# CURRICULUM VITAE

**Name:** Malcolm Maden

**Date of Birth:** 23.8.50

**Nationality:** USA citizen

**Degrees:** BSc Biological Sciences
University of Birmingham 1969-1972
PhD Genetics
University of Birmingham 1972-1975

**Current appointment:** Professor, Department of Biology
**Affiliate appointment**: Professor, Department of Molecular Genetics & Microbiology

**Employer:** University of Florida

**Location:** Department of Biology, Rm 326 Bartram Hall, PO Box 118525
UF Genetics Institute, Rm 410, Cancer Genetics Research Center

**Previous positions:**
1996 - 2008 Professor of Developmental Biology, King's College London
1992 – 1996 Reader in Experimental Embryology, King's College London
1989 - 1992 Lecturer in Anatomy, King's College London
1978 - 1989 Scientist, National Institute for Medical Research, Mill Hill, London
1975 - 1978 Postdoctoral Fellow, University of Sussex

**Key career achievements:**
Over 200 scientific publications
Obtaining continued significant research funding.
Inducing regeneration of adult rodent CNS.
Inducing regeneration of adult rodent lung alveoli.
Elaborating the role of retinoic acid in the developing embryo.
Developing the spiny mouse as a model of mammalian regeneration.
Commercialising my research and obtaining 3 patents.
Major contribution to medical and science teaching.
Significant contribution to University administration and departmental organization.

**Research interests:** The role of retinoids in development and regeneration, organ regeneration in Urodeles and mammals, regenerative medicine.

**Current and past teaching**
Milestone papers in Development and Regeneration
Biology of stem cells ZOO4936
Evolutionary Developmental Biology on-line.
Evolutionary Developmental Biology ZOO3703C

Functional Vertebrate Anatomy ZOO3713C
Biology Colloquium BSC1920
Embryology to MBBSI, BDSI and MBBSII students
Histology and Cell Biology to MBBSI and BDSI students
3rd year course (1c.u.) for Anatomy & Human Biology, other science students and intercalated medics entitled "Mechanisms of Development"
Schools Outreach Programme - various lectures
Anatomical dissection of the human cadaver, 1.5 year course to medical students. Full embryology course to medical and dental students (10hrs)

**Graduate students trained**
Stella Keeble, 1986; Claire Gribbin, 1987; Emily Gale, 1996; Claire Horton, 1996; Tom Stratford, 1997; Christine Parkinson, 2001; Aida Blentic, 2002; Leigh Wilson, 2003; Matthew Hind, 2003; Susan Reijntjes, 2005; Sian Stinchcombe, 2009; Teala Tyson, 2010; Michelle Kelley, 2013; Jessica Stone, 2015, Trey Polvadore 2021.

**PhD examinations**
More than 30 PhD theses examined throughout the UK as well as several in Holland and Germany

**Past graduate committees**
Ashley Seifert, Lori Bogler, Lori Albergotti, Courtney Bouldin, Anna Herrera, David Lopez, Nicole Botteri, Merissa Greidler, Oscar Tarrazona, Kate O'Shaunessey, Jeff Fortin, James McGuiness, Jeff Leibovitz, Francesca Leal, Gabrielle Winters, Miguel SalinasSaavedra, Katherine Roberts, Kelsey Lewis, Crystal Jones-Sotomayor, Daniel Stewart, Sruthi Purushothaman (University of Kentucky), Alexandra Wiscovitch, Kiara Chan, Michele Dill, Alessandra Norris, Benjamin Kidd.

**Current graduate committees**
Alicia Boyd, Brianda Lopez Avina (University of Kentucky), Baylea Davenport, Wesley Dillard, Zachary Strickland, Qingru 'Sue' Xu, Jacqueline Sanson, Xinyue Liu, Ella Nicklin, Kaushalya Elgiriyewithana

**Undergraduates trained**
Since 2008 (arrival at UF) 47 undergraduates have been trained in lab techniques and undertaken projects in my lab.

**Department administration**
Divisional Research Committee member 1992-1995
Ethics review panel member 2005-2008
Animal committee 2008 – present
Graduate student committee 2011-14, Chair 2014
Chair of faculty search committee, spring 2012
UFGI seminar committee 2014
Member of Scientific Misconduct committee 2014
Bylaws committee chair 2020
Member faculty search committee, spring 2022
Member faculty search committee, spring 2024

**University examining**

External examiner to University College London Anatomy & Developmental Biology Honours 1992-1995

External examiner to Edinburgh University Developmental Biology Honours course 20012004

External examiner to University College London Anatomy & Developmental Biology Honours 2003-2006

**Awards**

Excellence award in the category of "Imaginative or Innovative Approach" for ZOO3603C Evolutionary Developmental Biology on-line course,

Thomas H Maren Regenerative Biology Fellowship, 2012, for research into regeneration at the Mount Desert Island Biological Laboratory, Maine. Singer Fund award, $12,000 to establish the Nexus regeneration project. UF Term Professorship, 2019-22.

