Fiona Culley

Nomination for the IUIS Council

Personal Statement

I am an immunologist working at the National Heart and Lung Institute, Imperial College London in the field of respiratory immunology and inflammation. A particular focus of my work has been on Respiratory Syncytial Virus (RSV) infection. RSV causes colds in most healthy adults, but in the very young and the elderly it can cause severe disease. Areas of research include understanding age related changes to innate and adaptive immunity in the lung, in both early life and in aging.

To support those early in their careers, I have made significant contributions to teaching biomedical research and immunology. I have trained numerous BSc, MSc and PhD students in the lab, acted as undergraduate Immunology module lead and Director of the BSc in Immunity and Infection at Imperial College London. I am a Senior Fellow of the Higher Education Academy and am currently Director of the intercalated BSc degrees within the School of Medicine.

I believe in the critical importance of immunology societies in supporting our members in the immunology community and in promoting immunology more widely. I have contributed to the important work of the British Society for Immunology at many stages my career. I joined the BSI as an undergraduate, served as a committee member and lead of the London Immunology Group and then as England regional representative on the BSI Forum. I am currently the Treasurer and a Trustee of the BSI. During my time as Treasurer, I have been Chair of the BSI Finance Subcommittee, a Director of BSI Trading Ltd, member of the BSI Board, member of the organising committee for the BSI congress and of the Finance Subcommittee of the European Congress for Immunology. I have seen the BSI thrive with membership of the society growing to its highest ever numbers and have had the privilege to have played a part in many exciting new initiatives, not least in launching our training programme and new immunology journals.

I look forward to the opportunity to bring the experience I have gained from working with the BSI to the IUIS Council.

CURRICULUM VITAE

Dr Fiona Jane Culley MA PhD FHEA
National Heart and Lung Institute
Faculty of Medicine
Imperial College London
f.culley@imperial.ac.uk
https://profiles.imperial.ac.uk/f.culley

Current Position
Senior Lecturer in Respiratory Immunology, Imperial College London

Previous Employment

2008-2015	Lecturer in Respiratory Immunology, NHLI, Imperial College
2006-2008	Research Lecturer, Imperial College London
2004-2005	Senior Post-doctoral Research Associate (Wellcome Trust), Biological Sciences Division, Imperial College London
2003	Post-doctoral Research Associate (Wellcome Trust), Biomedical Sciences Division, Imperial College London
2000-2003	Post-doctoral Research Associate (EU Consortium), Department of Respiratory Medicine, NHLI, Imperial College London
1997-2000	Post-doctoral Research Fellow (Merck Pharmacology Fellowship) Leukocyte Biology, Imperial College London
1992-1993	Research Assistant (Edna McConnell Clark Foundation), LSHTM and The MRC Laboratories, The Gambia, West Africa

Education

1989-1992	Natural Sciences Honours Degree Class 2(i), Newnham College, Cambridge University
1993-1997	PhD Studentship (MRC) London School of Hygiene and Tropical Medicine, University of London
2010	CASLAT teaching qualification

Membership and Positions

- Trustee and Treasurer British Society for Immunology
  Director BSI Trading Ltd
- Member British Society for Research in Aging
- MADI consortium (NIH). Maternal immunity.
- CARINA (CAtalyst Reducing ImmuNe Ageing) Network
- IMPRINT (Immunising Pregnant Women and Infants) Network
- Imperial College Vaccines network
- Imperial College Centre for Paediatrics and Child Health

Current Education Leadership Roles

2024 -	Senior Fellowship of the Higher Education Academy (SFHEA)
2024 -	Director of Phase 2 (Year 4) MBBS
2019-	Post Graduate Research Tutor, National Heart and Lung Institute

- PhD student assessments and examinations (internal and external)
- External Examiner, Brighton and Sussex Medical School and University of Manchester
- Supervisor BSc and MSc student projects

