

Curriculum vitae

Geoffrey Hale

Date of completion 5 Feb 2026

Current posts Freelance Scientist and Consultant
CEO, mAbsolve
Managing Director, Bioarchitech

Date of Birth 2nd September 1953

Nationality British

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University Fitzwilliam College, University of Cambridge

Undergraduate BA degree course: Natural Sciences

1971-1972	Biology of cells, Chemistry, Physics, Maths	Class 1
1972-1973	Biochemistry, Chemistry, Exp. Psychology	Class 1
1973-1974	Biochemistry	Class 2.1

Awards

1972-1973 Exhibition
1973-1974 Scholarship
1972, 1973 Examination prizes

Postgraduate PhD: Department of Biochemistry, Cambridge.

1974-1977 Supervisor Prof. R.N. Perham
Thesis "Structure of the pyruvate dehydrogenase complex of E. coli."

Mature student University of Durham

2018-2022 Diploma of Higher Education in Theology, Mission and Ministry

Academic Career

1977-1980 Research Assistant, Department of Biochemistry, Cambridge.

Employed on an SRC project grant, I continued my studies on the structure and function of the pyruvate dehydrogenase complex, using a wide range of protein chemical and physical biochemical techniques.

1980-1984 Research Assistant, Department of Pathology, Cambridge.
1985-1986 Research Associate, Department of Pathology, Cambridge.
1986-1995 Senior Research Associate, Department of Pathology, Cambridge

During this time, I worked with Prof. Herman Waldmann on therapeutic monoclonal antibodies, funded first by an MRC project grant, then by MRC programme grants and the Kay Kendall Research Fund. We identified a wide range of antibodies against human leukocytes, defined rules for using them to clear target cells and used many of them in clinical trials of immunosuppression and tumour therapy.

1989-1995 Administrative payment and merit award.

1990-1995 Manager, Therapeutic Antibody Centre, Regional Blood Transfusion Centre, Cambridge.

I set up a group with five staff to produce pilot scale quantities of monoclonal antibodies for the clinical trials according to appropriate quality guidelines. I designed and supervised the construction of a clean room facility and was responsible for overall supervision of the antibody production as well as development of new techniques. In addition, I maintained regular liaison with a large number of clinical teams using the antibodies for trials.

1995-1998 Research Lecturer, Dunn School of Pathology, Oxford.

1998-2000 Reader in Therapeutic Immunology, Dunn School of Pathology, Oxford

2000-2007 Professor of Therapeutic Immunology, Dunn School of Pathology, Oxford

1995-2007 Research Director, Therapeutic Antibody Centre, Oxford

2004-now Qualified Person, recognised by MHRA for release of Investigational Medicinal Products.

2007-2016 Visiting Professor of Therapeutic Immunology, Dunn School of Pathology, Oxford

During 1994-5 I designed and supervised the construction of a new purpose-built GMP facility for pilot production of therapeutic biologicals. I established a team of 8-9 staff, training them in good manufacturing practice and continuing antibody production and clinical liaison. We brought more than 25 new therapeutic antibodies to the clinic involving trials in more than 5000 patients. We worked closely with numerous Biotech companies to help in the commercial development of several projects. In 2001, Campath was approved by the FDA and EMEA for treatment of chronic lymphocytic leukaemia. Other antibodies, including anti-CD3 are currently in commercial development for treatment of autoimmune diseases. In June 2004, the TAC received a Manufacturer's Authorisation from the Medicines and Healthcare Products Regulatory Agency (MHRA), one of the first following the introduction of this scheme in May 2004. It has now changed focus to work on vaccines and gene-therapy products.

Commercial Career

2002-2004 Founder and Consultant, BioAnaLab Limited

2004-2010 Chief Executive Officer/Managing Director, BioAnaLab Limited

2010-2011 Chief Scientist, Millipore BioPharma Services, Merck Millipore

I founded BioAnaLab as a spin-out based on the bioanalytical techniques developed at the TAC. The Company provides contract analytical services to the pharmaceutical industry and specialises in the analysis of biologics such as antibodies, vaccines, growth factors and cytokines. Technologies include ELISA, flow cytometry and surface plasmon resonance, were applied to batch release, formulation, pharmacokinetics and immunogenicity studies in the course of pre-clinical and clinical trials. The company grew

to employ 50 staff by 2009 when it was acquired by Millipore Corporation. I continued to manage the company through the integration and subsequent acquisition of Millipore by Merck KGaA.

