: The key effector cells in the pathogenesis of chronic obstructive pulmonary disease? *Respirology* 2015; **20**: 722-729.
1082. Gao W, Yuan C, Zhang J, Li L, Yu L, Wiegman CH, **Barnes PJ**, Adcock IM, Huang M, Yao X. Klotho expression is reduced in COPD airway epithelial cells: effects on inflammation and oxidant injury. *Clinical Science* 2015; **129**:1011-23.
1083. Leaker BR, Nicholson GC, Ali FY, Daudi N, O'Connor BJ, **Barnes PJ**. Bronchoabsorption: a novel bronchoscopy technique to improve biomarker sampling of the airway. *Respir Res* 2015; **16**: 102
1084. **Barnes PJ**. Therapeutic approaches to asthma-chronic obstructive pulmonary disease overlap syndromes. *J Allergy Clin Immunol* 2015; **136**: 531-545
1085. Ngkelo A, Hoffmann RF, Durham AL, Marwick JA, Brandenburg SM, de Bruin HG, Jonker MR, Rossios C, Tsitsiou E, Caramori G, Contoli M, Casolari P, Monaco F, Ando F, Speciale G, Kilty L, Chung KF, Papi A, Lindsay MA, Ten Hacken NH, van den Berge M, Timens W, **Barnes PJ**, van Oosterhout AJ, Adcock IM, Kirkham PA, Heijink IH. Glycogen synthase kinase-3b modulation of glucocorticoid responsiveness in COPD. *Am J Physiol Lung Cell Mol Physiol* 2015;
1086. **Barnes PJ**. Identifying molecular targets for new drug development for chronic obstructive pulmonary disease: What does the future hold? *Semin Respir Crit Care Med* 2015; **36**: 508-522.
1087. Devereux G, Cotton S, Barnes P, Briggs A, Burns G, Chaudhuri R, Chrystyn H, Davies L, De Soyza A, Fielding S, Gompertz S, Haughney J, Lee AJ, McCormack K, McPherson G, Morice A, Norrie J, Sullivan A, Wilson A, Price D. Use of low-dose oral theophylline as an adjunct to inhaled corticosteroids in preventing

exacerbations of chronic obstructive pulmonary disease: study protocol for a randomised controlled trial. *Trials* 2015; **16**: 267.

1088. Caramori G, Chung KF, **Barnes PJ**. Allergen Responses Modified by a GATA3 DNase. *N Engl J Med* 2015; **373**: 1176-7.
1089. Higaki M, Wada H, Mikura S, Yasutake T, Nakamura M, Niikura M, Kobayashi F, Kamma H, Kamiya S, Ito K, **Barnes PJ**, Goto H, Takizawa H. Interleukin-10 modulates pulmonary neutrophilic inflammation induced by cigarette smoke exposure. *Exp Lung Res* 2015; **41**: 525-534.
1090. Gastaldi AC, Paredi P, Talwar A, Meah S, **Barnes PJ**, Usmani OS. Oscillating positive Expiratory pressure on respiratory resistance in chronic obstructive pulmonary disease with a small amount of secretion: a randomized clinical trial. *Medicine* 2015; **94**: e1845.
1091. van de Kant KD, Paredi P, Meah S, Kalsi HS, **Barnes PJ**, Usmani OS. The effect of body weight on distal airway function and airway inflammation. *Obes Res Clin Prac* 2015; **10**:564-573.
1092. Colley T, Mercado N, Kunori Y, Brightling C, Bhavsar PK, **Barnes PJ**, Ito K. Defective sirtuin-1 increases IL-4 expression through acetylation of GATA-3 in patients with severe asthma. *J Allergy Clin Immunol* 2015; **137**:1595-1597

## 2016

1093. **Barnes PJ**. Asthma-COPD Overlap. *Chest* 2016; **149**:7-8.
1094. Mitani A, Ito K, Vuppusetty C, **Barnes PJ**, Mercado N. Inhibition of mTOR restores corticosteroid sensitivity in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2016; **193**:143-53
1095. Footitt J, Mallia P, Durham AL, Ho WE, Trujillo-Torralbo MB, Telcian AG, Del Rosario A, Chang C, Peh HY, Kebadze T, Anisenko J, Stanciu L, Essilfie-Quaye S, Ito K, **Barnes PJ**, Elkin SL, Kon OM, Wong WS, Adcock IM and Johnston SL (2016) Oxidative and nitrosative stress and histone deacetylase-2 activity in exacerbations of chronic obstructive pulmonary disease. *Chest* **149**:62-73.
1096. Russell KE, Chung KF, Clarke CJ, Durham AL, Mallia P, Footitt J, Johnston SL, **Barnes PJ**, Hall SR, Simpson KD, Starkey MR, Hansbro PM, Adcock IM and Wiegman CH (2016) The MIF antagonist ISO-1 attenuates corticosteroid-insensitive inflammation and airways hyperresponsiveness in an ozone-induced model of COPD. *PloS One* **11**:e0146102.
1097. Costa C, Traves SL, Tudhope SJ, Fenwick PS, Belchamber KB, Russell RE, **Barnes PJ**, Donnelly LE. Enhanced monocyte migration to CXCR3 and CCR5 chemokines in COPD. *Eur Respir J* 2016; **47**: 1093-1102.
1098. Kobayashi Y, Ito K, Kanda A, Tomoda K, Miller-Larsson A, et al. 2016. Protein tyrosine phosphatase PTP-RR regulates corticosteroid sensitivity. *Respir Res* **17**:30
1099. **Barnes PJ**. Sex differences in chronic obstructive pulmonary disease mechanisms. *Am J Respir Crit Care Med* 2016; **193**:813-4.
1100. Cosio BG, Shafiek H, Iglesias A, Yanez A, Cordova R, et al. 2016. Oral low-dose theophylline on top of inhaled fluticasone-salmeterol does not reduce exacerbations in patients with severe COPD: A pilot clinical trial. *Chest* **150**:123-30
1101. Lee J, Machin M, Russell KE, Pavlidis S, Zhu J, et al. 2016. Corticosteroid modulation of immunoglobulin expression and B-cell function in COPD. *FASEB J* 2016; **30**:2014-26
1102. Levy ML, Dekhuijzen PN, **Barnes PJ**, Broeders M, Corrigan CJ, et al. Inhaler technique: facts and fantasies. A view from the Aerosol Drug Management Improvement Team (ADMIT). *NPJ Primary Care Resp Med* 2016; **26**:16017
1103. Usmani OS, Singh D, Spinola M, Bazzi A, **Barnes PJ**. The prevalence of small airways disease in adult asthma: A systematic literature review. *Respir Med* 2016; **116**: 19-27.

1104. Verbanck S, Ghorbaniasl G, Biddiscombe MF, Dragojlovic D, Ricks N, Lacor C, Ilsem B, de Mey J, Schuermans D, Underwood SR, **Barnes PJ**, Vincken W, Usmani OS. Inhaled Aerosol Distribution in Human Airways: A Scintigraphy-Guided Study in a 3D Printed Model. *J Aerosol Med Pulm Drug Deliv* 2016; **29**:525-533.
1105. **Barnes PJ**. Kinases as novel therapeutic targets in asthma and COPD. *Pharmacol Rev* 2016; **68**: 788-815
1106. **Barnes PJ**. Inflammatory mechanisms in COPD. *J Allergy Clin Immunol* 2016; **138**: 16-27
1107. Singh D, Leaker B, Boyce M, Nandeuil MA, Collarini S, Mariotti F, Santoro D, **Barnes PJ**. A novel inhaled phosphodiesterase 4 inhibitor (CHF6001) reduces the allergen challenge response in asthmatic patients. *Pulm Pharmacol Ther* 2016; **40**:1-6.
1108. Maneechotesawan K, Kasetsinsombat K, Wongkajornsilp A, **Barnes PJ**. Simvastatin up-regulates adenosine deaminase and suppresses osteopontin expression in COPD patients through an IL-13-dependent mechanism. *Respir Res* 2016; **17**:104.
1109. Pelleg A, Schulman ES, **Barnes PJ**. Extracellular ATP in obstructive airway diseases. *Chest* 2016; **150**:908-915
1110. Baker J, Vuppusetty C, Colley T, Papaioannou A, Fenwick P, Donnelly L, Ito K, **Barnes PJ**. Oxidative stress dependent microRNA-34a activation via PI3K $\alpha$  reduces the expression of sirtuin-1 and sirtuin-6 in epithelial cells. *Sci Rep* 2016. **6**:35871.
1111. Bewley MA, Belchamber KB, Chana KK, Budd RC, Donaldson G, Wedzicha JA, Brightling CE, Kilty I, Donnelly LE, **Barnes PJ**, Singh D, Whyte MK, Dockrell DH. Differential effects of p38, MAPK, PI3K or Rho kinase inhibitors on bacterial phagocytosis and efferocytosis by macrophages in COPD. *PLoS One* 2016; **11**: e0163139.
1112. Poletti D, Iannini V, Casolari P, Contoli M, Papi A, Kirkham P, Hansel TT, Chung KF, **Barnes PJ**, Pastore A, Pelucchi S, Adcock IM, Caramori G. Nasal inflammation and its response to local glucocorticoid regular treatment in patients with persistent non-allergic rhinitis: a pilot study. *J Inflammation* 2016; **13**: 26.
1113. Nicholson GC, Holloway RA, Leaker BR, Kilty I, Salganik M, Tan L, **Barnes PJ**, Donnelly LE. A novel flow cytometric-based method to measure kinase inhibition in sputum from COPD subjects. *BMJ Open Resp Res* 2016; **3**: e000140.

## 2017

1114. O'Byrne PM, FitzGerald JM, Zhong N, Bateman E, **Barnes PJ**, Keen C, Almqvist G, Pemberton K, Jorup C, Ivanov S, Reddel HK. The SYGMA programme of phase 3 trials to evaluate the efficacy and safety of budesonide/formoterol given 'as needed' in mild asthma: study protocols for two randomised controlled trials. *Trials* 2017; **18**: 12.
1115. **Barnes PJ**. Glucocorticosteroids. *Handbook Experimental Pharmacol* 2017; **237**:93-115
1116. Carpagnano GE, Foschino-Barbaro MP, Crocetta C, Lacedonia D, Saliani V, Zoppo LD, **Barnes PJ**. Validation of the exhaled breath temperature measure: reference values in healthy subjects. *Chest* 2017; **195**:557-82
1117. Gross NJ, **Barnes PJ**. New therapies for asthma and chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2017; **195**:159-66
1118. **Barnes PJ**. COUNTERPOINT: Will new anti-eosinophilic drugs be useful in asthma management? No. *Chest*. 2017; **151**:17-20.
1119. **Barnes PJ**. Senescence in COPD and its comorbidities. *Annu Rev Physiol*. 2017; **79**:517-39.

1120. Vogelmeier CF, Criner GJ, Martinez FJ, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease 2017 Report: GOLD Executive Summary. *Am J Respir Crit Care Med.* 2017; **195**:557-82
1121. Vogelmeier CF, Criner GJ, Martinez FJ, et al. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease 2017 Report: GOLD Executive Summary. *Eur Respir J.* 2017; **49**.
1122. Basoglu OK, Pelleg A, Kharitonov SA, Barnes PJ. Contrasting effects of ATP and adenosine on capsaicin challenge in asthmatic patients. *Pulm Pharmacol Ther* 2017;
1123. Kobayashi Y, Ito K, Kanda A, Tomoda K, Mercado N, Barnes PJ. Impaired dual-specificity protein phosphatase DUSP4 reduces corticosteroid sensitivity. *Mol Pharmacol* 2017; **91**: 475-81.
1124. Shim JM, Lee JS, Russell KE, Wiegman CH, Barnes PJ, Fear D, Adcock IM, Durham AL. BET proteins are a key component of immunoglobulin gene expression. *Epigenomics* 2017; **9**:393-406
1125. Wang Y, Jia M, Yan X, Cao L, Barnes PJ, Adcock IM, Huang M, Yao X. Increased neutrophil gelatinase-associated lipocalin (NGAL) promotes airway remodelling in chronic obstructive pulmonary disease. *Clin Sci* 2017; **131**:1147-59.
1126. Yeo SC, Fenwick PS, Barnes PJ, Lin HS, Donnelly LE. Isorhapontigenin, a bioavailable dietary polyphenol, suppresses airway epithelial cell inflammation through a corticosteroid-independent mechanism. *Br J Pharmacol* 2017; **174**:2043-59
1127. Horvath I, Barnes PJ, Loukides S, Sterk PJ, Hogman M, Olin AC, Amann A, Antus B, Baraldi E, Bikov A, Boots AW, Bos LD, Brinkman P, Bucca C, Carpagnano GE, Corradi M, Cristescu S, de Jongste JC, Dinh-Xuan AT, Dompeeling E, Fens N, Fowler S, Hohlfeld JM, Holz O, Jobsis Q, Van De Kant K, Knobel HH, Kostikas K, Lehtimaki L, Lundberg J, Montuschi P, Van Muylem A, Pennazza G, Reinhold P, Ricciardolo FLM, Rosias P, Santonico M, van der Schee MP, van Schooten FJ, Spanevello A, Tonia T, Vink TJ. A European Respiratory Society technical standard: exhaled biomarkers in lung disease. *Eur Respir J* 2017; **49**.
1128. To M, Swallow EB, Akashi K, Haruki K, Natanek SA, Polkey MI, Ito K, Barnes PJ. Reduced HDAC2 in skeletal muscle of COPD patients. *Respir Res* 2017; **18**: 99.
1129. Yanagisawa S, Baker JR, Vuppusetty C, Fenwick P, Donnelly LE, Ito K, Barnes PJ. Decreased phosphatase PTEN amplifies PI3K signaling and enhances pro-inflammatory cytokine release in COPD. *Am J Physiol Lung* 2017; ;
1130. Yanagisawa S, Papaioannou AI, Papaporfiriou A, Baker J, Vuppusetty C, Loukides S, Barnes PJ, Ito K. Decreased serum sirtuin-1 in chronic obstructive pulmonary disease. *Chest* 2017; **152**:343-352.
1131. Bewley MA, Preston JA, Mohasin M, Marriott HM, Budd RC, Swales J, Collini P, Greaves DR, Craig RW, Brightling CE, Donnelly LE, Barnes PJ, Singh D, Shapiro SD, Whyte MKB, Dockrell DH. Impaired mitochondrial microbicidal responses in chronic obstructive pulmonary disease macrophages. *Am J Respir Crit Care Med* 2017.
1132. Di Stefano A, Ricciardolo FLM, Caramori G, Adcock IM, Chung KF, Barnes PJ, Brun P, Leonardi A, Ando F, Vallese D, Gnemmi I, Righi L, Cappello F, Balbi B. Bronchial inflammation and bacterial load in stable COPD is associated with TLR4 overexpression. *Eur Respir J* 2017; **49**.
1133. Barnes PJ. Cellular and molecular mechanisms of asthma and COPD. *Clin Sci* 2017; **131**: 1541-1558.
1134. Antuni, J.D. & Barnes, P.J. Evaluation of Individuals at Risk for COPD: beyond the scope of the Global Initiative for Chronic Obstructive Lung Disease. *COPD* 2018; **3**, 653-667.
1135. Paschalaki K, Zampetaki A, Baker J, Birrell M, Starke RD, Belvisi M, Donnelly LE, Mayr M, Randi AM, Barnes PJ. Downregulation of microRNA-126 augments DNA damage response in cigarette smokers and COPD patients. *Am J Respir Crit Care Med* 2017;

1136. Birch J, **Barnes PJ**, Passos JF. Mitochondria, telomeres and cell senescence: Implications for lung ageing and disease. *Pharmacol Ther* 2017;
1137. Gastaldi AC, Paredi P, Talwar A, Meah S, **Barnes PJ**, Usmani OS. Oscillating positive Expiratory pressure on respiratory resistance in chronic obstructive pulmonary disease with a small amount of secretion: a randomized clinical trial. *Medicine* 2015; **94**: e1845.
1138. Hashemian SM, Mortaz E, Jamaati H, Bagheri L, Mohajerani SA, Garssen J, Movassagh M, **Barnes PJ**, Hill NS, Adcock IM. Budesonide facilitates weaning from mechanical ventilation in difficult-to-wean very severe COPD patients: Association with inflammatory mediators and cells. *J Crit Care* 2017; **44**: 161-7.
1139. Mitani A, Azam A, Vuppuseddy C, Ito K, Mercado N, **Barnes PJ**. Quercetin restores corticosteroid sensitivity in cells from patients with chronic obstructive pulmonary disease. *Exp Lung Res* 2017; **43**: 417-425.
1140. Wang G, Zhang X, Zhang HP, Wang L, Kang Y, **Barnes PJ**, Wang G. Corticosteroid plus beta2-agonist in a single inhaler as reliever therapy in intermittent and mild asthma: a proof-of-concept systematic review and meta-analysis. *Respir Res* 2017; **18**: 203.

## 2018

1141. Cazzola M, Calzetta L, **Barnes PJ**, Criner GJ, Martinez FJ, Papi A, Matera GM. Efficacy and safety profile of xanthines in COPD: a network meta-analysis. *Eur Respir Rev* 2018; **27**: 180010.
1142. Wang Z, Singh R, Miller BE, Tal-Singer R, Van Horn S, Tomsho L, Mackay A, Allinson JP, Webb AJ, Brookes AJ, George LM, Barker B, Kolsum U, Donnelly LE, Belchamber K, **Barnes PJ**, Singh D, Brightling CE, Donaldson GC, Wedzicha JA, Brown JR. Sputum microbiome temporal variability and dysbiosis in chronic obstructive pulmonary disease exacerbations: an analysis of the COPDMAP study. *Thorax* 2018; **73**:331-338
1143. Di Stefano A, Sangiorgi C, Gnemmi I, Casolari P, Brun P, Ricciardolo FL, Contoli M, Papi A, Maniscalco P, Ruggeri P, Girbino G, Cappello F, Pavlides S, Guo Y, Chung KF, **Barnes PJ**, Adcock IM, Balbi B, Caramori G. TGF-beta signalling pathways in different compartments of the lower airways of stable COPD patients. *Chest* 2018; **153**:851-862
1144. Montuschi P, Santini G, Mores N, Vignoli A, Macagno F, Shoreh R, Tenori L, Zini G, Fuso L, Mondino C, Di Natale C, D'Amico A, Luchinat C, **Barnes PJ**, Higenbottam T.. Breathomics for Assessing the Effects of Treatment and Withdrawal With Inhaled Beclomethasone/Formoterol in Patients With COPD. *Front Pharmacol* 2018; **9**:258.
1145. Singh D, **Barnes PJ**, Stockley R, Lopez Valera MV, Vogelmeier C, Agusti A. Pharmacological treatment of COPD: the devil is always in the detail. *Eur Respir J* 2018; **51**: 1800263.
1146. **Barnes PJ**. Targeting cytokines to treat asthma and chronic obstructive pulmonary disease. *Nat Rev Immunol* 2018; **18**:454-466
1147. Bewley MA, Budd RC, Ryan E, Cole J, Collini P, Marshall J, Kolsum U, Beech G, Emes RD, Tcherniaeva I, Berbers GAM, Walmsley SR, Donaldson G, Wedzicha JA, Kilty I, Rumsey W, Sanchez Y, Brightling CE, Donnelly LE, **Barnes PJ**, Singh D, Whyte MKB, Dockrell DH; COPDMAP. Opsonic Phagocytosis in Chronic Obstructive Pulmonary Disease is Enhanced by Nrf2 Agonists. *Am J Respir Crit Care Med* 2018; **198**:739-750
1148. Yanagisawa S, Baker JR, Vuppuseddy C, Koga T, Colley T, Fenwick P, Donnelly LE, **Barnes PJ**, Ito K.. The dynamic shuttling of SIRT1 between cytoplasm and nuclei in bronchial epithelial cells by single and repeated cigarette smoke exposure. *PLoS One* 2018; **13**:e0193921.
1149. Wrench C, Belchamber KBR, Bercusson A, Shah A, **Barnes PJ**, Armstrong-James D, Donnelly LE. Reduced Clearance of Fungal Spores by Chronic Obstructive Pulmonary Disease GM-CSF- and M-CSF-derived Macrophages. *Am J Respir Cell Mol Biol* 2018; **58**:271-3.
1150. Mallia P, Webber J, Gill SK, Trujillo-Torralbo MB, Calderazzo MA, Finney L, Bakhsoliani E, Farne H, Singanayagam A, Footitt J, Hewitt R, Kebadze T, Aniscenko J, Padmanaban V, Molyneaux PL, Adcock IM,

**Barnes PJ**, Ito K, Elkin SL, Kon OM, Cookson WO, Moffat MF, Johnston SL, Tregoning JS.. Role of airway glucose in bacterial infections in patients with chronic obstructive pulmonary disease. *J Allergy Clin Immunol* 2018; **142**:815-823

1151. O'Byrne PM, FitzGerald JM, Bateman ED, **Barnes PJ**, Zhong N, Keen C, Jorup C, Lamarca R, Ivanov S, Reddel HK. Inhaled combined budesonide-formoterol as needed in mild asthma. *N Engl J Med* 2018; **378**:1865-76.
1152. Bateman ED, Reddel HK, O'Byrne PM, **Barnes PJ**, Zhong N, Keen C, Jorup C, Lamarca R, Swiek-Postluszana A, FitzGerald JM. As-needed budesonide-formoterol versus maintenance midesonide in mild asthma. *N Engl J Med* 2018; **378**:1877-87.
1153. Dai Y, Yeo SCM, **Barnes PJ**, Donnelly LE, Loo LC, Lin HS. Pre-clinical pharmacokinetic and metabolomic analyses of isorhapontigenin, a dietary resveratrol derivative. *Frontiers Pharmacol* 2018; **9**:753.
1154. Pelleg A, Schulman ES, **Barnes PJ**. Adenosine 5'-triphosphate's role in bradycardia and syncope associated with pulmonary embolism. *Respir Res*. 2018; **19**:142.
1155. Sood A, Assad NA, **Barnes PJ**, Churg A, Gordon SB, Harrod KS, Irshad H, Kurmi OP, Martin WJ, Meek P, Mortimer K, Noonan CW, Perez-Padilla R, Smith KR, Tesfaigzi Y, Ward T, Balmes J. ERS/ATS workshop report on respiratory health effects of household air pollution. *Eur Respir J* 2018; **51**:1700698.
1156. Devereux G, Cotton S, Fielding S, McMeekin N, **Barnes PJ**, Briggs A, Burns G, Chaudhuri R, Chrystyn H, Davies L, De Soya A, Gompertz S, Haughney J, Innes K, Kaniewska J, Lee A, Morice A, Norrie J, Sullivan A, Wilson A, Price D. Effect of theophylline as adjunct to inhaled corticosteroids on exacerbations in patients with COPD: a randomized clinical trial. *JAMA* 2018; **320**: 1548-59.
1157. Carpagnano GE, Scioscia G, Lacedonia D, Soccio P, Lepore, G, Saetta M, Foschino Barbaro M.P, **Barnes P** J.. Looking for airways periostin in severe asthma: could it be useful for clustering type 2 endotype? *Chest* 2018; **154**:1083-1090.
1158. Belchamber KB, Thomas CM, Dunne AE, **Barnes PJ**, Donnelly LE. Comparison of fluticasone propionate and budesonide on COPD macrophage and neutrophil function. *Int J COPD* 2018; **13**: 2883-2897.
1159. Higaki M, Wada H, Mikura S, Yasutake T, Nakamura M, Niikura M, Kobayashi F, Kamma H, Kamiya S, Ito K, **Barnes PJ**, Goto H, Takizawa H. Interleukin-10 modulates pulmonary neutrophilic inflammation induced by cigarette smoke exposure. *Exp Lung Res* 2015; **41**: 525-534.
1160. Gastaldi AC, Paredi P, Talwar A, Meah S, **Barnes PJ**, Usmani OS. Oscillating positive Expiratory pressure on respiratory resistance in chronic obstructive pulmonary disease with a small amount of secretion: a randomized clinical trial. *Medicine* 2015; **94**: e1845.
1161. van de Kant KD, Paredi P, Meah S, Kalsi HS, **Barnes PJ**, Usmani OS. The effect of body weight on distal airway function and airway inflammation. *Obes Res Clin Prac* 2015; **10**:564-573.
1162. Colley T, Mercado N, Kunori Y, Brightling C, Bhavsar PK, **Barnes PJ**, Ito K. Defective sirtuin-1 increases IL-4 expression through acetylation of GATA-3 in patients with severe asthma. *J Allergy Clin Immunol* 2015; **137**:1595-1597

## 2016

1163. **Barnes PJ**. Asthma-COPD Overlap. *Chest* 2016; **149**:7-8.
1164. Mitani A, Ito K, Vuppusetty C, **Barnes PJ**, Mercado N. Inhibition of mTOR restores corticosteroid sensitivity in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 2016; **193**:143-53
1165. Footitt J, Mallia P, Durham AL, Ho WE, Trujillo-Torralbo MB, Telcian AG, Del Rosario A, Chang C, Peh HY, Kebadze T, Aniscenko J, Stanciu L, Essilfie-Quaye S, Ito K, **Barnes PJ**, Elkin SL, Kon OM, Wong WS, Adcock IM and Johnston SL (2016) Oxidative and nitrosative stress and histone deacetylase-2 activity in exacerbations of chronic obstructive pulmonary disease. *Chest* **149**:62-73.