**Public Service**

Member of the Genes and Developmental Biology board of the Biotechnology and Biological Sciences Research Council (one of the 3 funding agencies in the UK) 2004-2007.

Refereeing grant proposals for Wellcome Trust, MRC, Royal Society, CNSF (Canada), NSF, NIH and several charities.

Ad hoc member of the Arthritis, Connective Tissue and Skin study section of NIH

Refereeing publications for Nature, Science, and many other top journals

Member of the Faculty of 1000

Member of British Society of Developmental Biology, past committee member

Member of the Society of Developmental Biology

Associate Editor, International Journal of Developmental Biology

Associate Editor, Regeneration

Member of Scientific Advisory Board of Ambystoma Genetic Stock Centre, University of Kentucky.

Faculty contribution to Woods Hole course 'Frontiers in Stem Cells and Regeneration'.

Organized 7 scientific conferences

**Commercial interests**

3 patents awarded. Two on the use of RAR and small molecules for neurite regeneration; one on the use of RAR as a treatment for neurodegenerative diseases.

Consultant for Oxford BioMedica (UK) plc (1999-2006).

Member of the Scientific Advisory Board of Natural Biosciences, SA.

**Grant funding Recent past**

NIH GO grant October 2009 – August 2012, co-PIs with Drs E. Scott & R. Voss, $2.4 million.

Regeneration Project Fellowship June 2009 – May 2012, $100,000 per year.

W.M.Keck Foundation award to M.Maden & B. Barbazuk (Co-PIs) 03/01/2014 – 02/30/2018 The transformative potential of the regenerating spiny mouse. $1million. NIH grant 1R01DK105916-01 E. Scott (PI) & M. Maden (Co-PI) 07/10/15 – 05/31/19 Axolotl hematopoiesis, a regeneration model.

NIH grant R210D023210 M.Maden & B. Barbazuk (Co-PIs) 03/01/2017 – 02/28/2019 Identifying the genetic changes which induce tissue and organ regeneration in a novel mammalian model system. $240,188.

NSF project grant, Co-PI J. Monaghan, Northeastern U, 01/01/16 – 12/31/19 Functional analysis of signaling pathways in limb regeneration $640,000.

NIH R21 B. Barbazuk (PI) & M. Maden (Co-PI) 07/01/19 – 06/30/22. A single cell expression atlas of muscle and dermis during regeneration after wounding in *Acomys cahirinus* – an adult mammalian model for de novo muscle regeneration. $250,000.

NSF project grant, C. Simmons (PI) & M. Maden (Co-PI) 09/01/16 – 08/31/22 Strainmediated activation of dermal regeneration and fibrosis $440,000.

NIH R21 OD028211 M. Maden (PI) 09/01/19 – 08/31/23. Genetic modification to harness the regenerative power of the African spiny mouse. $250,000.

Neural Injury & Neuroresilience Collaborative Project, June 2022 – May 2023, M. Swanson (PI), Candelario-Jalil, E., Dore, S., Febo, M., Maden, M., Simkins, A. (CoPIs). Stroke Recovery and Resilience of the Spiny Mouse Model of Enhanced Tissue Regeneration. $15,000.

**Current**

NSF project grant, IOS division . Jan 2022 - Dec 2025, M. Maden (PI), B. Barbazuk (CoPI). Investigating cardiac repair in a new adult mammalian model for regeneration. $1,000,000.

**Collaborations**

Dr E. Scott, University of Florida, project on hematopoiesis in axolotls and spiny mice.

Drs C. Pepine & C. Simmons, University of Florida, project of heart regeneration in spiny mice

Dr D. Fuller, University of Florida, project on spinal cord regeneration in spiny mice.

Dr A. Katz, University of Florida (now at Wake Forest), project on adipose derived stem cells and regeneration in spiny mice.

Dr D. Chambers, King's College London, UK, project on transcriptome analysis of neural progenitor cells after retinoic acid receptor agonist treatment.

Professor K Patel, University of Reading, UK project on muscle regeneration in the spiny mouse.

Dr Jose Silva, Cambridge Stem Cell Institute, Cambridge, UK project to generate IPSCs from spiny mouse fibroblasts.

**Papers published**

WALLACE, H., SPARKES, C.A. & MADEN, M. (1972). Nuclear DNA content of three *Crepis* species. *Heredity* **29**, 367-373.