2011-2018 Chairman of the board of directors, The Native Antigen Company Limited
 2018-2020 Director, The Native Antigen Company Limited
 2011-now Sole Trader, Geoff Hale Developments and Geoff Hale Consultancy
 2012-2020 Director, Absolute Antibody Limited
 2013-2015 CEO, Mablyte Limited
 2015-now Managing Director, Bioarchitech Ltd
 2020-now CEO, mAbsolve Limited

I am a founder, investor and board director of a number of biotechnology companies with interests in therapeutic antibodies, infectious disease, immunology, biological manufacture and testing and oncology.

Teaching

1974-1980 Supervisor for Fitzwilliam College in Biology of Cells and Biochemistry.
 Assistant demonstrator in practical classes for Biochemistry.
 1980 Tutor for St. Andrew's Tutorial College, Cambridge.
 1980-1995 Assistant demonstrator in practical classes in Pathology.
 Supervisor of numerous Part 2 research project students.
 Supervisor of Immunology option (Part 2 Pathology)
 Assistant lecturer in Pathology.
 1981-2004 Supervisor of several trainee technicians (from Youth Training scheme to Higher National Diploma).
 1984-1996 Supervisor of three PhD students.
 1993-2013 Supervisor of numerous short-term work experience students
 1996-2002 Occasional lecturer on various immunology courses (Oxford, London, Cranfield Universities)
 1997-2002 Lecturer in Biochemistry (Biotechnology option course)
 2000-2023 Lecturer in Pathology (Immunology FHS option course)
 2006-2011 Member of curriculum advisory committee, Brookes University
 2013-2019 Lecturer in Biochemistry
 2014-2023 Lecturer in Medical Sciences (MSc Immunology)

Although teaching has not been my main job, I have enjoyed a wide variety of teaching experience; lecturing to large groups, conducting small tutorial classes, and demonstrating practical techniques to classes and individuals.

Publications

1977-1992 Co-author of 17 original articles and one meeting abstract about the structure and function of pyruvate dehydrogenase - see enclosed list.
 1982-now Author or co-author of >390 reviews, original articles and meeting abstracts connected with therapeutic uses of monoclonal antibodies - see enclosed list.

In addition to publications, the nature of my work in the TAC and at BioAnaLab necessitated the writing of a large number of formal documents, including standard operating procedures, annual reports, commercial contracts, reports of clinical trials etc.

Professional Societies

1981 British Society for Immunology.
 1992-2004 International Society for Hematotherapy and Graft Engineering.
 1997-2001 European Society for Animal Cell Technology
 1998-2000 British Association for the Advancement of Science
 1998-2000 American Association for the Advancement of Science
 2004-2011 American Association for Pharmaceutical Sciences
 2020-now The Antibody Society

Committee Membership

2006-2012 NC3Rs/ABPI Biologicals Expert Working Group

Invited lectures

1984 Royal College of Pathologists symposium on Developments in Bone Marrow Transplantation. London.
 LRF workshop on Bone Marrow Transplantation. London.
 1986 12th Annual meeting of the European Cooperative group for Bone Marrow Transplantation. Courmayeur.
 1987 4th International symposium on therapy for acute Leukemias, Rome.
 Lymphokines in Haemopoiesis. London
 1988 Special Leukaemia Review - East Anglia IMLS. Cambridge
 Clinical Use of Monoclonal antibodies. Amsterdam.
 14th Annual meeting of the European Cooperative Group for Bone Marrow Transplantation. Chamonix.
 Paediatric Bone Marrow Transplantation meeting. Manchester.
 British Council course on Bone Marrow Transplantation. London.
 Leukaemia 1988 - recent progress in Biology and Clinical Research. Genoa.
 1989 Scientific symposium - American society for Haematology, Atlanta, USA
 1990 Satellite symposium on Non-Hodgkin's lymphoma, British Society of Haematology. Cambridge.
 Cancer and the Immune System, Venice
 From Clone to Clinic, Amsterdam
 1991 Immunotherapy with monoclonal antibodies, British Council, Cambridge.
 1992 Cell culture for clinic and pharmaceutical industry, Utrecht
 1993 Labelling, Quality Control and Clinical Efficacy of Monoclonal Antibodies for Scintigraphy, IAEA Symposium Cambridge.
 New approaches for treating haematological malignancy, LRF International Symposium, London.
 Advances in Clinical Immunology, Royal College of Physicians, Edinburgh.
 Northern Bone Marrow Transplant Group Symposium, Leeds.
 Multiple Sclerosis Grantholders meeting, London.
 1994 Antibody-based Therapeutics, IBC, Washington, USA.
 1995 Biochemical Society Symposium, Manchester.