1166. Russell KE, Chung KF, Clarke CJ, Durham AL, Mallia P, Footitt J, Johnston SL, **Barnes PJ**, Hall SR, Simpson KD, Starkey MR, Hansbro PM, Adcock IM and Wiegman CH (2016) The MIF antagonist ISO-1 attenuates corticosteroid-insensitive inflammation and airways hyperresponsiveness in an ozone-induced model of COPD. *PloS One* **11**:e0146102.
1167. Costa C, Traves SL, Tudhope SJ, Fenwick PS, Belchamber KB, Russell RE, **Barnes PJ**, Donnelly LE. Enhanced monocyte migration to CXCR3 and CCR5 chemokines in COPD. *Eur Respir J* 2016; **47**: 1093-1102.
1168. Kobayashi Y, Ito K, Kanda A, Tomoda K, Miller-Larsson A, et al. 2016. Protein tyrosine phosphatase PTP-RR regulates corticosteroid sensitivity. *Respir Res* **17**:30
1169. **Barnes PJ**. Sex differences in chronic obstructive pulmonary disease mechanisms. *Am J Respir Crit Care Med* 2016; **193**:813-4.
1170. Cosio BG, Shafiek H, Iglesias A, Yanez A, Cordova R, et al. 2016. Oral low-dose theophylline on top of inhaled fluticasone-salmeterol does not reduce exacerbations in patients with severe COPD: A pilot clinical trial. *Chest* **150**:123-30
1171. Lee J, Machin M, Russell KE, Pavlidis S, Zhu J, et al. 2016. Corticosteroid modulation of immunoglobulin expression and B-cell function in COPD. *FASEB J* 2016; **30**:2014-26
1172. Levy ML, Dekhuijzen PN, **Barnes PJ**, Broeders M, Corrigan CJ, et al. Inhaler technique: facts and fantasies. A view from the Aerosol Drug Management Improvement Team (ADMIT). *NPJ Primary Care Resp Med* 2016; **26**:16017
1173. Usmani OS, Singh D, Spinola M, Bazzi A, **Barnes PJ**. The prevalence of small airways disease in adult asthma: A systematic literature review. *Respir Med* 2016; **116**: 19-27.
1174. Verbanck S, Ghorbaniasl G, Biddiscombe MF, Dragojlovic D, Ricks N, Lacor C, Ilse B, de Mey J, Schuermans D, Underwood SR, **Barnes PJ**, Vincken W, Usmani OS. Inhaled Aerosol Distribution in Human Airways: A Scintigraphy-Guided Study in a 3D Printed Model. *J Aerosol Med Pulm Drug Deliv* 2016; **29**:525-533.
1175. **Barnes PJ**. Kinases as novel therapeutic targets in asthma and COPD. *Pharmacol Rev* 2016; **68**: 788-815
1176. **Barnes PJ**. Inflammatory mechanisms in COPD. *J Allergy Clin Immunol* 2016; **138**: 16-27
1177. Singh D, Leaker B, Boyce M, Nandeuil MA, Collarini S, Mariotti F, Santoro D, **Barnes PJ**. A novel inhaled phosphodiesterase 4 inhibitor (CHF6001) reduces the allergen challenge response in asthmatic patients. *Pulm Pharmacol Ther* 2016; **40**:1-6.
1178. Maneechotesuwan K, Kasetsinsombat K, Wongkajornsilp A, **Barnes PJ**. Simvastatin up-regulates adenosine deaminase and suppresses osteopontin expression in COPD patients through an IL-13-dependent mechanism. *Respir Res* 2016; **17**:104.
1179. Pelleg A, Schulman ES, **Barnes PJ**. Extracellular ATP in obstructive airway diseases. *Chest* 2016; **150**:908-915
1180. Baker J, Vuppusetty C, Colley T, Papaioannou A, Fenwick P, Donnelly L, Ito K, **Barnes PJ**. Oxidative stress dependent microRNA-34a activation via PI3K $\alpha$  reduces the expression of sirtuin-1 and sirtuin-6 in epithelial cells. *Sci Rep* 2016. **6**:35871.
1181. Bewley MA, Belchamber KB, Chana KK, Budd RC, Donaldson G, Wedzicha JA, Brightling CE, Kilty I, Donnelly LE, **Barnes PJ**, Singh D, Whyte MK, Dockrell DH. Differential effects of p38, MAPK, PI3K or Rho kinase inhibitors on bacterial phagocytosis and efferocytosis by macrophages in COPD. *PloS One* 2016; **11**: e0163139.
1182. Poletti D, Iannini V, Casolari P, Contoli M, Papi A, Kirkham P, Hansel TT, Chung KF, **Barnes PJ**, Pastore A, Pelucchi S, Adcock IM, Caramori G. Nasal inflammation and its response to local glucocorticoid regular treatment in patients with persistent non-allergic rhinitis: a pilot study. *J Inflammation* 2016; **13**: 26.

1183. Nicholson GC, Holloway RA, Leaker BR, Kilty I, Salganik M, Tan L, **Barnes PJ**, Donnelly LE. A novel flow cytometric-based method to measure kinase inhibition in sputum from COPD subjects. *BMJ Open Resp Res* 2016; **3**: e000140.

## 2017

1184. O'Byrne PM, FitzGerald JM, Zhong N, Bateman E, **Barnes PJ**, Keen C, Almqvist G, Pemberton K, Jorup C, Ivanov S, Reddel HK. The SYGMA programme of phase 3 trials to evaluate the efficacy and safety of budesonide/formoterol given 'as needed' in mild asthma: study protocols for two randomised controlled trials. *Trials* 2017; **18**: 12.
1185. **Barnes PJ**. Glucocorticosteroids. *Handbook Experimental Pharmacol* 2017; **237**:93-115
1186. Carpagnano GE, Foschino-Barbaro MP, Crocetta C, Lacedonia D, Saliani V, Zoppo LD, **Barnes PJ**. Validation of the exhaled breath temperature measure: reference values in healthy subjects. *Chest* 2017; **195**:557-82
1187. Gross NJ, **Barnes PJ**. New therapies for asthma and chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2017; **195**:159-66
1188. **Barnes PJ**. COUNTERPOINT: Will new anti-eosinophilic drugs be useful in asthma management? No. *Chest*. 2017; **151**:17-20.
1189. **Barnes PJ**. Senescence in COPD and its comorbidities. *Annu Rev Physiol*. 2017; **79**:517-39.
1190. Vogelmeier CF, Criner GJ, Martinez FJ, et al. Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease 2017 Report: GOLD Executive Summary. *Am J Respir Crit Care Med*. 2017; **195**:557-82
1191. Vogelmeier CF, Criner GJ, Martinez FJ, et al. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease 2017 Report: GOLD Executive Summary. *Eur Respir J*. 2017; **49**.
1192. Basoglu OK, Pelleg A, Kharitonov SA, **Barnes PJ**. Contrasting effects of ATP and adenosine on capsaicin challenge in asthmatic patients. *Pulm Pharmacol Ther* 2017;
1193. Kobayashi Y, Ito K, Kanda A, Tomoda K, Mercado N, **Barnes PJ**. Impaired dual-specificity protein phosphatase DUSP4 reduces corticosteroid sensitivity. *Mol Pharmacol* 2017; **91**: 475-81.
1194. Shim JM, Lee JS, Russell KE, Wiegman CH, **Barnes PJ**, Fear D, Adcock IM, Durham AL. BET proteins are a key component of immunoglobulin gene expression. *Epigenomics* 2017; **9**:393-406
1195. Wang Y, Jia M, Yan X, Cao L, **Barnes PJ**, Adcock IM, Huang M, Yao X. Increased neutrophil gelatinase-associated lipocalin (NGAL) promotes airway remodelling in chronic obstructive pulmonary disease. *Clin Sci* 2017; **131**:1147-59.
1196. Yeo SC, Fenwick PS, **Barnes PJ**, Lin HS, Donnelly LE. Isorhapontigenin, a bioavailable dietary polyphenol, suppresses airway epithelial cell inflammation through a corticosteroid-independent mechanism. *Br J Pharmacol* 2017; **174**:2043-59
1197. Horvath I, **Barnes PJ**, Loukides S, Sterk PJ, Hogman M, Olin AC, Amann A, Antus B, Baraldi E, Bikov A, Boots AW, Bos LD, Brinkman P, Bucca C, Carpagnano GE, Corradi M, Cristescu S, de Jongste JC, Dinh-Xuan AT, Dompeeling E, Fens N, Fowler S, Hohlfeld JM, Holz O, Jobsis Q, Van De Kant K, Knobel HH, Kostikas K, Lehtimaki L, Lundberg J, Montuschi P, Van Muylem A, Pennazza G, Reinhold P, Ricciardolo FLM, Rosias P, Santonicò M, van der Schee MP, van Schooten FJ, Spanevello A, Tonia T, Vink TJ. A European Respiratory Society technical standard: exhaled biomarkers in lung disease. *Eur Respir J* 2017; **49**.
1198. To M, Swallow EB, Akashi K, Haruki K, Natanek SA, Polkey MI, Ito K, **Barnes PJ**. Reduced HDAC2 in skeletal muscle of COPD patients. *Respir Res* 2017; **18**: 99.

1199. Yanagisawa S, Baker JR, Vuppusetty C, Fenwick P, Donnelly LE, Ito K, **Barnes PJ**. Decreased phosphatase PTEN amplifies PI3K signaling and enhances pro-inflammatory cytokine release in COPD. *Am J Physiol Lung* 2017;
1200. Yanagisawa S, Papaioannou AI, Papaporfiriou A, Baker J, Vuppusetty C, Loukides S, **Barnes PJ**, Ito K. Decreased serum sirtuin-1 in chronic obstructive pulmonary disease. *Chest* 2017; 152:343-352.
1201. Bewley MA, Preston JA, Mohasin M, Marriott HM, Budd RC, Swales J, Collini P, Greaves DR, Craig RW, Brightling CE, Donnelly LE, **Barnes PJ**, Singh D, Shapiro SD, Whyte MKB, Dockrell DH. Impaired mitochondrial microbial responses in chronic obstructive pulmonary disease macrophages. *Am J Respir Crit Care Med* 2017.
1202. Di Stefano A, Ricciardolo FLM, Caramori G, Adcock IM, Chung KF, **Barnes PJ**, Brun P, Leonardi A, Ando F, Vallese D, Gnemmi I, Righi L, Cappello F, Balbi B. Bronchial inflammation and bacterial load in stable COPD is associated with TLR4 overexpression. *Eur Respir J* 2017; **49**.
1203. **Barnes PJ**. Cellular and molecular mechanisms of asthma and COPD. *Clin Sci* 2017; **131**: 1541-1558.
1204. Antuni, J.D. & Barnes, P.J. Evaluation of Individuals at Risk for COPD: beyond the scope of the Global Initiative for Chronic Obstructive Lung Disease. *COPD* 2018; **3**, 653-667.
1205. Paschalaki K, Zampetaki A, Baker J, Birrell M, Starke RD, Belvisi M, Donnelly LE, Mayr M, Randi AM, **Barnes PJ**. Downregulation of microRNA-126 augments DNA damage response in cigarette smokers and COPD patients. *Am J Respir Crit Care Med* 2017;
1206. Birch J, **Barnes PJ**, Passos JF. Mitochondria, telomeres and cell senescence: Implications for lung ageing and disease. *Pharmacol Ther* 2017;
1207. Gastaldi AC, Paredi P, Talwar A, Meah S, **Barnes PJ**, Usmani OS. Oscillating positive Expiratory pressure on respiratory resistance in chronic obstructive pulmonary disease with a small amount of secretion: a randomized clinical trial. *Medicine* 2015; **94**: e1845.
1208. Hashemian SM, Mortaz E, Jamaati H, Bagheri L, Mohajerani SA, Garssen J, Movassagh M, **Barnes PJ**, Hill NS, Adcock IM. Budesonide facilitates weaning from mechanical ventilation in difficult-to-wean very severe COPD patients: Association with inflammatory mediators and cells. *J Crit Care* 2017; **44**: 161-7.
1209. Mitani A, Azam A, Vuppusetty C, Ito K, Mercado N, **Barnes PJ**. Quercetin restores corticosteroid sensitivity in cells from patients with chronic obstructive pulmonary disease. *Exp Lung Res* 2017; **43**: 417-425.
1210. Wang G, Zhang X, Zhang HP, Wang L, Kang Y, **Barnes PJ**, Wang G. Corticosteroid plus beta2-agonist in a single inhaler as reliever therapy in intermittent and mild asthma: a proof-of-concept systematic review and meta-analysis. *Respir Res* 2017; **18**: 203.

## 2018

1211. Cazzola M, Calzetta L, **Barnes PJ**, Criner GJ, Martinez FJ, Papi A, Matera GM. Efficacy and safety profile of xanthines in COPD: a network meta-analysis. *Eur Respir Rev* 2018; **27**: 180010.
1212. Wang Z, Singh R, Miller BE, Tal-Singer R, Van Horn S, Tomsho L, Mackay A, Allinson JP, Webb AJ, Brookes AJ, George LM, Barker B, Kolsum U, Donnelly LE, Belchamber K, **Barnes PJ**, Singh D, Brightling CE, Donaldson GC, Wedzicha JA, Brown JR. Sputum microbiome temporal variability and dysbiosis in chronic obstructive pulmonary disease exacerbations: an analysis of the COPDMAP study. *Thorax* 2018; **73**:331-338
1213. Di Stefano A, Sangiorgi C, Gnemmi I, Casolari P, Brun P, Ricciardolo FL, Contoli M, Papi A, Maniscalco P, Ruggeri P, Girbino G, Cappello F, Pavlides S, Guo Y, Chung KF, **Barnes PJ**, Adcock IM, Balbi B, Caramori G. TGF-beta signalling pathways in different compartments of the lower airways of stable COPD patients. *Chest* 2018; **153**:851-862

1214. Montuschi P, Santini G, Mores N, Vignoli A, Macagno F, Shoreh R, Tenori L, Zini G, Fuso L, Mondino C, Di Natale C, D'Amico A, Luchinat C, **Barnes PJ**, Higenbottam T.. Breathomics for Assessing the Effects of Treatment and Withdrawal With Inhaled Beclomethasone/Formoterol in Patients With COPD. *Front Pharmacol* 2018; **9**:258.
1215. Singh D, **Barnes PJ**, Stockley R, Lopez Valera MV, Vogelmeier C, Agusti A. Pharmacological treatment of COPD: the devil is always in the detail. *Eur Respir J* 2018; **51**: 1800263.
1216. **Barnes PJ**. Targeting cytokines to treat asthma and chronic obstructive pulmonary disease. *Nat Rev Immunol* 2018; **18**:454-466
1217. Bewley MA, Budd RC, Ryan E, Cole J, Collini P, Marshall J, Kolsum U, Beech G, Emes RD, Tcherniaeva I, Berbers GAM, Walmsley SR, Donaldson G, Wedzicha JA, Kilty I, Rumsey W, Sanchez Y, Brightling CE, Donnelly LE, **Barnes PJ**, Singh D, Whyte MKB, Dockrell DH; COPDMAP. Opsonic Phagocytosis in Chronic Obstructive Pulmonary Disease is Enhanced by Nrf2 Agonists. *Am J Respir Crit Care Med* 2018; **198**:739-750
1218. Yanagisawa S, Baker JR, Vuppusetty C, Koga T, Colley T, Fenwick P, Donnelly LE, **Barnes PJ**, Ito K.. The dynamic shuttling of SIRT1 between cytoplasm and nuclei in bronchial epithelial cells by single and repeated cigarette smoke exposure. *PLoS One* 2018; **13**:e0193921.
1219. Wrench C, Belchamber KBR, Bercusson A, Shah A, **Barnes PJ**, Armstrong-James D, Donnelly LE. Reduced Clearance of Fungal Spores by Chronic Obstructive Pulmonary Disease GM-CSF- and M-CSF-derived Macrophages. *Am J Respir Cell Mol Biol* 2018; **58**:271-3.
1220. Mallia P, Webber J, Gill SK, Trujillo-Torralbo MB, Calderazzo MA, Finney L, Bakhsoliani E, Farne H, Singanayagam A, Footitt J, Hewitt R, Kebadze T, Aniscenko J, Padmanaban V, Molyneaux PL, Adcock IM, **Barnes PJ**, Ito K, Elkin SL, Kon OM, Cookson WO, Moffat MF, Johnston SL, Tregoning JS.. Role of airway glucose in bacterial infections in patients with chronic obstructive pulmonary disease. *J Allergy Clin Immunol* 2018; **142**:815-823
1221. O'Byrne PM, FitzGerald JM, Bateman ED, **Barnes PJ**, Zhong N, Keen C, Jorup C, Lamarca R, Ivanov S, Reddel HK. Inhaled combined budesonide-formoterol as needed in mild asthma. *N Engl J Med* 2018; **378**:1865-76.
1222. Bateman ED, Reddel HK, O'Byrne PM, **Barnes PJ**, Zhong N, Keen C, Jorup C, Lamarca R, Swiek-Postluszana A, FitzGerald JM. As-needed budesonide-formoterol versus maintenance mudesonide in mild asthma. *N Engl J Med* 2018; **378**:1877-87.
1223. Dai Y, Yeo SCM, **Barnes PJ**, Donnelly LE, Loo LC, Lin HS. Pre-clinical pharmacokinetic and metabolomic analyses of isorhapontigenin, a dietary resveratrol derivative. *Frontiers Pharmacol* 2018; **9**:753.
1224. Pelleg A, Schulman ES, **Barnes PJ**. Adenosine 5'-triphosphate's role in bradycardia and syncope associated with pulmonary embolism. *Respir Res*. 2018;19:142.
1225. Sood A, Assad NA, **Barnes PJ**, Churg A, Gordon SB, Harrod KS, Irshad H, Kurmi OP, Martin WJ, 2nd, Meek P, Mortimer K, Noonan CW, Perez-Padilla R, Smith KR, Tesfaigzi Y, Ward T, Balmes J. ERS/ATS workshop report on respiratory health effects of household air pollution. *Eur Respir J* 2018; **51**:1700698.
1226. Devereux G, Cotton S, Fielding S, McMeekin N, **Barnes PJ**, Briggs A, Burns G, Chaudhuri R, Chrystyn H, Davies L, De Soya A, Gompertz S, Haughney J, Innes K, Kaniewska J, Lee A, Morice A, Norrie J, Sullivan A, Wilson A, Price D. Effect of theophylline as adjunct to inhaled corticosteroids on exacerbations in patients with COPD: a randomized clinical trial. *JAMA* 2018; **320**: 1548-59.
1227. Carpagnano GE, Scioscia G, Lacedonia D, Soccio P, Lepore, G, Saetta M, Foschino Barbaro M.P, **Barnes P J**.. Looking for airways periostin in severe asthma: could it be useful for clustering type 2 endotype? *Chest* 2018; **154**:1083-1090.
1228. Belchamber KB, Thomas CM, Dunne AE, **Barnes PJ**, Donnelly LE. Comparison of fluticasone propionate and budesonide on COPD macrophage and neutrophil function. *Int J COPD* 2018; **13**: 2883-2897.

## 2019

1229. Baker J, Vuppusetty C, Colley T, Hassibi S, Fenwick PS, Donnelly Le, Ito K, **Barnes PJ**. MicroRNA-570 is a novel regulator of cellular senescence and inflammmaging *FASEB J* 2019; **33**:1605-1616.
1230. Criner GJ, Martinez FJ, Aaron S, Martinez FJ, Aaron S, Agusti A, Anzueto A, Bafadhel M, **Barnes PJ** et al Current controversies in Chronic Obstructive Pulmonary Disease: a report from the GOLD Scientific Committee. *Ann Am Thorac Soc* 2019; **16**:29-39
1231. Jia M, Yan X, Jiang X, Wu Y, Xu J, Meng Y, Yang Y, Shan X, Zhang X, Mao S, Gu W, Pavlidis S, **Barnes PJ**, Adcock IM, Huang M, Yao X. Ezrin, a membrane cytoskeleton cross linker protein, as a marker of epithelial damage in asthma. *Am J Respir Crit Care Med* 2019; **199**:496-507.
1232. Dunne AE, Kawamatawong T, Fenwick PS, Davies CM, Tullett H, **Barnes PJ**, Donnelly LE. Direct inhibitory effect of the phosphodiesterase-4 inhibitor, roflumilast, on neutrophil migration in COPD. *Am J Respir Cell Mol Biol* 2019; **60**:445-453
1233. Izuhara K, **Barnes PJ**. Can we define asthma-COPD overlap (ACO) by biomarkers? *J Allergy Clin Immunol Pract* 2019; **7**: 146-147.
1234. Ghosh B, Gaike AH, Pyasi K, Brashier B, Das VV, Londhe JD, Juvekar S, Shouche YS, Donnelly LE, Salvi SS, **Barnes PJ**. Bacterial load and defective monocyte-derived macrophage bacterial phagocytosis in biomass-smoke COPD. *Eur Respir J* 2019; 1702273.
1235. Hakim A, Khan Y, Esteban I, Meah S, Miller-Larsson A, **Barnes PJ**, Usmani OS. Low-Dose Budesonide/Formoterol Counteracts Airway Inflammation and Improves Lung Function in COPD. *Am J Respir Crit Care Med* 2019; **199**:662-664.
1236. **Barnes PJ**. Pulmonary Diseases and Ageing. *Sub-Cellular Biochem* 2019; **91**:45-74.
1237. **Barnes PJ**. Inflammatory endotypes in COPD. *Allergy* 2019; **74**:1249-56.
1238. **Barnes PJ**, Baker J, Donnelly LE. Cellular senescence as a mechanism and target in chronic lung diseases. *Am J Respir Crit Care Med* 2019; **200**:556-564.
1239. **Barnes PJ**, Szeffler SJ, Reddel HK, Chipp BE. Symptoms and perception of airway obstruction in asthmatic patients: Clinical implications for use of reliever medications. *J Allergy Clin Immunol* 2019 **144**:1180-1186.
1240. Belchamber KBR, Singh R, Batista CM, Whyte MK, Dockrell DH, Kilty I, Robinson MJ, Wedzicha JA, **Barnes PJ**, Donnelly LE. Defective bacterial phagocytosis is associated with dysfunctional mitochondria in COPD macrophages. *Eur Respir J* 2019 **54**:1802244.
1241. Devereux G, Cotton S, Fielding S, McMeekin N, **Barnes PJ**, Briggs A, Burns G, Chaudhuri R, Chrystyn H, Davies L, Soyza A, Gompertz S, Haughney J, Innes K, Kaniewska J, Lee A, Morice A, Norrie J, Sullivan A, Wilson A, Price D. Low-dose oral theophylline combined with inhaled corticosteroids for people with chronic obstructive pulmonary disease and high risk of exacerbations: a RCT. *Health Technol Ass* 2019; **23**:1-146.
1242. Efthimiou J, Poll C, **Barnes PJ**. Dual mechanism of action of T2 inhibitor therapies in virally induced exacerbations of asthma: evidence for a beneficial counter-regulation. *Eur Respir J* 2019. **54**:1802390.
1243. Leaker BR, Singh D, Nicholson GC, Hezelova B, Goodin T, Ozol-Godfrey A, Galluppi G, **Barnes PJ**. Evaluation of systemic absorption and bronchodilator effect of glycopyrronium bromide delivered by nebulizer or a dry powder inhaler in subjects with chronic obstructive pulmonary disease. *Respir Res* 2019; **20**: 132.
1244. Singh D, Agusti A, Anzueto A, **Barnes PJ**, Bourbeau J, Celli BR, Criner GJ, Frith P, Halpin DMG, Han M, Lopez Varela MV, Martinez F, Montes de Oca M, Papi A, Pavord ID, Roche N, Sin DD, Stockley R, Vestbo J, Wedzicha JA, Vogelmeier C. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Lung Disease: the GOLD science committee report 2019. *Eur Respir J* 2019; **53**:1900164.