WALLACE, H., MADEN, M. & WALLACE, H. (1974). Participation of cartilage grafts in amphibian limb regeneration. *J. Embryol. exp. Morph.* **32**, 391-404.

MADEN, M. & WALLACE, H. (1975). The origin of limb regenerates from cartilage grafts. *Acta Embryol. exp.* **N2**, 77-86.

WALLACE, H. & MADEN, M. (1976). The cell cycle during amphibian limb regeneration. *J. Cell Sci.* **20**, 539-547.

WALLACE, H. & MADEN, M. (1976). Irradiation inhibits the regeneration of aneurogenic limbs. *J. exp. Zool.* **195**, 353-358.

MADEN, M. & WALLACE, H. (1976). How X-rays inhibit amphibian limb regeneration. *J. exp. Zool.* **197**, 105-114.

MADEN, M. (1976). Blastemal kinetics and pattern formation during amphibian limb regeneration. *J. Embryol. exp. Morph.* **36**, 561-574.

MADEN, M. (1977). The role of Schwann cells in paradoxical regeneration in the axolotl. *J. Embryol. exp. Morph.* **41**, 1-13.
MADEN, M. (1977). The regeneration of positional information in the amphibian limb. *J. theor. Biol.* **69**, 735-753.
MADEN, M. & TURNER, R.N. (1978). Supernumerary limbs in the axolotl. *Nature* **237**, 232-235.
MADEN, M. (1978). Neurotrophic control of the cell cycle during amphibian limb regeneration. *J. Embryol. exp. Morph.* **48**, 165-175.
MADEN, M. (1979). Neurotrophic and X-ray blocks in the blastemal cell cycle. *J. Embryol. exp. Morph.* **50**, 169-173.
MADEN, M. (1979). The role of irradiated tissue during pattern formation in the regenerating limb. *J. Embryol. exp. Morph.* **50**, 235-242.
MADEN, M. (1979). Regulation and limb regeneration : the effect of partial irradiation. *J. Embryol. exp. Morph.* **52**, 183-192.
MADEN, M. (1980). Intercalary regeneration in the amphibian limb and the rule of distal transformation. *J. Embryol. exp. Morph.* **56**, 201-209.
MADEN, M. & GOODWIN, B.C. (1980). Experiments on the developing limb buds of the axolotl, *Ambystoma mexicanum. J. Embryol. exp. Morph.* **57**, 177-187.
MADEN, M. (1980). The structure of supernumerary limbs. *Nature* **287**, 803-805.
MADEN, M. (1981). Experiments on Anuran limb buds and their significance for the principles of vertebrate limb development. *J. Embryol. exp. Morph.* **63**, 243-265.
MADEN, M. (1981). Morphallaxis in an epimorphic system : size, growth control and pattern formation during amphibian limb regeneration. *J. Embryol. exp. Morph.* **65** (suppl.), 157-167.
MADEN, M. (1982). Vitamin A and pattern formation in the regenerating limb. *Nature* **295**, 672675.
MADEN, M. (1982). Supernumerary limbs in amphibians. *Am. Zool.* **22**, 131-142.
MADEN, M. (1982). Axial organisation of the regenerating limb : asymmetrical behaviour following skin transplantation. *J. Embryol. exp. Morph.* **70**, 197-213.
MADEN, M. (1982). The structure of 180$^{o}$ supernumerary limbs and a hypothesis of their function. *Dev. Biol.* **93**, 257-266.
MADEN, M., GRIBBIN, M.C. & SUMMERBELL, D. (1983). Axial organisation in developing and regenerating limbs. In Goodwin, N. Holder & C.C. Wylie eds.) pp 381-397. Camb. Univ Press.
MADEN, M. (1983). Vitamin A and the control of pattern in regenerating limbs. In *Limb Development and Regeneration* Part A. pp 445-454. Alan R. Liss Inc., New York.
MADEN, M. (1983). The effect of vitamin A on limb regeneration in *Rana temporaria*. *Dev. Biol.* **98**, 409-416.
MADEN, M. (1983). A test of the predictions of the boundary model regarding supernumerary limb structure. *J. Embryol. exp. Morph.* **76**, 147-155.
MADEN, M. (1983). The effect of vitamin A on the regenerating axolotl limb. *J. Embryol. exp. Morph.* **77**, 273-295.
MADEN, M. (1984). Does vitamin A act on pattern formation via the epidermis or the mesenchyme? *J. exp. Zool.* **230**, 387-392.
MADEN, M. (1984). Retinoids as probes for investigating the molecular basis of positional information. In *Pattern Formation* (G.M. Malacinski & S.V. Bryant eds) pp 539-555. Macmillan, New York.
WALLACE, H. & MADEN, M. (1984). The local action of vitamin A on amphibian limb regeneration. *Experientia* **40**, 985-986.
SUMMERBELL, D., DHOUAILLY, D. & MADEN, M. (1984). Vitamin A and the control of development. In *Matrices and Cell Differentiation* pp 439-451. Alan R. Liss Inc., New York.
MADEN, M. & HOLDER, N. (1984). Axial characteristics of nerve induced supernumerary limbs in the axolotl. *Roux,s Arch. Dev. Biol.* **194**, 228-235.

