

Herman Waldmann

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Lara Marks biography :-

<https://www.whatisbiotechnology.org/index.php/people/summary/Waldmann>

Curriculum Vitae.

Date of Birth: 27 February 1945, Age: 80 years

Position: Emeritus Professor of Pathology
Former Head of Department, Professor of Pathology
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University of Cambridge Degrees

1966	BA Natural Sciences Tripos. Class I
1970	MB, BChir. Distinction in Pharmacology and Therapeutics
1974	PhD
1977	MA.

Professional Qualifications & Membership of Professional Bodies

1981	Member of the Royal College of Pathologists (MRC Path)
1988	member of the Royal College of Physicians (MRCP)
1990	Fellow of the Royal Society (FRS)
1992	Fellow of the Royal College of Pathologists (FRCPath)
1998	(Founding) Fellow of the Academy of medical Sciences.(FMed Sci)
2010	Fellow of the Royal College of Physicians (FRCP)

Posts Held

1969-1970	House Physician and Surgeon, London Hospital
1970-1973	MRC Junior Research Fellowship whilst PhD Student
1973-1976	Demonstrator, Dept of Pathology, University of Cambridge
1973-1978	Research Fellow, King's College, Cambridge
1975-1976	Tutor, King's College, Cambridge & University Lecturer, Dept of Pathology

1978-1979 Visiting Scientist with Dr C Milstein, Laboratory of Molecular Biology, Cambridge
 1982 Senior House Officer, Dept of Medicine, Royal Postgraduate Medical School, London
 1985 Reader in Therapeutic Immunology, Dept of Pathology, Cambridge
 1985 Fellow, King's College, Cambridge
 1987 Eleanor Roosevelt Fellowship, Stanford, USA
 1989 Kay Kendall Professor of Therapeutic Immunology, Dept of Pathology
 1994 - 2008 Director of the Therapeutic Antibody Centre, University of Oxford
 1994- 2012 Head of Department, Professor of Pathology, Sir William Dunn School of Pathology, University of Oxford.

Research

From 1979 until 2020 my major research support was through Medical Research Council (MRC) Programme Grants in the field of therapeutic immunoregulation as well as numerous project grants in related areas.

Prizes, Awards, Scholarships, etc

1965 Exhibitioner Sidney Sussex College, Cambridge
 1966 Honorary Scholar Sidney Sussex College, Cambridge
 1966 Open Scholarship, London Hospital Medical School
 1968 Arnold Thompson Prize for Medical and Surgical Diseases of Children.
 1968 Andrew Elliot Prize for Obstetrics and Gynaecology
 1974 Hutchinson Prize for Clinical Research, London Hospital
 1981 Royal Society Guest Research Fellowship Award.
 1989-90 Graham Bull Prize, Royal College of Physicians
 1992 Bradshaw Lecture, Royal College of Physicians
 1996 Honorary Fellow, Queen Mary & Westfield College
 1999 Heberden Lecture medal, British Society of Rheumatology
 2005 Jose Carreras Award, European Hematology Association
 2005 JDRF Excellence in Clinical Research Award
 2007 Thomas E Starzl Prize in Surgery and Immunology
 2007 Scrip Lifetime Achievement award from the Pharmaceutical industry.
 2008 Honorary Fellowship, Sidney Sussex College, Cambridge
 2008 ScD (Hon) Cambridge University
 2010 Honorary Fellowship, Kings College, Cambridge
 2012 Princess Lillian Visiting Professorship (Belgium).
 2015 Cesare Casella Medal, Collegio Borromeo, University of Pavia, for contributions to Therapeutic Immunology
 2017 Honorary Life membership of the British Society of Immunology.
 2023 Royal Medal (Biology) of the Royal Society.

Named Lectures

Hume Memorial Lecturer - American Transplantation Society 1989
 Janssen-Cilag Lecturer - The Transplantation Society of Australia & New Zealand 1990
 Pierre Grabar Lecturer for the French Society for Immunology 2001

Donald Paty Memorial Lecture, Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) and Consortium of Multiple Sclerosis Centres (CMSC) 2007
University of Iowa Distinguished Professor Lecture 2007
Severo Ochoa Lecture, New York University School of Medicine 2008
Paul Russell Visiting Professorship and lecturer MGH 2014

Short biography

I am currently Emeritus Professor of Pathology at the University of Oxford, and in the period 1994-2013. I was Head of the Sir William Dunn School of Pathology at Oxford FROM 1994-2012. As an immunologist, I am best known for my work on regulatory T-cells in therapeutic (infectious) tolerance and for pioneering therapeutic use of monoclonal antibodies, particularly Campath-1 (Alemtuzumab/lemturad developed for lymphocyte depletion and used for the treatment of chronic lymphocytic leukemia and multiple sclerosis, in particular.