1245. Barnes PJ. Nitrosative stress in ACO. *J Allergy Clin Immunol* 2019; **144**:928-930
1246. Barnes PJ. Small airway fibrosis in COPD. *Int J Biochem Cell Biol* 2019; **116**:105598.
1247. Barnes PJ, Vestbo J, Calverley PM. The pressing need to redefine "COPD". *COPD* 2019; **6**:380-383.
1248. Mercado N, Colley T, Baker JR, Vuppussetty C, Kono Y, Clarke C, Tooze S, Johansen T, Barnes PJ. Bicaudal D1 impairs autophagosome maturation in chronic obstructive pulmonary disease. *FASEB Bioadv* 2019; **1**: 688-705.

## 2020

1249. Baker J, Donnelly LE, Barnes PJ. Senotherapy: a new horizon for COPD therapy. *Chest* 2020; **158**:562-70.
1250. Salvi SS, Brashier BB, Londhe J, Pyasi K, Vincent V, Kajale SS, Tambe S, Mandani K, Nair A, Mak SM, Madas S, Juvekar S, Donnelly LE, Barnes PJ. Phenotypic comparison between smoking and non-smoking chronic obstructive pulmonary disease. *Respir Res* 2020; **21**: 50.
1251. Usmani OS, Matthews JC, Wright MD, Meah S, Underwood SR, Barnes PJ, Shallcross DE, Biddiscombe MF. No evidence electric charge increases inhaled ultrafine particle deposition in human lungs. *Am J Respir Crit Care Med* 2020; **201**:1301-3.
1252. Barnes PJ. Oxidative stress-based therapeutics in COPD. *Redox Biology* 2020: 101544.
1253. Siddharthan T, Gupte A, Barnes PJ. COPD Endotypes in low- and middle-income country settings: precision medicine for All. *Am J Respir Crit Care Med* 2020; **202**:171-2.
1254. Perez E, Baker JR, Di Giandomenico S, Kermani P, Parker J, Kim K, Yang J, Barnes PJ, Vaulont S, Scandura JM, Donnelly LE, Stout-Delgado H, Cloonan SM. Hepcidin is essential for alveolar macrophage function and is disrupted by smoke in a murine chronic obstructive pulmonary disease model. *J Immunol* 2020; **205**:2489-98.
1255. Mauvais-Jarvis F, Bairey Merz N, Barnes PJ, Brinton RD, Carrero JJ, DeMeo DL, De Vries GJ, Epperson CN, Govindan R, Klein SL, Lonardo A, Maki PM, McCullough LD, Regitz-Zagrosek V, Regensteiner JG, Rubin JB, Sandberg K, Suzuki A. Sex and gender: modifiers of health, disease, and medicine. *Lancet* 2020; **396**: 565-82.
1256. Fukuda Y, Akimoto K, Homma T, Baker JR, Ito K, Barnes PJ, Sagara H. Virus-induced asthma exacerbations: SIRT1 targeted approach. *J Clin Med* 2020; **9**.2623.
1257. Fitzgerald JM, Barnes PJ, Chipps BE, Jenkins CR, O'Byrne PM, Pavord ID, Reddel HK. The burden of exacerbations in mild asthma: a systematic review. *ERJ Open Research* 2020; **6**:00359-201.
1258. Scichilone N, Barnes PJ, Battaglia S, Benfante A, Brown R, Canonica GW, Caramori G, Cazzola M, Centanni S, Cianferoni A, Corsico A, De Carlo G, Di Marco F, Gaga M, Hawrylowicz C, Heffler E, Matera MG, Matucci A, Paggiaro P, Papi A, Popov T, Rogliani P, Santus P, Solidoro P, Togias A, Boulet LP. The hidden burden of severe asthma: from patient perspective to new opportunities for clinicians. *J Clin Med* 2020; **9**.2397
1259. Zhu J, Mallia P, Footitt J, Qiu Y, Message SD, Kebadze T, Aniscenko J, Barnes PJ, Adcock IM, Kon OM, Johnson M, Contoli M, Stanciu LA, Papi A, Jeffery PK, Johnston SL. Bronchial mucosal inflammation and illness severity in response to experimental rhinovirus infection in COPD. *J Allergy Clin Immunol* 2020. **146**:840-850.
1260. Barnes PJ. COPD 2020: new directions needed. *Am J Physiol Lung Cell Mol Physiol* 2020.

1261. Cloonan SM, Kim K, Esteves P, Trian T, **Barnes PJ**. Mitochondrial dysfunction in lung ageing and disease. *Eur Respir Rev* 2020; **29**.
1262. Papadopoulos NG, **Barnes P**, Canonica GW, Gaga M, Heaney L, Menzies-Gow A, Kritikos V, Fitzgerald M. The evolving algorithm of biological selection in severe asthma. *Allergy* 2020; **75**: 1555-1563
1263. Jenkins CR, Wen FQ, Martin A, **Barnes PJ**, Celli B, Zhong NS, Zheng JP, Scaria A, Di Tanna GL, Bradbury T, Berend N; TASCS study investigators. The effect of low dose corticosteroids and theophylline on the risk of acute exacerbations of COPD. The TASCS Randomised Controlled Trial. *Eur Respir J* 2020;2003338.
1264. **Barnes PJ**. COPD 2020: new directions needed. *Am J Physiol Lung Cell Mol Physiol* 2020. **319**:L884-6.

## 2021

1265. **Barnes PJ**, Anderson GP, Fagerås M, Belvisi MG. Chronic lung diseases: prospects for regeneration and repair. *Eur Respir Rev* 2021; **30**: 200213.
1266. **Barnes PJ**. Targeting cellular senescence as a new approach to chronic obstructive pulmonary disease therapy. *Curr Opin Pharmacol* 2020; **56**: 68-73.
1267. O'Byrne PM, FitzGerald JM, Bateman ED, **Barnes PJ**, Zheng J, Gustafson P, Lamarca R, Puu M, Keen C, Alagappan VKT, Reddel HK. Effect of a single day of increased as-needed budesonide-formoterol use on short-term risk of severe exacerbations in patients with mild asthma: a post-hoc analysis of the SYGMA 1 study. *Lancet Resp Med* 2021; **9**:149-158
1268. Kono Y, Colley T, Papaioannou AI, Mercado N, Baker JR, To Y, Abe S, Haruki K, Ito K, **Barnes PJ**. Cigarette smoke-induced impairment of autophagy in macrophages increases galectin-8 and inflammation. *Sci Rep* 2021; **11**: 335.
1269. Maneechotesawan K, Kasetsinsombat K, Wongkajornsilp A, **Barnes PJ**. Role of autophagy in regulating interleukin-10 and the responses to corticosteroids and statins in asthma. *Clin Exp Allergy* 2021; **51**:1553-65.
1270. FitzGerald JM, O'Byrne PM, Bateman ED, **Barnes PJ**, Zheng J, Ivanov S, Lamarca R, Larsdotter U, Emerath U, Jansen G, Puu M, Alagappan VKT, Surmont F, Reddel HK. Safety of as-needed budesonide-formoterol in mild asthma: Data from the Two Phase III SYGMA Studies. *Drug Saf* 2021; **44**:467-478
1271. Koss CK, Wohnhaas CT, Baker JR, Tilp C, Przibilla M, Lerner C, Frey S, Keck M, Williams CMM, Peter D, Ramanujam M, Fine J, Gantner F, Thomas M, **Barnes PJ**, Donnelly LE, El Kasmi KC. IL36 is a critical upstream amplifier of neutrophilic lung inflammation in mice. *Commun Biol* 2021; **4**: 172.
1272. Wada H, Ikeda A, Maruyama K, Yamagishi K, **Barnes PJ**, Tanigawa T, Tamakoshi A, Iso H. Low BMI and weight loss aggravate COPD mortality in men, findings from a large prospective cohort: the JACC study. *Sci Rep* 2021; **11**: 1531.
1273. Singh R, Belchamber KBR, Fenwick PS, Chana K, Donaldson G, Wedzicha JA, **Barnes PJ**, Donnelly LE. Defective monocyte-derived macrophage phagocytosis is associated with exacerbation frequency in COPD. *Respir Res* 2021; **22**: 113.
1274. Siddharthan T, Pollard SL, Jackson P, Robertson NM, Wosu AC, Rahman N, Padalkar R, Sekitoleko I, Namazzi E, Alupo P, Hurst JR, Kalyesubula R, Dowdy D, Wise R, **Barnes PJ**, Checkley W, Kirenga B. Effectiveness of low-dose theophylline for the management of biomass-associated COPD (LODOT-BCOPD): study protocol for a randomized controlled trial. *Trials* 2021; **22**: 213.
1275. Reddel HK, O'Byrne PM, FitzGerald JM, **Barnes PJ**, Zheng J, Ivanov S, Lamarca R, Puu M, Alagappan VKT,

Bateman ED. Efficacy and safety of as-needed budesonide-formoterol in adolescents with mild asthma. *J Allergy Clin Immunol In Practice* 2021; **9**:3069-77

1276. Ramakrishnan S, Nicolau DV, Jr., Langford B, Mahdi M, Jeffers H, Mwasuku C, Krassowska K, Fox R, Binnian I, Glover V, Bright S, Butler C, Cane JL, Halner A, Matthews PC, Donnelly LE, Simpson JL, Baker JR, Fadai NT, Peterson S, Bengtsson T, **Barnes PJ**, Russell REK, Bafadhel M. Inhaled budesonide in the treatment of early COVID-19 (STOIC): a phase 2, open-label, randomised controlled trial. *Lancet Resp Med* 2021; **9**:763-772
1277. Bateman ED, O'Byrne PM, FitzGerald JM, Barnes PJ, Zheng J, Lamarca R, Puu M, Parikh H, Alagappan V, Reddel HK. Positioning as-needed budesonide-formoterol for mild asthma: Effect of pre-study treatment in pooled analysis of SYGMA 1 and 2. *Ann Am Thorac Soc* 2021; **18**:2007-2017.
1278. Wada H, Nakamura M, Inoue SI, Kudo A, Hanawa T, Iwakura Y, Kobayashi F, Kamma H, Kamiya S, Ito K, Barnes PJ, Takizawa H. Dual interleukin-17A/F deficiency protects against acute and chronic response to cigarette smoke exposure in mice. *Sci Rep* 2021; **11**: 11508.
1279. Jenkins CR, Wen FQ, Martin A, **Barnes PJ**, Celli B, Zhong NS, Zheng JP, Scaria A, Di Tanna GL, Bradbury T, Berend N. The effect of low-dose corticosteroids and theophylline on the risk of acute exacerbations of COPD: the TASCS randomised controlled trial. *Eur Respir J* 2021; **57**: 2003338.
1280. Norwitz NG, Winwood R, Stubbs BJ, D'Agostino DP, **Barnes PJ**. Case Report: Ketogenic diet is associated with improvements in chronic obstructive pulmonary disease. *Front Med* 2021; **8**: 699427.
1281. Yu LM, Bafadhel M, Dorward J, Hayward G, Saville BR, Gbinigie O, Van Hecke O, Ogburn E, Evans PH, Thomas NPB, Patel MG, Richards D, Berry N, Detry MA, Saunders C, Fitzgerald M, Harris V, Shanyinde M, de Lusignan S, Andersson MI, **Barnes PJ**, Russell REK, Nicolau DV, Jr., Ramakrishnan S, Hobbs FDR, Butler CC. Inhaled budesonide for COVID-19 in people at high risk of complications in the community in the UK (PRINCIPLE): a randomised, controlled, open-label, adaptive platform trial. *Lancet* 2021; **398**: 843-55.
1282. Adeloye D, Agarwal D, **Barnes PJ**, Bonay M, van Boven JF, Bryant J, Caramori G, Dockrell D, D'Urzo A, Ekström M, Erhabor G, Esteban C, Greene CM, Hurst J, Juvekar S, Khoo EM, Ko FW, Lipworth B, López-Campos JL, Maddocks M, Mannino DM, Martinez FJ, Martinez-Garcia MA, McNamara RJ, Miravitles M, Pinnock H, Pooler A, Quint JK, Schwarz P, Slavich GM, Song P, Tai A, Watz H, Wedzicha JA, Williams MC, Campbell H, Sheikh A, Rudan I. Research priorities to address the global burden of chronic obstructive pulmonary disease (COPD) in the next decade. *J Glob Health* 2021; **11**: 15003.

## 2022

1283. Paschalaki K, Rossios C, Pericleous C, MacLeod M, Rothery S, Donaldson GC, Wedzicha JA, Gorgoulis V, Randi AM, **Barnes PJ**. Inhaled corticosteroids reduce senescence in endothelial progenitor cells from patients with COPD. *Thorax* 2022.
1284. Evangelou K, Veroutis D, Paschalaki K, Foukas PG, Lagopati N, Dimitriou M, Papaspyropoulos A, Konda B, Hazapis O, Polyzou A, Havaki S, Kotsinas A, Kittas C, Tzioufas AG, de Leval L, Vassilakos D, Tsiodras S, Stripp BR, Papantonis A, Blandino G, Karakasiliotis I, **Barnes PJ**, Gorgoulis VG. Pulmonary infection by SARS-CoV-2 induces senescence accompanied by an inflammatory phenotype in severe COVID-19: possible implications for viral mutagenesis. *Eur Respir J* 2022.
1285. Bradbury T, Di Tanna GL, Scaria A, Martin A, Wen FQ, Zhong NS, Zheng JP, **Barnes PJ**, Celli B, Berend N, Jenkins CR. Blood eosinophils in Chinese COPD participants and response to treatment with combination low-dose theophylline and prednisone: A post-hoc analysis of the TASCS Trial. *Int J COPD* 2022; **17**: 273-82.
1286. Baker JR, Mahdi M, Nicolau DV, Jr., Ramakrishnan S, **Barnes PJ**, Simpson JL, Cass SP, Russell REK, Donnelly LE, Bafadhel M. Early Th2 inflammation in the upper respiratory mucosa as a predictor of severe COVID-19 and modulation by early treatment with inhaled corticosteroids: a mechanistic analysis. *Lancet Resp Med* 2022; **10**:545-556

1287. Barnes PJ. Chemokine receptor CCR1: new target for asthma therapy. *Trends Pharmacol Sci* 2022; **43**:539-541.
1288. Dekhuijzen PNR, Levy ML, Corrigan CJ, Hadfield RM, Roche N, Usmani OS, Barnes PJ, Scullion JE, Lavorini F, Corbetta L, Kocks JWH, Cosio BG, Buhl R, Pedersen SE. Is inhaler technique adequately assessed and reported in clinical trials of asthma and chronic obstructive pulmonary disease therapy? A systematic review and suggested best practice checklist. *J Allergy Clin Immunol Practice* 2022; **10**:1813-1824.
1289. Havaki S, Evangelou K, Paschalaki K, Petty R, Barnes PJ, Gorgoulis VG. Identification of coronavirus particles by electron microscopy: a complementary tool for deciphering COVID-19. *Eur Respir J* 2022; **60**:2200754.
1290. Baker JR, Fenwick PS, Koss CK, Owles HB, Elkin SL, Fine JS, Thomas M, Kasmi KC, Barnes PJ, Donnelly LE. Imbalance between IL-36 receptor agonist and antagonist drives neutrophilic inflammation in COPD. *JCI Insight* 2022; **7**:e155581.
1291. Barnes PJ. Oxidative stress in chronic obstructive pulmonary disease. *Antioxidants* 2022; **11**:965.
1292. Barnes PJ, Baker J, Donnelly LE. Autophagy in asthma and chronic obstructive pulmonary disease. *Clin Sci* 2022; **136**: 733-46.
1293. Casale TB, Barnes PJ. Smoke and the lungs. *J Allergy Clin Immunol in Prac* 2022; **10**: 2852-3
1294. Bafadhel M, Faner R, Taillé C, Russell REK, Welte T, Barnes PJ, Agustí A. Inhaled corticosteroids for the treatment of COVID-19. *Eur Respir Rev* 2022; **31**:220099.

## 2023

1295. Pavord ID, Barnes PJ, Lemiere C, Gibson PG. Diagnosis and assessment of the asthmas. *J Allergy in Prac* 2023; **11**:1-8.
1296. Agustí A, Celli BR, Criner GJ, Halpin D, Anzueto A, Barnes P, Bourbeau J, Han MK, Martinez FJ, Montes de Oca M, Mortimer K, Papi A, Pavord I, Roche N, Salvi S, Sin DD, Singh D, Stockley R, López Varela MV, Wedzicha JA, Vogelmeier CF. Global initiative for chronic obstructive lung disease 2023 Report: GOLD executive summary. *Am J Respir Crit Care Med* 2023; **59**:232-248.
1297. Ombredane HCJ, Fenwick PS, Barnes PJ, Bafadhel M, Ito K, Donnelly LE, Baker JR. Temporal release of IL-1 family members from virally infected airway epithelial cells suggests IL-36γ is the early responder. *Am J Respir Cell Mol Biol* 2023; **68**: 339-41.
1298. Sin DD, Doiron D, Agustí A, Anzueto A, Barnes PJ, Celli BR, Criner GJ, Halpin D, Han MK, Martinez FJ, Montes de Oca M, Papi A, Pavord I, Roche N, Singh D, Stockley R, Lopez Varlera MV, Wedzicha J, Volgelmeier C, Bourbeau J. Air pollution and COPD: GOLD 2023 committee report. *Eur Respir J* 2023; **61**:2202469
1299. Ahmad S, Mohd Noor N, Engku Nur Syafirah EAR, Irekeola AA, Shueb RH, Chan YY, Barnes PJ, Mohamud R. Anti-tumor necrosis factor for supplementary management in severe asthma: A systematic review and meta-analysis. *J Interferon Cytokine Res* 2023; **43**: 77-85.
1300. Ho V, Baker JR, Willison KR, Barnes PJ, Donnelly LE, Klug DR. Single cell quantification of microRNA from small numbers of non-invasively sampled primary human cells. *Commun Biol* 2023; **6**: 458.
1301. Chiarella SE, Barnes PJ. Endogenous inhibitory mechanisms in asthma. *J Allergy Clin Immunol Glob* 2023; **2**: 100135
1302. Ariel A, Barnes PJ, Maricoto T, Román-Rodríguez M, Powell A, Quint JK. Rational use of inhaled corticosteroids for the treatment of COPD: a plain language summary. *J Comp Eff Res* 2023; **12**: e230136.

1303. Quint JK, Ariel A, **Barnes PJ**. Rational use of inhaled corticosteroids for the treatment of COPD. *NPJ primary care respiratory medicine* 2023; **33**: 27.
1304. Cazzola M, Rogliani P, **Barnes PJ**, Blasi F, Celli B, Hanania NA, Martinez FJ, Miller BE, Miravittles M, Page CP, Tal-Singer R, Matera MG. An update on outcomes for COPD pharmacological trials: A COPD investigators report - reassessment of the 2008 American Thoracic Society/European Respiratory Society statement on outcomes for COPD pharmacological trials. *Am J Respir Crit Care Med* 2023.
1305. **Barnes PJ**. Senotherapy for lung diseases. *Adv Pharmacol* 2023; **98**: 249-71.

## 2024

1306. Levy ML, Beasley R, Bostock B, Capstick TG, Crooks MG, Fleming L, Freeman D, Marsh V, Rupani H, Whittamore A, **Barnes PJ**, Bush A. A simple and effective evidence-based approach to asthma management: ICS-formoterol reliever therapy. *Br J Gen Pract* 2024; **74**: 86-9.
1307. Jia M, Fu H, Jiang X, Wang L, Xu J, **Barnes PJ**, Adcock IM, Liu Y, He S, Zhang F, Yao L, Sun P, Yao X. DEL-1, as an anti-neutrophil transepithelial migration molecule, inhibits airway neutrophilic inflammation in asthma. *Allergy* 2023 **79**:1180-94.
1308. Wrench CL, Baker JR, Monkley S, Fenwick PS, Murray L, Donnelly LE, **Barnes PJ**. Small airway fibroblasts from patients with chronic obstructive pulmonary disease exhibit cellular senescence. *Am J Physiol Lung Cell Mol Physiol* 2024; **326**: L266-l79.
1309. **Barnes PJ**. Asthma-COPD coexistence. *J Allergy Clin Immunol* 2024.
1310. Maneechoteswan K, Prapruetkit N, Chankham J, Assawabhum J, Kasetsinsombat K, **Barnes PJ**. Paradoxical eosinophilic and cytokine responses to oral corticosteroid treatment in patients with asthma exacerbations. *J Allergy Clin Immunol Glob* 2024; **3**: 100238.

## BOOKS

1. Barnes PJ, Levy J, eds. *Nocturnal Asthma*. Oxford: Oxford University Press 1984: pp120.
2. Kaliner MA, Barnes PJ, eds. *The Airways: Neural Control in Health and Disease*. New York: Marcel Dekker (Lung Biology in Health and Disease Series Vol. 33), 1988: pp 657.
3. Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: Basic Mechanisms and Clinical Management*. London: Academic Press 1988: pp 784.
4. Pauwels R, Barnes PJ, Pride NB, eds. *Theophylline - symptomatic or prophylactic treatment of asthma and COPD*. London: Medicom 1989; pp101.
5. Barnes PJ, Page CP, Henson PM, eds. *Platelet Activating Factor and Human Disease*. Oxford: Blackwell 1989; pp334.
6. Barnes PJ, ed. *New Drugs for Asthma*. London: IBC Publications 1989; pp199.
7. Kaliner MA, Barnes PJ, Persson CGA, eds. *Asthma: Its Pathology and Treatment*. New York: Marcel Dekker (Lung Biology in Health and Disease Series vol 49) 1991; pp 779.
8. Crystal RG, West JB, Barnes PJ, Cherniak NS, Weibel ER, eds. *The Lung: Scientific Foundations*. New York: Raven Press 1991; pp2224 (2 volumes).
9. Page CP, Barnes PJ, eds. *Pharmacology of Asthma*. Handbook of Experimental Pharmacology. Berlin: Springer-Verlag. 1991; pp320.
10. Newhouse M, Barnes PJ. *Conquering Asthma*. Toronto: B Decker 1991; pp 125.
11. Barnes PJ, ed. *British Medical Bulletin: vol 48: Asthma*. Edinburgh: Churchill Livingstone 1992; pp255.
12. Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (2nd edition)*. London: Academic Press 1992; pp782.
13. Barnes PJ, ed. *New Drugs for Asthma II*. London: IBC Communications 1992: pp266.
14. Olivieri D, Barnes PJ, Hurd SS, Folco GC, eds. *Asthma treatment - a multidisciplinary approach*. NATO Advance Science Institutes Series vol 229. New York: Plenum Press 1992; pp 295.
15. Barnes PJ, ed. *Royal Brompton Reviews: Recent Advances in Respiratory Medicine*. London: Butterworth-Heinemann 1993; pp 282.
16. Chung KF, Barnes PJ, eds. *Pharmacology of the Respiratory Tract*. New York: Marcel Dekker (Lung Biology in Health and Disease Series) 1993; pp 822.
17. Barnes PJ, Stockley RA, eds. *Molecular biology and lung disease*. Oxford: Blackwell Scientific Publications 1994; pp 364.
18. Barnes PJ, Chung KF, Evans TW, Spiro SG. *Therapeutics in Respiratory Disease*. Edinburgh: Churchill Livingstone 1994; pp 174.
19. Barnes PJ, Newhouse M. *Conquering Asthma*. London: Manson Publishing 1994; pp157.
20. Kaliner M, Barnes PJ, Kunkel GHH, Baraniuk JN, eds. *Neuropeptides in Respiratory Medicine*. New York: Marcel Dekker 1994; pp 693.
21. Barnes PJ, Godfrey S. *Asthma (pocketbook)*. London: Martin Dunitz 1995; pp 75
22. Crystal RG, West JB, Weibel E, Barnes PJ, eds. *The Lung: Scientific Foundations*. New York: Raven Press 1996; pp1446 (2 volumes).
23. Barnes PJ, ed. *Autonomic Control of the Respiratory System*. London: Harwood 1997; pp349.

24. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds. *Asthma*. Philadelphia: Lippincott-Raven 1997; pp2183.
25. Barnes PJ, Buist AS, eds. *The role of anticholinergics in chronic obstructive pulmonary disease and chronic asthma*. Macclesfield: Gardner Caldwell Publications 1997, pp182.
26. Barnes PJ. *Asthma: recent advances and commercial opportunities*. Oxford: Connect Pharma Ltd 1997; pp362.
27. Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp939.
28. Barnes PJ, Godfrey S. *Chronic obstructive pulmonary disease*. London: Martin Dunitz 1997; pp81.
29. Godfrey S, Barnes PJ. *Asthma and wheezing in children*. London: Martin Dunitz 1997; pp82.
30. Barnes PJ. *Patient Pictures: Respiratory Diseases*. Oxford: Health Press 1998; pp29
31. Barnes PJ, Godfrey S. *Asthma Therapy*. London: Martin Dunitz 1998; pp150.
32. Newhouse MT, Barnes PJ. *Conquering asthma: an illustrated guide to understanding and care for adults*. 2<sup>nd</sup> Edn. Hamilton: Empowering Press 1998; pp 107
33. Rubin BK, Newhouse MT, Barnes PJ. *Conquering childhood asthma: an illustrated guide to the understanding and control of childhood asthma*. Hamilton: Empowering Press 1998; pp 114.
34. Barnes PJ. *Managing chronic obstructive pulmonary disease*. London: Science press 1999; pp80
35. Hansel TT, Barnes PJ, eds. *New drugs for asthma, allergy and COPD*. Basel: Karger 2001; pp389.
36. Barnes PJ. *Managing chronic obstructive pulmonary disease*. 2<sup>nd</sup> Edition. London: Science Press 2001; pp90
37. Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp780
38. Marcin N, Kharitonov SA, Yacoub MH, Barnes PJ, eds. *Disease Markers in Exhaled Breath*. New York Marcel Dekker 2002; pp534
39. Hansel TT, Barnes PJ, eds. *Recent Advances in the Pathophysiology of COPD*. Basel: Birkhauser Verlag 2003; pp231.
40. Page CP, Barnes PJ, eds. *Pharmacology and Therapeutics of Asthma and COPD*. Berlin: Springer 2004; pp376.
41. Hansel TT, Barnes PJ. *An Atlas of Chronic Obstructive Pulmonary Disease*. London: Parthenon Publishing 2004; pp290.
42. Barnes PJ, ed. *Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms*. New York: Marcel Dekker 2005, pp 521.
43. Russell REK, Ford PA, Barnes PJ. *Managing COPD: a Guide to Total Patient Care*. London: Current Medicine Group 2007; pp73.
44. Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. 2<sup>nd</sup> edition. Amsterdam: Academic Press-Elsevier 2008; pp897.
45. Kon OM, Hansel TT, Barnes PJ, eds. *Chronic obstructive pulmonary disease*. Oxford: Oxford University Press 2008; pp58.
46. Chung KF, Barnes PJ, eds. *Pharmacology and therapeutics of airway disease*. 2<sup>nd</sup> edition. New York: Informa Healthcare 2009; pp453.
47. Hansel TT, Barnes PJ, eds. *New drugs and targets for asthma and COPD*. Basel: Karger 2010; pp310.

48. Loukides S, Kostikas K, **Barnes PJ**, eds. *Non-invasive assessment of airways inflammation in asthma and COPD*. Athens: Paschalidis Medical Publications 2011; pp334.
49. **Barnes PJ**, Ford P. *Successful primary care management of COPD*. London: Pocket Guide, Evolving Medicine Ltd. 2011; pp104.
50. **Barnes PJ**, ed. *Addressing unmet needs in COPD management*. Future Medicine e-book 2012: <http://www.futuremedicine.com/doi/book/10.2217/9781780840062>
51. Barnes P ed, *Advances in chronic obstructive pulmonary disease (COPD)*. London: The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd 2012 (<http://hstalks.com/?t=BL1413350-Barnes>).
52. Virchow JC, **Barnes PJ**, eds. *Asthma. Semin.Respir.Crit Care Med.* 2012; **33**:1-578.
53. Ganguly NK, Jindal SJ, Biswal S, **Barnes PJ**, Pawankar R, eds. *Oxidative Stress in Applied Basic Research and Clinical Practice: Studies on Respiratory Disorders*. New York: Humana Press 2014; pp394
54. Page CP, **Barnes PJ**, eds. *Pharmacology and therapeutics of asthma and COPD*. Handbook of Experimental Pharmacology. Cham: Springer 2017; vol 237:pp285.

## REVIEWS, CHAPTERS, ETC.

### 1978-1982

1. **Barnes PJ**. Cyroheptadine. *Lancet* 1978; **i**:367-368.
2. **Barnes PJ**. Radioligand binding studies of adrenergic receptors and their clinical relevance. *Br Med J* 1981; **282**:1207-1210.
3. **Barnes PJ**. Circulating catecholamines in asthma. *Clin Physiol* 1981; **1**:89-93.
4. MacDermot J, **Barnes PJ**, Dollery CT. Distribution of prostacyclin- sensitive adenylate cyclase in guinea pig lung. In: *Clinical Pharmacology of Prostacyclin*. Lewis PJ, O' Grady J, eds. New York: Raven Press 1981; pp 247-248.
5. **Barnes PJ**. Autonomic abnormalities in asthma. *Lancet* 1982; **i**:1124-1125.

### 1983

6. Lhoste FJM, **Barnes PJ**. Respiratory pharmacology. In: *Intensive Care Medicine*. Rappin M, Tinker J,eds. Berlin: Springer-Verlag 1983; pp 419-432.
7. **Barnes PJ**. The pathogenesis of asthma: a review. *J Roy Soc Med* 1983; **76**: 580-586.
8. **Barnes PJ**. How airway autonomic receptors influence asthma therapy. *J Resp Dis* 1983; **4**:30-40.
9. **Barnes PJ**. Calcium channel blockers in asthma. *Thorax* 1983; **38**: 481-485.
10. **Barnes PJ**. Airway receptors and bronchodilator action. *Airways* 1983; **3**: 21-23.
11. **Barnes PJ**. Endogenous plasma adrenaline in asthma. *Eur J Respir Dis* 1983; **64**:559-563.
12. **Barnes PJ**. Calcium channel blockers and the airways: prospects in asthma. *Cardiovasc Focus* 1983; **11**:1-3.

### 1984

13. Nadel JA, **Barnes PJ**. Autonomic regulation of the airways. *Annu Rev Med* 1984; **35**:451-467.

14. Barnes PJ. Adrenergic receptors of normal and asthmatic airways. *Eur J Respir Dis* 1984; **65** (suppl 135): 72-79.
15. Barnes PJ. Localisation and function of airway autonomic receptors. *Eur J Respir Dis* 1984; **65** (suppl 135): 187-197.
16. Barnes PJ. Nocturnal asthma: mechanisms and treatment. *Br Med J* 1984; **288**:1397-1398.
17. Barnes PJ, Ind PW, Dollery CT. Beta-adrenoceptors in asthma and their response to agonists. In: *Asthma: Physiology, Immunopharmacology and Treatment*. Kay AB, Austen KF, Lichtenstein LM. London: Academic Press 1984; pp 339-358.
18. Barnes PJ. Beta-adrenoceptors in lung tissue. In: *Beta-adrenoceptors in Asthma*. Morley J, ed. London: Academic Press 1984; pp 67-90.
19. Barnes PJ. Circulating catecholamines in asthma. *Asthma Bull* 1984; **8**:1-3.
20. Barnes PJ. Drugs in respiratory medicine. *Medicine International* 1984; **2**:311-316.
21. Barnes PJ. The third nervous system in the lung: physiology and clinical perspectives. *Thorax* 1984; **39**: 561-567.
22. Barnes PJ. Airway  $\beta$ -adrenoceptors and  $\beta$ -agonist therapy. In: *Inhalation therapy with sympathomimetic drugs in the management of airway obstruction*. Utrecht: Astra Publications 1984; pp 11-13.
23. Barnes PJ. Calcium channel blockers and the lung: clinical perspectives. *J Respir Dis* 1984; **5**:43-52.
24. Barnes PJ. Autonomic control of the airways and nocturnal asthma. In: *Nocturnal Asthma*. Barnes PJ, Levy J, eds, Oxford: Oxford University Press 1984; pp 69-75.

## 1985

25. Ind PW, Barnes PJ, Dollery CT. Circadian rhythms and nocturnal asthma. In: *Bronchial Asthma: Mechanisms and Therapeutics*, 2nd ed. Weiss EB, Segal MS, Stein M, eds. Boston: Little Brown 1985; pp 543-547.
26. Kay AB, Barnes PJ. Pharmacological manipulation of the asthmatic response. In: *Immunology of Respiratory Diseases*. Kay AB, Goetzel E, eds. Edinburgh: Churchill Livingstone 1985; pp 30-37.
27. Barnes PJ. Clinical studies with calcium antagonists in asthma. *Br J Clin Pharmacol* 1985; **20**:289S-298S.
28. Barnes PJ. Adrenoceptors in bronchial asthma. In: *Pharmacology of Adrenoceptors*. Szabadi E, Bradshaw CM, Nahorski SR, eds. London: Macmillan 1985; pp 205-214.
29. Barnes PJ. Theophylline treatment for nocturnal asthma in adults. In: *Sustained Release Theophylline and Nocturnal Asthma*. Isles AF, von Wichert P. Amsterdam: Exerpta Medica 1985; pp 29-35.
30. Barnes PJ. Mechanisms of nocturnal asthma. In: *Sustained Release Theophylline and Nocturnal Asthma*. Isles AF, von Wichert P, eds. Amsterdam: Exerpta Medica 1985; pp 143-152.
31. Barnes PJ. Autonomic control of the airways in asthma. In: *Current Views on Bronchial Asthma*. Ergstrom I, Lindholm N, eds. Stockholm: Fisons Publications 1985; pp 43-54.
32. Barnes PJ. Beta-adrenoceptors and asthma. In: *Bronchodilators and Steroids in COPD Treatment*. Utrecht, Astra Publications 1985; pp 7-10.
33. Barnes PJ. Mediators and asthma. *Br J Hosp Med* 1985; **34**:339-344.
34. Barnes PJ. Adrenergic and non-adrenergic mechanisms in asthma. In: *Asthma and Bronchial Hyperreactivity*. Herzog H, Perruchoud A, eds. Basel: Karger 1985; pp 159-164.

35. Barnes PJ. Etiology and management of nocturnal asthma. *Pract Cardiol* 1985; **11**:154-164.
36. Löfdahl C-G, Barnes PJ. Calcium channel blockade and asthma - the current position. *Eur J Respir Dis* 1985; **67**:233-237.
37. Barnes PJ. Circadian variation in airway function. *Am J Med* 1985; **79**(Suppl 6A): 5-9.

## 1986

38. Barnes PJ. Theophylline preparations. *Prescriber's Journal* **26**:26-31.
39. Barnes PJ. Cell receptors and airway function. In: *Recent Advances in Respiratory Medicine IV*. Flenley DC, Petty T, eds. Edinburgh: Churchill Livingstone 1986; 25-43.
40. Barnes PJ. Mechanisms of bronchodilator action. In: *Asthma: Clinical Pharmacology and Therapeutic Progress*. Kay AB, ed. Oxford: Blackwell 1986; pp 146-160.
41. Barnes PJ. Neuropeptides in airways: functional significance. In: *Asthma: Clinical Pharmacology and Therapeutic Progress*. Kay AB, ed. Oxford: Blackwell 1986; pp 58-72.
42. Barnes PJ, Palmer J. Non-adrenergic mechanisms. *Clin Resp Physiol* 1986; **22**(Suppl 7):153-161.
43. Barnes PJ, Cuss FMC. Biochemistry of airway smooth muscle. *Clin Resp Physiol* 1986; **22**(Suppl 7):191-200.
44. Löfdahl C-G, Barnes PJ. Calcium, calcium channel blockers and airway function. *Acta Pharmacol Toxicol* 1986; **58**:91-111.
45. Nadel JA, Barnes PJ, Holtzman MJ. Autonomic factors in the hyperreactivity of airway smooth muscle. In: *Handbook of Physiology: The Respiratory System: vol III*. American Physiological Society 1986; pp 693-702.
46. Barnes PJ. Airway receptors and asthma. *NER Allergy Proc* 1986; **7**: 219-227.
47. Smolensky MH, Barnes PJ, Jonkman JHG, Scott AH. The chronopharmacology and chronotherapy of bronchodilator medications. *Ann Rev Chronopharmacol* 1986; **2**:229-273.
48. Barnes PJ. Endogenous catecholamines and asthma. *J Allergy Clin Immunol* 1986; **77**:791-795.
49. Barnes PJ. Non-adrenergic non-cholinergic neural control of human airways. *Arch Int Pharmacodyn* 1986; **280**(Suppl):208-228.
50. Barnes PJ. Asthma therapy: basic mechanisms. *Eur J Respir Dis* 1986; **68**(Suppl 144):217-265.
51. Barnes PJ. Therapie des nächtlichen asthmas. In: *Asthma Bronchiale*. Nolte D, Kummer F, Dorow P, eds. Munich: Urban and Schwartzberg 1986; pp 186-197.
52. Editorial. NANC nerves in airways. *Lancet* 1986; **ii**:1253-1254.
53. Barnes PJ. Mechanisms and treatment of nocturnal asthma. *Allergol Immunopath* 1986; suppl **10**:125-128.
54. Barnes PJ. *State of the Art*: Neural control of human airways in health and disease. *Am Rev Respir Dis* 1986; **134**:1289-1314.
55. Barnes PJ. Nocturnal asthma: underlying mechanisms and implications for therapy. *Immunol Allergy Pract* 1986; **8**:9-15.
56. Barnes PJ. Airway inflammation and autonomic control. *Eur J Respir Dis* 1986; **69**(Suppl 147):80-87.
57. Barnes PJ. Adrenergic and non-cholinergic control of airways. *Respiration* 1986; **50**(Suppl 2):9-16.
58. Smolensky MH, Barnes PJ, Reinberg A, McGovern JP. Chronobiology of Asthma. I. Day night differences

in bronchial potency and dyspnea and circadian rhythm dependencies. *J Asthma* 1986; **23**:321-343.

## 1987

59. Barnes PJ. Inflammatory mediator receptors and asthma. *Am Rev Respir Dis* 1987; **135**:S26-S31.
60. Barnes PJ. Circadian rhythms, airway function and nocturnal asthma. In: *Circadian Rhythms*. Smolensky M, ed. 1987.
61. Chung KF, Barnes PJ. Prescribing in pregnancy: treatment of asthma. *Br Med J* 1987; **294**:103-105.
62. Barnes PJ. Vasoactive intestinal peptide and pulmonary function. In: *Current Topics in Pulmonary Pharmacology and Toxicology*. Hollinger MA, ed. New York: Elsevier 1987; pp 156-173.
63. Barnes PJ. Autonomic control of airway function in asthma. *Chest* 1987; **91**:45S-48S.
64. Barnes PJ. Using anticholinergics to best advantage. *J Resp Dis* 1987; **8**: 84-95.
65. Barnes PJ. The autonomic nervous system and nocturnal asthma. In: *Nocturnal Dyspnoea, Inflammation and Reactivity*. Kerrebijn KF, Sluiter HJ, eds. Utrecht: Astra Publications 1987; pp43-477.
66. Barnes PJ. Mechanisms of asthma. *Medicine International* 1987; **37**: 1522-1526.
67. Barnes PJ. Airway neuropeptides and asthma. *Trends Pharm Sci* 1987; **8**:24-27.
68. Barnes PJ. Muscarinic receptors in lung. *Postgrad Med J* 1987; **63**(Suppl): 13-19.
69. Barnes PJ. Airway receptors. In: *Drug Therapy for Asthma*. Jenne JW, Murphy S, eds. New York: Marcel Dekker 1987; pp 67-95.
70. Barnes PJ. Calcium channel blockers. In: *Drug Therapy for Asthma*. Jenne JW, Murphy S, eds. New York: Marcel Dekker 1987; pp 517-553.
71. Barnes PJ. Regulatory peptides in the respiratory tract. *Experientia* 1987; **43**:832-839.
72. Barnes PJ. New concepts in the pathogenesis of asthma and bronchial hyperresponsiveness. *Agents Actions* 1987; Supplement **21**:225-237.
73. Barnes PJ. Neuropeptides in the lung: localization, function and pathophysiologic implications. *J Allergy Clin Immunol* 1987; **79**:285-295.
74. Grandordy BM, Barnes PJ. Phosphoinositide turnover in airway smooth muscle. *Am Rev Respir Dis* 1987; **136**:S17-S20.
75. Cuss FM, Barnes PJ. Epithelial mediators. *Am Rev Respir Dis* 1987; **136**:S32-S35.
76. Barnes PJ. Cholinergic control of airway smooth muscle. *Am Rev Respir Dis* 1987; **136**:S42-S45.
77. Barnes PJ. Inflammatory mediators and asthma. In: *Advanced Medicine 23*. Pounder RE, Chiodini PL, eds. London: Balliere Tyndall 1987; pp1-12.
78. Barnes PJ. Nocturnal asthma. *Practitioner* 1987; **231**:479-481.
79. Barnes PJ. The changing face of asthma. *Q J Med* 1987; **63**:359-365.
80. Barnes PJ, Chung KF. PAF closely mimics pathology of asthma. *Trends Pharmacol Sci* 1987; **8**:285-287.
81. Chung KF, Barnes PJ. Bronchial hyperresponsiveness and inflammation in asthma. In: *Asthma Reviews*. J Morley, ed. London: Academic Press 1987; pp 25-41.
82. Palmer JBD, Barnes PJ. Neuropeptides and airway smooth muscle function. *Am Rev Respir Dis* 1987; **136**:S50-S54.

83. Barnes PJ. Neuropeptides in human airways: function and clinical implications. *Am Rev Respir Dis* 1987; **136**:S77-S83.
84. Barnes PJ. Pharmacology of the lower airways. In: *A new concept in inhalation therapy*. Norman SP, Moren F, Crompton GK, eds. London: Medicom 1987; pp 25-48.
85. Barnes PJ. Airway neuropeptides and airway disease. *Ann Ital Med Intern* 1987; **ii**:327-332.
86. Barnes PJ. Asthma management - a new dimension. *J Int Med Res* 1987; **15**:397-400.

## 1988

87. Barnes PJ. General pharmacologic principles. In: *Textbook of Respiratory Medicine*. Murray JF, Nadel JA, eds. Philadelphia: WB Saunders 1988; pp 221-248.
88. Barnes PJ. Airway pharmacology. In: *Textbook of Respiratory Medicine*. Murray JF, Nadel JA, eds. Philadelphia: WB Saunders 1988; pp 249-268.
89. Barnes PJ. Surface membrane receptor populations and their function in airway smooth muscle. In: *Airway Smooth Muscle in Health and Disease*. Coburn RF, ed. New York: Plenum Press 1988; pp 77-97.
90. Barnes PJ. Neuropeptides and airway smooth muscle. *Pharmacol Ther* 1988; **36**:119-129.
91. Barnes PJ, Chung KF, Page CP. Platelet-activating factor as a mediator of allergic disease. *J Allergy Clin Immunol* 1988; **81**:919-934.
92. Barnes PJ. Nocturnal asthma. *Postgrad Med J* 1988; **64**(Suppl 4):68-73.
93. Barnes PJ. The drug therapy of asthma: directions for the 21st century. *Agents Actions* 1988; Suppl **23**:293-313.
94. Barnes PJ. Mode of action of theophylline: a multiplicity of actions. *Int Congr Symp Series* 1988; **126**:39-45.
95. Chung KF, Barnes PJ. New drugs in respiratory and allergic disease. Part I. *Br Med J* 1988; **296**:29-33.
96. Chung KF, Barnes PJ. New drugs in respiratory and allergic disease. Part II. *Br Med J* 1988; **296**:111-115.
97. Chung KF, Barnes PJ. Clinical perspectives of PAF-acether antagonists. In: *The Ginkgolides: chemistry, biology, pharmacology and clinical perspectives*. Braquet P, ed. Barcelona, 1988.
98. Barnes PJ. Neuropeptides in human airways. In: *Mechanisms in Asthma*. Armour C, Black J, eds. New York: Alan Liss 1988; pp 111-121.
99. Barnes PJ. Receptors in airway smooth muscle. 10th International Congress of Pharmacology, Amsterdam: *Excerpta Medica* 1988.
100. Barnes PJ. Adrenergic regulation of airway function. In: *The Airways: Neural Control in Health and Disease*. Kaliner MA, Barnes PJ, eds. New York: Marcel Dekker 1988; pp 57-85.
101. Barnes PJ, Chung KF, Page CP. Inflammatory mediators in asthma. *Pharmacol Rev* 1988; **40**:49-84.
102. Barnes PJ. Impact of inhaled anticholinergics in respiratory care. In: *Problems in Respiratory Care*. Witek TJ, Schachter EN, eds. Philadelphia: Lippincott 1988; pp 8-14.
103. Chung KF, Barnes PJ. PAF antagonists: their therapeutic potential in asthma. *Drugs* 1988; **35**:93-103.
104. Barnes PJ. Platelet-activating factor as a mediator of asthma. *New Trends Lipid Mediators Res* 1988; **2**:107-117.
105. Barnes PJ. Asthma deaths: the continuing problem. In: *Advanced Medicine* 24. Sheppard M, ed.

London: Balliere Tindall 1988; pp 53-61.

106. Barnes PJ. Inflammatory mechanisms and nocturnal asthma. *Am J Med* 1988; **85**(Suppl 1B):64-70.
107. Barnes PJ. Platelet-activating factor and asthma. *J Allergy Clin Immunol* 1988; **81**:152-161.
108. Barnes PJ. Neuropeptides and asthma. *Medguide to Pulmonary Medicine* 1988; **4**:1-10.
109. Gross NJ, Barnes PJ. A short tour round the muscarinic receptor. *Am Rev Respir Dis* 1988; **138**:765-767.
110. Fuller RW, Barnes PJ. Kinins. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 259-272.
111. Ind PW, Barnes PJ. Adrenergic control of airways in asthma. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 357-380.
112. Barnes PJ. Airway neuropeptides. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 359-414.
113. Barnes PJ, Rodger IW, Thomson NC. Pathogenesis of asthma. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 415-444.
114. Barnes PJ, Thomson NC. Drug-induced asthma. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 533-550.
115. Barnes PJ, Thomson NC. Other therapies used in asthma. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 693-706.
116. Barnes PJ, Rodger IW, Thomson NC. Future trends in asthma treatment. In: *Asthma: Basic Mechanisms and Clinical Management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1988; pp 751-770.
117. Barnes PJ, Minette PA, MacLagan J. Muscarinic receptor subtypes in lung. *Trends Pharmacol Sci* 1988; **9**:412-416.
118. Barnes PJ. Neural mechanisms in inflammation. In: *Textbook of Immunopharmacology*. Dale M, Foreman J, eds. Oxford: Blackwell 1988; pp 242-250.
119. Barnes PJ. Airway receptors and asthma. In: *H<sub>1</sub> and H<sub>2</sub> Histamine Receptors*. Settipane GA, ed. Providence: Oceanside Publications Inc. 1988; pp 40-48.
120. Chung KF, Barnes PJ. Beta-agonists, theophylline, ipratropium bromide and sodium cromoglycate. *Med Int* 1988; **60**:2469-2473.