Publications

1. J. Sophie Sagawe, Verity I. P. Loake, Peter J. M. Openshaw, Paul Kemp & **Fiona J. Culley** (2025). Aging enhances pro-atrogenic gene expression and skeletal muscle loss following respiratory syncytial virus infection. *Geroscience*. 47: 1485. PMID: 39354240

2. Celia Diaz-Nicieza, Laura Sahyoun, Christina Michalaki, Cecilia Johansson and **Fiona J. Culley** (2024). Ageing results in an exacerbated inflammatory response to LPS by resident lung cells. *Immunity & Ageing* 21:62. PMID: 39261941

3. Hawkins A, Pantazi P, Yang L, Coyne CB, Bokun V, Lemme-Dumit JM, Pasetti MF, Barnett S, **Culley FJ,** Holder B (2024). Long-term culture and passaging of term trophoblast for the investigation of syncytiotrophoblast function. *Placenta.* PMID: 39261115

4. Swieboda D, Thwaites R, Rice T, Guo Y, Nadel S, Openshaw P, Holder E, **Culley FJ** (2023). Natural killer cells and innate lymphoid cells but not NKT cells are mature in their cytokine production at birth. *Clinical and Experimental Immunology*. 215: 1. PMID: 37556759

5. Goss C, **Culley FJ**, Parthasarathy P, MacLeod K, McGregor AH, Sam AH, 2022, A paragigm shift in assessment of scientific skills in undergraduate medical education, *Advances in Medical Education and Practice*, Vol: 13, Pages: 123-127. PMID: 35173511

6. Jacobsen H, Walendy-Gnirss K, Tekin-Bubenheim N, Kouassi NM, Ben-Batalla I, Berenbrok N, Wolff M, dos Reis VP, Zickler M, Scholl L, Gries A, Jania H, Kloetgen A, Duesedau A, Pilnitz-Stolze G, Jeridi A, Yildirim AO, Fuchs H, Gailus-Durner V, Stoeger C, de Angelis MH, Manuylova T, Klingel K, **Culley FJ**, Behrends J, Loges S, Schneider B, Krauss-Etschmann S, Openshaw P, Gabriel G. Offspring born to influenza A virus infected pregnant mice have increased susceptibility to viral and bacterial infections in early life (2021), *Nature Communications* 12: 4957. PMID: 34400653

7. Swieboda D, Guo Y, Sagawe S, Thwaites RS, Nadel S, Openshaw PJM, **Culley FJ**. A 14-Color, 16-Antibody Panel for Immunophenotyping Human Innate Lymphoid, Myeloid and T Cells in Small Volumes of Whole Blood and Pediatric Airway Samples (2019). *Cytometry Part A*. PMID: 31633878.

8. Lambert L and **Culley FJ**. Innate Immunity to Infection in the Neonatal Lung (2017). *Frontiers in Immunology.* 8, 1570. PMID: 29184555

9. Heath PT*, **Culley FJ*,** Jones CE, Kampmann B, Le Doare K, Nunes MC, Sadarangani M, Chaudhry Z, Baker CJ, Openshaw PJM. Group B streptococcus and respiratory syncytial virus immunisation during pregnancy: a landscape analysis (2017). *Lancet Infect Dis.* 17(7):e223-e234. PMID: 28433702 ***Joint 1st author.**

10. Vira, A., Schnoeller, C., Darby, M., **Culley, F.J.,** Bobat, S, Kirstein, F., Wess, J., Adam Cunningham, A., Brombacher, F., Selkirk, M.E., Horsnell, W.C.G. The M3 muscarinic receptor is required for optimal adaptive immunity to helminth and bacterial infection (2015) *PloS Pathogens* 11(1):e1004636. PMID: 25629518

11. Openshaw PJM, Chiu C, **Culley FJ*,** Johansson C*. Protective and Harmful Immunity to RSV Infection (2017). Annu Rev Immunol. 35:501-532. PMID: 28226227 ***Equal contribution.**

