

Christopher Bruce Lock, MB BS, Ph.D.

Multiple Sclerosis and Neuroimmunology Clinic

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CURRENT POST:

Clinical Associate Professor
Multiple Sclerosis and Neuroimmunology Clinic
Stanford University Medical Center

May.2015-Present

BIOTECH START-UP:

Research and Development
Carantech Biosciences, Inc.
Founder: Dr. Claude Genain

Oct.2006-Nov.2008

CLINICAL NEUROLOGY:

Neurologist, Palo Alto Medical Foundation

Oct.2008-Apr.2015

Neurologist, Palo Alto Medical Foundation
Adjunct Clinical Instructor, Stanford University
(Voluntary Clinical Faculty)

Jul.2000-Jun.2006

NEUROLOGY FELLOWSHIP:

Neuroimmunology Fellow / Clinical Instructor
Department of Neurology, Stanford
Supervisor: Dr. Larry Steinman
Funding: National Multiple Sclerosis Society

Jul.1997-Jun.2000

Acting Co-Director,
Multiple Sclerosis Clinic
Stanford University Medical Center

Jul.1998-Jun.1999

VISITING SCIENTIST:

Roche Bioscience, Palo Alto
Inflammatory Diseases Unit
Supervisor: Dr. Renu Heller

Jul.1997-Jun.2000

INTERNSHIP / RESIDENCY:

Internal Medicine / Neurology
Stanford University Medical Center

Jul.1993-Jun.1997

PRE-CLINICAL STUDIES

King's College, University of London
Barry Prize, Associate of King's College Exam

MEDICAL SCHOOL:

Westminster Hospital Medical School, University of London
Entrance Scholarship

QUALIFICATIONS:

Intercalated B.Sc. Psychology
MRCS, LRCP
MB BS
Ph.D., Faculty of Medicine, University of London

NEUROLOGY BOARD EXAMS:

American Board of Psychiatry and Neurology Jan.1999
ABPN Maintenance of Certification (MOC) exam Mar.2009

MEMBERSHIPS:

American Academy of Neurology 1994-present
MS Section member

San Francisco Neurological Society Present

California Neurology Society Present

POST-DOCTORAL RESEARCH:

Postdoctoral Scholar, Jan.1989-Jun.1993
Department of Microbiology and Immunology,
Stanford University.
Supervisor: Dr. Hugh O. McDevitt
Funding: US Public Health Service,
Juvenile Diabetes Foundation

PRE-DOCTORAL RESEARCH:

Research Registrar, Department of Neurology Apr.1985-Dec.1988
King's College Hospital, London.
Supervisor: Prof. J. David Parkes
Funding: King's College Research Trust

Molecular Immunogenetics and Tissue Typing Labs, Apr.1985-Mar.1986
Guy's Hospital, London.
Supervisor: Dr. Ken Welsh

Human Immunogenetics Lab Apr.1986-Dec.1988
Imperial Cancer Research Fund Laboratories, London.
Supervisor: Dr. John Trowsdale

EXPERIENCE:

Introduction to Drug Safety Sept.2014
eLearning Course
Drug Information Association
www.diahome.org

Sutter Neuroscience Research Consortium 2014-2015
Peninsula Coastal Lead

Neuroscience Research Advisory Board 2014-2015
Sutter Health, East Bay Neuroscience Institute

Clinical Research Sites for the Network of Excellence in 2011
Neuroscience Clinical Trials (NEXT sites) (U10)
NINDS Project Grant Application, Principle Investigator
Sutter Health

Data and Safety Monitoring Board (DSMB) 2009
Rituximab - neuromyelitis optica (NMO) study
Dr. Bruce Cree, Chairperson, UCSF

