

CURRICULUM VITAE

LAWRENCE STEINMAN, M.D.

Born: November 14, 1947, Los Angeles, California
Child: Jonathan Baruch Steinman

Education

B.A. Dartmouth College, 1964-1968
Major: Physics; Minor: Russian, Phi Beta Kappa, Magna Cum Laude
M.D. Harvard University, 1968-1973
NIH Fellow Chemical Neurobiology at Harvard Medical School with Torsten Wiesel, 1970-71

Post-graduate Training

Internship: 1973 Stanford University Hospital, Surgery
Resident: 1974 Stanford University Hospital, Pediatrics
Resident: 1977-1980 Stanford University Hospital, Pediatric and Adult Neurology
Fellow: 1975-1977 Weizmann Institute of Science, Chemical Immunology
1975-1976 Aharon Katzir Katchalsky Fellow
1976-1977 National Institutes of Health Visiting Fellow

Academic Posts

Assistant Professor: 1980-1985 Stanford University, Departments of Neurology and Pediatrics
Associate Professor: 1985-1991 Stanford University, Departments of Neurology, Pediatrics and Genetics
Professor 1994-1997 Weizmann Institute of Science
Professor 1991-present Stanford University, Departments of Neurology and Neurological Sciences, Pediatrics and Genetics
Chairs 2002-2011 Chairman, Stanford University Program in Immunology
2008-present Incumbent of GA Zimmermann Chair as Professor of Neurological Sciences, Neurology, and Pediatrics

Professional Awards and Prizes

- 1979 S. Weir Mitchell Award, American Academy of Neurology
- 1981-1986 Teacher-Investigator Award, National Institutes of Health
- 1988-2002 Senator Jacob Javits Neuroscience Investigator Award from Congress of the United States and National Institutes of Health
- 1994 Dr. Friedrich Sasse Award for Outstanding Contributions in Immunology from the Free University of Berlin
- 2004 John M. Dystel Prize for Outstanding Contributions in Multiple Sclerosis Research, National MS Society & the American Academy of Neurology
- 2004 Outstanding Inventor Stanford University
- 2008 Honorary Doctorate Hasselt University
- 2009 Elected to Institute of Medicine, renamed National Academy of Medicine (2015)
- 2011 Charcot Prize for Lifetime Achievement in MS Research- International Federation of MS Societies
- 2015 Elected to the National Academy of Sciences
- 2015 Anthony Cerami Award in Translational Medicine
- 2015 Fellow of the American Academy of Neurology
- 2016 Fellow American Association for Advancement of Science

Professional Organizations

- American Academy of Neurology
- Fellow American Academy of Neurology
- American Neurological Association
- American Association of Immunologists
- Clinical Immunology Society

Board Certification

- American Board of Psychiatry and Neurology (Neurology), 1984

Patents [partial list]

1. Immunotherapy of Autoimmune Disease, US Patent Number 4,695,459
2. Polypeptide Pertussis Toxin Vaccine, US Patent Number 5,000,952
3. Anti-T-Cell Receptor Determinants as Autoimmune Disease Treatment, Patent EP 0340109B1.
4. T cell receptor variable transcripts as disease related markers. US patent 5667967 9/16/97.
5. Treatment of central nervous system inflammatory disease with matrix metalloprotease inhibitors. US Patent 5532265
6. DNA Vaccination for induction of suppressive T cell response. US patent 5,939,400
7. Treatment of Demyelinating Disease with Ordered Peptide, US patent 6531130,

8. Methods for treatment of multiple sclerosis using peptide analogues at position 91 of human myelin basic protein U.S.6,329,499
9. Methods for treatment of multiple sclerosis using peptide analogues at position 91 of human myelin basic protein U.S.6,369,033
10. Methods for treatment of multiple sclerosis using peptide analogues at position 91 of human myelin basic protein U.S.6,489,299
11. US 6740638 Methods for treatment of multiple sclerosis using peptide analogues of human myelin basic protein
12. EP0792286 Methods for treatment of multiple sclerosis using peptide analogues at position 91 of human myelin basic protein
13. US 7030098 DNA Vaccination to Treat Autoimmune Disease
14. US 7070780 Treatment of Demyelinating Disease with Ordered Peptide
15. US 6794414 Methods and Compositions for Treating Diseases Mediated by Transglutaminase Activity
16. Osteopontin Related Methods and Compositions, US Patent 10/495,893 allowed 6/11/2007
17. DNA Vaccination for Treatment of Autoimmune Disease (Treating Type 1 Diabetes Mellitus) notice of allowance on application 11/289,266
18. Polynucleotide Therapy (Treating IDDM), Notice of Allowance US Patent Application 10/302,098, Expiration March 16, 2024. See related patents:
19. US 7811813 Methods and Immune Modulatory Nucleic Acid DNA Vaccination for Treatment of Autoimmune Disease (Treating Type 1 Diabetes Mellitus) see related patents including
20. US7,579,328;
21. US7,544,669;
22. AU2002362019;
23. CN02827318.4;
24. NZ533294;
25. EP 1,931,390;
26. AU 20329440;
27. EP 1,569,696;
28. NZ 540,276;
29. IL168715;
30. JP 4750419
31. Therapeutic and Diagnostic Uses of Antibody Specificity Profiles, 10/120,578, Expiration April 10, 2022
32. US Patent No. 7,875,589, "Alpha B-Crystallin as a Therapy for Rheumatoid Arthritis", issued January 25, 2011
33. US Patent No. 7,867,976 NOGO Epitopic Fragments for Modulating Immune Response, Issued Jan 11, 2011
34. US Patent No. 8148084 Diagnosis of Autoimmune Disease, Issued April 3, 2012
35. US 8,257,700, "Proteomic Analysis of Active Multiple Sclerosis Lesions"
36. US 8,252,775, "Method of Treating MS With Phosphocholine Containing Lipids."
37. US 8,771,689 Alpha B-Crystallin as a Therapy for Ischemia or Inflammation
38. U.S. Patent No. 8,835,391, "Alpha B-Crystallin as a Therapy for Multiple Sclerosis"

Administrative & Advisory Posts

Advisory Committee on Pertussis Immunization, Institute of Medicine,	1987-1990
Fellowship Advisory Committee, National Multiple Sclerosis Society	1988-1991
Grant Review Committee, National Multiple Sclerosis Society	2006-2011

Medical Advisory Committee, Muscular Dystrophy Association	1990-2002
Medical Advisory Committee, National Multiple Sclerosis Society	1990-1995
Member Immunological Sciences Study Section, NIH	1991-1995
Advisory Committee, Institute of Medicine, on "Multiple Sclerosis & Other Neurologic Disorders in Veterans of the Persian Gulf & Post-9/11 Wars"	2015-present

Editorial Posts

International Immunology, Transmitting Editor	1988-2006
Journal of Immunology, Associate Editor	1991-1995
Neurobiology of Disease, Associate Editor	1998-2015
Proceedings of the National Academy of Sciences	2015-present

Business Positions

Centocor, Board of Directors 1991-1999, when sold to Johnson and Johnson
Neurocrine Biosciences, Founder Advisor 1992-2005, Board of Directors 2001-2005
Roche Biosciences, Scientific Advisory Board 1998-2002
Bayhill Therapeutics, Founder 2001-2011, Head of SAB, and member of Board of Directors
Atreca, Founder 2011 and member of Board of Directors
Cardinal Therapeutics Founder 2008, Board of Directors
Transparency Life Sciences Founder 2011, Head Scientific Advisory Board
Tolerion, Founder 2013, Board of Directors
Receptos SAB 2012-present

BIBLIOGRAPHY

Journals

1. Budin J and Steinman L. Theory of transfinite numbers. In: *Research Papers in Mathematics* (R.E. Gaskill, ed.), National Science Foundation and Oregon State University, 1963, pp 9-31.
2. Lam DMK and Steinman L. Uptake of gamma-aminobutyric acid in the goldfish retina. *Proceedings of the National Academy of Sciences USA*, 68:2777, 1971.
3. Steinman L and Ames A. The sites of synthesis and the subsequent migration of newly synthesized protein in retina. *Tissue and Cell*, 6:137, 1971.
4. Steinman L. Maldistribution of physicians in Yugoslavia. *Journal of Medical Education*, 49:182, 1974.
5. Steinman L, Cohen I, Teitelbaum D, and Arnon R. Regulation of auto sensitization to encephalitogenic myelin basic protein by macrophage-associated and soluble antigen. *Nature*, 265:173, 1977.
6. Teitelbaum D, Steinman L and Sela M. Unprimed spleen cell populations recognize macrophage-bound antigen with opposite net electrical charge. *Proceedings of the National Academy of Sciences USA*, 74:1693, 1977.
7. Lonai P and Steinman L. Physiological regulation of antigen binding to T cells: Role of a soluble macrophage factor and of interferon. *Proceedings of the National Academy of Sciences USA*, 74:5662, 1977.
8. Steinman L, Cohen I, Teitelbaum D, Glickman E and Arnon R. Regulation of autoimmunity by the mode of presentation of autoantigen to lymphocytes. In: *Regulatory Mechanisms in Lymphocyte Activation*. DO Lucas (ed), New York Academic Press, p. 728, 1977.
9. Lonai P, Steinman L, Zeicher M and Puri I. Physiological regulation of the H-2 complex. *Cellular Immunology*, 27:341, 1977.
10. Steinman L, Tzevalou E, Cohen I, Segal S, and Glickman E. Sequential interactions of macrophages, initiator T lymphocytes and recruited T lymphocytes in cell-mediated responses to soluble antigen. *European Journal of Immunology*, 8:29, 1978.
11. Lonai P, Ben-Neriah Y, Steinman L, and Givol D. Selective participation of immunoglobulin V region and major histocompatibility complex products in antigen binding T cells. *European Journal of Immunology*, 8:827, 1978.
12. Sogg R, Steinman L, Rathjen B, Tharp B and O'Brien J. Cherry red spot myoclonus syndrome. *Ophthalmology*, 86:1861, 1979.
13. Steinman L, Cohen I and Teitelbaum D. Natural occurrence of thymocytes with receptors for myelin basic protein. *Neurology (Minneapolis)*, 30:755, 1980.
14. Steinman L, Dorfman L, Tharp B, Forno L, Kelts K, O'Brien J and Sogg R. Peripheral neuropathy in the cherry red spot-myoclonus syndrome (Sialidosis Type 1). *Annals of Neurology*, 7:450-456, 1980.

15. Lonai P, Puri I, Zeicher M and Steinman L. Regulation of antigen binding to T cells: The role of products of adherent cells, and the H-2 restrictions of the antigen bound. In: *Advances in Experimental Medicine and Biology*. MR Escobar and H Friedman (eds), New York, Plenum Press, pp. 451-458, 1980
16. Chan CC, Sogg RL and Steinman L. Isolated oculomotor palsy after measles immunization. *American Journal of Ophthalmology*, 89:446, 1980.
17. Steinman L, Smith ME and Forno LS. Genetic control of susceptibility to experimental allergic neuritis and the immune response to P₂ protein. *Neurology (Minneapolis)*, 31:950-954, 1981.
18. Lonai P, Steinman L, Friedman V, Drizlikh G and Puri J. Specificity of antigen binding by T cells: Competition between soluble and Ia associated antigen. *European Journal of Immunology*, 11:382-387, 1981.
19. Steinman L, Rosenbaum JT, Sriram S and McDevitt HO. *In vivo* effects of antibodies to immune response gene products: Prevention of experimental allergic encephalitis. *Proceedings of the National Academy of Sciences USA*, 78:7111-7114, 1981.
20. Steinman L. Neurologic complications of routine immunization. *Western Journal of Medicine*, 137:315, 1982
21. Steinman L, Sriram S, Adelman NE, Zamvil S, McDevitt HO and Urich H. Murine model for pertussis vaccine encephalopathy: Linkage to H-2. *Nature*, 299:738-740, 1982.
22. Sriram S, Solomon D, Rouse RV and Steinman L. Identification of T cell subsets and B lymphocytes in mouse brain EAE lesions. *Journal of Immunology*, 129:1649, 1982.
23. Steinman L, Clancy RR, Cann H and Urich H. Neuropathology of propionic acidemia. *Developmental Medicine and Child Neurology*, 25:87-94, 1983.
24. Waldor M, Sriram S, McDevitt HO and Steinman L. *In vivo* therapy with monoclonal anti I-A antibody suppresses immune response to acetylcholine receptor. *Proceedings of the National Academy of Sciences USA*, 80:2713-2717, 1983.
25. Steinman L, Solomon D, Zamvil S, Lim M and Sriram S. Prevention of EAE with anti I-A antibody: Decreased accumulation of radiolabeled lymphocytes in the central nervous system. *Journal of Neuroimmunology*, 5:91-97, 1983.
26. Sriram S and Steinman L. Anti I-A antibody suppresses active encephalomyelitis: Treatment model for IR gene linked diseases. *Journal of Experimental Medicine*, 158: 1362-1367, 1983.
27. Sriram S, Schwartz G and Steinman L. Myelin basic protein coupled spleen cells prevent EAE. *Cellular Immunology*, 75:378-382, 1983.
28. Dave P, Curless RG and Steinman L. Cerebellar hemorrhage complicating methylmalonic and propionic acidemia. *Archives of Neurology*, 41:1293-1296, 1984.
29. Trotter JL and Steinman L. Homing of Lyt 2⁺ and Lyt 2⁻ T cell subsets and B lymphocytes to the central nervous system of mice with acute experimental allergic encephalomyelitis. *Journal of Immunology*, 132:2919-2923, 1984.