- 1996 Royal Society of Medicine/Transplantation Society joint symposium, London.
- 1997 European Biotechnology Symposium, Edinburgh.
Biosym 97, Boston (Keynote Speaker).
American Society for Haematology, LeukoSite/Ilex CLL meeting, San Diego.
- 1998 International Marrow Transplant Registry Annual Meeting, Keystone.
Haemopoietic Stem Cell Symposium, Birmingham (The George Bird Memorial Lecture)
Bone Marrow Transplantation in Childhood, Manchester.
- 1999 European Society for Haemopheresis, Malmo (tribute to Dr Martin Lockwood)
Royal College of Medicine, London
- 2000 International Society for Hematotherapy & Graft Engineering, San Diego.
CAMPATH-1H International Advisory Board Meetings, Kloster Irsee and Cape Cod
- 2001 IBMTR/ABMT Tandem BMT meeting, Keystone
MBI bioprocessing course, London
UBS Warburg Investors meeting, London
CAMPATH-1H International Advisory Board Meeting, Berlin
Campath in CLL, Royal Soc. Medicine, London
- 2002 Massachusetts Biotech Meeting, Boston
- 2003 New Horizons in Antibody Induction Therapy, Northwestern University, Chicago
Third International Congress on Monoclonal Antibodies in Cancer, Quebec
Biologics Safety, Vision in Business, London
Immunogenicity of Protein-based Therapeutics, IIR, Amsterdam
- 2004 Bioval 2004, Royal Pharmaceutical Society
Mabs in bone marrow transplantation, Marbella
American Transplant Congress, Boston
Immunogenicity of Protein-based Therapeutics, IIR, London
PABORD, London
Protein Immunogenicity, Barnett, Brussels
- 2005 Recombinant Antibodies, IBC, Berlin
National Biotechnology Congress, San Francisco
Comparability and Immunogenicity, IBC, Vienna
Tolerance Symposium, Newcastle
Immunogenicity, Barnett, Philadelphia
TEDA Bioform, Tianjin, China
- 2006 Cell Biology Symposium, Brookes University, Oxford
UK CLL forum, London
SCI Pharm, Edinburgh
Comparability and Immunogenicity, IBC, Zurich
BA Festival of Science, Norwich
- 2007 Immunogenicity Workshop, Bioveris, Oxford
Predicting adverse reactions to biologics, British Toxicology Society, Guildford
Comparability and Immunogenicity, Informa, Berlin
BIAcore users meeting, Dublin
EMA immunogenicity workshop, London
- 2008 Royal Society of Chemistry, Newmarket
Lymphoma Forum, Chester

	DIA/AAPS Immunogenicity workshop, Bethesda
	EBF Forum, Barcelona
2009	Oxford Innovation Society, Oxford
	Reid Bioanalytical Forum, Guildford
	QI Immunogenicity Meeting, Baltimore, USA
2010	AHPPI winter meeting, London
	Biomarkers Congress, Manchester
	Gyros Users Meeting, Uppsala
	EBF Forum, Barcelona
2011	Research Gala, Birmingham University
	Joint Conference of European Pharmacological Societies, Berlin
	Hanson Wade Immunogenicity Conference, Frankfurt
	Visiongain Biosimilars Conference, London
2012	Isis Angels Network, Oxford
2013	VentureFest, Oxford
2016	6th Annual Biologics Symposium, London
	Science Festival, Cambridge
2017	EUFEMED, London
	BioProcess International, Boston
2019	Oxfordshire Biotechnology Network, Oxford
	British Society for Bone Marrow Transplantation, London
	One Nucleus/Celerion Seminar, Babraham, Cambridge
2020	5th Biologics Symposium (Promega), online
2021	Mastering Immunity (Proimmune), online
	Antibody Drug Development Summit (The Jackson Laboratory), online
2022	Biologics Symposium (Promega), London
2023	Diagnostics North East, Newcastle
	Antibody Engineering and Therapeutics Europe, Amsterdam

Besides these invited plenary lectures at public meetings, I have participated in many other conferences and given seminars at numerous research institutions in the UK and abroad. Abstracts or proceedings of some of these meetings are included in the reference list.