12. Makris S, Bajorek M, **Culley FJ**, Goritzka M, Johansson C. Alveolar Macrophages Can Control Respiratory Syncytial Virus Infection in the Absence of Type I Interferons (2016). J Innate Immun. 8(5):452-63. PMID: 27423203

13. Goritzka M, Makris S, Kausar F, Durant LR, Pereira C, Kumagai Y, **Culley FJ**, Mack M, Akira S, Johansson C. Alveolar macrophage-derived type I interferons orchestrate innate immunity to RSV through recruitment of antiviral monocytes (2015). *J Exp Med.* 212(5):699-714. PMID: 25897172

14. Sabroe, I., Dockrell, D.H., **Culley, F.J.** (2014) Editorial: RSV: a new box of delights for an old enemy. *J Leukoc Biol.* 96: 945-7. PMID: 25452617.

15. Lambert, L., Sagfors, A. M., Openshaw, P. J., and **Culley, F. J.** (2014) Immunity to RSV in Early Life. *Front Immunol* 5: 46. PMID: 25324843.

16. Harker, J. A., Yamaguchi, Y., **Culley, F. J.,** Tregoning, J. S., and Openshaw, P. J. (2014) Delayed sequelae of neonatal respiratory syncytial virus infection are dependent on cells of the innate immune system. *J Virol* 88: 604-611. PMID: 24173217.

17. Farhadi, N., Lambert, L., Triulzi, C., Openshaw, P. J. M., Guerra, N., and **Culley, F. J.** (2014) Natural killer cell NKG2D and granzyme B are critical for allergic pulmonary inflammation. *J Allergy Clin Immunol* 133: 827-35. PMID: 24290277.

18. Satkunanathan, S., Kumar, N., Bajorek, M., Purbhoo, M. A., and **Culley, F. J.** (2013) Respiratory syncytial virus infection, TLR3 ligands and pro-inflammatory cytokines induce CD161 ligand LLT1 expression on the respiratory epithelium. *J Virol* 88: 2366-73. PMID: 24352438.

19. Yamaguchi, Y., Harker, J. A., Wang, B., Openshaw, P. J., Tregoning, J. S., and **Culley, F. J.** (2012) Preexposure to CpG protects against the delayed effects of neonatal respiratory syncytial virus infection. *J Virol* 86: 10456-10461. PMID: 22811525

20. Loebbermann, J., Thornton, H., Durant, L., Sparwasser, T., Webster, K. E., Sprent, J., **Culley, F. J.,** Johansson, C., and Openshaw, P. J. (2012) Regulatory T cells expressing granzyme B play a critical role in controlling lung inflammation during acute viral infection. *Mucosal Immunol* 5: 161-172. PMID: 22236998.

21. Tregoning, J. S., Pribul, P. K., Pennycook, A. M., Hussell, T., Wang, B., Lukacs, N., Schwarze, J., **Culley, F. J.,** and Openshaw, P. J. (2010) The chemokine MIP1alpha/CCL3 determines pathology in primary RSV infection by regulating the balance of T cell populations in the murine lung. *PLoS One* 5: e9381. PMID: 20195359.

22. Benninger, R. K. P., Vanherberghen, B., Young, S., Taner, S. B., **Culley, F. J.,** Schnyder, T., Neil, M. A. A., Wüstner, D., French, P. M. W., Davis, D. M., and Önfelt, B. (2009) Live cell linear dichroism imaging reveals extensive membrane ruffling within the docking structure of Natural Killer cell immune synapses. *Biophys J* 96: L13-L15. PMID: 19167281,

23. **Culley, F. J.** (2009) Natural killer cells in infection and inflammation of the lung. *Immunology* 128: 151-163. PMID: 19740372.

    Cited >200 times. One of Immunology's most highly cited papers of 2009.

24. **Culley, F. J.,** Johnson, M., Evans, J. H., Kumar, S., Crilly, R., Casasbuenas, J., Schnyder, T., Mehrabi, M., Deonarain, M. P., Ushakov, D. S., Braud, V., Roth, G., Brock, R., Kohler, K., and Davis, D. M. (2009) Natural killer cell signal integration balances synapse symmetry and migration. *PLoS Biol* 7: e1000159. PMID: 19636352.