30. Waldor MK, Hardy RR, Hayakawa K, Steinman L, Herzenberg LA and Herzenberg LA. Disappearance and reappearance of B cells following *in vivo* treatment with monoclonal anti I-A antibodies. *Proceedings of the National Academy of Science USA*, 81: 2855-2858, 1984.
31. Trotter J and Steinman L. Homing of lymphoid populations in EAE. In: *EAE: A Good Model for MS*. M Kies and E Alvord (eds), Alan Liss, New York, pp. 105-110, 1984.
32. McDevitt HO, Adelman N, Watling D, Sriram S and Steinman L. The use of monoclonal anti I-A antibodies for haplotype specific immunosuppression in animal models of autoimmune disease. In: *Immunogenetics*. T Sasazuki and T Tada (eds). San Diego, Academic Press, pp. 85-94, 1984.
33. Sriram S and Steinman L. Postinfectious and postvaccinial encephalomyelitis.. In: *Neurology Clinics*. Saunders, Philadelphia, 2:341-353, 1984.
34. Steinman L, Sriram S and Waldor MK. Therapy of autoimmune diseases with antibodies to immune response gene products. *Clinical Immunology Newsletter*, Vol. 5, 3:43-45, 1984.
35. Steinman L, Trotter J, Waldor MK and Sriram S. New approaches to therapy of autoimmune disease. In: *Concepts in Immunopathology*. J. Cruse (ed). Karger, Basel, Vol. 1, pp. 85-95, 1985.
36. Shalev R and Steinman L. Whooping cough immunization: The experiments and the lessons. *Harefuah (Journal of the Israel Medical Association)*, 109:47-49, 1985.
37. Steinman L, Weiss A, Adelman N, Lim M, Oehlert J, Zuniga R, Hewlett E and Falkow S. Murine model for pertussis vaccine encephalopathy: Role of the major histocompatibility complex; antibody to albumen and to *B. pertussis*; and pertussis toxin. In: *Proceedings of the Fourth International Symposium on Pertussis*. C. Manclark (ed). Karger, Basel, pp. 439-446, 1985.
38. Steinman L. Introduction to Immunotherapy. *Annual Course, Neuroimmunology-Virology*. American Academy of Neurology, pp 15-30, 1985.
39. Waldor MK, Hardy R, Herzenberg LA, Herzenberg LA, Lanier L, Sriram S, Lim M and Steinman L. Reversal of EAE with monoclonal antibody to a T cell subset marker (L3T4). *Science*, 227:415-417, 1985.
40. Trotter J, Sriram S, Rassenti L, Jen Chou C-H, Fritz RB and Steinman L. Characterization of T cell lines and clones from SJL/J and (BALB/c x SJL/J)F1 mice specific for myelin basic protein. *Journal of Immunology*, 134:2322-2327, 1985.
41. Zamvil S, Nelson P, Trotter J, Mitchell D, Knobler R, Fritz R and Steinman L. T cell clones specific for myelin basic protein induce chronic relapsing EAE and demyelination. *Nature*, 317:355-358, 1985.
42. Steinman L, Weiss A, Adelman NE, Lim M, Zuniga R, Oehlert J, Hewlett E and Falkow S. Pertussis toxin is required for pertussis vaccine encephalopathy. *Proceedings of the National Academy of Science USA*, 82:8733-8736, 1985.
43. Zamvil S, Nelson P, Mitchell D, Knobler R, Fritz R and Steinman L. Encephalitogenic T cell clones specific for myelin basic protein: An unusual bias in antigen presentation. *Journal of Experimental Medicine*, 162:2107-2124, 1985.
44. Novotny E, Singh G, Wallace D, Dorfman LJ, Louis A, Sogg R and Steinman L. Leber's disease and dystonia: A mitochondrial disease. *Neurology*, 36(8):1053-1060, 1986.

45. Sakai K, Tabira T, Endoh M and Steinman L. Ia expression in chronic relapsing experimental allergic encephalomyelitis induced by long-term cultured T cell lines in mice. *Laboratory Investigation*, 54,3:345-352, 1986.
46. Zamvil SS, Mitchell DJ, Moore AC, Kitamura K, Steinman L and Rothbard J. T cell epitope of the autoantigen myelin basic protein that induces encephalomyelitis. *Nature*, 324:258-260, 1986.
47. Bell JI, Rassenti L, Smoot S, Smith K, Newby C, Hohlfield R, Toyka K, McDevitt HO and Steinman L. HLA-DQ polymorphism linked to myasthenia gravis. *Lancet*, Vol. 1 May 10, pp. 1058-1060, 1986.
48. Steinman L, Waldor MK, Lim M, Herzenberg L, Herzenberg L, McDevitt HO, Zamvil S, Mitchell D and Sriram S. Therapy of autoimmune diseases with antibody to IR gene products or to T cell surface markers. *Annals of New York Academy of Sciences*, Vol 475, pp. 274-284, 1986.
49. Steinman L, Zamvil S, O'Hearn M, Schwartz G, Sriram S, Mitchell D and Waldor MK. Experiences with anti- Ia therapy in the mouse and in the monkey and the applications to human protocols in anti-Ia antibodies in the treatment of autoimmunity. In: *Anti-Ia Antibodies In Therapy*. J Clot and J Sany (eds). London, Academic Press, pp. 109-128, 1986.
50. Steinman L, Weiss A, Adelman N, Lim M, Zuniga R, Oehlert J, Hewlett E, Falkow S and Zamvil S. Molecular analysis of pertussis vaccine encephalopathy. In: *Vaccines 86, Modern Approaches to Immunization*. R Lerner, R Channock and F Brown (eds). Cold Spring Harbor, pp. 187-190, 1986.
51. Steinman L. *Neuroimmunology Update, Scientific Basis of Neurology*. American Academy of Neurology, 1986 Course, pp. 43-50.
52. Black WJ, Steinman L, Lim M, Kent AR and Falkow S. Non-toxigenic mutants of *Bordetella pertussis*. In: *Bacterial Vaccines and Local Immunity*. Ann Sclaro (ed). 1-2, pp. 175-182, 1986.
53. Steinman L. Treatment of autoimmune disease with monoclonal antibodies. In: *New Horizons in Animal Models for Autoimmune Disease*. M Kyogoku and H. Wigzell (eds). Academic Press, pp 277-288, 1987.
54. Waldor MK, O'Hearn M, Sriram S and Steinman L. Treatment of experimental autoimmune myasthenia gravis with monoclonal antibodies to immune response gene products. In: *Annals of the New York Academy of Science*, 505:655-668, 1987.
55. Steinman L. Monoclonal antibodies and therapy of multiple sclerosis. In: *Multiple Sclerosis*. FC Rose (ed). John Libbey, London, pp 57-61, 1987.
56. Steinman L. Molecular approaches toward a therapy for multiple sclerosis. In: *Revista di Neurologia*. 57:173-174, 1987.
57. McDevitt HO, Perry R and Steinman L. Monoclonal anti-Ia antibody therapy in animal models of disease. In: *Autoimmunity and Autoimmune Disease* (Ciba Foundation Symposium 129). Wiley, Chichester, pp 184-193, 1987.
58. Bell JI, Steinman L, Toyka K and McDevitt HO. HLA-DQ restriction fragment length polymorphisms in myasthenia gravis. *Annals of the New York Academy of Science*, 505:655-668, 1987.

59. Steinman L, Kitamura K, Zuniga R, Lim M and Peroutka S. Experimental murine pertussis vaccine encephalopathy. In: *Clinical Neuroimmunology*. J Aarli, W Behan & PO Behan (eds). Blackwells, Oxford, pp. 156-161, 1987
60. Peroutka SJ, Kitamura K, Lim M and Steinman L. Treatment of lethal pertussis vaccine reaction with histamine H₁ antagonists. *Neurology*, 37:1068-1072, 1987.
61. Gaiser CN, Johnson MJ, deLange G, Rassenti L, Cavalli-Sforza LL and Steinman L. Susceptibility to multiple sclerosis associated with an Ig gamma 3 restriction fragment length polymorphism. *Journal of Clinical Investigation*, 79:309-313, 1987.
62. Szafer F, Brautbar C, Tzfon E, Frankel G, Sherman L, Cohen I, Zadeh S, Aberer W, Tappeiner G, Halubar K, Steinman L and Friedmann A. Detection of disease specific restriction fragment length polymorphisms in pemphigus vulgaris linked to the DQw1 and DQw3 alleles of the HLA-D region. *Proceedings of the National Academy of Science USA*, 84:6542-6545, 1987.
63. Friedmann A, Frankel G, Lorch Y and Steinman L. Monoclonal anti I-A reverses chronic paralysis and demyelination in Theiler's virus infected mice: Critical importance of timing of treatment. *Journal of Virology*, 61:898-903, 1987.
64. Vollmer T, Waldor MK, Steinman L and Conley F. Depletion of T4-+ lymphocytes reactivates toxoplasmosis in the central nervous system. *Journal of Immunology*, 138: 3737-3741, 1987.
65. Vladutiu A and Steinman L. Inhibition of experimental autoimmune thyroiditis in mice by anti-I-A antibodies. *Cellular Immunology*, 109:169-180, 1987.
66. Zamvil S, Mitchell D, Moore A, Schwarz A, Stiefel W, Rothbard J and Steinman L. T cell specificity for class II (I-A) and the encephalitogenic N-terminal epitope of the autoantigen myelin basic protein. *Journal of Immunology*, 139:1075-1079, 1987.
67. Trotter J, Zamvil S and Steinman L. Comparison of antigen specificity, class II MHC restriction, and *in vivo* behavior of myelin basic protein T cell lines and clones derived from (BALB/c x SJL/J)F1 mice. *Journal of Immunology*, 139:1834-1839, 1987.
68. Waldor M, Mitchell D, Kipps J, Herzenberg LA and Steinman L. Importance of immunoglobulin isotype in therapy of EAE with monoclonal anti-CD4 antibody. *Journal of Immunology*, 139:3660-3664. 1987.
69. Steinman L. Immunologic basis for functional recovery in neurologic diseases. In: Advances in Neurology, Vol 47, *Functional Recovery in Neurologic Disease*. SG Waxman (ed). Raven Press, pp 255-264, 1988.
70. Steinman L. Therapy of autoimmune disease with monoclonal antibodies to class II gene products of the major histocompatibility complex. In: Progress in Allergy, *Monoclonal Antibody Therapy*. H Waldmann (ed). pp 161-167, 1988.
71. Rothbard J, Zamvil S, Steinman L and McMichael A. Restricted nature of the T cell response. In: *HLA-B27 and Reactive Arthritis*. Elsevier, 1988.
72. Brautbar C, Holubar K, Szafer F, Tzfon E, Aberer W, Steinman L and Friedmann A. Specific RFLP linked to HLA-DQw1 and DQw3 genes in Austrian non-Jewish pemphigus vulgaris patients. In: *Dermatology in Five Continents*. CE Orfanos, R Stadler and H Gollnick (eds). Springer-Verlag, Berlin, pp 377-380, 1988.