Meetings organised and/or chaired

1984- 2000	I organised an annual "CAMPATH users" meeting for evaluation and discussion of clinical results. I was responsible for collecting data, analysis, registration of participants, co-chairing and presentation of data.
1986	Third Leukocyte Workshop Oxford - chair of one session
1991	Deputy Director of British Council Course "Immunotherapy with monoclonal antibodies", Cambridge.
1993	European Group for Bone Marrow Transplantation, Garmisch - chair of one session.
1998	Radiolabelled antibodies users meeting, Oxford
2000	Future Trends in Therapeutic Antibodies, London
2001	Mab Seminar, Amersham-Pharmacia, London
2002	Radiolabelled antibodies users meeting, Oxford
2003	Biologics Safety, Vision in Business, London (workshop)

	Immunogenicity of Protein-based Therapeutics, IIR, Amsterdam (workshop)
2004	Immunogenicity of Protein-based Therapeutics, IIR, London (workshop)
2005	Immunogenicity of Protein-based Therapeutics, IBC, Vienna (workshop)
	Recombinant Antibodies, IBC, Berlin (chair)
2006	Immunogenicity of Protein-based Therapeutics, IBC, Zurich (workshop)
2007	Predicting adverse reactions to biologics, BTS, Guildford (chair)
2007	Comparability of biologics, IBC, Berlin (workshop)
2010	Biomarkers symposium, Oxford
2011	Biosimilars conference, London
2015	Proteins and Antibodies Congress, London
2016	6th Annual Biologics Symposium, London
2023	Antibody Engineering, Amsterdam
2025	Antibody Industrial Symposium, Tours

Participation in International workshops

1986	Third Leukocyte Workshop, Oxford
1989	Fourth Leukocyte Workshop, Vienna
1992	European Commission workshop on Safety and Efficacy of Monoclonal antibodies, Paris.
1996	Sixth Leukocyte Workshop, Kyoto

Training courses attended

In addition to the conferences and workshops listed above, I have attended the following training courses:

1999	Biomarkers and surrogate endpoints: NIH FDA, Bethesda
	Registration of Pharmaceuticals in Europe, IBC, Amsterdam
2000	European GMP legislation and guidelines, Pharmaceutical Quality Group, London
2002	ISO9000 Awareness - in house course
	Non-commercially sponsored clinical trials and the NHS: MCA, Birmingham
	Clinical Trials Directive: MCA, London
	Fire Safety Training - in house course
	First Aid Training - in house course
	Antibody Production and Downstream Processing, IBC, London
	Characterisation, comparability and regulatory requirements, IBC, London
2003	WHO Basic GMP Training course for inspectors - in house course
2004	QP training course on Investigational Medicinal Products, David Begg, York
2006	GLP for study directors and study personnel - in house course
2010	FDA cGMP laboratory compliance training – in house course
2015	Diocese of Oxford Safeguarding Children
2019	Diocese of Oxford Safeguarding courses C0, C1 and C3
2022	First Aid Training (application to infants and children)
2023	Diocese of Oxford Safeguarding Leadership Pathway
2024	Volunteer Car Service and First Aid Training with Yorkshire Ambulance Service

Journals

I have reviewed papers for "Bone Marrow Transplantation", "Transplantation", "Immunology", "Clinical and Experimental Immunology", "Journal of Immunological Methods", "Blood" and other journals.

Grant reviews

I have reviewed grant applications for the Leukaemia Research Fund, and other organisations.

Media contacts

Both in Cambridge and Oxford I have taken part in several presentations of our work in the media, including interviews on radio and TV, writing press releases and answering questions from the press.

Public understanding of science

Spoken at schools, entertained teachers and pupils at the TAC and BioAnaLab and prepared a poster presentation for a schools open day.

Prepared a brochure describing the development of therapeutic antibodies and the objectives of the TAC which has been widely distributed to students, scientists, physicians, industry etc and is also available on the internet.

On the register of the Media Resource Service to provide expertise on monoclonal antibody therapy.

Made poster presentations at meetings of the Royal Institution and the Medical Research Council 25th anniversary of monoclonal meetings.