<p>Carantech Biosciences, Inc. Founder: Dr. Claude Genain Multiple sclerosis drug and biomarker development Lead molecule at early pre-clinical stage of development Responsible for planning and conduct of scientific research, development of expression and purification methods, testing in EAE model. Planning and discussion of cGMP production, toxicology studies, and other requirements for IND application. Presentations to VCs and Angel investors. Prepared two NIH SBIR grant applications</p>	2006-2008
<p>Vitamin Intervention for Stroke Prevention (VISP) Study Clinical trial of high versus low dose vitamin B6/B12/folate supplementation, and effect of homocysteine levels on recurrent stroke risk. Screened subjects at PAMF for study</p>	2004
<p>SurroMed-Biogen C-863 Study Screened MS subjects at PAMF to identify four groups for study: 1) naïve subjects, 2) newly treated, 3) good responders to IFN-β1a, and 4) poor responders to IFN-β1a including clinical exam, and MSFC scoring. Samples collected for biomarker analysis.</p>	2003
<p>Prepared IRB proposal and consent forms for proposed MS study, Stanford MS Clinic</p>	1997
<p>Molecular Applications Group (MAG) Founders: Dr. Michael Levitt and Dr. Christopher Lee Consultant, software testing for “LOOK” molecular modeling / bioinformatics program</p>	1993
<p>Immunology lectures for Human Biology course, Stanford University</p>	1991
<p>Selegiline trial in narcolepsy Small clinical study at Kings College Hospital, London (Reference: Sleep 1987, 10: 491-495)</p>	1987

PUBLICATIONS:

Langdon N, **Lock CB**, Welsh KI, Vergani D, Dorow R, Wachtel H, Palenschat D, Parkes JD (1986) Immune factors in narcolepsy. *Sleep* 9, 143-148

Parkes JD, Langdon N, **Lock CB**. (1986) Narcolepsy and immunity. *Br. Med. J.*, 292, 359-360.

Lock CB, Parkes JD, Welsh KI, So A. Narcolepsy and Immunity In: Aarli JA, Behan WHM, Behan PO (Eds.), *Neuroimmunology*, Blackwell Scientific Publications, Oxford 1987, p.404-420.

Lock CB, Welsh KI, Parkes JD, So A, Briggs DC, Vaughan RW, Van Dam M (1988). HLA in narcolepsy-cataplexy in the U.K., p.76-88, and:

Parkes JD, Welsh KI, Langdon N, **Lock CB** (1988). Immune factors in narcolepsy in the U.K. In: Honda Y, Juji T (Eds.), *HLA in Narcolepsy*, Springer-Verlag, Berlin, p.158-171.

Roselaar SE, Langdon N, **Lock CB**, Jenner P, Parkes JD (1987). Selegiline in narcolepsy. *Sleep* 10, 491-495.

Wilkinson D, DeVries RRP, Madrigal JA, **Lock CB**, Morgenstern JP, Trowsdale J, Altman DM (1988). Analysis of HLA-DR glycoproteins by DNA-mediated gene-transfer: definition of DR2b gene products and antigen presentation to T-cell clones from leprosy patients. *J. Exp. Med.*, 167,1442-1458.

Lock CB, So AKL, Welsh KI, Parkes JD, Trowsdale J (1988). MHC class II sequences of an HLA-DR2 narcoleptic. *Immunogenetics*, 27, 449-455.

Parkes JD, **Lock CB** (1989). Genetic factors in sleep disorders. *J. Neurol. Neurosurg. Psych.*, Special Supplement, 101-108.

Lock CB, So A, Trowsdale J, Welsh KI, Parkes JD (1989). Major histocompatibility complex (MHC) class II sequences in narcolepsy. In: Horne JA (ed), *Sleep '88*, p.123-124, Gustav Fischer Verlag, New York.

Smilek DE, **Lock CB**, McDevitt HO (1990). Antigen recognition and peptide-mediated immunotherapy in autoimmune disease. *Immunol. Rev.* 118, 37-71.

Lock CB, McDevitt HO (1991). MHC disease associations. In: Roitt IM, Delves PJ (Eds.), *Encyclopedia of Immunology*, p.1050-1055. W.B. Saunders, London.

Lock CB, Smilek DE, Gautam AM, Vaysburd M, Dwivedy S, McDevitt HO (1991). Competitive inhibition of antigen presentation in animal models of autoimmune disease. *Seminars in Immunol.* 3, 247-255.

Erlich HA, **Lock CB**, McDevitt HO (1992). The role of the MHC in autoimmune disease. In: Siminivitch K (Ed.) *The Molecular Pathology of Autoimmune Disease*.