73. Steinman L. Autoimmunity and the nervous system. In: Neuroimmune Disorders, Immunology and Allergy Clinics of North America. Saunders, 8:213-225, 1988
74. Wilner A, Steinman L, Lavie P, Peled R, Friedmann A and Brautbar C. Narcolepsy in Israeli Jews is associated exclusively with the HLA-DR2,Dw2 haplotype. *Human Immunology*, 21:15-22, 1988.
75. Sinha AA, Brautbar C, Szafer F, Friedmann A, Tzfon E, Todd JA, Steinman L and McDevitt HO. A newly characterized HLA-DQ allele associated with pemphigus vulgaris. *Science*, 239:1026-1029, 1988.
76. Scharf S, Friedmann A, Brautbar C, Szafer F, Steinman L, Horn G, Gyllenstein U and Erlich H. HLA class II allelic variation and susceptibility in pemphigus vulgaris. *Proceedings of the National Academy of Science USA*, 85:3504-3508, 1988.
77. Sakai K, Zamvil SS, Mitchell DJ, Lim M, Rothbard JB and Steinman L. Characterization of a major encephalitogenic T cell epitope in SJL/J mice with synthetic oligopeptides of myelin basic protein. *Journal of Neuroimmunology*, 19:21-32, 1988.
78. Zamvil SS, Mitchell DJ, Lee NE, Moore AC, Waldor MK, Sakai K, Rothbard JB, McDevitt HO, Steinman L and Acha-Orbea H. Predominant expression of a T cell receptor V gene subfamily in autoimmune encephalomyelitis. *Journal of Experimental Medicine*, 167:1586-1596, 1988.
79. Black WJ, Munoz JJ, Peacock MG, Schad PA, Cowell JL, Burchall JJ, Lim M, Kent A, Steinman L and Falkow S. ADP-ribosyltransferase activity of pertussis toxin: Immunomodulation by *Bordetella Pertussis*. *Science*, 240:656-659, 1988.
80. Oksenberg JR, Gaiser C, Cavalli-Sforza LL and Steinman L. Polymorphic markers of human T cell receptor alpha and beta genes. Family studies and comparison of frequencies in healthy individuals and patients with multiple sclerosis and myasthenia gravis. *Human Immunology*, 22:111-121, 1988.
81. Todd JA, Acha-Orbea H, Bell JI, Chao N, Fronck Z, Jacob CO, McDermott M, Sinha AA, Timmerman L, Steinman L and McDevitt HO. A molecular basis for MHC class II-associated autoimmunity. *Science*, 240:1003-1009, 1988.
82. Acha-Orbea H, Mitchell DJ, Timmerman L, Wraith DC, Waldor MK, Tausch GS, Zamvil SS, McDevitt HO and Steinman L. Limited heterogeneity of T cell receptors from lymphocytes mediating autoimmune encephalomyelitis allows specific immune intervention. *Cell*, 54:263-273, 1988.
83. Sakai K, Sinha A, Mitchell DJ, Zamvil SS, McDevitt HO, Rothbard JB and Steinman L. Involvement of distinct T cell receptors in the autoimmune encephalitogenic response to nested epitopes of myelin basic protein. *Proceedings of the National Academy of Science USA*, 85:8608-8612, 1988.
84. Zamvil S, Mitchell D, Powell M, Sakai K, Rothbard J and Steinman L. Multiple discrete epitopes of the autoantigen myelin basic protein. *Journal of Experimental Medicine*, 168:1181-1186, 1988.
85. Brocke S, Brautbar C, Steinman L, Abramsky O, Rothbard J, Neumann D, Fuchs S and Mozes E. *In vitro* proliferative responses and antibody titres specific to human acetylcholine receptor synthetic peptides in patients with myasthenia gravis and relation to HLA class II genes. *Journal of Clinical Investigation*, 82:1894-1900, 1988.

86. Oksenberg JR, Judd AK, Ko C, Lim M, Fernandez R, Schoolnik GK and Steinman L. MHC restricted recognition of immunogenic T cell epitopes of pertussis toxin reveals determinants in man distinct from the ADP-ribosylase site. *Journal of Experimental Medicine*, 168:1855-1864, 1988.
87. Jonkers M, van Lambalgen R, Mitchell D, Durham SK and Steinman L. Successful treatment of EAE in rhesus monkeys with MHC class II specific monoclonal antibodies. *Journal of Autoimmunity*, 1:399-414, 1988.
88. Oksenberg JR, Sherritt M, Begovich AB, Erlich HA, Bernard CC, Cavalli-Sforza LL and Steinman L. T cell receptor V alpha and C alpha alleles associated with multiple sclerosis and myasthenia gravis. *Proceedings of the National Academy of Sciences USA*, 86:988-992, 1989.
89. Alters SE, Steinman L and Oi VT. Comparison of rat and rat-mouse chimeric anti-murine CD4 antibodies *in vitro*: Chimeric antibodies lyse low density CD4+ cells. *Journal of Immunology*, 142:2018-2023, 1989.
90. Wraith DC, McDevitt HO, Steinman L and Acha-Orbea H. T cell recognition as the target for immune intervention in autoimmune disease. *Cell*, 57:709-715, 1989.
91. Oksenberg D, Oksenberg JR, Sakai K, Peroutka SJ and Steinman L. Cyclic adenosine 3',5'-monophosphate metabolism in activated T cell clones. *Immunology*, 67(4): 484-488, 1989.
92. Rao NA, Atalla L, Linker-Israeli M, Chen FY, George FW, Martin WJ and Steinman L. Suppression of experimental uveitis in rats by anti I-A antibodies. *Investigative Ophthalmology and Visual Sciences*, 30:2348-2355, 1989.
93. Davis CB, Mitchell DJ, Wraith DC, Todd JA, Zamvil SS, McDevitt HO, Steinman L and Jones P. Polymorphic residues on the I-A beta chain modulate the stimulation of T cell clones specific for the N-terminal peptides of the autoantigen myelin basic protein. *Journal of Immunology*, 143:2083-2093, 1989.
94. Scharf SJ, Friedmann A, Steinman L, Brautbar C and Erlich HA. Specific HLA-DQ beta and HLA-DR beta alleles confer susceptibility to pemphigus vulgaris. *Proceedings of the National Academy of Sciences USA*, 86:6215-6219, 1989.
95. Wraith DC, Smilek DE, Mitchell DJ, Steinman L and McDevitt HO. Antigen recognition in autoimmune encephalomyelitis and the potential for peptide mediated immunotherapy. *Cell*, 59:247-255, 1989.
96. Sakai K, Mitchell DJ, Hodgkinson SJ, Zamvil SS, Rothbard JB and Steinman L. Prevention of experimental encephalomyelitis with peptides that block interaction of T cells with major histocompatibility complex proteins. *Proceedings of the National Academy of Sciences USA*, 86:9470-9474, 1989.
97. Oksenberg J, Ko C, Judd AK, Lim M, Kent A, Schoolnik G and Steinman L. Multiple T and B cell epitopes in the S1 subunit ("A"-Monomer) of the pertussis toxin molecule. *Journal of Immunology*, 143:4227-4231, 1989.
98. Jonkers M and Steinman L. Treatment of experimental encephalomyelitis by anti-major histocompatibility complex class II specific monoclonal antibodies in Rhesus monkeys. *Proceedings of the Tenth International Histocompatibility Conference, Immunology of HLA*. (Vol.2) B Dupont (ed). Springer-Verlag, New York, 1989.

99. Mozes E, Brautbar C, Steinman L, Abramsky O, Rothbard J and Brocke S. Immune responses of patients with myasthenia gravis to peptides representing different regions of the human acetylcholine receptor. *Proceedings of the Tenth International Histocompatibility Conference, Immunology of HLA*. (Vol.2) B Dupont (ed). Springer-Verlag, New York, pp 434-436, 1989.
100. Scharf S, Friedmann A, Brautbar C, Szafer F, Steinman L, Hom G and Erlich H. HLA class II allelic variation and susceptibility to pemphigus vulgaris. *Proceedings of the Tenth International Histocompatibility Conference, Immunology of HLA*, (Vol. 2). B. Dupont (ed). Springer-Verlag, New York, 1989.
101. Sinha AA, Brautbar C, Szafer F, Friedmann A, Tzfon E, Todd J, Steinman L and McDevitt HO. Characterization of HLA-DR beta and HLA-DQ beta alleles associated with pemphigus vulgaris. In: *Immunobiology of HLA*, (Vol.2). B Dupont (ed). Springer-Verlag, New York, pp 426-428, 1989.
102. Sinha AA, Brautbar C, Szafer F, Friedmann A, Tzfon E, Steinman L and McDevitt HO. HLA-DR and HLA-DQ alleles associated with pemphigus vulgaris. In: *Cellular Basis of Immune Modulation*. JG Kaplan (ed). Alan R. Liss, Inc., New York, pp 465-468, 1989.
103. Acha-Orbea H, Steinman L and McDevitt HO. T cell receptors in murine autoimmune diseases. In: *Annual Review of Immunology*, 7:371-405, 1989.
104. McDevitt HO, Wraith DC, Smilek D, Lundberg W and Steinman L. Evolution, function and utilization of MHC polymorphism in autoimmune disease. *Cold Spring Harbor Symposium on Quantitative Biology*, pp 853-857, 1989.
105. Zamvil S and Steinman L. Autoimmune demyelinating disease. *Western Journal of Medicine*, 150:355-356, 1989.
107. Zamvil S, Nelson PA, Steinman L and Mitchell D. Treatment of autoimmune encephalomyelitis with an antibody to T cell receptor beta chain. In: *Cellular Basis of Immune Modulation*. JG Kaplan (ed). Alan R. Liss, New York, pp 461-464, 1989.
107. Tang W-L, Fashena S, Powell MB, Steinman L and Ruddle NH. Lymphotoxin: Regulation at the molecular and biological levels. In: *Molecular and Cellular Mechanisms of Human Hypersensitivity and Autoimmunity*. Alan R. Liss Inc., pp 183-187, 1989.
108. Acha-Orbea H, Steinman L and McDevitt HO. T cell receptors in autoimmune disease as targets for immune intervention. *Genome*, vol. 31, 2, pp 656-661, 1989.
109. Steinman L. Genetic influences on neuroimmunologic diseases. In: *Transactions of the Association for Research in Nervous and Mental Disease*. B Waksman (ed). Raven Press, pp 11-14, 1990.
110. Steinman L. Immunogenetic mechanisms in myasthenia gravis. In: Nobel Symposium on Cholinergic Neurotransmission, *Progress in Brain Research*. SM Aquilonius and PG Gillberg (eds). 84:117-124, 1990.
111. Zamvil S and Steinman L. The T lymphocyte in autoimmune encephalomyelitis. *Annual Reviews in Immunology*, 8:579-621, 1990.
112. Oksenberg JR and Steinman L. The role of the MHC and T cell receptor in susceptibility to multiple sclerosis. In: *Current Opinion in Immunology*. Current Science, 2:619-621, 1990.

113. Steinman L. Immunogenetics. American Academy of Neurology Annual Course "*Genetics in Neurology*". LP Rowland Director, pp 109-113, 1990.
114. Steinman L. Lymphocyte homing to the central nervous system. In: *Pathophysiology of the Blood Brain Barrier*. BB Johanson, CH Owman & H Widner (eds). Elsevier, pp 453-464, 1990.
115. Steinman L. Development of antigen specific therapies for autoimmune disease. In: *Molecular Biology & Medicine*, Academic Press, 7:333-339, 1990.
116. Steinman L and Mantegazza R. The prospects for specific immunotherapy in myasthenia gravis. *FASEB Journal*, 4:2726-2731, 1990.
117. Steinman L. The use of monoclonal antibodies for treatment of autoimmune disease. (Review) *Journal of Clinical Immunology*, 10:305-395, 1990.
118. Hodgkinson S and Steinman L. Monoclonal antibodies for treatment of multiple sclerosis. In: *Handbook of Multiple Sclerosis*. S Cook (ed). Marcel Decker, pp 481-492, 1990.
119. Bell RB, Oksenberg JR and Steinman L. Studies on T-cell receptor usage in experimental and human demyelinating disease. In: *Cellular Immunity and the Immunotherapy of Cancer*. MT Lotze and OJ Finn (eds), UCLA Symposia on Molecular and Cellular Biology, New Series. Wiley-Liss, New York, pp 179-187, 1990.
120. deMagistris T, diTommaso A, Basse P, Nati S, Oksenberg J, Judd A, Sanchez A, Steinman L, Nenzioni L, Podda A, Tagliabue A and Rappuoli R. Humoral and cellular immunity in adult volunteers immunized with a genetically inactivated mutant of pertussis toxin. In: *Proceedings of the Sixth International Symposium on Pertussis*. Department of Health & Human Services, USPHS, pp 161-165, 1990.
121. Begovich AB, Helmuth RC, Oksenberg JR, Sakai K, Tabira T, Sasazuki K, Steinman L and Erlich H. HLA-DP beta and susceptibility to multiple sclerosis: An analysis of Caucasoid and Japanese patient populations. *Human Immunology*, 28:365-372, 1990.
122. Alters SE, Sakai K, Steinman L and Oi VT. Mechanisms of anti-CD4 mediated depletion and immunotherapy: A study using a set of chimeric anti-CD4 antibodies. *Journal of Immunology*, 144:4587-4592, 1990.
123. Powell MB, Mitchell D, Lederman J, Buckmeier J, Zamvil SS, Graham M, Ruddle NH and Steinman L. Lymphotoxin and tumor necrosis factor-alpha production by myelin basic protein specific T cell clones correlates with encephalitogenicity *International Immunology*, 2:539-544, 1990
124. Brocke S, Dayan M, Steinman L, Rothbard J and Mozes E. Inhibition of T cell proliferation specific for acetylcholine receptor epitopes related to myasthenia gravis with antibody to T cell receptor or with competitive synthetic polymers. *International Immunology*, 2:735-742, 1990.
125. Oksenberg JR, Stuart S, Begovich AB, Bell R, Erlich H, Steinman L and Bernard CCA. Limited heterogeneity of rearranged T cell receptor transcripts in brains of multiple sclerosis patients. *Nature*, 345:344-346, 1990.
126. Mantegazza R, Oksenberg JR, Baggi F, Antozzi C, Illeni MT, Pellegris C, Cornelio F and Steinman L. Increased incidence of certain T cell receptor and HLA genes associated with myasthenia gravis in Italians. *Journal of Autoimmunity*, 3:431-440, 1990.

