

Curriculum Vitae : Richard Michael MAIZELS

Current Post : Professor of Parasitology, University of Glasgow
Nationality : British
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Degrees and Honours

BSc (Hons) 2 (i) Zoology, University College London, August 1973
PhD, Immunology, National Institute for Medical Research, London, October 1976
Pfizer Academic Award in Animal Health Research, 1987
Wolfson Research Award, 1988
Wright Medal of the British Society for Parasitology, 1998
Fellow of the Royal Society of Edinburgh, 2002
Eurolife Medal, Leiden University, 2014
Fellow of the Academy of Medical Sciences, 2018
Leuckart Medal of the German Society for Parasitology, 2020

Academic Appointments

1976 - 1977 Research Fellow in Genetics, California Institute of Technology, Pasadena
1977 - 1979 Postdoctoral Fellow, Microbiology, University of California at Los Angeles
1979 - 1983 Scientific Staff, National Institute for Medical Research, Mill Hill, London
1983 - 1988 Lecturer, Biology, Imperial College London
1988 - 1990 Senior Lecturer, Biology, Imperial College London
1990 - 1993 Reader in Parasite Immunology, Biology, Imperial College London
1990 - 1993 Deputy Director, Wellcome Research Centre for Parasitic Infections
1993 - 1995 Professor of Parasite Immunology, Biology, Imperial College London
1993 - 1995 Director, Wellcome Research Centre for Parasitic Infections
1995 - 2015 Professor of Zoology, University of Edinburgh
1997 - 1999 Head of Institute of Cell, Animal and Population Biology, Edinburgh
2004 - 2008 Head of Institute, Institute of Immunology and Infection Research
2008 - 2011 Director, Centre for Immunity, Infection and Evolution, University of Edinburgh
2011 - 2015 Director, Edinburgh Infectious Diseases
2016 - Professor of Parasitology, University of Glasgow
2016 - Honorary Professor, University of Edinburgh

External Committee Membership

1992-1996 MRC Physiological Medicine and Infections Board Grants Committee B
1998-2002 Medical Research Council : Physiological Medicine and Infections Board
2000-2001 The Wellcome Trust, Showcase Grants Committee
2002-2004 The Wellcome Trust, International Panel
2004-2007 Wellcome Trust, Basic Immunology and Infectious Disease Funding Ctee.
2010-2011 Wellcome Trust, Immunology and Infectious Disease Funding Committee
2011-2015 International Committee, Royal Society of Edinburgh
2018-2026 Springboard Awards Committee, Academy of Medical Sciences

Current Research Funding

The Wellcome Trust, Discovery Award: *Redirecting TGF- β Signalling, Inspired by Adaptive Evolution of Parasite Mimics* with Drs H J McSorley (University of Dundee), A P Hinck (University of Pittsburgh). H H Smits and P ten Dijke (Leiden University Medical Center), £3,966,983, January 2025-December 2029.

Principal Past Awards

Since 1983 I have been awarded over £22M in research grants (including £5M from research councils, £12M from UK charities, and £5M from international agencies). In addition I have led or participated in Centre, Equipment, Infrastructure and PhD Programme grants totalling £17M. My principal previous research grants are:

- 2018-2023 **The Wellcome Trust**, Collaborative Grant : *Tuft Cells in Intestinal Immunity*, with Drs E Devaney, C Britton, T McNeilly and P Jay £1,203,739,
- 2018-2023 **Netherlands Lung Foundation** : *A World Without Asthma*, Consortium Award, led by Dr H H Smits (Leiden) with collaborators in Dundee, Essen, Ghent, Melbourne and Munich. Sum awarded to Glasgow £ 523,353.
- 2016-2019 **Kenneth Rainin Foundation**, *Induction of Therapeutic Regulatory T cells by Parasite Products*. US\$ 500,000 (with Drs Levings and S Ziegler).
- 2015-2020 **The Wellcome Trust**, Investigator Award. *Helminths and the immune system: regulation, regulators and immunity*. £2,039,266. April 2015 - March 2020
- 2011-2015 **Kenneth Rainin Foundation**, Innovator and Breakthrough Grants. *Potential of parasite products to suppress inflammatory bowel disease*. US \$350,000
- 2010-2015 **The Wellcome Trust**, Programme Grant. *Mediators of regulation and immunity in helminth infections*. £1,500,000. April 2010 - March 2015
- 2010-2014 **American Asthma Foundation** : Senior Investigator Award. *Suppression of airway allergy by products of helminth parasites*. US\$ 750,000.
- 2008-2011 **The Wellcome Trust** : Strategic Award: *Centre for Immunity, Infection and Evolution*, PI, Prof RM Maizels, with 8 others £1,489,569
- 2006-2009 **Medical Research Council**, Project Grant : *The impact of helminth infections on allergies: regulatory interactions and protective mechanisms in airway inflammation*. £630,744.
- 2006-2009 **European Commission** : *T cell regulation and the control of helminth infections*. Lead PI with 6 overseas partners. £1,330,000
- 2005-2010 **The Wellcome Trust**, Programme Grant : *Cellular and molecular mechanisms of immune regulation in helminth infections*. £1,348,259
- 2001-2006 **The Wellcome Trust: Science Research Investment Fund** : *Centre for Infection Biology and Immunology* (Principal Applicant of 9). £4,734,289,
- 2001-2006 **Medical Research Council**, Programme Grant : *Immunology of filariasis: model systems for immunity and tolerance* (with Prof J E Allen). £899,000.
- 2000-2005 **The Wellcome Trust**, Programme Grant : *Novel genes for immune modulation and evasion by nematode parasites*. £1,087,695
- 1995-2000 **The Wellcome Trust**, Programme Grant *The immunology of nematode parasites: cellular, molecular and biological analyses of parasite antigens and host responses*. £568,554
- 1990-1995 **The Wellcome Trust**. *Establishment of Wellcome Research Centre in Parasitic Infections* (with Prof R M Anderson, and 4 others) £ 3,998,614
- 1986-1990 **The Wellcome Trust**. *Biology of parasitic nematodes: Characterisation of antigenic products and their interaction with the host*. £120,027
- 1984-1987 **Medical Research Council**: Project Grant. *Molecular cloning of parasitic nematode antigens*. With Dr M E Selkirk. £ 121,401
- 1983-1986 **The Wellcome Trust**: *Immunological approaches to the diagnosis and prophylaxis of human filariasis*. £ 102,335