Hosted students for work experience from Wychwood School, Oxford, King Alfred's School, Wantage and several others.

Research Activities

Research interests:

- Therapy with monoclonal antibodies.
- Fc related functions of rat and human immunoglobulins.
- Differentiation antigens of human leucocytes.
- Structure and function of GPI-membrane anchors.
- Role of CAMPATH-1 antigen in immune and reproductive systems.
- Large scale culture and purification of therapeutic proteins.
- Quality control methods for therapeutic antibodies.
- Allogeneic bone marrow and blood stem cell transplantation.
- Serotherapy of leukaemia and lymphoma.
- Use of antibodies as immunosuppressants in treatment of autoimmune disease.

Pharmacokinetics and pharmacodynamics of biologicals
Immunogenicity of biologicals
Immune responses to polyethyleneglycol
Oncolytic viruses

Collaborations

My work has involved collaboration with many scientists both within the University and outside. I have regular contact with clinicians worldwide, who are working on trials of monoclonal antibodies particularly in the areas of Haematology, Neurology, Rheumatology, Diabetology. Over the years I have collaborated with scientists and clinicians at about 150 institutions worldwide.

With Prof. Waldmann, I established a worldwide network of 'CAMPATH users'; this consisted of about 50 teams using our antibodies in trials of bone marrow transplantation and other clinical treatments. I organised an annual meeting of these teams in Cambridge at which we exchanged information and ideas in an informal setting. These meetings have been popular and very helpful to our work.

I have supplied antibodies to many other researchers throughout the world to assist in their studies.

Research grants:

Year	Funder	Amount
1980-1983	Medical Research Council	31,055
1984-1985	National Kidney Research Foundation	2,400
1989-1992	Leukaemia Research Fund	35,339
1990-1995	Medical Research Council and the Wellcome Foundation	1,270,765
1993-1995	Medical Research Council and the Wellcome Foundation	59,800
1994	Therexsys Ltd	3,399
1994-1998	BBSRC	144,658
1994-2000	Medical Research Council and LeukoSite Inc	3,968,712
1996	LeukoSite Inc	100,000
1997-1999	NHS R&D and LeukoSite Inc	93,839
2000-2002	Millennium Pharmaceuticals Inc	1,341,934
2000-2002	Millennium Pharmaceuticals Inc	200,000
2001-2004	SRIF	667,000
2002-2004	TolerRx Inc	752,908
2002-2003	GlycArt Biotechnology AG	20,000
2003-2004	Immune Tolerance Network	115,494
2003-2004	Cancer Research UK	61,951
2003-2004	GlycArt Biotechnology AG	69,994
2004-2005	Cancer Research UK	50,000

PhD students

- 1984-1987 Carol Bindon, "Complement-mediated lysis by monoclonal antibodies for therapy". (MRC and Emmanuel College)
- 1988-1992 Meng-Qi Xia, "Characterization and structural analysis of CAMPATH-1 antigen" (Churchill College and ORS)

1992-1995 Vanessa Taylor, "Function of CAMPATH-1 antigen"
(MRC collaborative award with The Wellcome Foundation)

Patent applications

I have several patent applications and granted patents related to therapeutic antibodies - see the list at the end.

General contributions (academic)

Department: From 1982 to 1995 I served on the Department Safety Committee as representative of the Immunology Division and helped to implement safety policy within our Division. I was also a member of the Regional Transfusion Centre Safety Committee.

From 1981 to 1994 I was the local User representative for the University Computing Service and help to advise and assist users in Immunology and Virology New Site.

From 1995 to 2004 I was the Safety Representative for the Therapeutic Antibody Centre, responsible for all day-to-day health and safety issues.

From time to time I served on Departmental teaching committees, with appointment of PhD students or technicians and with a variety of administrative responsibilities, especially when Prof Waldmann was on sabbatical leave and following his move to Oxford.

General contributions (commercial)

I have helped to liaise with commercial organisations to market our antibodies for various purposes.

Serotec Ltd (now BioRad) market a range of our rat antibodies for scientific research. I was instrumental in the transfer of these reagents and providing appropriate documentation.

Campath has been developed by many companies over the years: Wellcome Biotech, Leukosite Inc, ILEX Oncology, Millennium Pharmaceuticals, Schering AG and Genzyme. I have worked with all of them to transfer technology, to assist with regulatory submissions to FDA and EMEA and to carry out analytical tests in the course of their clinical trials. In 2001, this led to the approval of Campath for treatment of CLL by the FDA and EMEA, and I have continued to work with the companies since then.