MADEN, M. & MUSTAFA, K. (1984). The cellular contributions of blastema and stump to 180° supernumerary limbs in the axolotl. *J. Embryol. exp. Morph.* **84**, 233-253.

MADEN, M. (1985). Retinoids and the control of pattern in limb development and regeneration. *Trends in Genetics* **1**, 103-107.

MADEN, M. (1985). Retinoids and the control of pattern in regenerating limbs. In *Retinoids, Differentiation and Disease* (CIBA Foundation Symposium **113**) pp 132-148. Pitman Press.

SUMMERBELL & MADEN, M. (1985). Regulation of size and pattern and the effect of vitamin A in regeneration and development. In *Prevention of Physical and Congenital Defects.* Part C: Basic and Medical Science, Education and Future Strategies. pp 121-125. Alan R Liss Inc., New York.

MADEN, M., KEEBLE, S. & COX, R.A. (1985). The characteristics of local application of retinoic acid to the regenerating axolotl limb. *Roux,s Arch. Dev. Biol.* **194**, 228-235.

STEPHENS, N., HOLDER, N. & MADEN, M. (1985). Motorneurone pools innervating muscles in vitamin A-induced proximal-distal reduplicate limbs in the axolotl. *Proc. Roy. Soc. Lond.* B **224**, 341-354.

SCADDING, S.R. & MADEN, M. (1986). Comparison of the effects of vitamin A on limb development and regeneration in the axolotl, *Ambystoma mexicanum. J. Embryol. exp. Morph.* **91**, 19-34.

SCADDING, S.R. & MADEN, M. (1986). Comparison of the effects of vitamin A on limb development and regeneration in tadpoles of *Xenopus laevis. J. Embryol. exp. Morph.* **91**, 3553.

SCADDING, S.R. & MADEN, M. (1986). The effects of local application of retinoic acid on limb development and regenertion in tadpoles of *Xenopus laevis. J. Embryol. exp. Morph.* **91**, 5563.

KEEBLE, S. & MADEN, M. (1986). The presence of cytoplasmic retinoic acid-binding proteins in amphibian tissues and their possible role in limb regeneration. In *Progress in Developmental Biology* Part A (H.C. Slavkin ed.) pp 309-314. Alan R. Liss Inc., New York.

KEEBLE, S. & MADEN, M. (1986). Retinoic acid-binding protein in the axolotl: distribution in mature tissues and time of appearance during limb regeneration. *Dev. Biol.* **117**, 435-441.

MADEN, M. & SUMMERBELL, D. (1986). Retinoic acid-binding protein in the chick limb bud: identification at developmental stages and binding affinities of various retinoids. *J. Embryol. exp. Morph.* **97**, 239-250.

ANAND, P., MCGREGOR, G.P., GIBSON, S.J., POLAK, J.M. & BLOOM, S.R. (1987). Increase of substance P-like immunoreactivity in the peripheral nerve of the axolotl after injury. *Neurosci. Lett.* **82**, 241-245.

MADEN, M. & KEEBLE, S. (1987). The role of cartilage and fibronectin during retinoic acidinduced specification of pattern in the regenerating limb. *Differentiation* **36**, 175-184.

MADEN, M. (1988). Pattern formation in the regenerating amphibian limb. *Proc. 6th Int. Singer Symp***.** (S. Inoue et al., eds) pp 111-124. Okada Pub Co. Maebashi, Japan.

MADEN, M. ONG, D.E., SUMMERBELL, D. & CHYTIL, F. (1988). Spatial distribution of cellular protein binding to retinoic acid in the chick limb bud. *Nature* **335**, 733-735.

KEEBLE, S. & MADEN, M. (1989). The relationship among retinoid structure, affinity for retinoic acid-binding protein, and ability to respecify pattern in the regenerating limb. *Dev. Biol.* **132**, 26-34.

MADEN, M. & SUMMERBELL, D. (1989). Biochemical pathways involved in the respecification of pattern by retinoic acid. *NATO Advanced Research Workshop. Recent Trends in Regeneration Research* (V. Kiortsis, S.Koussoulakos & H. Wallace eds.) pp 313-124. Plenum Press, New York.