I received my undergraduate and graduate degrees from the University of Cambridge and began my scientific career there in the Department of Pathology. In 1989 I became Head of the Immunology Division in that department, and was appointed to the newly endowed Kay Kendall Chair in Therapeutic Immunology. It was at Cambridge in 1971 that I began studies on mechanisms of tolerance in the immune system, and how tolerance might be harnessed for therapeutic purposes.

Since 1980 I have been funded by Programme Grants from the UK Medical Research Council and the European Research Council to study mechanisms of tolerance and therapeutic strategies to achieve this both experimentally and clinically. In 1985 I published the first studies to show that short courses of CD4 antibody therapy could bring about long-term immunological tolerance to foreign proteins in rodents, and this work provided the first evidence for reprogramming of the immune system resulting from short-term antibody treatment.

Our mechanistic studies of tolerance uncovered a role for regulatory T cells in infectious tolerance, published in a seminal paper in Science in 1993. The strategies emerging from my laboratory since that time have been based on the use of therapeutic antibodies to enhance regulation over conventional T cell immunity. In order to apply antibodies clinically, I developed the first academic antibody therapeutic manufacturing facility. My team consequently was able to apply clinical-grade antibodies in a wide range of probing therapeutic studies that enabled us to develop a series of humanized antibodies (CD52, CD3, CD4 and others) which have since been transferred to the pharmaceutical industry.

My work since 1971 has resulted in more than 550 publications, the majority directed to therapeutic antibodies and their mechanisms of action. These contributions have led to my election to the UK Royal Society in 1990. In recognition of my work I have been the recipient of the Jose Carreras Medal of the European Hematology Society, the Juvenile Diabetes Research Foundation Excellence in Clinical Research Award (2005), Thomas E Starzl Prize in Surgery and Immunology, Scrip Lifetime Achievement award (2007), Royal Medal (Biology) of the Royal Society for pioneering Monoclonal Antibody therapy, and have received an Honorary Doctorate (DSc) from University of Cambridge (2008).

One of the important aspects of developing therapeutic antibodies has been to establish ways of avoiding their immunogenicity. With Dr Greg Winter we published from 1988 the first papers demonstrating the feasibility and application of antibody engineering to humanization of a therapeutic antibody. These publications laid the foundation for future applications of antibody engineering to reduce antibody immunogenicity and to enhance effi

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3. Waldmann, H., Human Monoclonal Antibodies: The Benefits of Humanization. *Methods Mol Biol*, 2019. 1904: p. 1-10
4. Waldmann, H., Oxford Textbook of Cancer Biology ed Francesco Pezzella. Oxford University Press. *Cancer Immunology*. ISBN: [9780198779452](https://doi.org/10.1017/9780198779452)
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6. Leung et al. Regulatory T Cells Promote Apelin-Mediated Sprouting Angiogenesis in Type 2 Diabetes. *Cell Rep*. 6. 1610-1626
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Herman Waldmann — Expanded, verified patent list **Generated: 2025-11-21**

Source: Justia Patents inventor pages and linked patent documents **(selected references cited below).**

1. US 20250270283 (Application)
Title: METHODS AND COMPOSITIONS FOR CELLULAR THERAPY
Dates: Filed: 19 Apr 2023; Published: 28 Aug 2025
Inventors/Assignee: Inventors: Adrian Woolfson, Herman Waldmann, Ashley Buckle
Focus: Focus: synHLA synthetic HLA constructs for immune-inert cell therapy
2. US 20240124551 (Application)
Title: METHODS AND COMPOSITIONS FOR CELLULAR THERAPY
Dates: Filed: 19 Apr 2023; Published: 18 Apr 2024
Inventors/Assignee: Inventors: Herman Waldmann, Ashley Buckle, Adrian Woolfson
Focus: Focus: synHLA complex; immune-incompetent stem cells
3. US 20210269544 (Application)
Title: THERAPEUTIC ANTIBODIES
Dates: Filed: 12 Oct 2020; Published: 2 Sep 2021
Inventors/Assignee: Inventors: Herman Waldmann, Mark R. Frewin et al.
Focus: Focus: modified therapeutic proteins/antibodies to reduce immune responses
4. US 10,906,976 (Grant) US10906976B2
Title: INDUCTION OF IMMUNOTOLERANCE TO IMPROVE ACCEPTANCE OF TISSUE DERIVED FROM PLURIPOTENT STEM CELLS
Dates: Filed: 23 Nov 2016; Patented: 2 Feb 2021
Inventors/Assignee: Assignee: The Chinese University of Hong Kong; Inventors: Oi Lan Kathy Lui, Herman Waldmann
Focus: Focus: transplant tolerance methods/compositions
5. US 10,800,850 (Grant) US10800850B2
Title: THERAPEUTIC ANTIBODIES
Dates: Filed: 18 Dec 2015; Patented: 13 Oct 2020