Sinha AA, Meitzner T, **Lock CB**, McDevitt HO (1992) Fluorescence-activated cell sorter analysis of peptide-major histocompatibility complex association. In: Alt FW, Vogel HJ, Vogel HJ, Academic Press Inc., New York.

Gautam AM, **Lock CB**, Smilek DE, Pearson CI, Steinman L, McDevitt HO (1994) Minimum structural requirements for peptide presentation by major histocompatibility complex class II molecules: implications in induction of autoimmunity. *Proc Natl Acad Sci (USA)* 91, 767-771.

Fugger L, Michie SA, Rulifson I, **Lock CB**, Sonderstrup McDevitt G (1994). Expression of HLA-DR4 and human CD4 transgenes in mice determines the variable region β -chain T-cell repertoire and mediates an HLA-DR-restricted immune response. *Proc Natl Acad Sci (USA)* 91, 6151-6155.

Vaysburd M, **Lock C**, McDevitt H (1995). Prevention of insulin-dependent diabetes mellitus in nonobese diabetic mice by immunogenic but not by tolerated peptides. *J Exp Med* 182, 897-902.

Garren H., Steinman L., **Lock C**. (1998). The specificity of the antibody response in multiple sclerosis. *Annals of Neurology* 43, 4-6.

Heller RA, Allard J, Zuo F, **Lock C**, Wilson S, Klonowski P, Gmuender H, Van Wart H, Booth R (1998) Gene-chips and micro-arrays: applications in disease profiles, drug target discovery, drug action and toxicity. In: Schena M (Ed.), *DNA Microarrays: A Practical Approach*, Oxford University Press; p.186-202.

Lock C, Oksenberg J, Steinman L (1999). The role of TNF α and LT in demyelinating disease. *Annals of Rheumatic Diseases* 58, Suppl 1:1121-8.

Voehringer DW, Hirschberg DL, Xiao J, Lu Q, Roederer M, **Lock CB**, Herzenberg LA, Steinman L (2000). Gene microarray identification of redox and mitochondrial elements that control resistance or sensitivity to apoptosis. *PNAS* 97, 2680-2685.

Chabas D, Baranzini SE, Mitchell D, Bernard CCA, Rittling SR, Denhardt DT, Sobel RA, **Lock C**, Karpuj M, Pedotti R, Heller R, Oksenberg JR, Steinman L (2001). The influence of the proinflammatory cytokine, osteopontin, on autoimmune demyelinating disease. *Science* 294, 1731-1735.

Lock C, Hermans G, Pedotti R, Brendolan A, Schadt E, Garren H, Langer-Gould A, Strober S, Cannella B, Allard J, Klonowski P, Austin A, Lad N, Kaminski N, Galli S, Oksenberg JR, Raine CS, Heller R, Steinman L (2002). Gene microarray analysis of multiple sclerosis lesions yields new targets validated in autoimmune encephalomyelitis. *Nat Med* 8, 500-508.

Steinman L, Youssef S, Va Venrooij N, Chabas D, Baranzini SE, Rittling S, Denhardt D, Sobel RA, **Lock C**, Pedotti R, Oksenberg JR (2003). Response to comment on "The influence of the proinflammatory cytokine, osteopontin, on autoimmune demyelinating disease. *Science* 299, 1845b.

Lock CB, Heller RA (2004). Gene microarray analysis of multiple sclerosis lesions. *Trends in Molecular Medicine* 9, 535-541.

Bhat R, Axtell R, Mitra A, Miranda M, **Lock C**, Tsien RW, Steinman L (2010). Inhibitory role for GABA in autoimmune inflammation. *Proc Natl Acad Sci (USA)* 107, 2580-2585.

Han MH, Lundgren DH, Jaiswal S, Chao M, Graham K, Axtell RC, Ho PP, **Lock CB**, Woodward JI, Brownell SE, Zudilova M, Hunt JFV, Baranzini SE, Butcher E, Raine CS, Sobel RA, Han DK, Weissman I, Steinman L (2012). Janus-like opposing roles of CD47 in autoimmune brain inflammation, *J Exp Med* 209, 1325-1334

ABSTRACTS:

Lock CB, Langdon N, Welsh KI, So A, Trowsdale J, Parkes JD. Is narcolepsy-cataplexy an immune disorder? Association of British Neurologists Meeting, November 1985, London.