## 1989

121. Barnes PJ. Autonomic control of the airways and nocturnal asthma as a basis for drug treatment. In: *Cellular and Biochemical Aspects of Chronopharmacology*. Lemmer B, ed. New York: Marcel Dekker 1989; pp 53-63.
122. Barnes PJ. Airway neuropeptides and asthma. In: *Asthma: Basic Mechanisms and Clinical Perspectives*. Vane JR, Higgs GA, Marsico SA, Nistico G, eds. Rome: Pythagora Press 1989; pp 127-139.
123. Barnes PJ. Chronic asthma. In: *Current Therapy of Respiratory Disease*. Cherniak R, ed. Toronto: BC Decker 1989; 132-136.
124. Barnes PJ. Regulatory peptides in the respiratory system. In: *Regulatory Peptides*. Polak J, ed. Basel: Birkhauser Verlag 1989; pp 317-333.
125. Barnes PJ. Effects of nedocromil sodium on airway microvascular leakage and neural reflexes. *Drugs* 1989; **37**(Suppl):94-100.

126. Barnes PJ. Airway receptors. *Postgrad Med J* 1989; **65**:532-542.
127. Barnes PJ. New concepts in the pathogenesis of bronchial hyperresponsiveness and asthma. *J Allergy Clin Immunol* 1989; **83**:1013-1026.
128. Barnes PJ. Neural regulation of airway calibre. In: *Bronchitis IV*. Sluiter HJ, van der Lende R, eds. Assen: van Gorcum 1989; 151-160.
129. Barnes PJ. Airway neuropeptides: fine tuning and a role in disease. *News in Physiol Sci* 1989; **4**:116-120.
130. Barnes PJ. Muscarinic receptor subtypes: implications for lung disease. *Thorax* 1989; **44**:161-167.
131. Barnes PJ. Our changing understanding of asthma. *Resp Med* 1989; **83**(Suppl):17-23.
132. Barnes PJ. Inflammatory mediators and airway function. *Prog Resp Res* 1989; **24**:
133. Barnes PJ, Chung KF. Difficult asthma. *Br Med J* 1989; **299**:695-698.
134. MacLagan J, Barnes PJ. Muscarinic pharmacology of the airways. *Trends Pharmacol Sci* 1989; (Suppl: Muscarinic Receptor Subtypes IV):88-92.
135. Chung KF, Barnes PJ. Platelet-activating factor - a potent mediator of inflammation. *Postgrad Med J* 1989; **65**:420-421.
136. Barnes PJ. Neuropeptides and asthma. In: Progress in Allergy and Clinical Immunology. WJ Richler et al., ed. Toronto: Hogrefe & Huber 1989; pp 73-76.
137. Barnes PJ. Muscarinic autoreceptors in airways: their possible role in airway disease. *Chest* 1989; **96**:1220-1221.
138. Barnes PJ, Chung KF, Page CP. Platelet-activating factor and human disease. In: *PAF and Human Disease*. Barnes PJ, Page CP, Henson PM, eds. Oxford: Blackwell 1989; pp158-178.
139. Dent G, Ukena D, Barnes PJ. PAF receptors. In: *PAF and Human Disease*. Barnes PJ, Page CP, Henson PM, eds. Oxford: Blackwell 1989; pp 58-81.
140. Hosford D, Page C, Barnes PJ, Braquet P. Platelet-activating factor receptor antagonists. In: *PAF and Human Disease*. Barnes PJ, Page CP, Henson PM, eds. Oxford: Blackwell 1989; pp 82-116.
141. Barnes PJ. Cell surface receptors in airway smooth muscle. In: *Airway Smooth Muscle in Health & Disease*. Coburn RF, ed. New York: Plenum Press. 1989; pp 77-97.
142. Barnes PJ. NANC nerves, neuropeptides and asthma. *Resp Res* 1989; **8**: 1260-1268.
143. Barnes PJ. Overview of current therapy. In: *New Drugs for Asthma*. Barnes PJ, ed. London: IBC Publications 1989; pp 1-11.
144. Barnes PJ. New developments in anticholinergics and cholinergic pharmacology. In: *New Drugs for Asthma*. Barnes PJ, ed. London: IBC Publications 1989; pp 33-34.
145. Barnes PJ. Neural and inflammatory peptides: therapeutic prospects in asthma. In: *New Drugs for Asthma*. Barnes PJ, ed. London: IBC Publications 1989; pp 149-160.
146. Chung KF, Cuss FM, Evans TW, Barnes PJ. Platelet activating factor inhalation in man. In: *PAF and Asthma*. Holme G, Morley J, eds. London: Academic Press 1989; pp 203-215.
147. Chung KF, Barnes PJ. Drug treatment of asthma. *Drugs of Today* 1989; **25**: 721-732.

## 1990

148. Chung KF, Rogers DF, Barnes PJ, Evans TE. The role of increased airway microvascular permeability and

plasma exudation in asthma. *Eur Resp J* 1990; **3**: 329-33.

149. Rogers DF, Alton EFW, **Barnes PJ**. Airway secretion. In: *The Metabolic and Molecular Basis of Acquired Disease*. Cohen RD, Alberti KGMM, Lewis B, Denman AM, eds. London: Ballière Tindall. 1990; pp 1979-2010.
150. **Barnes PJ**, Kroegel C, Yukawa T, Dent G, Chung KF. Pharmacology of eosinophils. In: *Eosinophils in Allergic Disease*. Kay AB, ed. Oxford: Blackwell 1990; pp 144-157.
151. **Barnes PJ**, Boschetto P, Rogers DF, Belvisi M, Roberts N, Chung KF, Evans TW. Effects of treatment on airway microvascular leak. *Eur J Respir Dis* 1990; **3**(Suppl 12):663S-671S.
152. **Barnes PJ**. Airway smooth muscle receptors. *Recenti Prog Med* 1990; **81**:184-192.
153. **Barnes PJ**, Holgate ST. Pathogenesis of asthma. In: *Textbook of Respiratory Medicine*. Brewis RAL, Gibson GJ, Geddes DM, eds. London: Ballière Tindall 1990; pp 558-602.
154. **Barnes PJ**. The role of neurotransmitters in bronchial asthma. *Lung* 1990; **168** (Suppl):57-65.
155. **Barnes PJ**. Effect of corticosteroids on airway hyperresponsiveness. *Am Rev Respir Dis* 1990; **141**:S70-S76.
156. **Barnes PJ**. Circadian rhythms in the respiratory system. In: *Biological Rhythms in Clinical Practice*. Arendt J, Minors DS, Waterhouse JM, eds. London: Butterworths 1990; pp 71-82.
157. **Barnes PJ**. Neurogenic inflammation in airways and its modulation. *Arch Int Pharmacodyn* 1990; **303**(Suppl):67-82.
158. Black JL, **Barnes PJ**. Potassium channels and airway function: new therapeutic prospects. *Thorax* 1990; **45**:213-218.
159. Minette PA, **Barnes PJ**. Muscarinic receptor subtypes in airways : function and clinical significance. *Am Rev Respir Dis* 1990; **141**: S162-S165.
160. **Barnes PJ**. Receptors and second messengers: chairman's summary. *Am Rev Respir Dis* 1990; **141**:S97-S98.
161. **Barnes PJ**. Allergic inflammatory mediators and bronchial hyperresponsiveness: an introductory overview. *Immunology and Allergy Clinics of North America* 1990; **10**:241-249.
162. **Barnes PJ**. Inflammatory mediators and airway function. In: *Airway Obstruction and Inflammation*. Olivieri D, Bianco S, eds. Basel: Karger 1990; 24: pp 68-77.
163. **Barnes PJ**, Belvisi MG, Rogers DF. Modulation of neurogenic inflammation: novel approaches to inflammatory diseases. *Trends Pharmacol Sci* 1990; **11**:185-189.
164. **Barnes PJ**. Molecular biology of receptors: implications for lung disease. *Thorax* 1990; **45**:482-488.
165. **Barnes PJ**. Neural control of airway function: new perspectives. *Molec Aspects Med* 1990; **11**:351-423.
166. **Barnes PJ**. Reactive oxygen species and airway inflammation. *Free Rad Biol Med* 1990; **9**:235-243.
167. **Barnes PJ**. Sensory and inflammatory peptide receptors in airways. In: *Inflammatory cells and mediators in bronchial asthma*. Agrawal DK, Townley RG, eds. Boca Raton: CRC Press 1990; pp 207-221.
168. **Barnes PJ**. Recent advances in the autonomic pharmacology of asthma and bronchial hyperreactivity. In: *Asthme et hyperréactivité bronchique*. Advenier C, Elghozi J-L, Meyer P, eds. Paris: Masson 1990; pp 109-119.
169. **Barnes PJ**. Neuropeptides as modulators of airway function. *Agents Actions* 1990; Suppl **31** (Mediators of airway hyperreactivity): pp 175-196.

## 1991

170. Barnes PJ. Managing asthma in hospitals: cause for concern. *Postgrad Med J* 1991; **67**:1-3.
171. Barnes PJ. Anticholinergics in COPD: theoretical considerations. *Res Clin Forums* 1991; **13**:33-42.
172. Barnes PJ. Platelet-activating factor and PAF antagonists in lung disease. *Res Clin Forums* 1991; **13**:61-74.
173. Barnes PJ. Molecular biology: inflammatory activities. *Nature* 1991; **349** 284-285.
174. Barnes PJ, Henson PM. Platelet-activating factor. In: *The Lung: Scientific Foundations*. Crystal R, West JB, Barnes PJ, Cherniak N, Weibel E, eds. New York: Raven Press 1991; pp 49-60.
175. Barnes PJ. Neural control of airway smooth muscle. In: *The Lung: Scientific Foundations*. Crystal R, West JB, Barnes PJ, Cherniak N, Weibel E, eds. New York: Raven Press 1991; 903-916.
176. Barnes PJ. Pharmacology of airway smooth muscle. In: *The Lung: Scientific Foundations*. Crystal R, West JB, Barnes PJ, Cherniak N, Weibel E, eds. New York: Raven Press 1991; 977-986.
177. Barnes PJ. Histamine receptors in the lung. *Agents Actions* 1991; **Suppl 33**:103-122.
178. Barnes PJ, Chung KF, Page CP. Inflammatory mediators. In: *Pharmacology of Asthma. Handbook of Experimental Pharmacology vol 98*. Page CP, Barnes PJ, eds. Berlin: Springer Verlag 1991; 53-106.
179. Barnes PJ. Neural mechanisms in asthma. In: *Pharmacology of Asthma. Handbook of Experimental Pharmacology vol 98*. Page CP, Barnes PJ, eds. Berlin: Springer Verlag 1991; 143-166.
180. Smith SF, Page CP, Barnes PJ, Flower RJ. Glucocorticosteroids in asthma. In: *Pharmacology of Asthma. Handbook of Experimental Pharmacology vol 98*. Page CP, Barnes PJ, eds. Berlin: Springer Verlag 1991; 227-260.
181. Barnes PJ. Neuropeptides and airway disease. In: *Peptides: a Target for Drug Development*. Bloom SR, Burnstock G, eds. London: IBC Publications 1991; 45-58.
182. Barnes PJ. Neuropeptides and asthma. *Am Rev Respir Dis* 1991; **143**:S28-S32.
183. Barnes PJ. Neurogenic inflammation in airways. *Int Arch Allergy Immunol* 1991; **45**:303-309.
184. Barnes PJ. Pharmacology of airway inflammation: mechanisms and therapy. *Eur Respir Rev* 1991; **1, Rev 24**:68-71.
185. Barnes PJ. Future drug therapy for asthma. *Clin Exp Allergy* 1991; **21**(Suppl 1):80-85.
186. Barnes PJ. Mechanisms of asthma. *Med Int* 1991; **89**:3694-3698.
187. Barnes PJ. Sensory nerves, neuropeptides and asthma. *Ann NY Acad Sci* 1991; **629**:359-370.
188. Barnes PJ. Platelet activating factor and asthma. *Ann NY Acad Sci* 1991; **629**:193-204.
189. Barnes PJ. Biochemistry of asthma. *Trends Biochem Sci* 1991; **16**:365-369.
190. Barnes PJ. Prospects for anti-inflammatory therapy in lung disease. In: *Mediators of pulmonary inflammation*. Bray M, Anderson W, eds. New York: Marcel Dekker 1991; 619-644.
191. Barnes PJ, Lundberg JM. Airway neuropeptides and asthma. In: *Asthma. Its pathology and treatment*. Kaliner MA, Barnes PJ, Persson CGA, eds. New York: Marcel Dekker 1991; 385-407.
192. Chung KF, Barnes PJ. Platelet-activating factor and asthma. In: *Asthma. Its pathology and treatment*. Kaliner MA, Barnes PJ, Persson CGA, eds. New York: Marcel Dekker 1991; 267-300.
193. Widdicombe JG, Karlsson J-A, Barnes PJ. Cholinergic mechanisms in bronchial hyperresponsiveness and

- asthma. In: *Asthma. Its pathology and treatment*. Kaliner MA, **Barnes PJ**, Persson CGA, eds. New York: Marcel Dekker 1991; 327-356.
194. **Barnes PJ**. Preventative therapy in adults with asthma. *Resp Med* 1991; **85**:355-357.
  195. **Barnes PJ**. Interaction between airway epithelium and peptides. In: *The Airway Epithelium*. Farmer SG, Hay DWP, eds. New York: Marcel Dekker 1991; 527-544.
  196. **Barnes PJ**. New concepts in asthma and the implications for therapy. In: *Recent Advances in Respiratory Medicine 5*. Mitchell DM, ed. Edinburgh: Churchill Livingstone 1991; 45-60.
  197. **Barnes PJ**. The Linacre Lecture: Nerves, neurotransmitters and asthma. In: *Horizons in Medicine No 3*. London: Transmedica 1991; 14-29.
  198. **Barnes PJ**. Pharmacology of eosinophils. In: *Advances in Asthma 1990*; Amsterdam: Excerpta Medica 1991; 27-38.
  199. Ichinose M, Takishima T, **Barnes PJ**. Histamine H<sub>3</sub>-receptors: function in airways. In: *Advances in Asthma 1990*. Amsterdam: Excerpta Medica 1991; 349-354.
  200. **Barnes PJ**. Synaptic transmission in airways. In: *Aspects of Synaptic Transmission*. Stone TW, ed. London: Taylor and Francis 1991; 237-257.
  201. Chung KF, **Barnes PJ**. Role for platelet activating factor in asthma. *Lipids* 1991; **26**:1277-1279.
  202. Evans TW, **Barnes PJ**. Assessment of respiratory responses. In: *Early Phase Human Drug Development*. O'Grady J, ed. London: Macmillan 1991; 224-251.

## 1992

203. **Barnes PJ**. Neural mechanisms in asthma. In: *Asthma* (3rd edition); Clark TJH, Godfrey S, Lee TH, eds. London: Chapman Hall 1992; 133-161.
204. **Barnes PJ**, Chung KF. Questions about inhaled β<sub>2</sub>-agonists in asthma. *Trends Pharmacol Sci* 1992; **13**:20-23.
205. Chung KF, **Barnes PJ**. Loop diuretics and asthma. *Pulm Pharmacol* 1992; **5**:1-7.
206. **Barnes PJ**, Lee TH. Recent advances in asthma. *Postgrad Med J* 1992; **68**:942-953.
207. **Barnes PJ**. Control of airway caliber. In: *Update: pulmonary diseases and disorders*. Fishman AP, ed. New York: McGraw-Hill 1992; 53-66.
208. **Barnes PJ**. Asthma in adults. In: *Current therapy in allergy, immunology and rheumatology*. Lichtenstein LM, Fauci AS, eds. Philadelphia BC Decker 1992; 25-31.
209. Lammers J-WJ, **Barnes PJ**, Chung KF. Non-adrenergic non-cholinergic airway inhibitory nerves. *Eur Resp J* 1992; **5**:239-246.
210. **Barnes PJ**. Milestones in asthma treatment. *Eur Resp J* 1991; **1**(rev 4): 247-250.
211. **Barnes PJ**. Neurogenic inflammation and asthma. *J Asthma* 1992; **29**:161-176.
212. **Barnes PJ**. Neural mechanisms in asthma. *Br Med Bull* 1992; **48**:149-168.
213. **Barnes PJ**. New therapeutic approaches in asthma. *Br Med Bull* 1992; **48**:231-247.
214. Chung KF, **Barnes PJ**. Role of inflammatory mediators. *Br Med Bull* 1992; **48**:135-148.
215. **Barnes PJ**. Histamine receptors in the respiratory tract. In: *The histamine receptor*. J-C Schwartz, HL Haas, eds. New York: Wiley-Liss 1992; 253-270.

216. Barnes PJ. Rationale for the use of antimuscarinics in obstructive airways disease. *Rev Contemp Pharmacother* 1992; **3**:173-182.
217. Barnes PJ. New aspects of asthma. *J Int Med* 1992; **231**:453-461.
218. Barnes PJ. New drugs for asthma. *Eur Resp J* 1992; **5**:1126-1136.
219. Barnes PJ. Advances in Asthma Therapy. *Scrip Magazine* 1992; **3**:28-31.
220. Barnes PJ. Poorly perceived asthma. *Thorax* 1992; **47**:408-409.
221. Barnes PJ. Pulmonary disorders. In: *Clinical Pharmacology: Basic Principles and Therapeutics*. 3rd Edition. Melmon KL, Morelli HF, eds. New York: McGraw-Hill 1992; 186-218.
222. Barnes PJ. Bradykinin and asthma. *Thorax* 1992; **47**:979-983.
223. Henson PM, Barnes PJ, Banks-Schlegel S. NHLBI Workshop Summary: Platelet-activating factor: role in pulmonary injury and dysfunction and blood abnormalities. *Am Rev Respir Dis* 1992; **145**:726-731.
224. Barnes PJ. Beta<sub>2</sub>-agonists and airways inflammation. In: *Formoterol: fast and long-lasting bronchodilatation. RSM International Congress Series* 1992; **194**:15-22.
225. Daniele RP, Barnes PJ, Goetzl EJ, Nadel J, O'Dorisio S, Kiley J, Jacobs T. Neuroimmune interactions in the lung. *Am Rev Respir Dis* 1992; **145**:1230-1235.
226. Page CP, Barnes PJ. Platelet-activating factor. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 297-314.
227. Chung KF, Barnes PJ. Other mediators in asthma. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 333-342.
228. Barnes PJ, Thomson NC. Neural and humoral control. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 343-358.
229. Barnes PJ. Airway NANC nerves and neuropeptides. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 359-390.
230. Barnes PJ, Rodger IW, Thomson NC. Pathogenesis of asthma. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 391-412.
231. Barnes PJ, Thomson NC. Drug-induced asthma. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 499-514.
232. Barnes PJ, Thomson NC. Other therapies used in asthma. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 659-666.
233. Barnes PJ, Thomson NC, Rodger IW. Future trends in therapy. In: *Asthma: basic mechanisms and clinical management*. Barnes PJ, Rodger IW, Thomson NC, eds. London: Academic Press 1992; 735-750.
234. Barnes PJ. Molecular biology of receptors. *Q J Med* 1992; **301**:339-353.
235. Barnes PJ. PAF, eosinophils and asthma. *J Lipid mediators* 1992; **5**:155-158.
236. Barnes PJ. Mediatoren und bronchiale Überempfindlichkeit. In: *Pneumologisches Kolloquium 7*, Dorow, P, ed. Berlin, de Gruyter 1992: 129-140.
237. Barnes PJ. Cellular and biochemical aspects of airway hyperresponsiveness. In: *Bronchial hyperresponsiveness*. Zwick H, ed. Vienna: Springer-Verlag 1992: pp1-14.
238. Barnes PJ. Neural control of airways. In: *Asthma treatment: a multidisciplinary approach*. Olivieri D, Barnes PJ, Hurd SS, Folco GC, eds. New York: Plenum Press, 1992: pp9-20.
239. Barnes PJ. Airway neuropeptides. In: *Asthma treatment: a multidisciplinary approach*. Olivieri D, Barnes PJ, Hurd SS, Folco GC, eds. New York: Plenum Press, 1992: pp21-50.

240. Woolcock AJ, Barnes PJ. Asthma: the important questions (part 2). *Am Rev Respir Dis* 1992; **146**:1349-1366.
241. Barnes PJ. Molecular pharmacology of  $\beta$ -adrenoceptors. In: *Beta-agonists in the treatment of asthma*. Costello JF, Mann RD, eds. Carnforth: Parthenon, 1992: pp13-26.
242. Barnes PJ. Effects of bradykinin on airway function. *Agents Actions* 1992; **Suppl 38**:432-438.
243. Tattersfield AE, Barnes PJ.  $\beta_2$ -Agonists and corticosteroids: new developments and controversies. *Am Rev Respir Dis* 1992; **146**:1635-1641.

## 1993

244. Barnes PJ. Antiinflammatory therapy for asthma. *Ann Rev Med* 1993; **44**:229-249.
245. Barnes PJ. Pharmacology of eosinophils. In: *Eosinophils: biological and clinical aspects*. Makino S, Fukuda T, eds. Boca Raton: CRC Press 1993; pp193-212.
246. Chung KF, Barnes PJ. Long-acting inhaled  $\beta$ -agonists. In: *The role of  $\beta$ -agonist therapy in asthma mortality*. Beasley R, Pearce NE, eds. Boca Raton: CRC Press 1993; pp225-243.
247. Barnes PJ. Nitric oxide and airways. *Eur Resp J* 1993; **6**:163-165.
248. Barnes PJ. Muscarinic receptor subtypes in airways. *Life Sci* 1993; **52**:521-528.
249. Barnes PJ. Muscarinic receptor subtypes in airways. *Eur Resp J* 1993; **6**:328-331.
250. Giembycz MA, Barnes PJ. Stimulus-response coupling in eosinophils: receptors, signal transduction and pharmacological modulation. In: *Immunopharmacology of eosinophils*. Smith H, Cook RM, eds. London: Academic Press 1993; pp91-118.
251. Barnes PJ. Pathophysiology of allergic inflammation. In: *Allergy: principles and practice*. (4th edition). Middleton E, Reed CE, Ellis E et al, eds. St Louis: Mosby 1993; pp243-266.
252. Barnes PJ. Inflammation. In: *Bronchial asthma: mechanisms and therapeutics (3rd edition)*. Weiss EB, Stein M, eds. Boston: Little, Brown 1993; 80-93.
253. Barnes PJ. Non-adrenergic, non-cholinergic nerves and neuropeptides. In: *Bronchial asthma: mechanisms and therapeutics (3rd edition)*. Weiss EB, Stein M, eds. Boston: Little, Brown 1993; 232-252.
254. Ind PW, Dollery CT, Barnes PJ. Nocturnal asthma. In: *Bronchial asthma: mechanisms and therapeutics (3rd edition)*. Weiss EB, Stein M, eds. Boston: Little, Brown 1993; 1030-1037.
255. Barnes PJ. Beta-adrenoceptors and asthma. *Clin Exp Allergy* 1993; **23**:165-167.
256. Barnes PJ. Diuretics and asthma. *Thorax* 1993; **48**:195-197.
257. Barnes PJ. Asthma. In: *Pulmonary and critical care medicine*. Bone RC, ed. Chicago: Mosby Year Book 1993; G1-G14.
258. Barnes PJ. Asthma treatment in the future. *Respir Disease in Practice* 1993; **10**:14-16.
259. Barnes PJ. Asthma therapy in the future. In: *Royal Brompton Reviews: Recent Advances in Respiratory Medicine*. Barnes PJ, ed. London: Butterworth-Heinemann 1993; 72-87.
260. Barnes PJ. Non-adrenergic non-cholinergic nerves in airways. In: *Pathophysiology of the gut and airways*. Andrews P, Widdicombe J, eds. London: Portland Press 1993; 5-14.
261. Barnes PJ.  $\beta$ -Adrenoceptors on smooth muscle, nerves and inflammatory cells. *Life Sci* 1993; **52**:2101-2109.