Inventors/Assignee: Assignee: CytomX Therapeutics, Inc.; Inventors: H. Waldmann, M.R. Frewin, L.K. Gilliland, L.R.S. Da Silva Graca

Focus: Focus: therapeutic proteins modified to reduce side effects

6. US 20170151327 (Application)

Title: INDUCTION OF IMMUNOTOLERANCE

Dates: Filed: 23 Nov 2016; Published: 1 Jun 2017

Inventors/Assignee: Inventors: Oi Lan Kathy Lui, Herman Waldmann

Focus: Focus: immunotolerance to stem-cell derived tissues

7. US 20170137529 (Application)

Title: THERAPEUTIC ANTIBODIES

Dates: Filed: 18 Dec 2015; Published: 18 May 2017

Inventors/Assignee: Inventors: Herman Waldmann, Mark Frewin et al.

Focus: Focus: modified therapeutic antibodies

8. US 8,921,104 (Grant)

Title: METHOD FOR PRODUCING DENDRITIC CELLS

Dates: Filed: 29 Jun 2012; Patented: 30 Dec 2014

Inventors/Assignee: Assignee: ISIS Innovation Limited; Inventors: H. Waldmann, P.J. Fairchild et al.

Focus: Focus: ESC-derived dendritic cells; methods of production

9. US 20140212418 (Application)

Title: THERAPEUTIC ANTIBODIES

Dates: Filed: 31 Jul 2013; Published: 31 Jul 2014

Inventors/Assignee: Inventors: H. Waldmann, M.R. Frewin et al.

Focus: Focus: therapeutic proteins with reduced binding/side effects

10. US 20130171627 (Application)

Title: METHOD FOR PRODUCING DENDRITIC CELLS

Dates: Filed: 29 Jun 2012; Published: 4 Jul 2013

Inventors/Assignee: Inventors: H. Waldmann, P.J. Fairchild et al.

Focus: Focus: dendritic cell production

11. US 8,440,190 (Grant)

Title: ANTIBODY VARIANTS

Dates: Filed: 14 Jul 2005; Patented: 14 May 2013

Inventors/Assignee: Assignee: Isis Innovation Limited; Inventors: H. Waldmann et al.

Focus: Focus: reduced-affinity antibody variants to induce tolerance

12. US 20130028893 (Application)

Title: THERAPEUTIC ANTIBODIES WITH REDUCED SIDE EFFECT

Dates: Filed: 19 Aug 2011; Published: 31 Jan 2013

Inventors/Assignee: Inventors: H. Waldmann, M.R. Frewin et al.

Focus: Focus: reduce side effects of therapeutic proteins

13. US 20120282184 (Application) Title: TREATMENT OF OBESITY

Dates: Filed: 29 Oct 2010; Published: 8 Nov 2012

Inventors/Assignee: Applicant: ISIS Innovation Ltd; Inventors: H. Waldmann et al.

Focus: Focus: GITRL pathway activation; metabolic disease

14. US 8,232,100 (Grant)

Title: METHOD FOR PRODUCING DENDRITIC CELLS

Dates: Filed: 21 Jul 2010; Patented: 31 Jul 2012

Inventors/Assignee: Assignee: Isis Innovation Limited; Inventors: H. Waldmann et al.

Focus: Focus: dendritic cell production methods

15. US 20110282037 (Application)

Title: ANTIBODY PREPARATION

Dates: Filed: 17 Jun 2011; Published: 17 Nov 2011

Inventors/Assignee: Inventors: H. Waldmann, Mark Frewin

Focus: Focus: IgG antibodies targeting CD3 complex; high expression yields

16. US 7,994,289 (Grant) US7994289

Title: HUMANIZED ANTI-CD3 ANTIBODIES

Dates: Filed: 18 Jun 2003; Patented: 9 Aug 2011

Inventors/Assignee: Assignee: BTG International Limited; Inventors: H. Waldmann, M. Frewin