Lock CB, So A, Welsh KI, Parkes JD. Cloning and sequencing of class II MHC genes in narcolepsy. ABN Meeting, November 1986, London. *J. Neurol. Neurosurg. Psych.* (1987) 50, 947-948.

Briggs DC, **Lock CB**, Welsh KI, Parkes JD. MHC class III allotypes in narcolepsy. ABN Meeting, June 1987, Swonlinna, Finland.

Lock CB, So A, Welsh KI, Trowsdale J, Parkes JD. MHC class II sequence profile from a DR2 narcoleptic. ABN Meeting, May 1988, Leningrad, USSR.

McDevitt HO, **Lock CB**, Vaysburd M (1991). Analysis of the role of MHC class II molecules in autoimmune disease. Opening Lecture, 11th International Histocompatibility Workshop and Conference, Yokohama, Japan.

McDevitt HO, **Lock C**, Vaysburd M (1991). Analysis of the role of MHC class II molecules in autoimmune disease. *Diabetes Res and Clin Pract* 14, S35. 11th International Diabetes Workshop, Nagasaki, Japan

Lock CB, Vaysburd M, McDevitt HO (1991). Characterization of the NOD immune response and prevention of acute transfer of IDDM with a peptide binding to I-A NOD. *Diabetes Res and Clin Pract* 14, S35. 11th International Diabetes Workshop, Nagasaki, Japan

Sinha AA, **Lock C**, Mietzner T, Black A, Jones P, McDevitt HO (1991). Detection of peptide-MHC binding by FACS analysis. Keystone Symposium., in *J Cellular Biochemistry*, supplement 15A, C134, p.244.

Black A, Sinha A, **Lock C**, McDevitt HO, Jones P (1991). A^k and A^u-restricted recognition of the autoantigen MBP: A β residues controlling peptide binding and recognition. Keystone Symposium, in *J Cellular Biochemistry*, supplement 15A, C430, p.292

Heller RA, **Lock C**, Gmuender H. (1997). Application of microarrays and microchips for disease target discovery, disease models and toxicology. "From the Laboratory to the Clinic", Trinity College, Oxford.

Chambers RC, Allard J, **Lock C**, Van Wart H, Laurent GJ, Wembridge DE, Heller RA (1999). Profiling changes in fibroblast gene expression induced by TGF β 1 using oligonucleotide gene-chips. Poster presentation, American Thoracic Society Meeting.

Lock C, Steinman L, Oksenberg J, Raine C, Heller R (1999). Large-scale expression analysis of multiple sclerosis lesions using gene microarrays. Poster presentation, American Academy of Neurology Meeting, Toronto, Canada, April 17-24th. *Neurology* 52 (suppl. 2), A439.

Garren H, **Lock C**, Steinman L (1999). Gene microarray profiling of native peptide versus altered peptide ligand stimulated encephalitogenic T cells. American Academy of Neurology Meeting, San Diego, April 2000.

Chabas DE, Steinman L, Rittling SR, Sobel R, **Lock C**, Mitchell D, Pedotti R, Karpuj M, Heller R, Oksenberg J, Barazini SE (2001). Elevated osteopontin transcripts in MS brain libraries and its role in the development of progressive versus relapsing autoimmune encephalomyelitis. *Neurology* 56 (Suppl 3), A467. American Academy of Neurology Meeting, Philadelphia, May 5-11th, 2001.

Pedotti R, Mitchell D, Wedemeyer J, Sobel R, Madanat R, Hermans G, **Lock C**, Galli SJ, Steinman L (2002). Allergic responses to self-peptides of myelin in EAE: evaluation of the role of mast cells and Fc receptors in pathogenesis. *Neurology* 58 Suppl 3, A384

Bhat R, **Lock C**, Steinman L (2007). Increasing GABA activity prevents autoimmune neuro-inflammation. Abstract, Federation of Clinical Immunology Societies, FOCIS 2007 Meeting, San Diego, June 7-11. *Clinical Immunology* 123, S140