MADEN, M., ONG, D.E., SUMMERBELL, D. & CHYTIL, F. (1989). The role of retinoid-binding proteins in the generation of pattern in the developing limb, the regenerating limb and the nervous system. *Development* (suppl) 109-119.

MADEN, M., ONG, D.E., SUMMERBELL, D., CHYTIL, F. & HIRST, E.A. (1989). Cellular retinoic acid-binding protein and the role of retinoic acid in the development of the chick embryo. *Dev. Biol***. 135**, 124-132.

SUMMERBELL, D. & MADEN, M. (1990). Retinoic acid, a developmental signalling molecule. *Trends in Neurosci.* **13**, 142-147.

MADEN, M., ONG, D.E. & CHYTIL, F. (1990). Retinoid-binding protein distribution in the developing mammalian nervous system. *Development* **109**, 75-80.

STOCUM, D.L. & MADEN, M. (1990). Regenerating Limbs. In *Methods in Enzymology***. 190**, 189201. (L. Packer ed.) Academic Press, Orlando, Florida.

MADEN, M., HUNT, P., ERIKSSON, U., KURIOWA, A., KRUMLAUF, R. & SUMMERBELL, D. (1991). Retinoic acid-binding protein, rhombomeres and the neural crest. *Development* **111**, 35-44.

HUNTER, K., MADEN, M., SUMMERBELL, D., ERIKSSON, U. & HOLDER, N. (1991). Retinoic acid stimulates neurite outgrowth in the amphibian spinal cord. *P.N.A.S. USA* **80**, 5525-5529.

GRAHAM, A., MADEN, M. & KRUMLAUF, R. (1991). The murine Hox 2 genes display spatially and temporally dynamic patterns of expression during central nervous system development. *Development* **112**, 255-264.

MADEN, M. WATERSON, N., SUMMERBELL, D., MAIGNAN, J., DARMON, M. & SHROOT, B. (1991). The role of retinoic acid and cellular retinoic acid-binding protein in the regenerating amphibian limb. In *Developmental Patterning of the Vertebrate Limb***.** (J.R. Hinchliffe et al., eds.) pp 89-96. Plenum Press, New York.

MADEN, M. & TICKLE, C. (1991). Retinoic acid and vertebrate development. *Seminars in Developmental Biology* 2, Issue **3**. W.B. Saunders Co., Philadelphia, USA.

MADEN, M. (1991). Retinoid-binding proteins in the embryo. In *Seminars in Developmental Biology* **2**, 161-170 (M.Maden & C. Tickle eds.) W.B. Saunders Co., Philadelphia, USA. MADEN, M., SUMMERBELL, D., MAIGNAN, J., DARMON, M. & SHROOT, B. (1991). The respecification of limb pattern by new synthetic retinoids and their interaction with cellular retinoic acid-binding protein. *Differentiation* **47**, 49-55.

MADEN, M. & HOLDER, N. (1991). The involvement of retinoic acid in the development of the vertebrate nervous system. *Development* (suppl) **2**, 87-94.

SUMMERBELL, D., SMITH, J.C. & MADEN, M. (1991). The molecular basis of positional information. *In vivo* **5**, 457-472.

MADEN, M., GALE, E., HORTON, C. & SMITH, J.C. (1992). Retinoid-binding proteins in the developing vertebrate nervous system. In *Retinoids in Normal Development and Teratogenesis*. (G.M. Morriss-Kay ed.) pp 119-134. Oxford Univ. Press.

MADEN, M., HORTON, C. GRAHAM, A., LEONARD, L., PIZZEY J., ERIKSSON, U. & SIEGENTHALER, G. (1992). Domains of cellular retinoic acid-binding protein I (CRABP I) expression in the hindbrain and neural crest of the mouse embryo. *Mech. Dev.* **37**, 13-23.

KRAUSSE, S., MADEN, M. HOLDER, N. & WILSON, S.W. (1992). Zebrafish pax[b] is involved in the formation of the midbrain-hindbrain boundary. *Nature* **360**, 87-89.

MADEN, M. & HOLDER, N. (1992). Retinoic acid and development of the central nervous system. *BioEssays* **14**, 431-438.

HOLDER, N. & MADEN, M. (1992). Mice with half a mind. *Nature* **360**, 708.

BERKOVITZ, B.K.B. & MADEN, M. (1993). The occurrence of cellular retinoic acid-binding protein in the periodontal ligament of the adult rat. *J. Periodont.* **64**, 392-396.