127. Oksenberg J, Mantegazza R, Sakai K, Bernard CCA and Steinman L. HTLV-1 sequences are not detected in peripheral blood genomic DNA or in brain cDNA of multiple sclerosis patients. *Annals of Neurology*, 28:574-577, 1990.
128. Nitta T, Oksenberg JR, Rao N and Steinman L. Predominant expression of T cell receptor Va7 in tumor infiltrating lymphocytes of uveal melanoma. *Science*, 249: 672-674, 1990.
129. Atalla L, Linker-Israel M, Steinman L and Rao N. Inhibition of autoimmune uveitis by anti-CD4 antibody. *Investigative Ophthalmology and Visual Science*, 31:1264-1270, 1990.
130. Sakai K, Mitchell D, Tsukamoto T and Steinman L. Isolation of a complementary cDNA clone encoding an autoantigen recognized by an anti-neuronal antibody from a patient with paraneoplastic cerebellar degeneration. *Annals of Neurology*, 28:692-698, 1990.
131. Knox S, Levy R, Hodgkinson S, Bell R, Brown S, Wood L, Hoppe R, Abel E, Steinman L, Berger R, Gaiser C, Young G, Bindl J, Hanham A and Reichert T. Observations on the effect of chimeric anti-CD4 monoclonal antibody in patients with mycosis fungoides. *Blood*, 77: 20-30, 1991.
132. Sinha AA, Bell RB, Steinman L, McDevitt HO. Oligonucleotide dot blot analysis of HLA-DQ beta alleles associated with multiple sclerosis. *Journal of Neuroimmunology*, 32:61-65, 1991.
133. Mantegazza R, Hughes SM, Mitchell D, Travis M, Blau H and Steinman L. Modulation of MHC class II antigen in human myoblasts after treatment with gamma interferon. *Neurology*, 41:1128-1132, 1991.
134. Mitchell JK, Liggett PE, Harel W, Steinman L, Nitta T, Oksenberg JR, Posner HR, Mitchell MS. Lymphocytes cytotoxic to uveal and skin melanoma cells from peripheral blood of ocular melanoma patients. *Cancer Immunology and Immunotherapy*, 33:333-340, 1991.
135. Smilek D, Wraith D, Hodgkinson S, Duivedy S, Steinman L and McDevitt HO. A single amino acid change in a myelin basic protein peptide confers the capacity to prevent rather than induce experimental autoimmune encephalomyelitis. *Proceedings of the National Academy of Sciences USA*, 88:9633-9637, 1991.
136. Steinman L. The development of rational strategies for selective immunotherapy against demyelinating disease. *Advances in Immunology*, 49:357-379, 1991.
137. Oksenberg JR and Steinman L. New approaches to the therapy of demyelinating disease. *Current Opinions in Neurobiology*, 1:436-440, 1991.
138. Steinman L. Immunosuppressive therapy of neurologic disease. In: *Diseases of the Nervous System*. A Asbury, G McKhann, I McDonald (eds). Saunders, Philadelphia, pp. 1410-1419, 1992.
139. Steinman L. Prospects for immunotherapy directed to the T cell receptor in human autoimmune disease. *New York Academy of Science*, 636: 147-153, 1991.
140. Bell RB and Steinman L. Trimolecular interactions in experimental autoimmune demyelinating disease and prospects for immunotherapy. In: *Seminars in Immunology*, Malcolm Geffer, (ed). 3:237-245, 1991.
141. Bell RB and Steinman L. Specific immunotherapeutic strategies: Lessons from myelin basic protein induced EAE. In: *Treatment of MS: Trial Design, Results and Future Perspectives*, RA Rudick and DE Goodkin, (eds). Springer Verlag, London, pp.282-299, 1992.

142. Steinman L. The unexpected benefits of stealth. (Editorial) *Neurology*, 42:276-7, 1992.
143. Steinman L, Oksenberg JR, and Bernard CCA. Association of susceptibility to multiple sclerosis with TCR genes. *Immunology Today*, 13:49-51, 1992.
144. Zamvil SS and Steinman L. The pathogenesis of demyelinating disease in the central nervous system and the development of selective immunotherapy. In: *Current Neurology*, Mosby, 12:42-69, 1992.
145. Steinman L. Multiple sclerosis and its animal models: The role of the major histocompatibility complex and the T cell receptor repertoire. In: *Springer Seminars in Immunopathology, Immunogenetics & Autoimmunity*. HO McDevitt (ed). Springer-Verlag, 14:79-93, 1992.
146. Steinman L, Oksenberg JR, Bernard CCA. Polymorphism in MS. *Neurology* 42:466-467, 1992.
147. Oksenberg JR and Steinman L. Immunogenic peptides and perspectives for the treatment of autoimmune diseases. In: *Progress in Allergy and Clinical Immunology*, T. Miyamoto and M. Ouda (eds), Hogrefe and Huber, Germany, pp 486-491, 1992.
148. Powell MB and Steinman L. The role of lymphotoxin and TNF in demyelinating diseases of the CNS. In: *Tumor Necrosis Factors*, B. Beutler (ed), Raven Press, New York, 1992.
149. Panzara M, Oksenberg JR, and Steinman L. The polymerase chain reaction for detection of T cell antigen receptor expression. In: *Current Opinions in Immunology*, 4:205-210, 1992.
150. Steinman L. Autoimmune disease and the nervous system. (Editorial) In: *Western Journal of Medicine* , 156:664-6, 1992.
151. diTommaso A, Oksenberg J, Steinman L, Judd A, Sette A, Karr RW, Olson R, Fu X, Rappuoli R, deMagistris T. Interaction of a T cell epitope of pertussis toxin with molecules of the immune system. In: *Proceedings of the Fifth European Workshop on Bacterial Protein Toxins*, Witholt et al. (eds), 23:377-384, 1992.
152. Zamvil SS, Nelson PA, and Steinman L. Monoclonal antibodies and immune intervention in autoimmune disease. In: *Molecular Biology of Immunosuppression*, Angus Thompson (ed), Academic Press, pp129-151, 1992.
153. Oksenberg JR, Panzara MA, and Steinman L. Medical Intelligence Unit: The Polymerase Chain Reaction and the Analysis of the T Cell Receptor Repertoire. Landes, Austin, TX, 1992.
154. Todd J and Steinman L. Genetic Dissection of Tolerance. In: *Current Opinions in Immunology*, 4:699-702, 1992.
155. Bucht A, Oksenberg J, Lindblad S, Gronberg A, Steinman L and Klareskog L. Characterization of T cell receptor α/β repertoire in synovial tissue from different temporal phases of rheumatoid arthritis. *Scandinavian Journal of Immunology*, 35:159-165, 1992.
156. Nitta T, Sato K, Allegretta M, Brocke S, Lim M, Mitchell D and Steinman L. Expression of granulocyte-macrophage colony stimulating factor genes in human astrocytoma cell lines and in glioma specimens. *Brain Research*, 571:19-25, 1992.

157. deMagistris MT, Tommaso A, Domenighini M, Censini S, Taglibue A, Oksenberg JR, Steinman L, Judd AK, O'Sullivan D, Rappuoli R. Interaction of the pertussis toxin peptide containing residues 30-42 with HLA-DR1 and the T cell receptors of twelve human T cell clones. *Proceedings of the National Academy of Sciences USA*, 89:2990-2994, 1992.
158. Panzara MA, Gussoni E, Steinman L, and Oksenberg. Analysis of the T cell repertoire using the polymerase chain reaction and specific oligonucleotide primers. *BioTechniques*, 12:728-735, 1992.
159. Yednock T, Cannon C, Fritz L, Sanchez-Madrid F, Steinman L, and Karin N. Prevention of experimental autoimmune encephalomyelitis by antibodies against $\alpha 4\beta 1$ integrin. *Nature*, 356:63-66, 1992.
160. Gussoni E, Pavlath G, Lanctot A, Sharma K, Miller R, Steinman L, Blau H. Normal dystrophin transcripts detected in DMD patients after myoblast transplantation. *Nature*, 356:435-438, 1992.
161. Gautam AM, Pearson CI, Sinha AA, Smilek DE, Steinman L, and McDevitt HO. Inhibition of experimental autoimmune encephalomyelitis by a non-immunogenic non-self-peptide that binds to I-A^U. *Journal of Immunology*, 148:3049-3054, 1992.
162. Lahesmaa R, Yssel H, Batsford S, Luukkainen R, Mottonen T, Steinman L, and Peltz G. *Yersinia enterocolitica* activates a T helper type 1-like T cell subset in reactive arthritis. *Journal of Immunology*, 148:3079-3085, 1992.
163. Rao NA, Atalla L, Fong S, Chen F, Linker-Israeli M, and Steinman L. Antigen-specific suppressor cells in experimental autoimmune uveitis. *Ophthalmic Research*, 24:92-98, 1992.
164. Lindsey JW, Albers GS, and Steinman L. Recurrent transverse myelitis, myasthenia gravis, and autoantibodies. *Annals of Neurology*, 32:407-409, 1992.
165. Gautam AM, Pearson C, Smilek D, Steinman L, and McDevitt HO. A polyalanine peptide containing only five native myelin basic protein residues induces autoimmune encephalomyelitis. *Journal of Experimental Medicine*, 176:605-609, 1992.
166. Oksenberg JR, Panzara MA, Begovich AB, Mitchell D, Erlich HA, Murray RS, Shimonkevitz R, Sherritt M, Rothbard J, Bernard CCA, and Steinman L. Selection for T cell receptor V β -Db-J β gene rearrangements with specificity for a myelin basic protein peptide in brain lesions of multiple sclerosis. *Nature*, 362:68-70, 1993.
167. Gaur A, Fathman GR, Steinman L, and Brocke S. SEB induced anergy: Modulation of immune response to T cell determinants of myoglobin and myelin basic protein. *Journal of Immunology*, 150: 3062-3069, 1993.
168. Mitchell JK, Huang XQ, Steinman L, Oksenberg JR, Harel W, Parker JW, Goedegeburre PS, Darrow TL, and Mitchell MS. Clonal analysis of *in vivo*-activated CD8⁺ cytotoxic T lymphocytes from a melanoma patient responsive to active specific immunotherapy. *Cancer Immunology and Immunotherapy*, 37:15-25, 1993.
169. Bell RB, Lindsey JW, Sobel RA, Hodgkinson S, Steinman L. Diverse T cell receptor V beta gene usage in the central nervous system in experimental allergic encephalomyelitis. *Journal of Immunology*, 150:4085-4092, 1993.

