



Conditions Treated:

Research Areas:

- *Basic Immunology*

Programs & Services:

- *Department of Immunology and Genomic Medicine*

Research Interests

Most of our work over the years has focused on T cells. T cells are amongst the cells which recognize that an infection is occurring in the body. They accomplish this in an unexpected way, by reacting with fragments of the infection bound to special proteins of the body, the MHC proteins. We are trying to find out how T cells learn to react in this way. We are also interested in the ways in which T cells are prevented from attacking MHC proteins bound to fragments of their own host. In most people such attack is efficiently avoided. However, in some individuals T cells do react in this way, and this event causes autoimmune diseases such as rheumatoid arthritis and juvenile diabetes. However we do also study B cells, in particular a previously under investigated type of B cell (ABC) we first found in elderly female mice, but which has also been found by others and ourselves in women and mice with autoimmune diseases and in mice and humans with various infections including SARS-CoV-2. In mice these cells are important producers of autoantibodies and antibodies that efficiently get rid of virus infections. However, although they can produce autoantibodies in humans, their significance in infections is not currently known.

Education

1967 Cambridge University, England, BA, MA

1970 Cambridge University, England, PhD

Fellowship

1971 - University of California (San Diego, CA), Postdoctoral fellowship with Dr. Richard Dutton

Affiliations with the University of Colorado Denver

Distinguished Professor, University of Colorado Denver

Professor in the Department of Immunology & Microbiology and the Depts. of Biochemistry and Molecular Biology and Medicine, University of Colorado Denver

Professional Memberships

British Society of Immunology

American Association of Immunologists

The Royal Society
The National Academy of Sciences USA
American Academy of Arts and Sciences

Awards & Recognition

2121: Honorary Degree Rockefeller University
2020: BioLegend Celebrating Women in Science Award
2019: Citation Laureate Web of Science
2019: AAI Distinguished Fellow (inaugural class)
2016: Novartis Prize for Immunology
2015: National Women's Hall of Fame
2015: Wolf Prize in Medicine, Wolf Foundation
2004: National Jewish Health Abraham J. Kauvar Presidential Award
2004: University of Colorado Health Sciences Center, School of Medicine, Mentoring Award
2004: L'Oreal UNESCO for Women in Science Award
2003: Faculty Ambassador Award, National Jewish Health
2000: Lifetime Achievement Award, American Association of Immunologists
2001: Irvington Institute Scientific Leadership Award in Immunology
1999: Interscience Conference on Antimicrobial Agents and Chemotherapy Award
1999: University of Chicago, Howard Taylor Ricketts Prize
1998: The Rabbi Shai Schacknai Memorial Prize
1996: Honorary Doctorate of Sciences, Macalester College
1995: Dickson Prize in Medicine, University of Pittsburgh
1995: Behring-Heidelberger Lecture Award
1995: FASEB Excellence in Science Award
1995: The Louisa Gross Horwitz Prize-Columbia University
1993: The Paul Ehrlich and Ludwig Darmstädter Prize, Germany
1993: Cancer Research Institute's 1993 William B. Coley Award for Distinguished Research in Fundamental Immunology
1992: The Ernst W. Bertner Memorial Award, MD Anderson Cancer Center
1991: Honorary Doctorate of Sciences, University of Rochester

Publications

Scott-Browne, J.P., White, J., Kappler, J.W., Gapin, L. and Marrack, P. Germline-encoded amino acids in the alpha beta T cell receptor control thymic selection. *Nature* in press, 2009.

Desbien, A., Kappler, J. and Marrack, P. The Epstein Barr virus Bcl-2 homolog, BHRF1, blocks apoptosis by binding to a limited amount of Bim. *Proc. Natl. Acad. Sci. USA*, in press, 2009. PMC 2657086.

Marrack, P., McKee, A.S. and Munks, M.W. Towards an understanding of the adjuvant action of aluminium. *Nature Reviews Immunology* 9;287-293, 2009.

McKee, A.S., MacLeod, M., White, J., Crawford, F., Kappler, J.W. and Marrack, P. Gr1/IL-4 producing innate cells are induced in response to TH2 stimuli and suppress TH1-dependent antibody responses. *Int. Immunol.* 20:659-669, 2008. 367.

MacLeod, M., McKee, A., Crawford, F., White, J., Kappler, J. and Marrack, P. CD4 memory T cells divide poorly in response to antigen because of their cytokine profile. *Proc. Natl. Acad. Sci. USA* 105:14521-6. 2008. PMID: PMC2533680

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