MADEN, M. (1993). The homeotic transformation of tails into limbs in *Rana temporaria* by retinoids. *Dev. Biol.* **159**, 379-391.

BERKOVITZ, B.K.B., MADEN, M. & ERIKSSON, U. (1993). The distribution of cellular retinoic acid-binding protein during odontogenesis. *Arch. oral Biol.* **38**, 837-843.

MADEN, M. (1993). The effects of vitamin A (retinoids) on pattern formation implies a uniformity of developmental mechanisms throughout the animal kingdom. *Acta Biotheor.* **41**, 425-445.

MADEN, M. (1994). The role of retinoids in embryonic development. In *Vitamin A in Health and Disease.* (R. Blomhoff ed.) pp 289-322. Marcel Dekker Inc., New York.

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MADEN, M. (1994). Vitamin A in embryonic development. *Nutrit. Rev.* **52**, S3-S12.

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MADEN, M. (1994). The limb bud - part two. *Nature* **371**, 560-561.

BERKOVITZ, B.K.B. & MADEN, M. (1994). The distribution of cellular retinoic acid-binding protein (CRABP I) and cellular retinol-binding protein (CRBP I) in the rat dentition in normal and vitamin A deficient rats. In *The Biological Mechanisms of Tooth Eruption, Resorption and Replacement by Implants.* (Z. Davidovitch ed.) pp 283-297. ESCO Media, Birmingham, Al., USA

MADEN, M. & HOLDER, N. (1994). The development of the central nervous system: the involvement of retinoic acid. *Retinoids Today and Tomorrow* **37**, 11-14.

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MADEN, M. (2025). An ear for an ear, but only if you are a deomynid. *Proc. Natl. Acad. Sci. USA* **122**, 6 e2426545122.

**Invitations to Speak at National/International Symposia**

British Society for Developmental Biology (BSDB) Symposium "Pattern Formation", Oxford, UK, April 1978.

BSDB Symposium "Limb Development", Durham, UK, September 1979.

American Society of Zoologists Symposium "Principles & Problems of Pattern Formation in Animals", Seattle USA, December 1980.

Company of Biologists Discussion Meeting "Growth & the Development of Pattern", Sussex, UK, April 1982.

BSDB Symposium "Development & Evolution", Sussex, UK, April 1982.

3rd International Conference on Limb morphogenesis and Regeneration, Storrs, USA, June 1982.

European Developmental Biology Organisation International Embryological Conference "Natural & Experimental Restitution of Multicellular Organisms", Strasbourg, France, June 1982.
Mammalian Limb Regeneration Workshop, Irvine, California, USA, June 1983.
29th International Congress of Physiological Sciences, Sydney, Australia, September 1983.
BSDB Symposium "Matrices & Cell Differentiation", Aberystwyth, Wales, September 1983.
CIBA Symposium "Retinoids, Differentiation & Disease", London, UK, September 1984.
National Science Foundation Workshop "Future Directions for Vertebrate Regeneration", Santa Cruz, USA, February 1985.
French Society for Developmental Biology Symposium "Genetics & Biology of Development", Marseilles, France, June 1985.
International Society of Developmental Biology Symposium "New Discoveries & Technologies", Los Angeles, USA, August 1985.
BSDB Symposium "Limb Development", London, UK, September 1985.
British Society for Cell Biology Symposium (BCSB) "Cell Surfaces & the Extracellular Matrix", London, UK, September 1985.
3rd FASEB Summer Conference on Retinoids, Vermont, USA, June 1986.
NATO Advanced Research Workshop "Recent Advances in Regeneration Research", Athens, Greece, September 1988.
BSDB/BSCB Symposium "The Molecular Basis of Positional Signalling", St Andrews, Scotland, April 1989.
Hofmann-La Roche Conference "Retinoids & Teratogenesis: Molecular Mechanisms & Approaches", New York, USA, May 1989.
1st AIRR European Conference on Tissular & Post-Traumatic Regeneration, Geneva Switzerland, September 1990.
NATO Advanced Research Workshop "Limb Patterning", Santander, Spain, September 1990.
Royal Netherlands Academy of Arts & Sciences Workshop "Retinoids in Cancer & Development", Amsterdam, The Netherlands, October 1990.
Hofmann-La Roche Conference "Retinoids in Normal Development and Teratogenesis", Oxford, March 1991.
BSDB/BSCB Symposium "Developmental Nerve Cell Biology", Leeds, UK, April 1991.
4th International Conference on Limb Development & Regeneration, Asilomar California, USA, July 1992.
Leiden University Conference "Evolution & Development: Generative and Stability Principles of Biological Form", Leiden, The Netherlands, September 1992.
Little Foundation Workshop "Endocrine and Other Factors Affecting the Ovum, Embryo and Early Months of Pregnancy", Abingdon, UK, November 1992.
Craniofacial Morphogenesis Workshop, Iowa, USA, April 1993.
Marabou Symposium "Vitamin A: from Molecular Biology to Public Health", Stockholm, Sweden, June 1993.
BSDB Conference "Retinoic Acid in Development", Cambridge, UK, September 1993.
Hofmann-La Roche Conference "Retinoids, Gene Expression and Mammalian Development", Oxford, UK, September 1993.
European Retinoid Research Group Conference "Retinoids: New Trends in Research and Clinical Applications", Genoa, Italy, October 1993.
International Workshop on the Molecular Biology of Urodeles, Indianapolis, USA, October 1993.
Developmental Biology Conference, Moscow Russia, August 1994.
Taniguchi Symposium on Developmental Biology, Bordeaux, France, September 1994.
Indo-Japanese Conference “Morphogens, Genes and Development”, Mysore, India, February 1995
European Developmental Biology Organisation Conference, Toulouse, France, July 1995
European Retinoid Research Group Conference “Retinoids ‘95”, Sophia Antipolis, France, October 1995