170. Karin N, Szafer F, Mitchell D, Gold D, and Steinman L. Selective and non-selective stages in homing of T lymphocytes to the central nervous system during experimental allergic encephalomyelitis. *Journal of Immunology*, 150:4116-4124, 1993.
171. Lahesmaa R, Shanafelt MC, Allsup A, Soderberg C, Anzola J, Freitas V, Turck C, Steinman L, and Peltz G. Preferential usage of T cell antigen receptor variable region gene segment Vb5.1 by *Borrelia burgdorferi* antigen-reactive T cell clones isolated from a patient with Lyme disease. *Journal of Immunology*, 150:4125-4135, 1993.
172. Mantegazza R, Andretta F, Bernasconi P, Baggi F, Oksenberg J, Simoncini O, Mora M, Cornelio F, and Steinman L. TCR repertoire analysis of T lymphocytes infiltrating polymyositis muscles: restricted Va β rearrangements may indicate antigen driven selection. *Journal of Clinical Investigation*, 91:2880-2886, 1993.
173. Rao N, Naidu Y, Bell R, Lindsey JW, Pararajasegaram G, Sun Y and Steinman L. Usage of T cell receptor beta-chain variable gene is highly restricted at the site of inflammation in murine autoimmune uveitis. *Journal of Immunology*, 150:5716-5721, 1993.
174. Hvas J, Oksenberg J, Fernando R, Steinman L, and Bernard CCA. Gamma/delta T cell receptor repertoire in brain lesions of patients with multiple sclerosis. *Journal of Neuroimmunology*, 46:225-234, 1993.
175. Brocke S, Gaur A, Piercy C, Gautam A, Gijbels K, Fathman CG, and Steinman L. Induction of relapsing paralysis in experimental autoimmune encephalomyelitis by bacterial superantigen. *Nature*, 365:642-644, 1993.
176. Yang X, Karin N, Tisch R, Steinman L, and McDevitt HO. Inhibition of insulinitis and prevention of diabetes in NOD mice by blocking L-selectin and VLA-4 adhesion receptors. *Proceedings of the National Academy of Sciences USA*, 90:10494-10498, 1993.
177. Lindsey JW and Steinman L. Competitive PCR Quantification of CD4, CD8, VCAM-1, and MHC class II mRNA in the central nervous system during development and resolution of experimental allergic encephalomyelitis. *Journal of Neuroimmunology*, 48:227-234, 1993.
178. Struyk L, Kurnick JT, Hawes GE, van Laar JM, Schipper R, Oksenberg J, Steinman L, de Vries RRP, Breedveld KFC, and van den Elsen P. TCR V-gene usage in synovial fluid lymphocytes of patients with chronic arthritis. *Human Immunology*, 37:237-251, 1993.
179. Oksenberg JR, Panzara MA, and Steinman L. Multiple Sclerosis: From Immunogenetics to Immunotherapy. In: *Proceedings of International Seminars on MS*. CL Cazullo and C. Poser (eds). *Journal of the Neurological Sciences* 115:S29-37, 1993.
180. Steinman L, Lindsey W, Alters S, Hodgkinson S. Anti-CD4 Therapy: From Treatment of Experimental Allergic Encephalomyelitis to Clinical Trials in Multiple Sclerosis. In: *Monoclonal Antibody and Peptide Therapy in Autoimmune Diseases*. JF Bach (ed), Marcel Dekker, pp. 253-260, 1993.
181. Steinman L. Autoimmune Disease. *Scientific American*. Vol. 269: 106-114, September, 1993.
182. Wilson DB, Steinman L, and Gold DP. The V-region disease hypothesis: New evidence suggests it is probably wrong. *Immunology Today* 14:376-380, 1993.

183. Steinman L. Connections between the immune system and the nervous system. *Proceedings of the National Academy of Sciences USA*, 90:7912-7914, 1993.
184. Oksenberg JR, Begovich AB, Erlich HA, and Steinman L. Genetic Factors in Multiple Sclerosis. *Journal of the American Medical Association*, 270:2362-2369, 1993.
185. Todd JA and Steinman L. Autoimmunity: The environment strikes back. *Current Opinion in Immunology* 5:863-865, 1993.
186. Melms A, Oksenberg JR, Malcherek G, Schoefer R, Muller CA, Lindstrom J, and Steinman L. T cell receptor gene usage of acetylcholine receptor-specific T helper cells. *Annals of the New York Academy of Sciences* 681:313, 1993.
187. Steinman L, Miller A, Bernard CCA, and Oksenberg JR. The epigenetics of multiple sclerosis: Clues to etiology and a rationale for immune therapy. In: *Annual Reviews of Neuroscience*, 17:247-265, 1994.
188. Brocke S, Veromaa T, Weissman I, Gijbels K, and Steinman L. Infection and Multiple Sclerosis: A possible role for superantigens? *Trends in Microbiology* 2:250-254, 1994.
189. Brocke S, Gijbels K, and Steinman L. Experimental autoimmune encephalomyelitis in the mouse. In: *Autoimmune Disease Models*, Cohen IR and Miller A. (eds) . Academic Press, 1994.
190. Steinman L. Specific Motifs in T Cell Receptor VbDbJb Gene Sequences in Multiple Sclerosis Lesions in Brain. *Behring Institute Mitteilungen* 94:148-157, 1994.
191. Gautam AM, Lock CB, Smilek DE, Pearson CI, Steinman L, and McDevitt HO. Minimum structural requirements for peptide presentation by major histocompatibility complex class II molecules: Implications in induction of autoimmunity. *Proceedings of the National Academy of Sciences USA*, 91:767-771, 1994.
192. Szafer F, Oksenberg JR, and Steinman L. New allelic polymorphism in TAP genes. *Immunogenetics*, 39:374, 1994.
193. Lindsey JW, Hodgkinson S, Mehta R, Siegel RC, Mitchell D, Lim M, Piercy BA, Dorfman L, Enzmann D, and Steinman L. Phase I clinical trial of chimeric monoclonal anti-CD4 antibody in multiple sclerosis. *Neurology*, 44:413-419, 1994.
194. Allegretta M, Albertini RJ, Howell MD, Smith LR, Martin R, McFarland HF, Brostoff S, and Steinman L. Homologies between T cell receptor junctional sequences unique to multiple sclerosis and T cells mediating experimental allergic encephalomyelitis. *Journal of Clinical Investigation*, 94:105-109, 1994.
195. Lindsey JW, Hodgkinson S, Mehta R, Mitchell D, Enzmann D, and Steinman L. Repeated treatment with chimeric anti-CD4 antibody in multiple sclerosis. *Annals of Neurology*, 36:183-9, 1994.
196. Cunha-Neto E, Moliterno R, Coelho V, Guilherme L, Bocchi E, Higuchi M, Stolf N, Pileggi F, Steinman L, and Kalil J. Restricted heterogeneity of T cell receptor variable alpha chain transcripts in hearts of Chagas' disease cardiomyopathy patients. *Parasite Immunology* 16:171-9, 1994.
197. Lodge PA, Allegretta M, Steinman L, and Sriram S. Myelin basic protein peptide specificity and T cell receptor gene usage of HPRT mutant T cell clones in patients with multiple sclerosis. *Annals of Neurology*, 36:734-740, 1994.

198. Gussoni E, Pavlath GK, Miller RG, Panzara MA, Powell M, Blau HM, and Steinman L. Specific T-cell receptor gene rearrangements at the site of muscle degeneration in Duchenne muscular dystrophy. *Journal of Immunology*, 153:4798-4805, 1994.
199. Karin N, Mitchell D, Ling N, Brocke S, and Steinman L. Reversal of experimental autoimmune encephalomyelitis by a soluble variant of a myelin basic protein epitope: T cell receptor antagonism and reduction of Interferon- γ and TNF- α production. *Journal of Experimental Medicine*, 180:2227-2237, 1994.
200. Zamvil SS, Al-Sabbagh A, Nelson P, Kaul D, St. Charles M, Mitchell D, Steinman L, Weiner HL, and Kuchroo VK. 'Lupus-prone' mice are susceptible to organ-specific autoimmune disease, experimental allergic encephalomyelitis. *Pathobiology*, 62:113-9, 1994.
201. Sakai K, Gofuku M, Kitagawa Y, Ogasawara T, Hirose G, Yamazaki M, Koh CS, Yanagisawa N, and Steinman L. A hippocampal protein associated with paraneoplastic syndrome and small cell lung carcinoma. *Biochemical and Biophysical Research Communications* 99:1200-8, 1994.
202. Gijbels K, Galardy R, and Steinman L. Reversal of EAE with a hydroxymate inhibitor of matrix metalloproteases. *Journal of Clinical Investigation*, 94:2177-2182, 1994.
203. Yang X, Michie S, Tisch R, Karin N, Steinman L, and McDevitt HO. A predominant role of $\alpha 4$ -integrin in the spontaneous development of autoimmune diabetes in NOD Mice. *Proceedings of the National Academy of Sciences USA*, 91: 12604-12608, 1994.
204. Yang X, Michie S, Tisch R, Karin N, Steinman L, and McDevitt HO. Cell Adhesion Molecules: A selective therapeutic target for alleviation of IDDM. *Journal of Autoimmunity*, 7:859-864, 1994.
205. Vollmer T, Newby C, Dell Oca RL, Porteus M, Steinman L, and Stevens DA. Coccidioidal antigen reactive CD4⁺ T lymphocytes in the cerebrospinal fluid in *C. immitis* meningitis. *Journal of Medical and Veterinary Mycology*, 33:43-8, 1995.
206. Gijbels K, Brocke S, Abrams J, and Steinman L. Administration of neutralizing antibodies to interleukin-6 (IL-6) reduces experimental autoimmune encephalomyelitis and is associated with elevated levels of IL-6 bioactivity in central nervous system and circulation. *Molecular Medicine*, 1(7):795-805, 1995.
207. Warren KG, Catz I, and Steinman L. Fine Specificity of the Antibody Response to Myelin Basic Protein in the Central Nervous System in Multiple Sclerosis: The minimal B cell epitope and a model of its unique features. *Proceedings of the National Academy of Sciences USA*, 92:11061-5, 1995.
208. Lahesmaa R, Soderberg C, Bliska J, Allsup A, Luukkainen R, Steinman L, Uchiyama T and Peltz G. Pathogen antigen- and superantigen-reactive synovial fluid T cells in reactive arthritis. *Journal of Infectious Diseases*, 172(5):1290-1297, 1995.
209. Lindsey JW, Papolla M, Steinman L. Reinduction of experimental autoimmune encephalomyelitis in mice. *Cellular Immunology* 162:235-240, 1995.
210. Szafer F, Price VH, Oksenberg JR, Steinman L. T-cell receptor repertoire V β in Alopecia Areata. *Journal of Investigative Dermatology*, pp. 22S-24S, 1995.

211. Lamb LS, Szafer, Henslee Downey P, Walker M, King S, Godder K, Pati A, Best R, Steinman L, Geier S, Gee A. Characterization of acute bone marrow graft rejection in T cell depleted partially mismatched bone marrow transplantation. *Experimental Hematology*, 23:1595-1600, 1995.
212. Steinman L. Escape from Horror Autotoxicus: The Pathogenesis and Treatment of Autoimmunity. *Cell*, 80:7-10, 1995.
213. Steinman L, Waisman A, and Altmann A. Major T Cell Responses in Multiple Sclerosis. *Molecular Medicine Today*, 1:79-83, 1995.
214. Steinman L. Presenting an Odd Autoantigen. *Nature*, 375:739-740, 1995.
215. Allegretta M and Steinman L. Unique T cell receptor junctional sequences found in multiple sclerosis and T cells mediating experimental allergic encephalomyelitis. *Annals of the New York Academy of Sciences* 756:265-282, 1995.
216. Chofflon M, and Steinman L. Springer Seminars in Immunopathology. In: *Immunoneurology I*, Springer, Berlin, 1995, pp. 1-118.
217. Gussoni E, Panzara MA, and Steinman L. Evaluating T cell receptor gene expression by PCR. In: *Current Protocols in Immunology*. Eds.: JE Coligan, AM Kruisbeek, DH Margulies, EM Shevach, W Strober. John Wiley & Sons, New York, Vol. 2, 10.26.1-10.26.14, 1995.
218. Hafler DA, Saadeh MG, Kuchroo VK, Milford E, and Steinman, L. T cell receptor usage in human and experimental demyelinating disease. *Immunology Today*, 17:152-159, 1996.
219. Steinman, L. A few autoreactive cells in an autoimmune infiltrate control a vast population of nonspecific cells: A tale of smart bombs and the infantry. *Proceedings of the National Academy of Science, USA*, 93:2253-2256, 1996.
220. Steinman L. Multiple sclerosis: A Coordinated Immunological Attack Against Myelin in the Central Nervous System. *Cell*, 85:299-302, 1996.
221. Baker D, Steinman L, Gijbels K. Cytokines in multiple sclerosis. In: Brennan F, Feldmann M. *Cytokines in Autoimmunity*. RG Landes and Co, Austin, 1996, pp 77-99.
222. Brocke S, Piercy C and Steinman L. Superantigens in demyelinating disease. In: *Springer Seminars in Immunopathology*. Springer-Verlag, 1996, pp 51-56,
223. Brocke S, Quigley L, McFarland HF and Steinman L. Isolation and characterization of autoreactive T cells in experimental autoimmune encephalomyelitis of the mouse. In: *Methods: A Companion to Methods in Enzymology*. Academic Press, Inc., 1996, pp 458-468.
224. Lindsey JW and Steinman L. Monoclonal antibodies in the treatment of multiple sclerosis. In: Cook SD, ed.; *Handbook of Multiple Sclerosis*, 2nd Edition. Marcel Dekker, New York, 1996, pp. 567-584.
225. Steinman L. The Right Stuff: Breaking Through the Xenogenic Barrier for Transplantation Tolerance. *Nature Medicine*, 2:1185-6, 1996.
226. Boccaccio GL and Steinman L. Multiple Sclerosis: From a Myelin Point of View. *Journal of Neurochemical Research*, 45:647-654, 1996.