Cantab Pharmaceuticals Ltd (Cambridge) developed our CD45 antibodies for purging kidney grafts to reduce rejection. I cooperated with their patent application to protect this work. I occasionally acted as a part-time consultant for this company. Some of our CD45 technology is now being developed by University College London

I formed a major collaboration with LeukoSite Inc (Boston, USA) who licensed Campath and other therapeutic monoclonal antibodies from our group. They made a substantial financial contribution to the new TAC in Oxford and we worked for many years on several

projects of mutual interest. In 1999 LeukoSite was acquired by Millennium Pharmaceuticals and I continued to collaborate with them until they eventually sold their interests in therapeutic antibodies in 2002.

In 2000, together with Herman Waldmann and Steve Cobbold, I became one of the scientific founders of TolerRx Inc (Cambridge, USA) a start-up biotech company devoted to development of antibodies for inducing tolerance to proteins and tissues. TolerRx took up licenses to various antibodies worked on at the Therapeutic Antibody Centre and was a major sponsor of our research.

In 2002 I started a collaboration with GlyArt Biotechnology AG (now part of Roche) to improve the effector functions of antibodies. This project was important to the company in developing proof of principle for their technology and supporting their case for investment.

In October 2002, together with Peppy Rebello and Steve Cobbold, I founded a new Oxford University spin-out, BioAnaLab, to provide bioanalytical services to the pharmaceutical industry and to develop the diagnostics needed for making antibody therapy more effective. We raised an initial investment of £550,000. In September 2004 I took responsibility as the Chief Executive Officer, raised further investment of £450,000 and returned a net profit from the following year. In 2009 the company was sold to Millipore Corporation for a sum in excess of £7.5M.

In 2010, I co-founded The Native Antigen Company which specialises in producing intact viral and bacterial antigens for the diagnostics industry. In 2020, The Native Antigen Company was sold to LGC for a sum in excess of £17M.

In 2021, I co-founded a company, Absolute antibody which specialises in producing recombinant monoclonal antibodies for research. In 2020 Absolute Antibody was sold to LSBio for a sum in excess of £41M.

In 2015, I co-founded a company, Bioarchitech, which is developing a novel oncolytic virus.

In 2019, I co-founded a company, mAbsolve which is developing new modifications to prevent unwanted side effects of antibody therapy.

Consultancies

I have acted in a private capacity as retained consultant for the following organisations.

1993	Cantab Pharmaceuticals Ltd
1996-1999	LeukoSite Inc
1999-2001	Millennium Pharmaceuticals Inc
2000-2004	TolerRx Inc
2002-2004	BioAnaLab Ltd
2011-2012	Lonza Ltd
2012-2014	Millipore (UK) Ltd and Eurofins Ltd
2012-2016	Cancer Research UK

I have carried out numerous other ad hoc consultancies for various pharmaceutical companies and venture capital organisations and advised various patent attorneys and acted as expert witness in connection with court cases.

Other

- 1977-1985 Youth club leader, St. Matthew's Church, Cambridge.
- 1984-1989 Churchwarden, St. Matthew's Church (responsible for buildings and administration).
- 1988-1989 Parent governor, Brunswick Nursery School, Cambridge.
- 1989-1995 Co-editor, "Streetwise" community magazine.
- 1994 Organiser, "Remember, remember", a week-long interactive exhibition of local history, St. Matthew's parish, Cambridge.
- 1995-2000 Occasional assistant helper or leader, Cub scouts Marston, youth club and Sunday School, St Nicholas' Church, Marston.
- 1996-2007 Member, St Nicholas' Parochial Church Council
- 1998-2022 Organiser and Leader, annual children's holiday club
- 2000-2007 Churchwarden, St Nicholas' Church, Marston
- 2011-2017 Churchwarden, St Nicholas' Church, Marston
- 2000-2008 Company Director, Marston Church Properties
- 2011-2017 Company Director, Marston Church Properties
- 2001-2009 Company Director, Divya Shanthi Mission Support
- 2011-now Trustee, Hale Family Charitable Trust
- 2014-2023 Volunteer assistant, Old Marston Library
- 2015-2023 Honorary Secretary, Churches Together in Marston and Northway
- 2017-2023 Treasurer, St Nicholas' Parochial Church Council
- 2021-2023 Licensed Lay Minister, Diocese of Oxford
- 2024-now Volunteer Patient Transport Services (Yorkshire Ambulance Service)
- 2024-now Licensed Lay Minister, Diocese of Leeds

Through these activities, and several others, I am interested in promoting the work of the Church in the local community.