BSDB/BSCB Spring Symposium "Regeneration", York, UK, March 1996
1996 FASEB Summer Research Conference on Retinoids, Copper Mountain, Colorado, USA, June 1996
Society of Experimental Biology '97 conference, New Orleans, USA, April 1997.
US EPA Conference 'Evaluating the Increase of Amphibian Malformations', Shenandoah National Park, USA, April 1997.
Japan Science and Technology Corporation conference 'Metamorphosis and Regeneration: Keys to Tissue Regeneration', Indianapolis, USA, August 1999.
European Retinoid Research Group Conference "Retinoids '97", Nice, France, October 1997.
British Toxicological Society meeting, Guilford, Surrey, UK, April 1998.
1998 FASEB Summer Research Conference on Retinoids, Snowmass, Colorado, USA, June 1998.
European Developmental Biology Organisation and International Society of Developmental Biologists conference, Oslo, Norway, June 1999
Nutrition Society summer meeting, Glasgow, UK, July 1999.
10th International Conference of the International Society of Differentiation, Houston, Texas, USA, October 1998.
European Retinoid Research Group Conference "Retinoids '99", Strasbourg, France, October 1999
International Agency for Research on Cancer working group meeting on 'Retinoids', Lyons, France, March 1999.
33rd Winter Conference on Brain Research, Breckenridge, Colorado, USA, January, 2000.
Royal College of Surgeons, Advances Courses in Plastic Surgery, Manchester, UK, April, 2000.
2000 FASEB Summer Research Conference on Retinoids, Copper Mountain, Colorado, USA, June 2000.
35th Winter Conference on Brain Research, Snowmass, Colorado, USA, January, 2002.
EURESCO conference 'Cellular and Molecular Basis of Regeneration' Pisa, Italy, September 2002.
American Society for Neurochemistry, 33rd annual meeting, Palm Beach, Florida, USA, June 2002.
Biocomplexity IV; Regenerative Biology and Medicine, Bloomington, USA, May 2003.
Royal Society discussion meeting on 'New Directions in Tissue Repair and Regeneration' London, UK, September 2003.
10th International Symposium on Neural Regeneration, Asilomar, California, USA, December 2003.
2004 FASEB Summer Research Conference on Retinoids, Pine Mountain, Georgia, USA, June 2004.
38th Winter Conference on Brain Research, Breckenridge, Colorado, USA, January 2005.
British Thoracic Society winter meeting, London, UK, December 2005.
2006 FASEB Summer Research Conference on Retinoids, Indian Wells, California, USA, June 2006.
Scientific Lung Day Graz 2007, Medical University of Graz, Austria, April 2007.
Lorentz Centre Workshop 'Designing the bodyplan: developmental mechanisms' Leiden University, Holland, June 2007
6th INMED/TINS Conference 'From basic research to novel treatments: lost in translation' Marseille, France, September 2007.
Japanese Society for Retinoid Research Conference 'Retinoids and Tissue Formation' Tokyo, Japan, November 2007.
Transatlantic Airway Conference 'Stem/progenitor cells and lung repair' Lucerne, Switzerland, January 2008.
FASEB Summer Research Conference on Retinoids, New Haven, Connecticut, USA, June, 2008
Society of Developmental Biology 68th Annual meeting, San Francisco, July 23-27, 2009 (oral poster presentation).

FASEB Summer Research Conference on Retinoids, Carefree Resort, Arizona, USA, June 13th – 18th, 2010.