262. **Barnes PJ.** Molecular biology of receptors in the respiratory tract. In: *Pharmacology of the Respiratory Tract*. Chung KF, Barnes J, eds. New York: Marcel Dekker 1993; 1-26.
263. **Barnes PJ.** Autonomic pharmacology of the airways. In: *Pharmacology of the Respiratory Tract*. Chung KF, Barnes J, eds. New York: Marcel Dekker 1993; 415-456.
264. **Barnes PJ**, Belvisi MG. Nitric oxide and lung disease. *Thorax* 1993; **48**: 1034-1043.
265. **Barnes PJ**, Adcock IM. Antiinflammatory actions of steroids: molecular mechanisms. *Trends Pharmacol Sci* 1993; **14**:436-441.
266. **Barnes PJ**, Pedersen S. Efficacy and safety of inhaled steroids in asthma. *Am Rev Respir Dis* 1993; **148**:S1-S26.
267. **Barnes PJ.** Effect of nedocromil sodium on airway sensory nerves. *J Allergy Clin Immunol* 1993; **92**: 182-186.
268. **Barnes PJ.** Effect of nedocromil sodium on microvascular leakage. *J Allergy Clin Immunol* 1993; **92**: 197-199.
269. **Barnes PJ.** Effect of nedocromil sodium on platelet-activating factor-induced airway responses. *J Allergy Clin Immunol* 1993; **91**: 187-189.
270. **Barnes PJ.** Theoretical aspects of anticholinergic treatment. In: *Anticholinergic therapy in obstructive airways disease*. London: Franklin Scientific Publications 1993; pp 88-104.
271. **Barnes PJ.** Asthma: what is there left to find out? *Br Med J* 1993; **307**: 814-815.
272. **Barnes PJ.** Pathogenesis of asthma. *Proc Roy Coll Phys Edinb* 1993; **23**:584-594.
273. **Barnes PJ.** Neural mechanisms in asthma. In: *Asthma. Physiology, immunopharmacology and treatment*. Holgate ST et al, eds. San Diego: Academic Press 1993; 259-273.
274. **Barnes PJ**, Giembycz MA. Pharmacological control of eosinophil activation and secretion. In: *Eosinophils in allergy and inflammation*. Gleich GJ, Kay AB, eds. New York: Dekker 1993; 311-334.
275. **Barnes PJ.** Muscarinic receptor subtypes: implications for therapy. *Agents Actions* 1993; **43**:243-252.

## 1994

276. **Barnes PJ.** Cytokines as mediators of chronic asthma. *Am J Resp Crit Care Med* 1994; **150**:S42-S49.
277. **Barnes PJ**, Pauwels RA. Theophylline in asthma: time fo reappraisal? *Eur Resp J* 1994; **7**:579-591.
278. **Barnes PJ.** Neural mechanisms in inflammatory airways disease. In: *Textbook of immunopharmacology (3rd edition)*. Dale M, Foreman JC, Fan T-P, eds. Oxford: Blackwell 1994; pp252-259.
279. **Barnes PJ.** Molecular biology of lung receptors. In: *Molecular Biology of Lung Disease*. Barnes PJ, Stockley RA, eds. Oxford: Blackwell Scientific Publications. 1994; pp 192-215.
280. **Barnes PJ.** Molecular biology of receptors in asthma and COPD. In: *Bronchitis V*. Postma DS, Gerritsen J, eds. Assen: van Gorcum 1994; pp3-21.
281. **Barnes PJ**, The fate of respiratory physiology. *Eur Resp J* 1994; **7**:635-636.
282. **Barnes PJ.** Blunted perception and death from asthma. *New Engl J Med* 1994; **330**:1383-1384.
283. **Barnes PJ.** Air pollution and asthma. *Postgrad Med J* 1994; **70**:319-325.
284. **Barnes PJ.** Anticholinergic therapy. In: *Drugs and the Lung*. Page CP, Metzger WJ, eds. New York: Raven Press 1994; pp 47-68.

285. **Barnes PJ.** Appreciating the role of airway inflammation in asthma. *J Resp Dis* 1994; Suppl: S7-S18.
286. **Barnes PJ.** General pharmacologic principles. In: *Textbook of Respiratory Medicine (2nd edn)*. Murray J, Nadel JA, eds. Philadelphia: Saunders 1994; pp 251-284.
287. **Barnes PJ.** Airway pharmacology. In: *Textbook of Respiratory Medicine (2nd edn)*. Murray J, Nadel JA, eds. Philadelphia: Saunders 1994; pp 285-311.
288. Mak JCW, **Barnes PJ.** Autonomic receptors in the upper and lower airways. In: *Neuropeptides in Respiratory Medicine*. Kaliner MA, **Barnes PJ**, Kunkel GHH, Baraniuk JN, eds. New York: Marcel Dekker 1994; pp 251-274.
289. **Barnes PJ.** Neuropeptides and asthma. In: *Neuropeptides in Respiratory Medicine*. Kaliner MA, **Barnes PJ**, Kunkel GHH, Baraniuk JN, eds. New York: Marcel Dekker 1994; pp 285-311.
290. **Barnes PJ.** Invited editorial on "Epithelium acts as a modulator and a diffusion barrier in the response of canine airway smooth muscle". *J Appl Physiol* 1994; **76**:1841-1842.
291. **Barnes PJ.** Nocturnal asthma: mechanisms and treatment. *Hospital Update* 1994 (Suppl): 10-15.
292. **Barnes PJ.** Asthma: what are the current key issues? *Resp Dis Pract* 1994; **11**:14-16.
293. **Barnes PJ.** Modulation of neurotransmitter release from airway nerves. In: *Airways Smooth Muscle: Structure, Innervation and Neurotransmission*. Raeburn D, Giembycz MA, eds. Basel: Birkhäuser Verlag 1994; pp 209-260.
294. **Barnes PJ.** Platelet activating factor in respiratory disease. In: *Lipid Mediators in Allergic Disease of the Respiratory Tract*. Robinson C, ed. Boca Raton: CRC Press 1994; pp 147-158.
295. Liu SF, **Barnes PJ.** Role of endothelium in the control of pulmonary vascular tone. *Endothelium* 1994; **2**:11-34.
296. **Barnes PJ.** Airway epithelial receptors. *Eur Resp Rev* 1994; **4**:371-379.
297. **Barnes PJ.** Airway neuropeptides. In: *Asthma and Rhinitis*. Busse WW, Holgate ST, eds. Oxford: Blackwell Scientific 1994; pp 667-685.
298. **Barnes PJ.** Methylxanthines and phosphodiesterase inhibitors. In: *Asthma and Rhinitis*. Busse WW, Holgate ST, eds. Oxford: Blackwell Scientific 1994; pp 1267-1277.

## 1995

299. **Barnes PJ.** Bronchodilators: basic pharmacology. In: *Chronic obstructive pulmonary disease*. Calverley P, Pride N, eds. London: Chapman Hall 1995; pp 391-417.
300. **Barnes PJ.** Cyclic nucleotides and phosphodiesterases and airway function. *Eur Resp J* 1995; **8**:457-462.
301. **Barnes PJ**, Belvisi MG, Mak JCW, Haddad E-B, O'Connor B. Tiotropium bromide (Ba 679 BR), a novel long-acting muscarinic antagonist for the treatment of obstructive airways disease. *Life Sci* 1995; **56**:853-859.
302. **Barnes PJ**, Mueller RA. Bronchodilators. In: *Principles of Pharmacology*. Munson PL, ed. New York: Chapman Hall 1995; pp 589-598.
303. **Barnes PJ**, Mueller RA. Anti-inflammatory management of bronchospastic disease. In: *Principles of Pharmacology*. Munson PL, ed. New York: Chapman Hall 1995; pp 599-604.
304. **Barnes PJ.** Ion channels as therapeutic targets in asthma therapy. In: *Progress in Allergy and Clinical Immunology vol 3*. Johansson SGO, ed. Göttingen: Hogrefe & Huber 1995; 113-118.
305. Aubier M, **Barnes PJ.** Theophylline and phosphodiesterase inhibitors. *Eur Respir J* 1995; **8**:347-348.

306. Barnes PJ. Is asthma a nervous disease? The Parker B. Francis Lecture. *Chest* 1995; **107**:119S-124S.
307. Belvisi MG, Ward JR, Mitchell JA, Barnes PJ. Nitric oxide as a neurotransmitter in human airways. *Arch Int Pharmacodyn Ther* 1995; **329**:111-120.
308. Barnes PJ, Adcock IM. Steroid resistance in asthma. *Q J Med* 1995; **88**:455-468.
309. Barnes PJ. Corticosteroids. In: *Manual of Asthma management*. O'Byrne P, Thomson NC, eds. London: WB Saunders 1995; 219-235.
310. Barnes PJ. New prospects in the treatment of asthma. *Eur J Med Chem* 1995; 0:429S-440S.
311. Barnes PJ. Air pollution and asthma: molecular mechanisms. *Mol Med Today* 1995; 1:149-155.
312. Barnes PJ. Nitric oxide and airway disease. *Ann Med* 1995; **27**:389-393.
313. Barnes PJ. Chronic obstructive pulmonary disease. *Update* 1995; 91-77.
314. Barnes PJ. From pathophysiological mechanisms to pharmacological treatments in childhood asthma. *Paed Pulmonol* 1995; **Suppl 11**:40-41.
315. Barnes PJ, Holgate ST, Laitinen LA, Pauwels R. Asthma mechanisms, determinants of severity and treatment: the role of nedocromil sodium. *Clin Exp Allergy* 1995; **25**:771-787.
316. Kharitonov SA, Yates D, Springall D, Buttery L, Polak J, Robbins RA, Barnes PJ. Exhaled nitric oxide is increased in asthma. *Chest* 1995; **107**:156S-157S.
317. Barnes PJ, Djukanovic R, Holgate ST. Asthma pathogenesis. In: *Respiratory Medicine* (2nd edn). Brewis RAL, Corrin B, Geddes D, M, Gibson GJ, eds. London: WB Saunders 1995; 1108-1153.
318. Barnes PJ. The politics of health economics. *Eur J Respir Dis* 1995; **5**:288-291.
319. Barnes PJ. Inflammatory mechanisms and neural mechanisms in severe asthma. In: *Severe Asthma*. Szeffler SJ, Leung DYM, eds. New York: Marcel Dekker 1995; 129-164.
320. Barnes PJ, Chung KF, Adcock IM. Cytokine regulation of chronic inflammation in asthma. In: *Immunopharmacology of the Respiratory System*. Holgate ST, ed. London: Academic Press 1995; 101-122.
321. Barnes PJ. Molecular mechanisms of anti-asthma treatment. In: *Pharmacological sciences: perspectives for research and therapy in the late 1990s*. Cuello AC, Collier B, eds. Basle: Birkhäuser Verlag 1995: 403-412.
322. Barnes PJ, Adcock IM. Transcription factors. *Clin Exp Allergy* 1995; **25(suppl 2)**: 46-49.
323. Barnes PJ. Molecular mechanisms of anti-asthma therapy. *Ann Med* 1995; **27**:531-535.
324. Barnes PJ, Greening AP, Crompton GK. Glucocorticoid resistance in asthma. *Am J Respir Crit Care Med* 1995; **152**:S125-S140.
325. Barnes PJ. Airway smooth muscle receptors. In: Smooth muscle and eosinophil. Pozzi E, ed. Milan: Masson 1995; pp55-67.
326. Barnes PJ. Antiinflammatory mechanisms of glucocorticoids. *Biochem Soc trans* 1995; **23**:940-945.
327. Barnes PJ. Nitric oxide and asthma. *Res Immunol* 1995; **146**:698-702

## 1996

328. Woolcock AJ, Barnes PJ. Asthma: the important questions. Part 3. *Am J Respir Crit Care Med* 1996; **153**:S1-S31.

329. Barnes PJ, NO or no NO in asthma? *Thorax* 1996; **51**: 218-220.
330. Barnes PJ, Kharitonov SA. Exhaled nitric oxide: a new lung function test. *Thorax* 1996; **51**: 233-237.
331. Barnes PJ. Molecular mechanisms of steroid action. *J Allergy Clin Immunol* 1996; **97**:159-168.
332. Barnes PJ. Mechanism of action of glucocorticoids in asthma. *Am J Respir Crit Care Med* 1996; **154**:S21-S27.
333. Adcock IM, Stevens DA, Barnes PJ. Interaction of glucocorticoids and  $\beta_2$ -agonists. *Eur Respir J* 1996; **9**:160-168.
334. Barnes PJ. Sensory neuropeptides and airway diseases. In: *Neurogenic inflammation*. Geppetti P, Holzer P, eds. Boca Raton: CRC Press 1996; pp169-186.
335. Barnes PJ. Transcription factors and asthma. In: *From genetics to quality of life. The optimal treatment and management of asthma*. Chanez P, Bousquet J, Michel F-B, Goddard P, eds. Seattle: Hogefe & Huber 1996; 175-179.
336. Barnes PJ, Jonsson B, Klim J. The costs of asthma. *Eur Respir J* 1996; **9**:636-642.
337. Barnes PJ. Asthma therapy with aerosols: clinical relevance for the next decade. *J Aerosol Sci* 1996; **9**:131-141.
338. Barnes PJ. Role of neural mechanisms in airway defence. In: *Environmental impact on the Airways*. Chretien J, Dusser D, eds. New York: Marcel Dekker 1996; 93-121.
339. Barnes PJ. Anti-leukotrienes: will they be useful? *Asthma Journal* 1996; **1**:14-17.
340. Barnes PJ. Transcription factors and inflammatory disease. *Hosp Practice* 1996; **31**:93-106.
341. Barnes PJ. Pathophysiology of asthma. *Br J Clin Pharmacol* 1996; **42**:3-10.
342. Barnes PJ. Neurogenic inflammation. In: *Pulmonary and Critical Care Pharmacology*. Leff AR, ed. New York: McGraw Hill 1996: 599-608.
343. Barnes PJ. New drugs for asthma. *Clin Exp Allergy* 1996; **26**:738-745.
344. Barnes PJ. Inhaled glucocorticoids: new developments relevant to updating the Asthma Management Guidelines. *Resp Med* 1996; **90**:379-384.
345. Barnes PJ. Immunomodulators as asthma therapy: where do we stand? *Eur Respir J* 1996; **9**(suppl22):154S-159S.
346. Barnes PJ. The role of theophylline in severe asthma. *Eur Respir Rev* 1996; **6**(rev 34):88-92.
347. Barnes PJ. Ragweed immunotherapy in adult asthma (letter). *N Engl J Med* 1996; **335**:205-206.
348. Barnes PJ. Ion channels and airway disease. In: *Immunopharmacology of allergic disease*. Townley RG, Agrawal DK, eds. New York: Marcel Dekker 1996; 561-574.
349. Barnes PJ. Inhaled glucocorticoids in asthma. Current understanding and future directions. In: *Inhaled glucocorticoids in asthma*. Schleimer RP, Busse WW, O'Byrne PM, eds. New York: Marcel Dekker 1996; 651-685.
350. Barnes PJ, Adcock IM. Glucocorticoid receptors. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, Barnes PJ, eds. Philadelphia: Lippincott Raven 1996; 37-56.
351. Adcock IM, Barnes PJ. Transcription factors. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, Barnes PJ, eds. Philadelphia: Lippincott Raven 1996; 255-276.
352. Barnes PJ. Receptor analysis. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel

- ER, **Barnes PJ**, eds. Philadelphia: Lippincott Raven 1996; 435-444.
353. **Barnes PJ**. Neural control of airway smooth muscle. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, **Barnes PJ**, eds. Philadelphia: Lippincott Raven 1996; 1269-1286.
354. **Barnes PJ**. Effects of histamine on airway function. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, **Barnes PJ**, eds. Philadelphia: Lippincott Raven 1996; 1297-1306.
355. Kotlikoff MI, **Barnes PJ**. Pharmacology of airway smooth muscle. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, **Barnes PJ**, eds. Philadelphia: Lippincott Raven 1996; 1345-1354.
356. Liu SF, **Barnes PJ**. Neural regulation of pulmonary vascular tone. In: *The Lung: Scientific Foundations (2<sup>nd</sup> edn)*. Crystal RG, West JB, Weibel ER, **Barnes PJ**, eds. Philadelphia: Lippincott Raven 1996; 1457-1472.
357. **Barnes PJ**. The politics of health economics. *Eur Respir Rev* 1996; **5**:218-291.
358. **Barnes PJ**. Neuromodulation in airways. In: *Autonomic Control of the Respiratory System*. **Barnes PJ**, ed. London: Harwood 1997; pp139-184.
359. Rogers DF, **Barnes PJ**. Neural control of airway vasculature. In: *Autonomic Control of the Respiratory System*. **Barnes PJ**, ed. London: Harwood 1997; pp229-248.
360. Kharitonov SA, **Barnes PJ**. Exhaled nitric oxide: a marker of airway inflammation? *Curr Opin Anaesth* 1996; **9**:542-548.
361. **Barnes PJ**. Is there a role for immunotherapy in the treatment of asthma? No. *Am J Respir Crit Care Med* 1996; **154**:1227-1228.
362. **Barnes PJ**. Neuropeptides in allergy. In: *New trends in Allergy IV*. Ring J, Behrendt H, Vieluf D, eds. Berlin: Springer 1996; 183-188.
363. **Barnes PJ**. Neuroeffector mechanisms: the interface between inflammation and neural responses. *J Allergy Clin Immunol* 1996; **98**:S73-S81.
364. **Barnes PJ**. New developments in anticholinergic drugs. *Eur Respir Rev* 1996; **6**:29—294.
365. Laloo UG, **Barnes PJ**, Chung KF. Pathophysiology and clinical presentation of cough. *J Allergy Clin Immunol* 1996; **98**:S91-S96.
366. Kharitonov SA, **Barnes PJ**. Nitric oxide in exhaled air is a new marker of airway inflammation. *Monaldi Chest Dis* 1996; **51**:533-537.

## 1997

367. **Barnes PJ**, Adcock IM. NF-κB: a pivotal role in asthma and a new drug target for therapy. *Trends Pharmacol Sci* 1997; **18**:46-50.
368. **Barnes PJ**, Haddad E-B, Rousell JA. Regulation of muscarinic M<sub>2</sub>-receptors. *Life Sci* 1997; **60**:1015-1021.
369. **Barnes PJ**. Current therapies for asthma: promise and limitations. *Chest* 1997; **111**:17S-26S.
370. Kharitonov SA, Alving K, **Barnes PJ**. Exhaled and nasal nitric oxide measurements. Recommendations. *Eur Respir J* 1997; **10**:1683-1693.
371. **Barnes PJ**. Air pollution and asthma. *Biol Sci* 1997; **9**:32-36.
372. **Barnes PJ**. Anti-leukotrienes: will they be useful? *Update* 1997; **54**:402-407.
373. Woolcock AJ, **Barnes PJ**. Overview. In: *Asthma*. **Barnes PJ**, Grunstein MM, Leff A, Woolcock AJ, eds. Philadelphia. Lippincott-Raven 1997; pp3-7.

374. Barnes PJ, Grunstein MM. Receptor mechanisms. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997;pp281-298.
375. Adcock IM, Barnes PJ. Transcription factors. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997; pp337-352.
376. Barnes PJ. Bradykinin. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997; pp577-584.
377. Barnes PJ, Belvisi MG. Sensory neuropeptides. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997; pp1051-1064.
378. Barnes PJ. Drug-induced asthma. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997; pp1245-1252.
379. Barnes PJ, Woolcock AJ. Difficult asthma. In: *Asthma*. Barnes PJ, Grunstein MM, Leff A, Woolcock AJ, eds Philadelphia. Lippincott-Raven 1997; pp2089-2098.
380. Barnes PJ. Bradykinin and asthma. *ACI International* 1997; **9**:47-50.
381. Barnes PJ. Glucocorticoids. In: *Allergy and Allergic Diseases*. Kay AB, ed. Oxford: Blackwell Science 1997; pp619-641.
382. Barnes PJ. Treatment of chronic asthma in adults. In: *Allergy and Allergic Diseases*. Kay AB, ed. Oxford: Blackwell Science 1997; pp1429-1439.
383. Mak JCW, Barnes PJ. *In situ* hybridization. In: *Receptor Signal Transduction Protocols*. Challis RJ, ed. Totowa: Humana Press 1997;pp81-90.
384. Barnes PJ. Exhaled nitric oxide and respiratory disease. *Respiratory Care Matters* 1997; **2**:14-15.
385. Barnes PJ. Effect of beta-agonists on airway effector cells. In: *Beta<sub>2</sub>-agonists in Asthma Treatment*. Pauwels R, O'Byrne PM, eds. New York: Marcel Dekker 1997; pp35-64
386. Keatings VM, Barnes PJ. Comparison of inflammatory cytokines in chronic obstructive pulmonary disease, asthma and controls. *Eur Respir Rev* 1997; **7 (43)**:146-150.
387. Barnes PJ, Kharitonov S. Lung function: exhaled NO in asthma. *Resp Dis Practice* 1997; **14**:20-23.
388. Barnes PJ. Steroid resistance: possible mechanisms. *Asthma J* 1997; **2**:95-98.
389. Barnes PJ. Assessment and management of asthma in the future. *Eur Respir Rev* 1997; **7**(vol 50):369-373.
390. Mak JCW, Barnes PJ. *In situ* hybridization. *Methods Mol Biol* 1997; **83**:81-89.
391. Barnes PJ. Nuclear factor-κB. *Int J Biochem Cell Biol* 1997; **29**:867-870.
392. Barnes PJ, Kharitonov SA. Exhaled nitric oxide in monitoring asthma. *Drugs Today* 1997; **33**:715-727.
393. Barnes PJ. Neural mechanisms in asthma. New Developments. *Pediatr Pulmonol* 1997; **16**:82-83.

## 1998

394. Barnes PJ, Adcock IM. Transcription factors and asthma. *Eur Respir J* 1998; **12**:221-234.
395. Ayres JG, Miles JF, Barnes PJ. Brittle asthma. *Thorax* 1998; **53**:315-321.
396. Barnes PJ, Chung KF, Page CP. Inflammatory mediators of asthma: an update. *Pharmacol Rev* 1998; **50**:515-596.