Recent Publications

- Maizels RM, Smits HH & McSorley HJ (2018) Modulation of host immunity by helminth parasites: the expanding repertoire of novel effector molecules. *Immunity* **49**:801-818
- Maizels RM (2020) Regulation of immunity and allergy by helminth parasites. *Allergy* **75**: 524-534
- Maizels RM (2021) The multi-faceted roles of TGF- β in regulation of immunity to infection. *Advances in Immunology* **150**: 1-42.
- Smyth, D.J., Ren, B., White, M., McManus, C., Webster, H., Shek, V., Evans, C., Pandhal, J., Fields, F., Maizels, R.M. and Mayfield, S. (2021). Oral delivery of a functional algal-expressed TGF- β mimic halts colitis in a murine DSS model. *J Biotechnol* **340** : 1-12
- White MPJ, Smyth DJ, Cook L, Ziegler S, Levings M & Maizels RM (2021) The parasite cytokine mimic *Hp*-TGM potently replicates the regulatory effects of TGF- β on murine T cells. *Immunology and Cell Biology* **99**: 848-864.
- Chauché C., Rasid O, Donachie A-M, McManus CM, Loeser S, Richards J, Campion T, Smyth DJ, McSorley HJ & Maizels RM (2022) Suppression of airway allergic eosinophilia by *Hp*-TGM-1, a helminth mimic of TGF- β . *Immunology* **167**:197-211
- Drurey C, Lindholm H, Coakley G, Campillo Poveda M, Loeser S, Doolan R, Gerbe F, Jay P, Harris N, Oudhoff MJ & Maizels RM. (2022) Intestinal epithelial tuft cell induction is negated by a murine helminth and its secreted products. *Journal of Experimental Medicine* **219**: e20211140
- Mukundan A, Byeon C-H, Hinck CS, Cunningham K, Campion T, Smyth DJ., Maizels RM & Hinck AP. (2022) Convergent evolution of a parasite-encoded complement control protein-scaffold to mimic binding of mammalian TGF- β to its receptors, T β RI and T β RII. *Journal of Biological Chemistry* **298**:101994.
- Maizels RM & Gause WC. (2023) The expanding world of Type 2 immune effector mechanisms. *Journal of Experimental Medicine* **220**: 20221381
- Smyth DJ, White MPJ, Johnston CJC, Donachie A-M, Campillo Poveda M, McSorley HJ & Maizels RM (2023) Protection from T cell-dependent colitis by the helminth-derived immunomodulatory mimic of transforming growth factor- β , TGM. *Discovery Immunology* **2**: kyad001.
- van Dinther M, Singh S, Cunningham K, White MPJ, Campion T, Ciancia C, van Veelem PA, de Ru AH, Gonzalez-Prieto R, Mukundan A, Byeon C-H, Staggers S., Hinck CS, Hinck AP, ten Dijke P & Maizels RM (2023) CD44 acts as a co-receptor for cell-specific enhancement of signaling and regulatory T cell induction by TGM1, a parasite TGF- β mimic. *Proc Natl Acad Sci USA* **120** : e2302370120
- Lothstein KE, Chen F, Mishra P, Smyth DJ, Wu W, Lemenze A, Kumamoto Y, Maizels RM & Gause, W.C. (2024) Helminth protein enhances wound healing by inhibiting fibrosis and promoting tissue regeneration. *Life Science Alliance* **7**
- Ndjim M, Gasmi I, Herbert F, Joséphine C, Bas J, Lamrani A, Coutry N, Henri S, Zimmerma, V, Dardalhon V, Campillo Poveda M,, Maizels RM, Gerbe F and Jay P (2024) Tuft cell acetylcholine is released into the gut lumen as an effector and regulator of type 2 immunity and directly targets helminth parasites. *Immunity*, **57**: 1260-1273
- Maizels, R.M., McSorley, H.J., Smits, H.H., ten Dijke, P. and Hinck, A.P. (2025) Cytokines from parasites: Manipulating host responses by molecular mimicry. *Biochemical Journal* **482**: 443-449
- Singh, S.P., Smyth, D.J., Cunningham, K.T., Mukundan, A., Byeon, C.H., Hinck, C.S., White, M.P.J., Ciancia, C., Wasowska, N., Sanders, A., Jin, R., White, R.F., Lilla, S., Zanivan, S., Schoenherr, C., Inman, G.J., van Dinther, M., ten Dijke, P., Hinck, A.P. and Maizels, R.M. (2025) The TGF- β mimic TGM4 achieves cell specificity through combinatorial surface co-receptor binding. *EMBO Reports* **26**: 218-244. doi 10.1038/s44319-024-00323-2
- White, S.E, Schwartze, T.A., Mukundan, A., Schoenherr, C., Singh, S., van Dinther, M., Cunningham, K., White, M.P.J., Campion, T., Pritchard, J., Hinck, C.S., ten Dijke, P., Inman, G., Maizels, R.M. and Hinck, A.P. (2025) TGM6 is a helminth secretory product that mimics TGF- β binding to T β RII to antagonize signaling in fibroblasts. *Nature Communications* **16**: 1847 10.1101/2023.12.22.573140