227. Ferber IA, Brocke S, Taylor-Edwards C, Ridgway W, Dinisco C, Steinman L, Dalton D, and Fathman CG. Mice with a disrupted interferon- γ gene are susceptible to the induction of experimental autoimmune encephalomyelitis (EAE). *Journal of Immunology*, 156:5-7, 1996.
228. Brocke S, Gijbels K, Allegretta M, Ferber I, Piercy C, Blankenstein T, Martin R, Utz U, Karin N, Mitchell D, Veromaa T, Waisman A, Gaur A, Conlon P, Ling N, Fairchild PJ, Wraith DC, O'Garra A, Fathman CG, and Steinman L. Treatment of experimental encephalomyelitis with a peptide analogue of myelin basic protein. *Nature*, 379:343-345, 1996.
229. Oro AS, Guarino TJ, Driver R, Steinman L and Umetsu DT. Regulation of disease susceptibility: Decreased prevalence of IgE-mediated allergic disease in patients with multiple sclerosis. *Journal of Allergy and Clinical Immunology*, 97(6):1402-1408, 1996.
230. Waisman A, Ruiz PJ, Hirschberg DL, Gelman A, Oksenberg JR, Brocke S, Mor F, Cohen IR and Steinman L. Suppressive vaccination with DNA encoding a variable region gene of the T cell receptor prevents autoimmune encephalomyelitis and activates Th2 immunity. *Nature Medicine*, 2:899-906, 1996.
231. Mor F, Reizis B, Cohen IR, Steinman L. IL-2 and TNF receptors as targets of regulatory T-T interactions: isolation and characterization of cytokine-receptor reactive T cell lines in the Lewis rat. *Journal of Immunology*, 157:4855-61, 1996.
232. Vergelli M, Hemmer B, Utz U, Vogt A, Kalbus M, Tranquill L, Conlon P, Ling N, Steinman L, McFarland H and Martin R. Differential activation of human autoreactive T cell clones by altered peptide ligands derived from myelin basic protein peptide (87-99). *European Journal of Immunology*, 26:2624-2634, 1996.
233. Shanafelt MC, Yssel H, Soderberg C, Steinman L, Adelman DC, Peltz G, Lahesmaa R. CD45 isoforms on human CD4+ T-cell subsets. *J Allergy Clinical Immunology*. 98:433-440, 1996.
239. Gaur A, Boehme SA, Chalmers D, Crowe PD, Pahuja A, Ling N, Brocke S, Steinman L, and Conlon P. Amelioration of relapsing experimental autoimmune encephalomyelitis with altered myelin basic protein peptides involves different cellular mechanisms. *Journal of Neuroimmunology*, 74:149-158, 1997.
240. Brenner T, Brocke S, Szafer F, Sobel R, Parkinson JF, Perez DH and Steinman, L. Inhibition of nitric oxide synthase for treatment of experimental autoimmune encephalomyelitis. *Journal of Immunology*, 158:2940-6, 1997.
241. Liblau R, Steinman L and Brocke S. Experimental autoimmune encephalomyelitis in IL-4 deficient mice. *International Immunology*, 9:799-804, 1997.
242. Poliak S, Mor F, Conlon P, Wong T, Ling N, Rivier J, Vale W, and Steinman L. Stress and Autoimmunity: The Neuropeptides Corticotropin Releasing Factor and Urocortin Suppress Encephalomyelitis Via Effects on both the Hypothalamic-Pituitary-Adrenal Axis and the Immune System, *Journal of Immunology*, 158: 5751-6, 1997.
243. Shaw MK, Lorens JB, Dhawan A, DalCanto R, Tse HY, Tran AB, Bonpane C, Eswaran SL, Brocke S, Sarvetnick N, Steinman L, Nolan GP, and Fathman CG. Local delivery of interleukin-4 by retrovirus-transduced T lymphocytes ameliorates experimental autoimmune encephalomyelitis. *Journal of Experimental Medicine*, 185:1711-1714, 1997.
244. Wucherpfenig KW, Catz I, Hausmann S, Strominger JL, Steinman L, Warren KG. Recognition of the Immunodominant Myelin Basic Protein Peptide by Autoantibodies and HLA-DR2

Restricted T Cell Clones from Multiple Sclerosis Patients: Identity of Key Contact Residues in the B-cell and T-cell epitopes. *Journal of Clinical Investigation*, 100:1114-1122, 1997.

245. Miller RG, Sharma KR, Pavlath GK, Gussoni E, Mynhier M, Yu P, Lanctot AM, Greco CM, Steinman L, and Blau H. Myoblast implantation in Duchenne's Muscular Dystrophy. *Muscle and Nerve* 20:469-478, 1997.

246. Hvas J, Nouri S, Kannourakis G, McLean C, Schall T, Sinding K, Justesen J, Steinman L, Oksenberg JR, CCA Bernard. Perivascular T-cells express the proinflammatory chemokine RANTES in multiple sclerosis lesions. *Scandinavian Journal of Immunology*, 46:195-203, 1997.

247. Brenner T, Gallily R, Boneh A, Sicsic C, Abramsky O and Steinman L. Involvement of nitric oxide and tumor necrosis factor α in central nervous system demyelination and inflammation. In Abramsky O and Ovadia H, *Frontiers in Multiple Sclerosis: Clinical Research and Therapy*. Martin Dunitz, London, 1997 pp 121-7.

248. Steinman L. Immunotherapy with Monospecific Antibodies. *Weir's Handbook of Experimental Immunology*. Herzenberg LA, Herzenberg LA, Weir DM, Blackwell C, Oxford, Vol . 4, 1997.

249. Karin N., Yednock T, Tang XD, Mitchell D, McDevitt HO, and Steinman L. Selective immunotherapy of autoimmune disease with antibodies to cell adhesion receptors: Lessons from EAE and IDDM. *Weir's Handbook of Experimental Immunology*. Herzenberg LA, Herzenberg LA, Weir DM, Blackwell C, Oxford, Vol . 4, 1997.

250. Brocke S and Steinman L. Multiple Sclerosis. In: *McGraw-Hill Yearbook of Science & Technology*, McGraw-Hill, pp. 322-324, 1997.

251. Cohen IR and Steinman L. Exploring the potential of DNA vaccination. *Hospital Practice*, 32:169-178, 1997.

252. Karpuj MV, Steinman L, and Oksenberg J. Multiple Sclerosis: A polygenic disease involving epistatic interactions, germline rearrangements, and environmental effects, *Neurogenetics* 1:21-28, 1997.

253. Steinman, L. Some misconceptions about understanding autoimmunity through experiments with knockouts. *Journal of Experimental Medicine*, 185:2039-2041, 1997.

254. Waisman A, Brocke S, and Steinman L. Th2 cytokines in the treatment of autoimmune disease: A delicate balance. In: *Immunointervention in Autoimmunity by Th1/Th2 Regulation*, edited by Luciano Adorini, RG Landes and Co., 1997, pp129-150.

255. Zhang J, Rivera M, Raus J and Steinman L. New treatment for multiple sclerosis. In *Current Neurology*, S.H. Appel, ed.. IOS Press, 1997. Vol 17, 157-184.

256. Steinman, L and Conlon P. Viral damage and the breakdown of self-tolerance. *Nature Medicine* 3:1085-7, 1997.

257. Steinman L and Oldstone MBA. More mayhem from molecular mimics. *Nature Medicine* 3:1321-1322, 1997

258. O'Garra A, Steinman L, and Gijbels K. CD4+ T cell Subsets in Autoimmunity, *Current Opinions in Immunology*, 8,6:872-879, 1997.

259. Garren H, Steinman L, Lock C. The specificity of the antibody response in multiple sclerosis. *Annals of Neurology*, **43**,1:4-5, 1998.
260. Brocke S, Hausmann S, Steinman L, Wucherpfennig KW. Microbial peptides and superantigens in the pathogenesis of autoimmune diseases of the central nervous system. *Seminars Immunology*, 10:1, 57-67, 1998.
261. Levite M, Cahalon , Hershkoviz R, Steinman L, Lider O. Neuropeptides, via specific receptors, regulated T-cell adhesion to fibronectin. *Journal of Immunology*, 160(2):9930-1000, 1998.
262. Karin N, Binah O, Grabie N, Mitchell D, Felzen B, Solomon M, Conlon P, Gaur A, Ling N, Steinman L. Short peptide-based tolerogens without self-antigenic or pathogenic activity reverse autoimmune disease. *Journal of Immunology*, 160:5188-5194, 1998.
263. Ruiz PJ, Wolkowicz R, Waisman A, Hirschberg DL , Carmi P, Erez N, Garren H, Herkel J, Karpuj M, Steinman L, Rotter V and Cohen IR. Immunity to mutant p53 and tumor rejection induced by idiotypic immunization. *Nature Medicine*, 4(6):710-712, 1998
264. Gautam AM, Liblau R, Chelvanayagam G, Steinman L, and Boston T. A viral peptide with limited homology to a self-peptide can induce clinical signs of experimental autoimmune encephalomyelitis. *Journal of Immunology*, 161:60-64, 1998.
265. Dal Canto RA, Shaw MK, Nolan GP, Steinman L, and Fathman CG. Local delivery of TNF by retrovirus-transduced T lymphocytes exacerbates experimental autoimmune encephalomyelitis. *Clinical Immunology*, 90:10-14, 1998.
266. Brocke S, Piercy C, Steinman L, Weissman IL, Veromaa T. Antibodies to CD44 and integrin alpha 4, but not L-selectin, prevent CNS inflammation and experimental encephalomyelitis by blocking secondary leukocyte recruitment. *Proceedings of the National Academy of Sciences USA*, 96:6896-6901, 1999.
267. Boccaccio G, Mor F, and Steinman L. Non-coding plasmid DNA induced gamma interferon in vivo and suppresses autoimmune encephalomyelitis. *International Immunology*, 11:289-296, 1999.
268. Ruiz P, Garren H, Ruiz I, Hirschberg D, Nguyen L, Karpuj M, Cooper MT, Mitchell D, Fathman CG and Steinman L. Suppressive immunization with DNA encoding a self-peptide prevents autoimmune disease: modulation of T cell co-stimulation. *Journal of Immunology*, 162:3336-3341, 1999.
269. Ruiz PJ, Garren H, Hirschberg DL, Langer-Gould AM, Levite M, Karpuj MV, Southwood S, Sette A, Conlon P and Steinman L. Microbial epitopes act as altered peptide ligands to prevent EAE. *Journal of Experimental Medicine*, 189:1275-1284, 1999.
270. Falta MT, Magin GK., Allegretta, M, Steinman L, Atkinson MA, Brostoff SW, and Albertini RJ. Selection of hprt mutant T cells as surrogates for dividing cells reveals a restricted T cell receptor BV repertoire in insulin-dependent diabetes mellitus. *Clinical Immunology*, 90: 340-351, 1999.
271. Karpuj MV, Garren H, Slunt H, Price DL, Gusella J, Becher MW, and Steinman L. Transglutaminase aggregates huntingtin into non-amyloidogenic polymers and its enzymatic activity is increased in Huntington's Disease brain nuclei. *Proceedings of the National Academy Science USA*, 96:7388-7393, 1999.