Publications

Since 1977 I have co-authored more than 400 reviews, original articles and meeting abstracts.

Structure and function of pyruvate dehydrogenase

From 1974 to 1980 I worked on the E coli pyruvate dehydrogenase multienzyme complex. At that time, it was one of the most complex enzymes known, having a molecular weight of about 7 million, with three different types of polypeptide chains arranged with octahedral (24-fold) symmetry. We used a wide variety of techniques from protein chemistry, physical biochemistry and enzymology to dissect some of the relationships between structure and function.

Original articles

- 1 Bates, D.L., Danson, M.J., Hale, G., Hooper, E.A., & Perham, R.N. (1977) Self-assembly and catalytic activity of the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Nature* 268, 313-316
- 2 Hale, G. (1977) Structure of the pyruvate dehydrogenase complex of *E. coli*. PhD thesis, Cambridge.
- 4 Stevenson, K.J., Hale, G., & Perham, R.N. (1978) Inhibition of pyruvate dehydrogenase multienzyme complex from *E. coli* with mono- and bifunctional arsenoxides. *Biochemistry* 17, 2189-2192
- 5 Danson, M.J., Hale, G., Johnson, P.J., Perham, R.N., Smith, J., & Spragg, P. (1979) Molecular weight and symmetry of the pyruvate dehydrogenase complex of *Escherichia coli*. *J. Mol. Biol.* 129, 603-617.
- 6 Hale, G., & Perham, R.N. (1979) Limited proteolysis of the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Eur. J. Biochem.* 94, 119-126
- 7 Hale, G., & Perham, R.N. (1979) Polypeptide chain stoichiometry and lipoic acid content of the pyruvate dehydrogenase complex of *Escherichia coli*. *Biochem. J.* 177, 129-136
- 8 Hale, G., & Perham, R.N. (1979) Primary structure of the swinging arms of the pyruvate dehydrogenase complex of *Escherichia coli*. *FEBS Lett.* 105, 263-266
- 9 Hale, G., Bates, D.L., & Perham, R.N. (1979) Subunit exchange in the pyruvate dehydrogenase complex of *Escherichia coli*. *FEBS Lett.* 104, 343-346
- 10 Hale, G., Hooper, E.A., & Perham, R.N. (1979) Amidation of pyruvate dehydrogenase complex of *Escherichia coli* under denaturing conditions. *Biochem. J.* 177, 136-137
- 11 Ambrose Griffin, M.C., Danson, M.J., Griffin, W.G., Hale, G., & Perham, R.N. (1980) Kinetic analysis of the role of lipoic acid residues in the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Biochem. J.* 187, 393-401
- 12 Hale, G., & Perham, R.N. (1980) Amino acid sequence around lipoic acid residues in the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Biochem. J.* 187, 905-908.
- 13 Berman, J.N., Chen, G-X., Hale, G., & Perham, R.N. (1981) Lipoic acid residues in a take-over mechanism for the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Biochem. J.* 199, 513-520

- 14 Danson, M.J., Hale, G., & Perham, R.N. (1981) The role of lipoic acid residues in the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *Biochem. J.* 199, 505-511
- 15 Hale, G., & Dixon, H.B.F. (1981) The structure of acetyldihydrolipoic acid. *Biochem. J.* 193, 1034-1035
- 16 Packman, L.C., Hale, G., & Perham, R.N. (1984) Repeating functional domains in the pyruvate dehydrogenase multienzyme complex of *Escherichia coli*. *EMBO J.* 3, 1315-1319.
- 17 Hale, G., Wallis, N.G. & Perham, R.N. (1992) Interaction of Avidin with the lipoyl domains of the pyruvate dehydrogenase multienzyme complex: three dimensional location and similarity to biotinyl domains in carboxylases. *Proc. Roy. Soc B* 248, 247-253.

