

Dr Elizabeth Sapey PhD, MBBS, BSC

Clinician Scientist

Cardiovascular and Respiratory Sciences

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About

Dr Sapey's goal has always been to pursue a career in Academic Respiratory Medicine. She is excited by the prospect of applying her evolving understanding of neutrophil function and trafficking to developing new therapeutic strategies in COPD. Her goal over the next 10 years is to extend her expertise in neutrophil biology, to develop a team to investigate inflammatory signalling in COPD and to develop new therapies for patients with this common, debilitating and poorly understood condition. She also hopes that her interest in innate immunity during ageing will result in interventions to improve recovery from acute respiratory infections in the elderly.

Liz has achieved much of her successes while working part time (with young children).

Qualifications

- PhD – University of Birmingham
- MBBS – University of London
- BSc – University of London

Biography

Liz gained her first science degree in 1995 from the University of London (BSci Medical Science, 1st Class Honours), and went on to qualify as a Physician in 1998 (MBBS Honours with 3 distinctions, 2 merits and 2 prizes) from the Royal London and St Bartholomew's School of Medicine and Dentistry.

She has been involved in active research since 2001, focusing upon the inflammatory basis of chronic disease, with particular emphasis on neutrophilic inflammation and lung disease. She worked as a Clinical Fellow, and now is employed as a Clinical Lecturer after gaining her PhD in 2010.

During this research period she gained a broad level of understanding of and experience in the organisation and analysis of Phase II – IV clinical trials and in clinical translational research, although the majority of her work focuses on basic science (predominantly neutrophil functions and signalling pathways).

Teaching

Medical School teaching (students from years 3 – 5)

- ARICM
- Therapeutics Roadshow
- SSM Module

Dental school teaching

Postgraduate supervision

Since 2010 (following gaining her own PhD) Liz has co-supervised 3 PhD students, focusing on neutrophil functions in health and disease. Current PhD studentships include:

1. The inflammatory consequences of a Pro-inflammatory TNF α Polymorphism in COPD;
2. The cause and consequences of aberrant neutrophil migration in healthy ageing;
3. Alterations in neutrophil function in acute sepsis.

Research

Liz's research concentrates on neutrophil biology. Her main interest is the role of neutrophilic inflammation in chronic obstructive pulmonary disease (COPD). COPD is a common, debilitating and progressive inflammatory lung disease. It affects 5 – 10% of the population, is the 5th leading cause of death globally and is the only chronic disease with a rising mortality rate. Smoking is the most common risk factor for COPD in the developed world, but only 20% of smokers develop disease, suggesting there must be genetic and environmental susceptibility factors, but these are poorly understood. No treatments prevent disease and none halt the associated clinical decline.

Neutrophils are of primary importance in this disease, and Liz's research focuses on how neutrophil behaviour (migration, degranulation, superoxide production and NET formation) alters in response to systemic and pulmonary inflammation, changing the capacity for tissue damage in COPD.

Her preliminary work within this field highlighted changes in neutrophil function with age. As a result of this, she now is also active in research regarding the impact of healthy ageing on innate immunity, especially how this alters neutrophil function and bacterial clearance during acute lung infections.

Other activities

Liz is a clinician scientist, and 50% of her scheduled time is spent involved in clinical duties, where she work as a Medical Registrar in Respiratory Medicine and General Internal Medicine. Her clinical specialty is chronic, inflammatory lung disease and she is involved in designing and running the Respiratory Chronic Disease Resource Centre for COPD – which aims to be a 1000 strong cohort of well-characterised and carefully phenotyped COPD patients who will be followed up annually. This will provide a unique resource for future COPD research in Birmingham and will be a great asset to the University of Birmingham.

Liz is a member of the Women in Academic Medicine forum and is very keen to support young scientists and clinical academic trainees.

She is a member of the British Thoracic Society, European Respiratory Society and American Thoracic Society and has regularly presented at these conferences.

Liz is a Member of the British Medical Society and presents at the national BMA Academic Trainees Conference. She has been the “Researcher in Residence” at a number of schools and colleges locally, in order to promote a career in science, particularly in groups under-represented in the scientific community.

Publications

Stone H, McNab, G.L., Wood, A., Stockley, R.A., Sapey E. (2012) The variability of pulmonary inflammation in A1ATD. *Eur Respir J* (In Press).

Richter, A.G, Gavin D Perkins, Amit Chavda, E Sapey, Lorraine Harper,David R. Thickett. (2011) Evidence for pulmonary cytokine mediated neutrophil chemotaxis in Wegener’s granulomatosis and idiopathic pulmonary fibrosis. *Eur Respir J*. In Press

McNab G, Wood A.M.,Sapey E, Stockley, R.A.(2011) A novel model and molecular therapy to Z Alpha-1-Anti-trypsin deficiency. **Mammalian Genome**, (In Press)

Sapey E. Wood A.M, Ahmad A, Stockley RA. (2010) Tumour necrosis factor alpha rs361525 polymorphism is associated with increased local production and downstream inflammation in COPD. **Am J Respir Crit Care Med**. 182. 192 – 199

Sapey, E. Stockley, J.A. Greenwood, H. Ahmad, A. Bayley, D.L. Insall. R.H., Lord, J.M., Stockley, R.A. (2011) Structural and behavioural changes of peripheral neutrophils in COPD. **Am J Respir Crit Care Med** 183: 1176 – 1186

Sapey, E., Wood, A.M.. (2011) Auto-antibodies and inflammation: A case of the chicken and the egg? **Am J Respir Crit Care Med**. 183: 959- 960

Panda A, Arjona A, Sapey E, Bai F, Fikrig E, Montgomery RR, Lord JM, Shaw AC. (2009) **Human innate immunosenescence: causes and consequences for immunity in old age.** (http://www.ncbi.nlm.nih.gov/pubmed/19541535?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum). **Trends Immunol**. 30: 325-33

Sapey E, Bayley DL, Ahmad A, Stockley RA. (2008) The validation of assays used to measure biomarkers in exhaled breath condensate. **Eur Respir J** 5. 1408 - 1409