397. Efthimou J, Barnes PJ. Effect of inhaled corticosteroids on bones and growth. *Eur Respir J* 1998; **11**:1167-1177.
398. Barnes PJ, Pedersen S, Busse WW. Efficacy and safety of inhaled corticosteroids: an update. *Am J Respir Crit Care Med* 1998; **157**:S1-S53.
399. Barnes PJ. New therapies for chronic obstructive pulmonary disease. *Thorax* 1998; **53**:137-147.
400. Barnes PJ. Should antiinflammatory agents be used earlier in asthma? *J Respir Dis* 1998; **19** (Suppl 13):S28-S34.
401. Barnes PJ, Belvisi MG, Newton R, Mitchell JA. Cyclooxygenase-2 expression in airway cells. In: *Eicosanoids, aspirin and asthma*. Szczeklik A, Gryglewski RJ, Vane JR, eds. New York: Marcel Dekker 1998: pp111-127.
402. Barnes PJ. Antiinflammatory actions of glucocorticoids: molecular mechanisms. *Clin Sci* 1998; **94**:557-572.
403. Chung KF, Barnes PJ. Other mediators of asthma. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp343-368.
404. Barnes PJ. Nitric oxide. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp369-388.
405. Barnes PJ. Neural control of airway function. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp409-422.
406. Barnes PJ. NANC nerves and neuropeptides. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp44423-458.
407. Newton R, Barnes PJ, Adcock IM. Transcription factors. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp459-474.
408. Barnes PJ. Pathophysiology of asthma. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp487-506.
409. Barnes PJ, Thomson NC. Drug-induced asthma. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp597-606.
410. Barnes PJ. Theophylline. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp689-706.
411. Barnes PJ, Chung KF. Mediator antagonists. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp767-782.
412. Barnes PJ, Rodger IW, Thomson NC. Future therapies for asthma. In: Barnes PJ, Rodger IW, Thomson NC, eds. *Asthma: basic mechanisms and clinical management (3rd edition)*. London: Academic Press 1998; pp795-820.
413. Barnes PJ. Steroid resistance and fatal asthma. In: *Fatal asthma*. Sheffer AL, ed. New York: Marcel Dekker 1998; 275-306.
414. Hansel TJ, Leckie MJ, Khan J, Barnes PJ. Clinical studies in asthma. *Good Clin Practice J* 1998; **5**:31-35.
415. Adcock IM, Barnes PJ. Transcription factors in asthma. In: *Asthma and allergic disease. Physiology, immunopharmacology and treatment*. Marone G et al, eds. San Diego: Academic Press 1998; pp 25-46.
416. Barnes PJ. Anti-leukotrienes: a new treatment for asthma. *Practitioner* 1998; **242**:395-399.
417. Barnes PJ, Lim S. Inhibitory cytokines in asthma. *Mol Med Today* 1998; **4**:452-458.
418. Barnes PJ. Current issues for establishing inhaled corticosteroids as the antiinflammatory agents of

- choice in asthma. *J.Allergy Clin.Immunol.* 1998; **101**:S427-33.
419. **Barnes PJ.** Chronic obstructive pulmonary disease: new opportunities for drug development. *Trends Pharmacol Sci* 1998; **19**:415-423.
420. **Barnes PJ.** Pathophysiology of allergic inflammation. In: Allergy Principles and Practice. 5<sup>th</sup> Edn. Middleton E et al, eds. 1998; pp356-365.
421. **Barnes PJ.** Muscarinic receptor subtypes in airways. *Res Immunol* 1998; **149**:201-202.
422. **Barnes PJ.** The mode of action of corticosteroids in asthma. *Res Immunol* 1998; **149**:225-226.
423. **Barnes PJ.** Airway neuropeptides and their role in inflammation. In: *Inflammatory mechanisms in asthma*. Holgate ST, Busse WW, eds. New York: Marcel Dekker 1998; pp 537-570.
424. **Barnes PJ.** Effect of  $\beta_2$ -agonists and steroids on  $\beta_2$ -adrenoceptors. *Eur Respir Rev* 1998; **8**:210-215.
425. **Barnes PJ.** Current issues for establishing inhaled corticosteroids as the antiinflammatory agents of choice in asthma. *J Allergy Clin Immunol* 1998; **101**:S427-S433.
426. **Barnes PJ**, Woolcock AJ. Difficult asthma. *Eur Respir J* 1998; **12**:1209-1218.
427. **Barnes PJ.** Neurogenic inflammation in allergic disease. In: *Allergy and Allergic Diseases*. Denburg JA, ed. Totowa: Humana Press 1998; pp175-194.
428. **Barnes PJ.** Antiinflammatory therapy for asthma. In: *Horizons in Medicine. Number 9*. Savill J , ed. London: Royal College of Physicians 1998; pp 257-268.
429. **Barnes PJ.** Pharmacology of airway smooth muscle. *Am J Respir Crit Care Med* 1998; **158**:S123-S132.
430. **Barnes PJ**, Mak JCW.  $\beta$ -Adrenoceptors. In: *Molecular biology of the lung*. Stockley RA, ed. Birkhauser: Basel 1998; pp101-124.
431. **Barnes PJ**, Adcock IM. Transcription factors in inflammatory lung disease. In: *Molecular biology of the lung*. Stockley RA, ed. Birkhauser: Basel 1998; pp 41-70.
432. **Barnes PJ.** Asthma therapy: prospects for the millenium. *Asthma J* 1998; **3**:158-161.
433. **Barnes PJ.** New developments in anticholinergic drugs. *Respiratory Care Matters* 1998; **3**:14-15.
434. **Barnes PJ.** Efficacy of inhaled corticosteroids in asthma. *J.Allergy Clin.Immunol.* 1998; **102**:531-538.
435. van Schayck CP, van Herwaarden CLA, **Barnes PJ**, Jones K, Rottens JA, Postma D, van Weel C, Wouters EM, Vemen P. Recommendations based on guidelines in the management of mild to moderately severe chronic obstructive pulmonary disease: some practical applications in primary care. *Asthma in Gen Pract* 1998; **1**:35-39.

## 1999

436. **Barnes PJ.** Molecular genetics of chronic obstructive pulmonary disease. *Thorax* 1999; **54**:245-252.
437. **Barnes PJ.** Future therapies for asthma. In: *Key advances in the effective management of asthma*. Scadding G, O'Connor B, eds. Roy Soc Med Press: London 1999; pp 59-61.
438. Barnes, P.J. Effect of beta agonists on inflammatory cells. *J Allergy Clin Immunol* 1999; **104**:10-17.
439. **Barnes PJ.** Neurogenic inflammation in allergic disease. In: *Allergy and allergic diseases*. Totowa: Humana Press. 1999; pp 175-194
440. **Barnes PJ.** Corticosteroids. In: *Anti-inflammatory drugs in asthma*. Sampson AP, Church MK, eds: Basel: Birkhauser-Verlag 1999; pp35-85.

441. **Barnes PJ.** Strategies for novel COPD therapies. *Pulm.Pharmacol.Ther.* 1999;12:67-71.
442. **Barnes PJ.**  $\beta$ -Agonists, anticholinergics and other non-steroid drugs. In: *Comprehensive Respiratory Medicine*. Albeert K, Spiro S, Jett J, eds. Mosby: London 1999; 34.1-34.10
443. **Barnes PJ.** Novel approaches and targets for treatment of chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 1999; **160**:S72-S79.
444. Rogers DF, **Barnes PJ.** COPD: new developments and therapeutic opportunities. *Trends.Pharmacol.Sci.* 1999; **20**:352-354.
445. **Barnes PJ.** Drugs for airway diseases. *Medicine* 1999;27:37-45.
446. **Barnes PJ.** Autonomic control of the airways. In: *Autonomic Failure. 4<sup>th</sup> Edition*. Matthias CJ, Bannister R, eds. Oxford: Oxford University Press 1999; pp106-116
447. Chung KF, **Barnes PJ.** Cytokines in asthma. *Thorax* 1999; **54**:825-857.
448. Chung KF, Godard P, Adelroth E, Ayres J, Barnes N, Barnes P et al. Difficult/therapy-resistant asthma: the need for an integrated approach to define clinical phenotypes, evaluate risk factors, understand pathophysiology and find novel therapies. ERS Task Force on Difficult/Therapy-Resistant Asthma. European Respiratory Society. *Eur.Respir.J.* 1999; **13**:1198-1208.
449. **Barnes PJ**, Kharitonov SA. Nitric oxide in exhaled air: release in inflammatory lung diseases. In: *Nitric oxide in pulmonary processes*. Belvisi MG, Mitchell JA, eds. Basel: Birkhauser Verlag 1999; pp167-184.
450. **Barnes PJ.** New targets for future asthma therapy. In: *New and exploratory therapeutic agents in asthma*. Yeadon M, Diamant Z, eds. New York: Marcel Dekker 1999; pp361-390.
451. **Barnes PJ.** The effect of drugs on exhaled nitric oxide. *Eur Respir Rev* 1999; **9** (68): 231-234.

## 2000

452. **Barnes PJ.** Mechanisms of COPD: differences from asthma. *Chest* 2000; **117**:10S-14S.
453. **Barnes PJ.** Steroid-resistant asthma. *Eur Respir Rev* 2000; **10** (69):74-78.
454. **Barnes PJ.** The pharmacological properties of tiotropium. *Chest* 2000; **117**:63S-66S.
455. **Barnes PJ.** Endogenous inhibitory mechanisms in asthma. *Am J Respir Crit Care Med* 2000; **161**:S176-S181
456. **Barnes PJ.** New treatments for asthma. *Eur J Int Med* 2000; **11**:9-20.
457. Kharitonov SA, **Barnes PJ.** Breath measurements in the measurement and assessment of airway inflammation: a sensitive, non-invasive way to monitor treatment response. *Asthma J* 2000; **5**:12-16.
458. **Barnes PJ.** Inhaled corticosteroids are not helpful in chronic obstructive pulmonary disease. *Am J Resp Crit Care Med* 2000; **161**:342-344.
459. **Barnes PJ.** Neuropeptides and asthma. *Allergy Clin Immunol Internat* 2000; **12**:54-60.
460. **Barnes PJ.** Differences between COPD and asthma. *Pract Issues in Asthma Man* 2000; **13**: 4-8.
461. Stirling R, **Barnes PJ.** Respiratory medicine. In: *The GP Guide to Secondary Care Investigations*. Hopcroft K, ed. Oxford: Radcliffe Medical Press 2000; pp161-170.
462. **Barnes PJ.** Steroid-resistant asthma. *Eur Respir Rev* 2000; **10**:74-78.
463. **Barnes PJ.** Reactive oxygen species in asthma. *Eur Respir Rev* 2000; **10**:240-243.

464. **Barnes PJ.** General pharmacologic principles. In: *Respiratory Medicine*, eds Murray JF & Nadel JA. Philadelphia: WB Saunders (3<sup>rd</sup> edition) 2000; pp 231-266.
465. **Barnes PJ.** Airway pharmacology. In: *Respiratory Medicine*, eds Murray JF & Nadel JA. Philadelphia: WB Saunders (3<sup>rd</sup> edition) 2000; pp 267-296.
466. **Barnes PJ.** New directions in allergic diseases: Mechanism-based anti-inflammatory therapies. *J Allergy Clin Immunol*. 2000; **106**:5-16.
467. Belvisi MG, **Barnes PJ.** Neurogenic nitric oxide in the respiratory tract. In: *Nitric oxide and the peripheral nervous system*. Toda N, Moncada S, Furchtgott R, Higgs EA, eds. London: Portland Press 2000; pp99-114.
468. **Barnes PJ.** Pathology of asthma. In: *Understanding asthma*. Slutsky A, ed. Quebec: Advanced Care Management 2000; pp17-28.
469. **Barnes PJ.** Molecular basis for corticosteroid action in asthma. In: *Immunological mechanisms in asthma and allergic diseases*. Robinson DS, ed. Basel: Karger 2000; pp72-80.
470. **Barnes PJ.** Steroid usage in the treatment of COPD. *Resp Dis Pract* 2000; **71**: 15-17.
471. **Barnes PJ.** COPD: therapeutic prospects for future management. *Future Prescriber* 2000; **1**:6-9.
472. **Barnes PJ.** Corticosteroids: mode of action and place in management. In *Asthma* (4<sup>th</sup> Edition). Clark TJH, Godfrey S, Lee TH, Thomson NC, eds. London: Arnold 2000; pp304-328.
473. Hansel TT, Leckie MJ, Bryan SA, **Barnes PJ.** Novel therapy for asthma. *Expert Opin Investig Drugs* 2000; **9**:25-42.
474. Hansel TT, Bryan SA, Leckie MJ, **Barnes PJ.** Novel therapy for COPD. *Expert Opin Investig Drugs* 2000; **9**:3-23.
475. Kharitonov SA, **Barnes PJ.** Clinical aspects of exhaled nitric oxide. *Eur Respir J* 2000; **16**:781-792.
476. **Barnes PJ.** Anti-IgE therapy in asthma: rationale and therapeutic potential. *Int Arch Allergy Immunol* 2000; **123**:196-204.
477. **Barnes PJ.** Corticosteroids. In: *Manual of Asthma Management*. O'Byrne PM, Thomson NC, eds. London: Saunders 2000; pp173-196.
478. **Barnes PJ.** Potential novel therapies for chronic obstructive pulmonary disease. *Novartis Found Symp* 2000; **234**:255-267.
479. **Barnes PJ.** Nonantimicrobial aspects of therapy. *Semin.Respir Infect*. 2000; **15**:52-58.,

## 2001

480. **Barnes PJ.** Neurogenic inflammation in the airways. *Respir Physiol* 2001; **125**:145-154.
481. **Barnes PJ.** Tiotropium bromide. *Expert.Opin.Investig.Drugs* 2001; **10** :733-740.
482. **Barnes PJ.** Advancing on asthma. *Pathways* 2001; **2**: 5-9.
483. **Barnes PJ.** Gene regulation of muscarinic receptor subtypes. In: *Muscarinic receptors and airway disease*. Zaagsma J, Meurs H, Roffel AF, eds. Basel: Birkhauser 2001; pp159-174.
484. **Barnes PJ.** New treatments for COPD. *Curr Opin Pharmacol* 2001; **1**:217-222.
485. Paredi P, Kharitonov SA, **Barnes PJ.** Direct methods for the measurement of nitric oxide. *Monaldi Arch.Chest Dis.* 2001; **56**:88-90.

486. Barnes PJ. The pathogenesis and treatment of asthma as an inflammatory disease. In: *Frontiers in Biomedicine*. Goldstein AL, ed. Kluwer Academic: New York 2001; pp221-236.
487. Barnes PJ. Modern management of COPD in the elderly. *Ann Longterm Care* 2001; **9**:51-56.
488. Kharitonov SA, Barnes PJ. Exhaled markers of inflammation. *Curr Opin Allergy Clin Immunol* 2001; **1**:217-224.
489. Barnes PJ. Molecular mechanisms of corticosteroids in allergic diseases. *Allergy* 2001; **56**:1-9.
490. Barnes PJ. IL-10: a key regulator of allergic disease. *Clin Exp Allergy* 2001; **31**:667-669.
491. Barnes PJ. Cytokine-directed therapies for asthma. *J Allergy Clin Immunol*. 2001; **108**:S72-S76.
492. Barnes PJ. Inflammatory mediators and neural mechanisms in severe asthma. In: *Severe Asthma: Pathogenesis and Clinical Management*. Szefler SJ, Leung DYM, eds. New York: Marcel Dekker 2001; pp67-81.
493. Horvath I, Macnee W, Kelly FJ, Dekhuijzen PN, Phillips M, Doring G, Choi AM, Yamaya M, Bach FH, Willis D, Donnelly LE, Chung KF, Barnes PJ. Haemoxxygenase-1 induction and exhaled markers of oxidative stress in lung diseases: summary of the ERS Research Seminar in Budapest, Hungary, September, 1999. *Eur Respir J* 2001; **18**:420-430.
494. Barnes PJ. Clinical outcome of adding long-acting beta-agonists to inhaled corticosteroids. *Respir Med* 2001; **95** Suppl B:S12-S16.
495. Kharitonov SA, Barnes PJ. Does exhaled nitric oxide reflect asthma control? Yes, it does! *Am J Respir Crit Care Med* 2001; **164**:727-728.
496. Barnes PJ. Molecular mechanisms of corticosteroids in allergic diseases. *Allergy* 2001; **56**:928-936.
497. Barnes PJ. Histamine and serotonin. *Pulm Pharmacol Ther*. 2001; **14**:329-339.
498. Barnes PJ. Future Advances in COPD Therapy. *Respiration* 2001; **68**:441-448.
499. Barnes PJ. Cytokine modulators in allergic diseases.. *Curr Opin Allergy Clin Immunol* 2001; **1**:555-560.
500. Kharitonov SA, Barnes PJ. Does exhaled nitric oxide reflect asthma control? Yes, it does! *Am J Respir Crit Care Med* 2001; **164**:727-728.
501. Barnes PJ. Molecular mechanisms of atopy. *Mediators.Inflamm.* 2001; **10**:285-288.
502. Barnes PJ. Cytokine modulators as novel therapies for airway disease. *Eur Respir J Suppl* 2001; **34**:67s-77s.

## 2002

503. Barnes PJ. What are the mechanisms of corticosteroids resistance in asthma? In: *Asthma: Critical Debates*. Johnson SL, Holgate ST, eds. Oxford: Blackwell 2002; pp241-254.
504. Barnes PJ. Are mast cells still important in asthma? *Rev Fr Allergol Immunol Clin* 2002; **42**:20-27.
505. Barnes PJ. The role of inflammation and anti-inflammatory medication in asthma. *Respir Med* 2002; **96** Suppl A:S9-15.
506. Hansel TT, Barnes PJ. Novel drugs for treating asthma. *Curr Allergy Asthma Rep*. 2001; **1**:164-173.
507. Hansel TT, Erin EM, Barnes PJ. The allergen challenge. *Clin Exp Allergy* 2002; **32**:162-167.
508. Barnes PJ. Other mediators of airway disease. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 291-306.

509. Barnes PJ, Thomson NC. Neural and humoral control. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 323-340.
510. Barnes PJ, Drazen JM. Pathophysiology of asthma. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 343-359.
511. Rennard S, Barnes PJ. Pathogenesis of COPD. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 361-379.
512. Barnes PJ. Theophylline. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 535-545.
513. Barnes PJ. Corticosteroids. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 547-564.
514. Chung KF, Barnes PJ. Mediator antagonists. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 565-571.
515. Barnes PJ. Future therapies. In: Barnes PJ, Drazen J, Rennard S, Thomson N, eds. *Asthma and COPD*. London: Academic Press 2002; pp 641-656.
516. Erin EM, Barnes PJ, Hansel TT. Optimizing sputum methodology. *Clin Exp Allergy* 2002; **32**:653-657.
517. Barnes PJ. New Treatments for COPD. In: Similowski T, Whitelaw WA, Derenne J-P, eds. *Clinical Management of Chronic Obstructive Pulmonary Disease*. New York: Marcel Dekker 2002; pp943-963.
518. Montuschi P, Barnes PJ. Analysis of exhaled breath condensate for monitoring airway inflammation. *Trends Pharmacol Sci*. 2002; **23**:232-237.
519. Barnes PJ. Effectiveness and safety of combination therapy with inhaled corticosteroids in bronchial asthma. *Int Rev Asthma* 2002; **4**:9-27.
520. Kharitonov SA, Barnes PJ. Biomarkers of some pulmonary diseases in exhaled breath. *Biomarkers* 2002; **7**:1-32.
521. Barnes PJ. Future therapies for asthma. In: *Biotherapeutic Approaches to Asthma*. Agosti JM, Sheffer AL, eds. New York: Marcel Dekker 2002; pp352-382.
522. Barnes PJ. Glucocorticoids and asthma. *Ernst.Schering.Res Found.Workshop* 2002; **40**:1-23.
523. Hansel TT, Barnes PJ. Tiotropium bromide: a novel once-daily anticholinergic bronchodilator for the treatment of COPD. *Drugs Today* 2002; **38**:585-600.
524. Barnes PJ. Asthma. In: *Pulmonary Biology in Health and Disease*. Bittar EE, ed. New York: Springer 2002; pp364-380.
525. Barnes PJ. Autonomic control of the airways. In: Handbook of the Autonomic Nervous System in Health and Disease. Bolis CL, Licionio J, Govoni S, eds. New York: Marcel Dekker 2002; pp439-462.
526. Paredi P, Kharitonov SA, Barnes PJ. Analysis of expired air for oxidation products. *Am J Respir Crit Care Med* 2002; **166**:S31-S37.
527. Barnes PJ. Current and future therapies for airway mucus hypersecretion. *Novartis Found Symp* **248**: 237-249.
528. Barnes PJ. Biology of asthma. In: *Disease markers in exhaled breath*. Marcin N, Yacoub MH, eds. Amsterdam: IOS press 2002; 133-142.

## 2003

529. Barnes PJ. Therapy of chronic obstructive pulmonary disease. *Pharmacol Ther* 2003; 97:87-94.

530. **Barnes PJ.** Theophylline. In: *Current Review of Asthma*. Kaliner MA, ed. Philadelphia: Current Medicine Inc 2003; 173-184.
531. Kharitonov SA, **Barnes PJ.** Nitric oxide, nitrotyrosine, and nitric oxide modulators in asthma and chronic obstructive pulmonary disease. *Curr Allergy Asthma Rep.* 2003; **3**:121-129.
532. **Barnes PJ.** Pathophysiology of asthma. *Eur Respir Mon* 2003; **8**:84-113.
533. Kips JC, Kharitonov SA, **Barnes PJ.** Noninvasive assessment of airway inflammation in asthma. *Eur Respir Mon* 2003; **8**:164-179.
534. **Barnes PJ.** Glucocorticosteroids. In: *Drugs for the treatment of respiratory diseases*. Spina D et al, eds. Cambridge: Cambridge University Press 2003: pp32-55.
535. **Barnes PJ.** Update on asthma. *Isr Med J* 2003; 5:68-72.
536. **Barnes PJ.** Immunomodulatory aspects of current asthma therapy. In: *The Immunological Basis of Asthma*. Lambrecht BN et al, eds. New York: Marcel Decker 2003; pp583-601.
537. **Barnes PJ.** What's next in the asthma pipeline over the next ten years? *Resp Dis Pract* 2003; **19**:8-10
538. **Barnes PJ.** Cytokine modulators as new treatments for allergic diseases. *CPD Bull Immunol Allergy* 2003; 3:3-7.
539. **Barnes PJ.** Monitoring of exhaled breath to assess airway inflammation in asthma. In: *Therapeutic Targets of Airway Inflammation*. Eissa NT, Huston DP, eds. New York: Marcel Decker 2003; pp81-92.
540. **Barnes PJ.** Anti-leukotrienes: here to stay? *Curr Opin Pharmacol* 2003;3:257-263.
541. Tenant RC, Erin EM, **Barnes PJ**, Hansel TT. Long-acting  $\beta_2$ -adrenoceptor agonists or tiotropium bromide for patients with COPD: is combination therapy justified? *Curr Opin Pharmacol* 2003; 3 :270-276.
542. **Barnes PJ.** What are the future treatments for COPD? In: *Chronic Obstructive Pulmonary Disease: Critical Debates*. Pearson M, Wedzicha W, eds. Oxford: Blackwell Science 2003; pp133-146.
543. **Barnes PJ.** New treatments for COPD. *Thorax* 2003; **58**:803-808.
544. **Barnes PJ.** Neurogenic inflammation in the airways. In: *Neuroimmune Biology*. Berczi I, Szentivanyi A, eds. Amsterdam: Elsevier. 2003; pp437-450.
545. **Barnes PJ.** Inflammation. In: *COPD*. 2<sup>nd</sup> Edition, Calveley PMA et al, eds. London: Arnold 2003; pp130-138.
546. **Barnes PJ.** Pathophysiology of asthma. In: *Baum's Textbook of Pulmonary Diseases*. 7<sup>th</sup> Edition, Crapo J et al, eds. Philadelphia: Lipincott, Williams and Wilkins. 2003; pp159-178.
547. Erin EM, Williams TJ, **Barnes PJ**, Hansel TT. Eotaxin receptor (CCR3) antagonism in asthma and allergic disease. *Curr Drug Targets.Inflamm.Allergy* 2002; **1**:201-214.
548. **Barnes PJ.** Cytokine-directed therapies for the treatment of chronic airway diseases. *Cytokine Growth Factor Rev* 2003; **14**:511-522.
549. **Barnes PJ.** Pathophysiology of allergic inflammation. In: *Middleton's Allergy: Principles and Practice*. 6<sup>th</sup> Edition. Adkinson NF et al, eds. 2003; pp483-500.
550. **Barnes PJ.** Theophylline and phosphodiesterase inhibitors. In: *Middleton's Allergy: Principles and Practice*. 6<sup>th</sup> Edition. Adkinson NF et al, eds. 2003; pp823-833.
551. **Barnes PJ** (ed). Improving asthma control: what are the treatment options? *Drugs* 2003 (suppl 2); pp1-56.

552. **Barnes PJ.** Future research on acute exacerbations of chronic obstructive pulmonary disease. In: *Acute Exacerbations of Chronic Obstructive Pulmonary Disease*. Siafakas N et al, eds. New York: Marcel Decker 2003; pp587-598.
553. **Barnes PJ.** What will asthma therapy look like in the 2015 guidelines? *Airways Journal* 2002; **1**:206-209.
554. **Barnes PJ.** Drugs for airway disease. *Medicine* 2003; **31**:44-51.
555. **Barnes PJ.** Oxidative stress in COPD. In: *Recent Advances in the Pathophysiology of COPD*. Hansel TT, **Barnes PJ**, eds. Basel: Birkhauser Verlag 2003; 61-74.
556. Kharitonov SA, **Barnes PJ.** Exhaled breath markers in COPD. In: *Recent Advances in the Pathophysiology of COPD*. Hansel TT, **Barnes PJ**, eds. Basel: Birkhauser Verlag 2003; 137-154.
557. Hansel TT, Tennant RC, Erin EM, Tan AJ, **Barnes PJ.** New drugs for COPD based on advances in pathophysiology. In: *Recent Advances in the Pathophysiology of COPD*. Hansel TT, **Barnes PJ**, eds. Basel: Birkhauser Verlag 2003; 189-226.
558. **Barnes PJ.** New treatments for chronic obstructive pulmonary disease. *Ann 1<sup>st</sup> Sper Sanita* 2003; **39**:573-582.
559. **Barnes PJ.** Inflammatory mechanisms in chronic obstructive pulmonary disease. *Science Med* 2003; **9**:252-263.