Meeting abstract

- 18 Perham, R.N., Hale, G., & Danson, M.J. (1978) The oxidative decarboxylation of pyruvate. *Hoppe-Seyler's Z. Physiol. Chem.* 359, 1133

Therapeutic monoclonal antibodies

Since 1980 I worked with Herman Waldmann to produce and characterise monoclonal antibodies for human therapy. In the course of this work we defined rules for successful use of unmodified antibodies which can exploit complement or Fc receptors for cell lysis. The main focus of attention was the CAMPATH-1 family of antibodies, which recognise a previously unknown lymphocyte antigen. They are unusually lytic with human complement and appear to be particularly effective for cell depletion *in vivo*. I produced large quantities of these antibodies and collaborated with several clinical teams throughout the world who carried out trials of their efficacy as immunosuppressants in transplantation and for serotherapy of leukaemia and lymphoma as well as for treatment of autoimmune diseases, including multiple sclerosis. More recently, I have continued to research the structure and function of antibodies and their general application for diagnosis and therapy.

Reviews

- 19 Clark, M., Cobbold, S., Hale, G., & Waldmann, H. (1983) Advantages of rat monoclonal antibodies. *Immunol. Today* 4, 100-101
- 20 Hale, G., & Waldmann, H. (1985) Human complement fixing antibodies in transplantation. *Hybridoma technology in the biosciences and medicine* (ed Springer TA) pub Plenum Press
- 21 Hale, G. (1987) Making use of antibodies. *MIMS magazine* 15 July
- 22 Waldmann, H., Hale, G., Cobbold, S. (1987) The immunobiology of bone marrow transplantation. *Leucocyte Typing III: white cell differentiation antigens* (ed McMichael, A.J. et al.) pub Oxford University Press, Oxford. pp 932-937.
- 23 Hale, G. (1988) Bone marrow therapy with monoclonal antibodies. *Biochem. Pharmacol* 17, 3207-3214

- 24 Waldmann, H., Hale, G., Clark, M., Cobbold, S., Benjamin, R., Friend, P., Bindon, C., Dyer, M., Qin, S., Bruggemann, M., Tighe, H. (1988) Monoclonal antibodies for immunosuppression. *Progress in Allergy* 45, 16-30
- 25 Waldmann, H., Hale, G., Cobbold, S.P., Clark, M., Qin, S., Benjamin, R., & Dyer, M.J.S. (1990) Monoclonal antibody therapy to prevent graft versus host disease. *Graft versus host disease* (ed Burakoff, S., Deeg, H.G., Ferrara, J., & Atkinson, K.) (Haematology volume 12) pub Marcel-Dekker
- 26 Hale, G. (1990) Serotherapy of leukaemias and lymphomas. *MRC News: special issue on cancer* (December 1990)
- 27 Waldmann, H., Cobbold, S., Clark, M., Hale, G., Qin, S. & Wise, M. (1990) The Generation of Immunological Tolerance as a Therapeutic Procedure. *Horizons in Medicine*, ed L.K. Borysiewicz.
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Patent Applications

Inventors Herman Waldmann, Kenneth Welsh, Michael Thick, David Taube and
Geoffrey Hale

Title Materials and methods for the treatment of foreign tissue

Priority Doc GB19890023712

Priority Date 20 Oct 1989

Inventors Geoffrey Hale, Masahide Tone and Mengqi Xia

Title Synthetic CD52(Campath-1) peptide antigen

Priority Doc GB19910008056

Priority Date 16 Apr 1991

Inventors Geoffrey Hale and Herman Waldmann

Title CDw52 antibody for the treatment of T-cell mediated inflammation of the
joints

Priority Doc US19910775598

Priority Date 15 Oct 1991

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Title CDw52 antibody for the treatment of multiple sclerosis

Priority Doc GB19910025768

Priority Date 4 Dec 1991

Inventors Geoffrey Hale, Herman Waldmann, Masahide Tone, John Tite and
Christine Hale

Title Recombinant CDw52 antigen

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Inventors Mark Frewin, Herman Waldmann, Scott Gorman and Geoffrey Hale

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Inventors John Isaacs, Herman Waldmann, and Geoffrey Hale

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Inventors Kerry Chester, Persis Amrolia, Jenny Yeung, Herman Waldmann,
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Priority Doc PCT/IB2022/057098
Priority Date 30 Jul 2021

Inventors Geoffrey Hale, William Jackson and Kevin Maskell
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Priority Doc GB2522055.9
Priority Date 18 Dec 2025