Focus: Focus: anti-CD3 humanized antibodies

17. US 7,993,641 (Grant) US7993641 Title: METHODS OF TREATMENT USING ANTI-CD3 ANTIBODIES

Dates: Filed: 16 Oct 2006; Patented: 9 Aug 2011

Inventors/Assignee: Assignee: BTG International Limited; Inventors: H. Waldmann, M. Frewin
Focus: Focus: therapeutic uses of anti-CD3

18. US 7,947,272 (Grant)
Title: COMPOSITIONS AND METHODS OF TOLERIZING A PRIMATE TO AN ANTIGEN
Dates: Filed: 13 Jul 2006; Patented: 24 May 2011
Inventors/Assignee: Assignees: Tolerx, Inc.; Isis Innovation Ltd; Inventors: M. Frewin, H. Waldmann et al.
Focus: Focus: primate tolerance regimens (TRX1 antibody)

19. US RE43898 (Grant, reissue)
Title: ALTERED ANTIBODIES AND THEIR PREPARATION
Dates: Filed: 16 Sep 1991; Reissue date: 1 Jan 2013
Inventors/Assignee: Assignee: Glaxo Wellcome Inc. Research; Inventors include H. Waldmann
Focus: Focus: antibody humanisation/chimeric frameworks

20. US RE46877 (Grant, reissue)
Title: ALTERED ANTIBODIES AND THEIR PREPARATION
Dates: Filed: 21 Nov 2012; Reissue date: 29 May 2018
Inventors/Assignee: Assignee: BTG International Limited; Inventors include H. Waldmann
Focus: Focus: antibody engineering

21. US 20110014696 (Application)
Title: METHOD FOR PRODUCING DENDRITIC CELLS
Dates: Filed: 21 Jul 2010; Published: 20 Jan 2011
Inventors/Assignee: Inventors: H. Waldmann, P.J. Fairchild et al.
Focus: Focus: dendritic cells (application)

22. US 20110008330 (Application)
Title: COMPOSITIONS AND METHODS OF TOLERIZING A PRIMATE TO AN ANTIGEN
Dates: Filed: 5 Mar 2010; Published: 13 Jan 2011
Inventors/Assignee: Inventors: M. Frewin, H. Waldmann et al.
Focus: Focus: primate tolerization methods

23. US 7,781,213 (Grant)
Title: METHOD FOR PRODUCING DENDRITIC CELLS
Dates: Filed: 2 Dec 2008; Patented: 24 Aug 2010
Inventors/Assignee: Assignee: Isis Innovation Limited; Inventors include H. Waldmann
Focus: Focus: dendritic cell production

24. US 20100015166 (Application)
Title: THERAPEUTIC ANTIBODIES
Dates: Filed: 15 Dec 2008; Published: 21 Jan 2010
Inventors/Assignee: Inventors: H. Waldmann, M.R. Frewin et al.
Focus: Focus: therapeutic protein modification

25. US 20090155898 (Application)
Title: METHOD FOR PRODUCING DENDRITIC CELLS
Dates: Filed: 2 Dec 2008; Published: 18 Jun 2009
Inventors/Assignee: Inventors: H. Waldmann, P.J. Fairchild et al.
Focus: Focus: dendritic cells

26. US 7,541,443 (Grant) US7541443
Title: ANTI-CD4 ANTIBODIES
Dates: Filed: 29 Jan 2003; Patented: 2 Jun 2009
Inventors/Assignee: Assignees: Tolerx, Inc.; Isis Innovation Ltd; Inventors: M. Frewin, H. Waldmann et al.
Focus: Focus: anti-CD4 for tolerance

27. US 7,473,556 (Grant)
Title: METHOD FOR PRODUCING DENDRITIC CELLS
Dates: Filed: 24 Apr 2007; Patented: 6 Jan 2009
Inventors/Assignee: Assignee: Isis Innovation Limited; Inventors include H. Waldmann
Focus: Focus: dendritic cell methods

28. US 7,465,790 (Grant) US7465790
Title: THERAPEUTIC ANTIBODIES
Dates: Filed: 9 Oct 2001; Patented: 16 Dec 2008
Inventors/Assignee: Assignee: ISIS Innovation, Inc.; Inventors: H. Waldmann et al.
Focus: Focus: modified therapeutic proteins

29. US 20080160016 (Application)
Title: COMPOSITIONS AND METHODS OF TOLERIZING A PRIMATE TO AN ANTIGEN
Dates: Filed: 13 Jul 2006; Published: 3 Jul 2008