272. Panzara MA, Gussoni E, Begovich AB, Murray RS, Zang YQ, Appel SH, Steinman L and Zhang J. T cell receptor V beta gene rearrangements in the spinal cords and cerebrospinal fluid of patients with amyotrophic lateral sclerosis. *Neurobiology of Disease*, 6:392-405, 1999.
273. Steinman L. The cost of immune-mediated "collateral damage" in the nervous system. *Cell*, 96(4), 463-465, 1999
274. Steinman L. Absence of "Original Antigenic Sin" in autoimmunity provides an unforeseen platform for immune therapy. *Journal of Experimental Medicine*, 189(7):1021-1024, 1999.
275. Conlon P, Oksenberg JR, Zhang J and Steinman L. The immunobiology of multiple sclerosis: An autoimmune disease of the central nervous system. *Neurobiology of Disease*, 6:149-166, 1999.
276. Steinman L. Assessment of the Utility of Animal Models for Multiple Sclerosis and Demyelinating Disease in the Design of Rational Therapy. *Neuron*, **24**, 511-514, 1999.
277. Garren H and Steinman L. DNA vaccination in the treatment of autoimmune disease. In: *Biologic and Gene Therapy of Autoimmune Disease* (Fathman CG ed.); Current Directions in Autoimmunity, Vol. 2, pp 203-216, 2000
278. Steinman L. Multiple Approaches to Multiple Sclerosis. *Nature Medicine*, 6:15-16, 2000.
279. Sipkins D, Gijbels K, Tropper F, Bednarski M, Li KCP, and Steinman L. ICAM-1 expression in autoimmune encephalitis visualized using magneticresonance imaging. *Journal of Neuroimmunology* 104:1-9, 2000.
280. Voehringer DW, Hirschberg DL, Xiao J, Lu1 Q, Roederer M, Lock CB, Herzenberg LA, Steinman L and Herzenberg LA. Gene microarray identification of redox and mitochondrial elements that control resistance or sensitivity to apoptosis. *Proceedings of the National Academy of Science USA*, 97:2680-2685, 2000.
281. Kappos L, Comi G, Panitch H, Oger J, Antel J, Conlon P, Steinman L and the APL in Relapsing MS Study Group. Induction of a non-encephalitogenic Th2 autoimmune response in multiple sclerosis after administration of an altered peptide ligand in a placebo controlled, randomized phase II trial. *Nature Medicine*, 6(10):1176-1182, 2000.
282. Mitchell DJ, Kim DT, Steinman L, Fathman CG and Rothbard JR. Polyarginine enters cells more efficiently than other polycationic homopolymers. *Journal of Peptide Research*, 56:318-325, 2000.
283. Wender PA, Mitchell DJ, Pattabiraman K, Pelkey ET, Steinman L and Rothbard JR. The design, synthesis and evaluation of molecules that enable or enhance cellular uptake: Peptoid molecular transporters. *Proceedings of the National Academy of Science*, 97(24):13003-13008, 2000.
284. Pedotti R, Mitchell D, Wedemeyer J, Karpuj M, Chabas D, Hattab E, Tsai M, Galli SJ, Steinman L. An Unexpected Version of Horror Autotoxicus: Anaphylactic Shock to a Self-Peptide. *Nature Immunology*, 2:216-222, 2001.
285. Garren H, Pedro J. Ruiz, Trent A. Watkins, Paulo Fontoura, Louis-Vu T. Nguyen, Einat R. Estline, David L. Hirschberg, and Lawrence Steinman. Combination of Gene Delivery and DNA Vaccination to Protect from and Reverse Th1 Autoimmune Disease Via Deviation to the Th2 Pathway. *Immunity*, 15:15-22, 2001.

286. Urbanek-Ruiz, I., Ruiz, P., Garren, H., Paragas, V., Steinman, L., and Fathman, C. G. 2001. Immunization with DNA encoding an immunodominant peptide of insulin prevents diabetes in NOD mice. *Clinical Immunology*, 100:164-171, 2001.
287. Hauben E, Agranov E, Gothilf A, Nevo U, Cohen A, Smirnov I, Steinman L and Schwartz M. Posttraumatic Therapeutic Vaccination with Modified Myelin Self-Antigen Prevents Complete Paralysis While Avoiding Autoimmune Disease. *Journal of Clinical Investigation* 108:591-599, 2001.
288. Ruiz P, DeVoss J, Nguyen L, Fontoura P, Hirschberg D, Mitchell D, Garcia C, and Steinman L. Immunomodulation of Experimental Autoimmune Encephalomyelitis with Ordered Peptides Based on MHC-TCR Binding Motifs. *Journal of Immunology* 167:2688-2693, 2001.
289. Chabas D, Baranzini S, Mitchell D, Bernard CCA, Rittling S, Denhardt, D, Sobel R, Lock C, Karpuj M, Pedotti R, Heller R, Oksenberg J, Steinman L. The influence of the pro-inflammatory cytokine, osteopontin, on autoimmune demyelinating disease. *Science*, 294: 1731-1735, 2001.
290. Jeitner TM, Bogdanov MB, Matson WR, Daikhin Y, Yudkoff M, Folk JE, Steinman L, Browne SE, Beal MF, Blass JP & Cooper AJL. N(epsilon)-(gamma-L-glutamyl)-L-lysine (GGEL) is increased in Cerebrospinal Fluid of Patients with Huntington's Disease, *Journal of Neurochemistry*, 79:1109-1112, 2001.
291. Steinman L. Multiple Sclerosis: A Two Stage Disease. *Nature Immunology*, 2: 762-5, 2001.
292. Steinman L. Gene Microarrays and Experimental Demyelinating Disease: A Tool To Enhance Serendipity. *Brain*, 124:1897-9, 2001.
293. Steinman L. Myelin-specific CD8 T cells in the Pathogenesis of Experimental Allergic Encephalitis and Multiple Sclerosis. *Journal of Experimental Medicine* 194:F27-30, 2001.
294. Steinman L, Conlon P. Antigen specific immunotherapy of multiple sclerosis. *J Clin Immunol.* Mar;21(2):93-8, 2001.
295. Steinman L. Immunotherapy of multiple sclerosis: the end of the beginning. *Curr Opin Immunol.* 13(5):597-600, 2001.
296. Steinman L. Blockade of Gamma Interferon Might be Beneficial in MS. *Multiple Sclerosis*, 7:275-6, 2001.
297. Karpuj MV, Becher MW, Steinman L. Evidence for a role for transglutaminase in Huntington's disease and the potential therapeutic implications. *Neurochem Int.* 40(1):31-6, 2002.
298. Garren H, Steinman L. DNA vaccination in the treatment of autoimmune disease. *Current Directions in Autoimmunity.* 2002:203-16.
299. Steinman L, Martin R, Bernard CCA, Conlon P, and Oksenberg JR. Multiple Sclerosis: Deeper Understanding of Its Pathogenesis Reveals New Targets for Therapy. *Annual Reviews of Neuroscience*, 25:491-505, 2002.
300. Robinson W, Garren H, Utz PJ, and Steinman L. Millennium Award. Proteomics for the development of DNA tolerizing vaccines to treat autoimmune disease. *Clin Immunol.* 2002 103(1):7-12, 2002.

301. Robinson W, Steinman L, and Utz PJ. Proteomics technologies for the study of autoimmune disease. *Arth Rheum* 46(4):885-93, 2002.
302. Heuber W, Utz PJ, Steinman L and Robinson WH. Autoantibody profiling for the study and treatment of autoimmune disease. Invited review, *Arthritis Research*, 2002, 4:290-5, 2002.
303. Steinman L. Multiple Sclerosis: Further layers of complexity revealed from large scale transcriptional and proteomic analysis of brain lesions and spinal fluid. *NeuroScience News*, 4:69-73, 2002.
304. Urbanek-Ruiz I, Ruiz PJ, Steinman L, Fathman CG. Immunomodulatory vaccination in autoimmune disease..*Endocrinol Metab Clin North Am*. 31(2):441-56, 2002.
305. Zamvil SS and Steinman L. Cholesterol-lowering statins possess anti-inflammatory activity that might be useful for treatment of MS. *Neurology* 59: 970-1, 2002.
306. Stuve O, Cree BC, Von Budingen HC, Yousef S, Bowen JD, Genain CP, Hauser SL, Steinman L, Zamvil SS. Approved and Future Pharmacotherapy for Multiple Sclerosis. *The Neurologist*. 8:290-301, 2002.
307. Karpuj MV, Becher MW, Springer JE, Chabas D, Pedotti R, Youssef S, Mitchell D, and Steinman L. Prolonged Survival and Decreased Abnormal Movements in Transgenic Model of Huntington's Disease, with Administration of Cystamine, a Transglutaminase Inhibitor. *Nature Medicine*, 8: 143-9, 2002.
308. Robinson WH, DiGennaro C, Hueber W, Haab B, Kamachi M, Dean E, Fournel S, Fong D, Genovese MC, de Vegvar H, Steiner G, Hirschberg D, Muller S, Pruijn G, van Venrooij W, Smolen J, Brown P, Steinman L, Utz P. Antigen arrays for multiplex characterization of autoantibody responses. *Nature Medicine*, 8:295-301, 2002.
309. 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, and Steinman L. Gene Microarray Analysis of Multiple Sclerosis Lesions Yields New Targets Validated in Autoimmune Encephalomyelitis. *Nature Medicine*, 8:500-508, 2002.
310. Conlon P and Steinman L. Altered peptide ligand and MS treatment. *Science* 296:1801-2, 2002 [letter].
311. Langer-Gould A, Garren H, Slansky A, Ruiz PJ, Steinman L. Late pregnancy suppresses relapses in experimental autoimmune encephalomyelitis: evidence for a suppressive pregnancy-related serum factor. *Journal of Immunology* 169(2):1084-91, 2002.
312. Youssef S, Stuve O, Patorroyo J, Ruiz P, Radosevich J, Hur EM, Bravo M, Mitchell D, Sobel RA, Steinman L and Zamvil S. The HMG-CoA Reductase Inhibitor, Atorvastatin, Promotes a Th2 Bias and Reverses Paralysis in CNS Autoimmune Disease, *Nature* 420:78-84, 2002.
313. Pedotti R, DeVoss J, Youssef S, Mitchell D, Wedemeyer J, Madanat R, Garren H, Fontoura P, Tsai M, Galli SJ, Sobel RA and Steinman L. Multiple Elements of the Allergic Arm of the Immune Response Modulate Autoimmune Demyelination. *Proceedings of the National Academy of Sciences USA*, 100:1867-1872, 2003.

314. Caillier S, Barcellos L, Baranzini S, Swerdlin A, Lincoln R, Steinman L, Oksenberg JR. Osteopontin Polymorphisms and Disease Course in MS, *Genes and Immunity* 4:312-315, 2003.
315. Pedotti R, Maija Sanna, Mindy Tsai, Lawrence Steinman, Hugh McDevitt and Stephen J Galli. Severe Anaphylactic Reactions to Self Peptides in Mice that Spontaneously Develop Autoimmune Type 1 Diabetes Mellitus *BMC Immunology*,4:2, 2003.
316. Steinman L, Youssef S, van Venrooij N, Chabas D, Baranzini S, Rittling S, Denhardt, D, Sobel RA, Lock C, Pedotti R, and Oksenberg JO. Response to comment on "The influence of the Proinflammatory Cytokine, Osteopontin, on Autoimmune Demyelinating Disease". *Science*, 299: 1845, 2003.
317. Robinson, WH, Fontoura P, Lee BJ, Neuman de Vegvar HE, Tom J, Pedotti R, DiGennaro C, Mitchell DJ, Fong D, Ho PK, Ruiz P, Maverakis E, Stevens D, Bernard CCA, Olsson T, Martin R, Kuchroo VK, van Noort JM, Genain CP, Utz PJ, Garren H, and Steinman L. Reverse genomics: Protein microarrays guide tolerizing DNA vaccine treatment of autoimmune encephalomyelitis, *Nature Biotechnology*, 21:1033-9, 2003.
318. Neuman de Vegvar H, Amara RR, Steinman L, Utz PJ, Robinson HL, Robinson WH. Microarray profiling of anti-SHIV antibody responses: Post-challenge convergence of reactivities independent of host genotype and vaccination regimen. *Journal of Virology*, 77: 11125-38, 2003.
319. Ho, P, Fontoura P, Ruiz P, Steinman L, and Garren H. An Immunomodulatory GpG Oligonucleotide for the Treatment of Autoimmunity Via the Innate and Adaptive Immune Systems. *Journal of Immunology*, 171:4920-6, 2003.
320. Steinman L, Conlon P, Maki R, and Foster A. The Intricate Interplay Among Body Weight, Stress and The Immune Response to Friend or Foe. *Journal of Clinical Investigation*, 111:183-185, 2003
321. Steinman L. Collateral Damage Repaired. *Nature* 422: 671-2, 2003.
322. Zamvil S and Steinman L. Diverse Targets for Intervention during Inflammatory and Neurodegenerative Phases of Multiple Sclerosis. *Neuron*, 38: 685-688, 2003.
323. Steinman L and Zamvil S. Transcriptional analysis of targets in multiple sclerosis. *Nature Reviews in Immunology*, 3:483-493, 2003.
324. Steinman L. Optic Neuritis, A New Variant of Experimental Encephalomyelitis, A Durable Model for All Seasons, Now in its Seventieth Year. *Journal of Experimental Medicine*, 197: 1065-1071, 2003.
325. Stuve O, Youssef S, Steinman L, and Zamvil S. Statins as potential therapeutic agents in neuroinflammatory disorders. *Current Opinion in Neurology* 16:393-401, 2003.
326. Pedotti R, DeVoss J, Steinman L, Galli S. Involvement of both 'allergic' and 'autoimmune' mechanisms in EAE, MS and other autoimmune diseases. *Trends in Immunology*, 24:479-484, 2003.
327. Steinman L. Engineering Better Cytokines. *Nature Biotechnology*, 21: 293-4, 2003.