    Selected by Nature Reviews Immunology: Research Highlights (2009) 9:606

25. Treanor, B., Lanigan, P. M., Kumar, S., Dunsby, C., Munro, I., Auksorius, E., **Culley, F. J**., Purbhoo, M. A., Phillips, D., Neil, M. A., Burshtyn, D. N., French, P. M., and Davis, D. M. (2006) Microclusters of inhibitory killer immunoglobulin-like receptor signaling at natural killer cell immunological synapses. *J Cell Biol* 174: 153-161. PMID: 16801390.

26. **Culley, F. J.,** Pennycook, A. M., Tregoning, J. S., Dodd, J. S., Walzl, G., Wells, T. N., Hussell, T., and Openshaw, P. J. (2006) Role of CCL5 (RANTES) in viral lung disease. *J Virol* 80: 8151-8157. PMID: 16873271.

27. **Culley, F. J.,** Pennycook, A. M., Tregoning, J. S., Hussell, T., and Openshaw, P. J. (2006) Differential chemokine expression following respiratory virus infection reflects Th1- or Th2-biased immunopathology. *J Virol* 80: 4521-4527. PMID: 16611912.

28. Furze, R. C., **Culley, F. J**., and Selkirk, M. E. (2006) Differential roles of the co-stimulatory molecules GITR and CTLA-4 in the immune response to Trichinella spiralis. *Microbes Infect* 8: 2803-2810. PMID: 17045510.

29. Regner, M., **Culley, F.,** Fontannaz, P., Hu, K., Morein, B., Lambert, P. H., Openshaw, P., and Siegrist, C. A. (2004) Safety and efficacy of immune-stimulating complex-based antigen delivery systems for neonatal immunisation against respiratory syncytial virus infection. *Microbes Infect* 6: 666-675. PMID: 15158774.

30. Openshaw, P. J., Dean, G. S., and **Culley, F. J.** (2003) Links between respiratory syncytial virus bronchiolitis and childhood asthma: clinical and research approaches. *Pediatr Infect Dis J* 22: S58-64. PMID: 12671454.

31. **Culley, F. J.,** and Olszewska, W. (2003) Physical trauma of vaccination acts as a wake-up call to dangers in the skin. *Immunology* 110: 291-292. PMID: 14632654.

32. **Culley, F. J.,** Fadlon, E. J., Kirchem, A., Williams, T. J., Jose, P. J., and Pease, J. E. (2003) Proteoglycans are potent modulators of the biological responses of eosinophils to chemokines. *Eur J Immunol* 33: 1302-1310. PMID: 12731055.

33. Larbi, K. Y., Dangerfield, J. P., **Culley, F. J.,** Marshall, D., Haskard, D. O., Jose, P. J., Williams, T. J., and Nourshargh, S. (2003) P-selectin mediates IL-13-induced eosinophil transmigration but not eotaxin generation in vivo: a comparative study with IL-4-elicited responses. *J Leukoc Biol* 73: 65-73. PMID: 12525563..

34. Bodman-Smith, K. B., Mbuchi, M., **Culley, F. J.,** Bates, P. A., and Raynes, J. G. (2002) C-reactive protein-mediated phagocytosis of Leishmania donovani promastigotes does not alter parasite survival or macrophage responses. *Parasite Immunol* 24: 447-454. PMID: 12654086.

35. **Culley, F. J.,** Pollott, J., and Openshaw, P. J. (2002) Age at first viral infection determines the pattern of T cell-mediated disease during reinfection in adulthood. *J Exp Med* 196: 1381-1386. PMID: 12438429.

    See also Holt PG and Sly PD (2003) Editorial: Interactions between RSV infection, asthma, and atopy: unreveling the complexities. *J Exp Med* 196: 1271. PMID: 12438419

    This paper became a figure in Janeway's Immunology, the standard immunology undergraduate textbook.