## 2004

560. **Barnes PJ.** Corticosteroids. In: *Pharmacology and Therapeutics of Asthma and COPD*. Page CP, **Barnes PJ**, eds. Berlin: Springer 2004; 79-124.
561. **Barnes PJ.** Cytokine modulators. In: *Pharmacology and Therapeutics of Asthma and COPD*. Page CP, **Barnes PJ**, eds. Berlin: Springer 2004; 219-243.
562. **Barnes PJ**, Erin EM, Hansel TT, Kharitonov SA, Tan AJ, Tennant RC. Evaluation of new drugs for asthma and COPD. In: *Pharmacology and Therapeutics of Asthma and COPD*. Page CP, **Barnes PJ**, eds. Berlin: Springer 2004; 303-348.
563. **Barnes PJ**, Page CP. Novel anti-inflammatory therapies. In: *Pharmacology and Therapeutics of Asthma and COPD*. Page CP, **Barnes PJ**, eds. Berlin: Springer 2004; 349-372.
564. **Barnes PJ.** Anticholinergics. In: *Pharmacotherapy in Chronic Obstructive Pulmonary Disease*. Celli B, ed. New York: Marcel Dekker 2004; 201-215.
565. Hansel TT, Tennant RC, Tan AJ, Higgins LA, Neighbour H, Erin EM, **Barnes PJ.** Theophylline: mechanism of action and use in asthma and chronic obstructive pulmonary disease. *Drugs Today* 2004; **40**:55-69.
566. **Barnes PJ.** COPD: is there light at the end of the tunnel? *Curr.Opin.Pharmacol.* 2004; **4**:263-272.
567. **Barnes PJ.** Asthma management: can we further improve compliance and outcomes? *Respir Med* **98** Suppl A: 2004: S8-S9.
568. **Barnes PJ.** Asthma guidelines: recommendations versus reality. *Respir Med* 2004; **98** Suppl A:S1-S.
569. **Barnes PJ.** Macrophages as orchestrators of COPD. *J COPD* 2004; **1**:59-70.
570. **Barnes PJ.** Autonomic control of airways. In: *Primer on the Autonomic Nervous System. 2<sup>nd</sup> Edn.* Robertson D, ed. Amsterdam: Elsevier 2004; pp130-133
571. **Barnes PJ.** Beta-agonists, anticholinergics and other non-steroidal drugs. In: *Clinical Respiratory Medicine. 2<sup>nd</sup> edition*. Albert RK et al. Philadelphia: Mosby Inc 2004; pp397-406.
572. Ichinose M, **Barnes PJ.** Cytokine-directed therapy in asthma. *Curr.Drug Targets.Inflamm.Allergy* 2004; **3**:263-269.

573. Bowler RP, **Barnes PJ**, Crapo JD. The role of oxidative stress in chronic obstructive pulmonary disease. *J COPD* 2004; **2**:255-277.
574. **Barnes PJ**. New therapies for COPD. In: *Long-term Intervention in Chronic Obstructive Pulmonary Disease*. Pauwels RA et al, eds. New York: Dekker 2004; pp479-502.
575. **Barnes PJ**. Decision making in asthma therapy--what is important in clinical practice? *Respir Med* 2004; **98** Suppl B:S1-S3.
576. **Barnes PJ**. The size of the problem of managing asthma. *Respir Med* 2004; **98** Suppl B:S4-S8.
577. **Barnes PJ**. Exhaled breath condensate: a new way of monitoring lung inflammation. In: *New Perspectives in Monitoring Lung Inflammation*. Montuschi P, ed. Boca Raton: CRC Press 2004; pp1-10.
578. **Barnes PJ**. Alveolar macrophages in chronic obstructive pulmonary disease. *Cell Mol Biol*. 2004; Suppl.50: OL627-OL637.
579. **Barnes PJ**. The role of anticholinergics in COPD. *Am J Med* 2004; **117** Suppl 12A:24S-32S.
580. Ichinose M, **Barnes PJ**. Cytokine-directed therapy in asthma. *Curr Drug Targets Inflamm Allergy* 2004; **3**:263-269.

## 2005

581. **Barnes PJ**. COPD: molecular and cellular mechanisms. In: *Therapeutic strategies in COPD*. Cazzola M et al, eds. Oxford: Clinical Publishing 2005; pp1-26.
582. **Barnes PJ**. Chronic obstructive pulmonary disease. In: *Bone's Atlas of Pulmonary Medicine 3<sup>rd</sup> edition*. Crapo JD, ed. Philadelphia: Current Medicine 2005; pp25-42.
583. **Barnes PJ**. General pharmacologic principles. In: *Textbook of Respiratory Medicine 4<sup>th</sup> Edition*, Mason RJ, Broaddus VC, Murray JF, Nadel JA, eds. Philadelphia: Elsevier 2005; pp197-234.
584. **Barnes PJ**. Airway pharmacology. In: *Textbook of Respiratory Medicine 4<sup>th</sup> Edition*, Mason RJ, Broaddus VC, Murray JF, Nadel JA, eds. Philadelphia: Elsevier 2005; pp235-279.
585. **Barnes PJ**. Why more research into molecular and cellular mechanisms of COPD is needed. In: *Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms*, **Barnes PJ**, ed. New York: Marcel Dekker 2005, pp1-16.
586. **Barnes PJ**. Macrophages. In: *Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms*, **Barnes PJ**, ed. New York: Marcel Dekker 2005, pp113-132.
587. **Barnes PJ**. Inflammatory mediators. In: *Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms*, **Barnes PJ**, ed. New York: Marcel Dekker 2005, pp253-278.
588. **Barnes PJ**. Therapeutic implications and future developments. In: *Chronic Obstructive Pulmonary Disease: Cellular and Molecular Mechanisms*, **Barnes PJ**, ed. New York: Marcel Dekker 2005, pp493-516.
589. **Barnes PJ**. Molecular mechanisms and cellular effects of glucocorticosteroids. *Immunol Allergy Clin North Am* 2005; **25**:451-468.
590. **Barnes PJ**. New approaches to COPD. *Eur Respir Rev* 2005; **14** (Review 94):2-12
591. **Barnes PJ**. How can we improve asthma management? *Curr Med Res Opin* 2005; **21** (suppl 4): S1-S4.
592. **Barnes PJ**. Achieving asthma control. *Curr Med Res Opin* 2005; **21** (suppl 4): S5-S10.
593. **Barnes PJ**. Theophylline in chronic obstructive pulmonary disease: new horizons. *Proc Am Thorac Soc* 2005; **2**:334-339.

- 594. Barnes PJ. How should clinical practice guidelines be implemented? *Rev Pneumol.Clin* 2005; 61:29-30.
- 595. Barnes PJ. How can we improve asthma management? *Curr.Med Res.Opin.* 2005; **21 suppl. 4**:1-4.
- 596. Barnes PJ. Achieving asthma control. *Curr.Med Res.Opin.* 2005; **21 suppl. 4**:5-10.
- 597. Barnes PJ. Drugs for the treatment of asthma and COPD. In: *Principles of Immunopharmacology (2<sup>nd</sup> edition)*. Nijkamp FP, Parnham MJ, eds. Basel: Birkhauser 2005; pp281-344.
- 598. Barnes PJ. Emerging targets for COPD therapy. *Curr.Drug Targets.Inflamm.Allergy* 2005; **4**:675-683.

## 2006

- 599. Barnes PJ. Potential applications of new drugs in the management of childhood asthma. In: *Childhood asthma*. Szeffler SJ, Pedersen S, eds. New York: Taylor & Francis 2006; pp 605-650.
- 600. Barnes PJ. Interleukin-10 in allergic disease. In: *Interleukin-10*. Marincola FM, ed. Lands Bioscience, Georgetown USA 2006; pp125-134.
- 601. Crompton GK, Barnes PJ, Broeders M, Corrigan C, Corbetta L, Dekhuijzen R, Dubus JC, Magnan A, Massone F, Sanchis J, Viejo LJ, Voshaar T. The need to improve inhalation technique in Europe: A report from the Aerosol Drug Management Improvement Team. *Respir Med*, 2006;
- 602. Barnes PJ. Biology and assessment of airway inflammation. In: Kendig's Disorders of the Respiratory Tract in Children. 7<sup>th</sup> Edition. Chernick V, Boat TF, Wilmott RW, Bush A, eds. Elsevier: New York 2006; pp65-74.
- 603. Barnes PJ. Beclometasone dipropionate/formoterol in an HFA-propelled pressurised metered-dose inhaler. *Drugs* 2006; **66**:1484-1485.
- 604. Montuschi P, Mondino C, Koch P, Barnes PJ, Ciabattoni G. Effects of a leukotriene receptor antagonist on exhaled leukotriene E<sub>4</sub> and prostanoids in children with asthma. *J Allergy Clin.Immunol.* 2006; **118**:347-353.
- 605. Barnes PJ. Sensitive to modern life. *Nature* 2006; **442**:513.
- 606. Barnes PJ. ABC of chronic obstructive pulmonary disease: future treatments. *BMJ* 2006; **333**:246-248.
- 607. Barnes PJ. Theophylline for COPD. *Thorax*. 2006; 61:742-743.
- 608. Barnes PJ. Targeting inflammation in COPD. Phosphodiesterase inhibition as an anti-inflammatory approach. *J. COPD* 2006; **7**:11-15.
- 609. Barnes PJ. Future therapies for chronic obstructive pulmonary disease. *Zhonghua Yi.Xue.Za Zhi.* 2006; **86**:2884-2886.

## 2007

- 610. Barnes PJ. Chemokines in COPD. In: *Chronic obstructive pulmonary disease*. Stockley R et al, eds. Oxford, Blackwell 2007; pp 259-266.
- 611. Barnes PJ. Unexpected failure of anti-tumor necrosis factor therapy in chronic obstructive pulmonary disease. *Am J Respir Crit Care Med.* 2007; 175:866-867.

## 2008

- 612. Barnes PJ. Drugs for airways disease. *Medicine* 2008; **36**:181-191.
- 613. Barnes PJ. Asthma. In *Harrison's Principles of Internal Medicine*. 17<sup>th</sup> Edition, Fauci AS et al, eds. New York: McGraw Hill 2008; pp1596-1607.

614. **Barnes PJ.** Beta-agonists, anticholinergics and other non-steroidal drugs. In: *Clinical Respiratory Medicine*. 3<sup>rd</sup> edition. Albert RK et al. Philadelphia: Mosby Inc 2008; pp471-482.
615. **Barnes PJ.** Inflammation in COPD: what are the missing pieces? *Reviews Trends COPD* 2008; **2**:12-14.
616. **Barnes PJ.** Glucocorticoids for asthma: from genes to the clinic. In *The Hypothalamus-Pituitary-Adrenal Axis*. Del Rey A, Chrousos G, Besdovsky H eds. Amsterdam: Elsevier 2008; pp359-379.
617. **Barnes PJ.** Glucocorticosteroids. In *Allergy and Allergic Diseases*. 2<sup>nd</sup> Edition. Kay AB, Kaplan AP, Bousquet J, Holt PG, eds. Oxford: Wiley-Blackwell 2008; pp715-31.
618. **Barnes PJ.** Management of chronic asthma. In *Allergy and Allergic Diseases*. 2<sup>nd</sup> Edition. Kay AB, Kaplan AP, Bousquet J, Holt PG, eds. Oxford: Wiley-Blackwell 2008; pp1650-60.
619. Hansel TT, Erin E, Kon OM, **Barnes PJ.** New drugs for the treatment of allergy and asthma. In *Allergy and Allergic Diseases*. 2<sup>nd</sup> Edition. Kay AB, Kaplan AP, Bousquet J, Holt PG, eds. Oxford: Wiley-Blackwell 2008; pp1712-42.
620. **Barnes PJ.** Corticosteroids for asthma: from genes to the clinic. In: *The Hypothalamus-Pituitary-Adrenal Axis*. Del Ray A, Chrousos G, Besdovsky H, eds. Amsterdam: Elsevier 2008; pp359-382.
621. **Barnes PJ**, Thomson NC. Neural and humoral control of the airways. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp381-400.
622. **Barnes PJ**, Drazen JM. Pathophysiology of asthma. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp401-424.
623. **Barnes PJ**, Rennard SI. Pathophysiology of COPD. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp425-444.
624. **Barnes PJ**, Thomson NC. Drugs. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp515-524.
625. **Barnes PJ.** Theophylline. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp627-638.
626. Hansel TT, Tan AJ, **Barnes PJ**, Kon OM. **Barnes PJ.** Anticholinergic bronchodilators. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp615-626.
627. **Barnes PJ.** Corticosteroids. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp639-654.
628. Chung KF, **Barnes PJ.** Mediator antagonists. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp655-662.
629. **Barnes PJ.** Future therapies. In: *Asthma and COPD*. 2<sup>nd</sup> edition. **Barnes PJ**, Drazen J, Rennard S, Thomson N, eds. Amsterdam: Academic Press-Elsevier 2008; pp737-750.
630. **Barnes PJ.** Pathophysiology of allergic inflammation. In: *Allergy: principles and practice*, 7<sup>th</sup> Edition. Adkinson NF et al, eds. Elsevier 2008; pp455-471.
631. **Barnes PJ.** Theophylline and phosphodiesterase inhibitors. In: *Allergy: principles and practice*, 7<sup>th</sup> Edition. Adkinson NF et al, eds. Elsevier 2008; pp1505-1516.
632. **Barnes PJ.** Future developments in acute exacerbations of COPD. In: *COPD exacerbations*. Wedzicha JA, Martinez FJ, eds. New York, Informa Healthcare 2008; pp417-427.
633. **Barnes PJ.** Mechanisms in COPD compared to asthma. *Breathe* 2008; **5**:134-145.

**2009**

634. Barnes PJ. Pathophysiology of COPD. In: *Atlas of Chronic Obstructive Pulmonary Disease*. Crapo JD, ed. Philadelphia, Springer 2009; pp19-32.
635. Hansel TT, Tan AJ, Barnes PJ, KOnn OM. Bronchodilators fro COPD. In: *Atlas of Chronic Obstructive Pulmonary Disease*. Crapo JD, ed. Philadelphia, Springer 2009; pp91-114.
636. Barnes PJ. Asthma pharmacology. In: *Oxford Desk Reference: Respiratory Medicine*. Maskell N, Millar, A, eds. Oxford, Oxford University Press 2009; pp68-75.
637. Ford PA, Russell RE, Barnes PJ. ICS and COPD: Time to clear the air. *Int.J Chron.Obstruct.Pulmon.Dis.* 2009; **4**:289-290.
638. Barnes PJ. Principles of airway pharmacology and therapeutics. In: Chung KF, Barnes PJ, eds. *Pharmacology and therapeutivs of airway disease*. 2<sup>nd</sup> edition. New York: Informa Healthcare 2009; pp1-43.
639. Hansel TT, Tan AJ, Barnes PJ, Kon OM. Clinical trials in asthma and COPD: trial designs, clinical endpoints and biomarkers. In: Chung KF, Barnes PJ, eds. *Pharmacology and therapeutivs of airway disease*. 2<sup>nd</sup> edition. New York: Informa Healthcare 2009; pp44-99.
640. Rennard SI, Pease W, Barnes PJ. Management of stable COPD. In: Chung KF, Barnes PJ, eds. *Pharmacology and therapeutivs of airway disease*. 2<sup>nd</sup> edition. New York: Informa Healthcare 2009; pp343-372.
641. Barnes PJ. Signal transduction pathways involved in glucocorticoid actions. In: Sitaramayya A, ed. *Signal transduction: pathways mechanisms and diseases*. Berlin: Springer Verlag 2009; pp289-312.

## 2010

642. Barnes PJ. Reversing steroid resistance in inflammaty diseases: a new therapeutic strategy. In: Friedland JS, ed. *Horizons in Medicine* 21. London: Royal College of Physicians 2010; pp203-10.
643. Barnes PJ. Pharmacologic principles. In: *Murray and Nadel's Textbook of Respiratory Medicin,e* 5<sup>th</sup> Edn: Mason RJ et al, eds. New York, Elsevier 2010: pp159-199.
644. Usmani OS, Barnes PJ. The small airways: an important target in asthma and COPD treatment. *Resp Dis Pract* 21:1-4, 2010.
645. Barnes PJ. Future perspectives on exhaled biomarkers. In: *Exhaled biomarkers*. Horvath I, de Jongste JC, eds. Eur Resp Monograph 2010; **49**; pp237-246.
646. Barnes PJ. Co-morbidities associated with chronic obstructive pulmonary disease. *Resp Dis in Pract* 2010; **21**: 1-4.
647. Barnes PJ. Future therapy. In ABC of COPD. 2<sup>nd</sup> Edition. Currie GP, ed. London: BMJ Books 2010; pp72-77.

## 2011

648. Barnes PJ. Pulmonary pharmacology. In: Goodman & Gilman's *The Pharmacological Basis of Therapeutics*. 12<sup>th</sup> Edition. Brunton L, eds. New York: McGraw Hill;; pp1031-1065.
649. Barnes PJ. Future directions. In: Loukides S, Kostikas K, Barnes PJ, eds. *Non-invasive assessemement of airways inflammation in asthma and COPD*. Athens: Paschalidis Medical Publications 2011; 309-328.
650. Barnes PJ. Treatment of chonic obstructive pulmonary disease. In: *Textbook of Pulmonary and Critical Care Medicine*. Jindal SK, ed. New Delhi, Jaypee Medical Publishers Ltd 2011; pp 1041-1055.

- 651. **Barnes PJ.** Asthma. In *Harrison's Principles of Internal Medicine*. 18<sup>th</sup> Edition, Fauci AS et al, eds. New York: McGraw Hill 2011; pp2102-2115.
- 652. **Barnes PJ.** Interview: *Future Med Chem*. 2011;3:1575-1579.
- 653. Montuschi P, **Barnes PJ.** New perspectives in pharmacological treatment of mild persistent asthma. *Drug Discov.Today.*, 2011;

## 2012

- 654. **Barnes PJ.** Autonomic control of the lower airways. In: *Primer on the Autonomic Nervous System*. Robertson D et al, eds. Amsterdam: Elsevier 2012: pp201-209.
- 655. **Barnes PJ**, Breckenridge A. David Jack (1924-2011) who revolutionised the treatment of asthma. *Thorax.*, 2012.
- 656. **Barnes PJ**, Bush A. The biology and assessment of airway inflammation. In: *Kendig and Chernick's Disorders of the Respiratory tract in Children*. 8<sup>th</sup> Edition, Wilmott RW et al, eds. Philadelphia: Elsevier 2012: pp75-88.
- 657. **Barnes PJ.** Drugs for airway disease. In *Medicine: Respiratory Disorders* 2012: 40: 228-237.
- 658. Barnes P New pharmacological therapies for COPD. In *Advances in Chronic obstructive pulmonary disease (COPD): New mechanisms, management strategies and treatments*. Barnes P, ed, London: The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd 2012 (<http://hstalks.com/?t=BL1413350-Barnes>)
- 659. Barnes P. Inflammatory and immune mechanisms in COPD. In *Advances in Chronic obstructive pulmonary disease (COPD): New mechanisms, management strategies and treatments*. Barnes P ed, London: The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd 2012, in Barnes, P. (<http://hstalks.com/?t=BL1413348-Barnes>)
- 660. Barnes P. COPD and asthma: similarities and differences. In *Advances in Chronic obstructive pulmonary disease (COPD): New mechanisms, management strategies and treatments*. Barnes P, ed, London: The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd 2012 (<http://hstalks.com/?t=BL1413349-Barnes>).
- 661. Louis R, Schleich F, **Barnes PJ.** Corticosteroids: still at the frontline in asthma treatment? In: *Clinics Chest Med – Asthma*. Chanez P, ed. Philadelphia WB Saunders 2012; pp 531-542.

## 2013

- 662. **Barnes PJ.** COPD: inflammatory mechanisms and systemic consequences. In: *COPD and comorbidity ERS Monograph* 2013; **59**: 13-27.
- 663. **Barnes PJ.** Autonomic control of the airways. In: *Autonomic failure 5<sup>th</sup> edition*. Matthias CJ, Bannister R, eds. Oxford: Oxford University Press 2013: pp175-183.
- 664. **Barnes PJ.** Pharmacology of asthma and COPD. In: *ERS Handbook of Respiratory medicine*. 2<sup>nd</sup> edition. Palange P, Simonds AK, eds. 2013; Sheffield: European Respiratory Society 2013; pp304-310.
- 665. **Barnes PJ.** Interview with Peter J Barnes. *Ther Deliv*. 2013; **4**:901-903.
- 666. **Barnes PJ.** Pathophysiology of allergic inflammation. In: *Middleton's Allergy Principles and Practice*. 8<sup>th</sup> Edn. Adkinson F et al, eds. Philadelphia; Elsevier 2013; pp327-342.
- 667. **Barnes PJ.** Anti-inflammatory therapeutics in COPD: past, present and future. In: *Smoking and lung inflammation*. Rogers TJ et al, eds. Philadelphia: Springer 2013: 191-213.
- 668. **Barnes PJ.** What does the future hold for the therapy of COPD? In: *Indacaterol*. Tifilieff A, ed. Basel: Springer 2013; 129-145.

669. Blasi F, **Barnes PJ**, Gaga M, Migliori GB. Future directions for the ERS: presidential plans. *Eur Respir J*. 2013; **42**:875-80.

## 2014

670. Kirkham PA, **Barnes PJ**. Oxidative stress in chronic obstructive pulmonary disease. In: *Role of Oxidative Stress in Chronic Diseases*. Diehl I et al, eds. Boca Raton: CRC Press 2014; pp314-348.
671. **Barnes PJ**. Oxidative stress in COPD. In: Ganguly NK, Jindal SJ, Biswal S, **Barnes PJ**, Pawankar R, eds. *Oxidative Stress in Applied Basic Research and Clinical Practice: Studies on Respiratory Disorders*. New York: Humana Press 2014; pp115-130.
672. **Barnes PJ**. Glucocorticoids. In: Bergmann K-C, Ring J, eds. *History of Allergy*. Basel: Karger 2014; pp311-316.
673. Migliori GB, Rabe KF, Bel E, et al. The European Respiratory Society plans its future: the 2013-2018 strategic plan. *Eur Respir J* 2014; **43**: 927-32.

## 2016

674. **Barnes PJ**. Giants in Chest Medicine: Leonardo M. Fabbri, MD. *Chest*. 2016;149:619-620.
675. **Barnes PJ**. Asthma mechanisms. *Medicine* 2016; **44**:265-270.

## 2017

676. **Barnes PJ**, Hughes M. Professor Neil Pride. *Thorax*. 2017;72:292-293.
677. **Barnes PJ**. Future treatments. In: *ABC of COPD*. Currie GP, ed. London: BMJ Books 2017; pp108-112.
678. **Barnes PJ**. Pulmonary pharmacology. In: Goodman & Gilman's *The Pharmacological Basis of Therapeutics*. 13<sup>th</sup> Edition. Brunton L, ed. New York: McGraw Hill; pp727-750.
679. **Barnes PJ**. Inflammatory mechanisms in chronic obstructive pulmonary disease. In: *Inflammation*. Cavaillon J-M, Singer M, eds. Weinheim Wiley 2018; pp1173-98.

## 2018

680. **Barnes PJ**. Asthma. In *Harrison's Principles of Internal Medicine*. 20<sup>th</sup> Edition, Jameson JL et al, eds. New York: McGraw Hill 2018; pp1957-1969.
- 681.