11th International Conference on Limb Development & Regeneration, Williamsburg, VA, July 13-17, 2010 (session chair)

Society of Developmental Biology 69th Annual meeting, Albuquerque, New Mexico, August 5-9, 2010 (poster presentation).

EMBO Conference 'Molecular and Cellular Basis of Regeneration & Tissue Repair, Sesimbra Portugal, September 26-30, 2010 (2 poster presentations).

Gordon Conference 'Tissue Repair & Regeneration' New Hampshire, 4-5 June, 2011 (poster presentation).

International Cartilage Repair Society 10th Annual World Congress, Montreal Canada, May12-15, 2012.

EMBO Conference ' Molecular & Cellular Basis of Regeneration & Tissue Repair, Oxford UK, September 2-6, 2012 (session chair).

International Cartilage Repair Society summit, Tallinn, Estonia, May 39th – June 1st, 2013 invited talk entitled "Why can't mammals regrow their limbs?".

SENS Research Foundation conference, Queen's College Cambridge, UK September 3 – 7th 2013, invited talk entitled "Regeneration in the adult organism – a cure for ageing?".

2013 International Symposium on Development, Morphogenesis and Stem Cells, National YangMing University/Taipei Veterans General Hospital, Taipei, Taiwan, October 5 - 6th, invited talk entitled " The regeneration of complex structures from Axolotls to mice: the evolution of the blastema and its stem cells".

International Symposium on Wound Regeneration and Repair, National Cheng Kung University, Tainan, Taiwan, October 8th 2013, invited talk entitled "Complex tissue regeneration in a new mammalian model system, the African spiny mouse".

Gordon Conference on Tissue Repair and Regeneration, 8th – 12th June, 2015, invited talk entitled "Towards a more regenerative skin wounding outcome in mammals".

IIAA Live conference, Royal Institution London UK, 8th September 2015, invited talk entitled "Vitamin A, the Holy Grail of Rejuvenation".

13th Annual IFATS Meeting, New Orleans, Nov 5-8th 2015, talk entitled "Regeneration and Stem Cells in the Spiny Mouse: A Unique Mammalian Regeneration Model"

The Scar-Free Foundation inaugural symposium, London UK, 10th – 11th October 2017, talk entitled "Regeneration in the axolotl and spiny mouse models"

International Skin Scarring and Keloid Symposium, New York, 3rd-4th November 2017, talk entitled "The spiny mouse: an adult mammalian model for scar-free healing".

DARPA conference on Bioelectronics for Tissue Regeneration, March 1, 2019, Arlington Virginia, "The spiny mouse, Acomys, a unique regenerating mammal for understanding tissue fibrosis and wound healing"

Gordon Conference on "Tissue repair and regeneration", London, New Hampshire, 9th-14th June 2019, "Towards a more Regenerative Skin Wounding Outcome".

Keynote speaker at the First Southwest Regional Zebrafish/Cavefish Conference, December 2019,
University of Miami, FL "The spiny mouse: a new adult mammalian model for regenerative medicine".

The Peter Thorogood Memorial Lecture at the "Craniofacial and Neural Development" conference, Monday 20th January 2020, University College London. Lecture entitled "Progress towards inducing regeneration in mammals".

"Regeneration in the spiny mouse, Acomys: common themes among different organs may explain its regenerative properties" invited talk at Technische Universitat Dresden, Dresden, Germany to celebrate 10 years of the Centre for Regenerative Biology, June 3-4 2021.

"Development and regeneration through the ages" invited talk presented at Banbury Center, New York conference entitled "New Approaches to Enduring Questions in Regenerative Biology" April 3rd – 6th 2022. "Evolutionary genetics of mammalian regeneration: insights from the amazing spiny mouse". Invited presentation at the UF Genetics Institute annual symposium, November 3rd & 4th 2022

**Conferences Organised:**

BSDB Conference "Retinoic Acid in Development", Cambridge, September 1993 5th International Limb Development and Regeneration Conference, York, March 1996.

European Retinoid Research Group Conference "Retinoids '97", Nice, France, October 1997

European Retinoid Research Group Conference "Retinoids '99", Strasbourg, France, October 1999

35th Winter Conference on Brain Research, Snowmass, Colorado, USA, January, 2002 (session organizer).

38th Winter Conference on Brain Research, Breckenridge, Colorado, USA, January, 2005 (session organizer).

South East Society of Developmental Biology, University of Florida, May 17-19th, 2011.

13th International Limb Development and Regeneration Conference, St Petersburg, Florida, June 28th – July 1st, 2015.

**Seminar Invitations**

Numerous invitations to speak throughout the UK, Europe and USA and in Japan and Taiwan.