- Inventors/Assignee: Inventors: M. Frewin, H. Waldmann et al.
 Focus: Focus: primate tolerance (application)
30. US 20070269885 (Application)
 Title: METHOD FOR PRODUCING DENDRITIC CELLS
 Dates: Filed: 24 Apr 2007; Published: 22 Nov 2007
 Inventors/Assignee: Inventors: H. Waldmann, P. Fairchild et al.
 Focus: Focus: dendritic cell production (application)
31. US 20070212753 (Application)
 Title: ALTERED ANTIBODIES AND THEIR PREPARATION
 Dates: Filed: 26 Apr 2005; Published: 13 Sep 2007
 Inventors/Assignee: Applicant: Burroughs Wellcome Co.; Inventors include H. Waldmann
 Focus: Focus: chimeric/humanized antibody production
32. US 7,247,480 (Grant) US7247480
 Title: METHOD FOR PRODUCING DENDRITIC CELLS
 Dates: Filed: 4 May 2001; Patented: 24 Jul 2007
 Inventors/Assignee: Assignee: ISIS Innovation Limited; Inventors include H. Waldmann
 Focus: Focus: dendritic cells
33. US 20070092516 (Application)
 Title: ANTIBODY PREPARATION
 Dates: Filed: 16 Oct 2006; Published: 26 Apr 2007
 Inventors/Assignee: Applicant: BTG International Limited; Inventors: H. Waldmann, M. Frewin
 Focus: Focus: anti-CD3 antibody preparations
34. US 7,098,006 (Grant) US7098006
 Title: CHIMERIC ANTIBODY, PHARMACEUTICAL COMPOSITION AND PROCESS OF ITS PRODUCTION
 Dates: Filed: 2 Jun 1995; Patented: 29 Aug 2006
 Inventors/Assignee: Assignee: Burroughs Wellcome Co.; Inventors include H. Waldmann
 Focus: Focus: chimeric antibodies (anti-CD4)

Herman Waldmann — Patent Timeline Across 30 years, Waldmann's patents progress from antibody humanisation → T-cell modulation → primate tolerance induction → dendritic-cell engineering → stem-cell immune acceptance → engineered immune-evasion synHLA platforms, forming a continuous technological arc grounded in infectious tolerance

1990s — Foundational Antibody Engineering

1991–1995—Altered antibodies & humanisation frameworks (early “altered antibodies” patents; later reissued as RE43898 & RE46877).

Significance: Establishes the molecular groundwork for humanised therapeutic antibodies (anti-CD4, anti-CD3).

1995—Humanised anti-CD4 antibodies (US 7098006, filed 1995).

Significance: Early therapeutic anti-CD4—precursor to his tolerance-inducing antibody strategies.

Early 2000s — Anti-CD3 and Anti-CD4 Therapeutic Platforms

2001–2003—High-expression anti-CD3 antibodies (US 7994289, US 7247480).

-Therapeutic antibodies with modified Fc/affinity (US 7465790).

Significance: Moves from chimeric to humanised, tolerance-inducing anti-CD3 formats, improving yield and safety.

2003—Anti-CD4 monoclonal antibody refinements and dosing/administration patents. Significance: Supports clinical pathways for tolerance induction by transient T-cell blockade.

Mid-2000s — Tolerance Induction in Primates

2005–2007—Antibody variants with reduced antigen affinity

Herman Waldmann — Patent Timeline

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-Methods for producing dendritic cells (multiple patents beginning 2007).

-Tolerizing primates to antigen (TRX-1) (US 7947272 filed 2006).

Significance: First clear patent line aimed explicitly at infectious-tolerance principles, showing how to induce long-lasting antigen-specific tolerance.

Late 2000s — Dendritic-Cell–Based Immunoregulation

2007–2012-Series of dendritic-cell technology patents (US 7781213, US 8232100, US 8921104).

Significance: Establishes a platform for generating tolerogenic dendritic cells from ESCs—mechanistic bridge between regulation and cell-based therapy.

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2010–2013-Therapeutic antibodies with reduced side e^ects” series (2010–2013 filings). **Significance:**

Mechanistic engineering to reduce cytokine-release syndrome, preserving therapeutic e^eicacy while enabling tolerance induction.

2015–2021 — Next-Generation Tolerance & Stem-Cell Acceptance

2015–2017-Filing of major therapeutic-antibody optimisation patents (e.g., US 10800850). **Significance:**

Transition from conceptual tolerance induction → clinical-grade tolerogenic molecules. **2016–2021-**

Induction of immunotolerance for acceptance of pluripotent-stem-cell-derived tissues (US 10,906,976). nity (US 8440190 filed 2005).

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298 words