36. **Culley, F. J.,** Brown, A., Girod, N., Pritchard, D. I., and Williams, T. J. (2002) Innate and cognate mechanisms of pulmonary eosinophilia in helminth infection. *Eur J Immunol* 32: 1376-1385. PMID: 11981825.

37. Openshaw, P. J., **Culley, F. J.,** and Olszewska, W. (2001) Immunopathogenesis of vaccine-enhanced RSV disease. *Vaccine* 20 Suppl 1: S27-31. PMID: 11587806.

38. Bee, A., **Culley, F. J**., Alkhalife, I. S., Bodman-Smith, K. B., Raynes, J. G., and Bates, P. A. (2001) Transformation of Leishmania mexicana metacyclic promastigotes to amastigote-like forms mediated by binding of human C-reactive protein. *Parasitology* 122: 521-529. PMID: 11393825.

39. **Culley, F. J.**, Brown, A., Conroy, D. M., Sabroe, I., Pritchard, D. I., and Williams, T. J. (2000) Eotaxin is specifically cleaved by hookworm metalloproteases preventing its action in vitro and in vivo. *J Immunol* 165: 6447-6453. PMID: 11086084.

40. **Culley, F. J.,** Bodman-Smith, K. B., Ferguson, M. A., Nikolaev, A. V., Shantilal, N., and Raynes, J. G. (2000) C-reactive protein binds to phosphorylated carbohydrates. *Glycobiology* 10: 59-65. PMID: 10570224.

41. **Culley, F. J.,** Harris, R. A., Kaye, P. M., McAdam, K. P., and Raynes, J. G. (1996) C-reactive protein binds to a novel ligand on Leishmania donovani and increases uptake into human macrophages. *J Immunol* 156: 4691-4696. PMID: 8648114.

42. Holland, M. J., Bailey, R. L., Conway, D. J., **Culley, F.,** Miranpuri, G., Byrne, G. I., Whittle, H. C., and Mabey, D. C. (1996) T helper type-1 (Th1)/Th2 profiles of peripheral blood mononuclear cells (PBMC); responses to antigens of Chlamydia trachomatis in subjects with severe trachomatous scarring. *Clin Exp Immunol* 105: 429-435. PMID: 8809130.

43. Zhao, M. H., Jayne, D. R., Ardiles, L. G., **Culley, F.,** Hodson, M. E., and Lockwood, C. M. (1996) Autoantibodies against bactericidal/permeability-increasing protein in patients with cystic fibrosis. *QJM* 89: 259-265. PMID: 8733512.

Other publications

The DELVE Initiative (2020), *SARS-CoV-2 Vaccine Development & Implementation; Scenarios, Options, Key Decisions*. DELVE Report No. 6. Published 01 October 2020. Available from https://rs-delve.github.io/reports/2020/10/01/covid19-vaccination-report.html [pdf]. https://rs-delve.github.io/about.html

"Have hope – the UK has a track record of successful vaccine campaigns' The Guardian, Opinion Piece (2020). https://www.theguardian.com/commentisfree/2020/nov/30/have-hope-uk-track-record-successful-vaccine-campaigns-covid-19

Clara Hijano

From: Culley, Fiona J <f.culley@imperial.ac.uk>
Sent: Monday, 14 April 2025 18:42
To: IUIS
Subject: Nomination for IUIS Council
Attachments: Fiona Culley IUIS Council Nomination.pdf

Categories: Clara

Dear Secretary General

I wish to nominate myself for membership of the IUIS Council.

I am currently a Trustee and the Treasurer of the British Society for Immunology, however, having served two consecutive terms I will step down from the role this year.

I have the full support of the BSI leadership in making this nomination and acting as their representative on the IUIS Council.

I attach my nomination statement and CV.

Best regards
Fiona Culley

Fiona J Culley PhD SFHEA
National Heart and Lung Institute, Imperial College London