328. Robinson WH, Utz PJ, and Steinman L. Genomic and Proteomic Analysis of Multiple Sclerosis. *Current Opinion in Immunology*. 15:660-667, 2003.
329. Robinson WH, Steinman L, and Utz PJ. Protein arrays for autoantibody profiling and fine specificity mapping. *Proteomics*, 3:2077-84, 2003.
330. Stuve O, Youssef S, Dunn S, Slavin A, Steinman L and Zamvil SS. The potential therapeutic role of statins in central nervous system autoimmune disorders. *Cellular and Molecular Life Sciences*, 60: 2483-91, 2003.
331. Steinman L. Elaborate Interactions Between The Immune and Nervous Systems. *Nature Immunology*, 5:575-581, 2004.
332. Karpuj M, Steinman L. The multifaceted role of transglutaminase in neurodegeneration. *Amino Acids*, 26:373-379, 2004.
333. Steinman L. Immune Therapy for Autoimmune Diseases. *Science*, 305:212-216, 2004.
334. Fontoura P., Ho, P., DeVoss J., Zheng B., Lee B., Kidd B., Garren H., Raymond A. Sobel R., Robinson W., Tessier-Lavigne M., and Steinman L. Immunity To The Extracellular Domain Of Nogo-A Modulates Experimental Autoimmune Encephalomyelitis. *Journal of Immunology*, 173: 6981-6992, 2004.
335. Graham, K.L., Robinson, W.H., Steinman, L., and P.J. Utz. High-throughput methods for measuring autoantibodies in systemic lupus erythematosus and other autoimmune diseases, *Autoimmunity* 37: 269-272, 2004.
336. Platten, M. and Steinman L. Multiple sclerosis: trapped in deadly glue. *Nature Medicine* 11:252-253, 2005.
337. Utz PJ, Steinman L, and Robinson W. Protein microarrays for analysis of antibody responses in animals and humans. In *Protein Microarrays*, Chapter 19, pgs. 365-376, Edited by Michael Schena, Jones and Bartlett, Sudbury, MA 2005.
338. Feldmann, M and Steinman L. Design of effective immunotherapy for human autoimmunity. *Nature*, 435:612-619, 2005.
339. Steinman L. Blocking Adhesion Molecules As Therapy For Multiple Sclerosis: Natalizumab. *Nature Reviews Drug Discovery*, 4:510-519, 2005.
340. Steinman L and Zamvil SS. Virtues and Pitfalls of Experimental Autoimmune Encephalomyelitis for Development of Therapies for Multiple Sclerosis. *Trends in Immunology*, 26:565-571, 2005.
341. Ho P, Fontoura P, Platten M, Sobel RA, DeVoss JJ, Lee, LY, Kidd, BA, Tomooka BH, Capers J, Agrawal A, Gupta R, Zernik J, Yee MK, Lee BJ, Garren H, Robinson WH, and Steinman L. A suppressive oligodeoxynucleotide enhances the efficacy of myelin cocktail/IL-4 tolerizing DNA vaccination and treats autoimmune disease. *Journal of Immunology*, 175:6226-6234, 2005.

342. Platten M, Ho P, Youssef S, Garren H, Fontoura P, Hur EM, Gupta R, Lee LY, Kidd BA, Robinson WH, Sobel RA, Selley M, Steinman L. Treatment of Autoimmune Neuroinflammation with a Synthetic Tryptophan Metabolite. *Science*, 310: 850-855, 2005.
343. Frohman EM, Stuve O, Havrdova E, Corboy J, Achiron A, Zivadinov R, Sorensen PS, Phillips JT, Weinshenker B, Hawker K, Hartung HP, Steinman L, Zamvil S, Cree BA, Hauser S, Weiner H, Racke MK, Filippi M. Therapeutic considerations for disease progression in multiple sclerosis: evidence, experience, and future expectations. *Archives of Neurology* 62:1519-1530, 2005.
344. Frohman EM, Filippi M, Stuve O, Waxman SG, Corboy J, Phillips JT, Lucchinetti C, Wilken J, Karandikar N, Hemmer B, Monson N, De Keyser J, Hartung H, Steinman L, Oksenberg JR, Cree BA, Hauser S, Racke MK. Characterizing the mechanisms of progression in multiple sclerosis: evidence and new hypotheses for future directions. *Archives of Neurology* 62:1345-1356 2005.
345. Fontoura P, Garren H, Steinman L. Antigen-Specific Therapies in Multiple Sclerosis: Going Beyond Proteins and Peptides. *International Reviews of Immunology* 24:415-446, 2005.
346. Weber MS, Prod'homme T, Steinman L, Zamvil SS. Drug Insight: using statins to treat neuroinflammatory disease. *Nat Clin Pract Neurol*. 1(2):106-112, 2005.
347. Kanter J, Narayana S, Ho P, Catz I, Warren K, Sobel R, Steinman L, and Robinson W. Lipid Microarrays Identify Key Mediators of Autoimmune Brain Inflammation. *Nature Medicine*, 12:138-143, 2006.
348. Musio S, Gallo B, Stefano S, Poliani PL, Matarese G, Ohtsu H, Galli SJ, Mantegazza R, Steinman L, Pedotti R. A key regulatory role for histamine in experimental autoimmune encephalomyelitis: disease exacerbation in histidine-decarboxylase deficient mice. *Journal of Immunology*, 176:17-26, 2006.
349. Dunn SE, Sawsan Youssef, Matthew J. Goldstein, Thomas Prod'homme, Martin S. Weber, Scott S. Zamvil, and Lawrence Steinman. Isoprenoids Determine Th1/Th2 Fate in Pathogenic T Cells Providing A Mechanism for Modulation of Autoimmunity by Atorvastatin. *Journal of Experimental Medicine*, 203:401-412, 2006.
350. Steinman L. Controlling Autoimmunity in Sporadic Inclusion Body Myositis. *Neurology*, 66: S56-S58, 2006.
351. Stuve O, Youssef S, Weber M, Nessler S, von Budingen H, Hemmer B, Sobel RA, Steinman L, and Zamvil S. Immunomodulatory synergy by combination of atorvastatin and glatiramer acetate in treatment of CNS autoimmunity. *Journal of Clinical Investigation*, 116: 1037-1044, 2006.
352. Langer-Gould, A and Steinman L. What went wrong in the Natalizumab trials? *The Lancet*, 367:708-710, 2006.
353. Prod'homme T, Weber MS, Steinman L, Zamvil SS. A neuropeptide in immune-mediated inflammation, Y? *Trends Immunol*. 271:64-167, 2006.
354. Frohman EM, Havrdova E, Lublin F, Barkhof F, Achiron A, Sharief MK, Stuve O, Racke

MK, Steinman L, Weiner H, Olek M, Zivadinov R, Corboy J, Raine C, Cutter G, Richert J, Filippi M. Most patients with multiple sclerosis or a clinically isolated demyelinating syndrome should be treated at the time of diagnosis. *Arch Neurol.* 63:614-619, 2006.

355. Greenwood J, Steinman L, Zamvil SS. Statin therapy and autoimmune disease: from protein prenylation to immunomodulation. *Nat Rev Immunol.* 6:358-370, 2006.

356. Langer-Gould A and Steinman L. Progressive multifocal leukoencephalopathy and multiple sclerosis: lessons from natalizumab. *Curr Neurol Neurosci Rep* 6:253-258, 2006.

357. Fontoura P and Steinman L. NOGO in multiple sclerosis. Growing roles of a growth inhibitor. *J Neurological Sciences* 245: 201-210, 2006.

358. Fontoura P, Steinman L, and Miller A. Emerging Therapeutic Targets in Multiple Sclerosis. *Curr Opinion in Neurol* 19:260-266, 2006.

359. Steinman L and Zamvil SS. How to successfully apply animal studies in experimental allergic encephalomyelitis to research on multiple sclerosis. *Annals of Neurology* 60:12-21, 2006.

360. Steinman L. The Coming of Age of Antigen Specific Therapy of Multiple Sclerosis. *European Journal of Neurology* 13: 793-704, 2006.

361. Steinman L. State of the Art: Four Easy Pieces: Interconnections between Tissue Injury, Intermediary Metabolism, and Chronic Regeneration. *Proceedings of the American Thoracic Society* 3: 484-488, 2006.

362. Youssef, S. and Steinman L. At Once Harmful and Beneficial: The Dual Properties of NF- κ B. *Nature Immunology* 7:901-902, 2006.

363. Paniagua R, Sharpe O, Ho P, Chan S, Chang A, Higgins J, Tomooka B, Thomas F, Song J, Goodman S, Lee D, Genovese M, Utz PJ, Steinman L, and Robinson W. Selective tyrosine kinase inhibition by imatinib mesylate for the treatment of autoimmune arthritis. *Journal of Clinical Investigation* 116:2633-2642, 2006.

364. Ho PP, Higgins JP, Kidd BA, Tomooka B, Digennaro C, Lee LY, de Vegvar HE, Steinman L, Robinson WH. Tolerizing DNA vaccines for autoimmune arthritis. *Autoimmunity* 39:675-682, 2006.

365. Hur E, Youssef S, Haws M, Zhang S, Sobel, R, Steinman L. Osteopontin induced relapse and progression of autoimmune brain disease via enhanced survival of activated T cells. *Nature Immunology*, 8: 77-86, 2007.

366. Wang D, Carroll GT, Turro NJ, Koberstein JT, Kovac P, Saksena R, Adarno R, Herzenberg LA, Herzenberg LA, Steinman L. Photogenerated glycan arrays identify immunogenic sugar moieties of *Bacillus anthracis* exosporium. *Proteomics* 7:180-184, 2007.

367. O'Connor K, McLaughlin K, De Jager P, Chitnis T, Robinson W, Cherry S, Bar-Or A, Banwell B, Fukaura H, Tenenbaum S, Wong S, Rostasy K, Dale R, Freedman M, Steinman L, Hafler D, and Wucherpfennig K. Self-assembling Antigen Tetramers Identify an Autoantibody-associated Form of Acute Demyelinating Encephalomyelitis. *Nature Medicine*, 13:211-217, 2007.

368. Dunn S, Ousman S, Sobel RA, Zuniga L, Baranzini S, Youssef S, Crowell A, Loh J, Oksenberg J, and Steinman, L. Peroxisome Proliferator Activated Receptor (PPAR)- α Expression in T cells Mediates Gender differences in Development of T Cell-Mediated Autoimmunity. *Journal of Experimental Medicine*, 204:321-330, 2007.
369. Steinman L. A brief history of TH17, the first major revision in the TH1/TH2 hypothesis of T cell-mediated tissue damage. *Nature Medicine* 13: 139-145, 2007.
370. Chora AA, Fontoura P, Cunha A, Pais TF, Cardoso S, Ho PP, Lee LY, Sobel RA, Steinman L, Soares MP. Heme oxygenase-1 and carbon monoxide suppress autoimmune neuroinflammation. *Journal of Clinical Investigation*, 117:438-447, 2007.
371. Ousman SS, Tomooka BH, Van Noort JM, Wawrousek EF, O'Conner K, Hafler DA, Sobel RA, Robinson WH and Steinman L. Protective and Therapeutic Role for α B-Crystallin in Autoimmune Demyelination, *Nature* 448:474-479, 2007.
372. Opitz CA, Wick W, Steinman L, Platten M. Tryptophan degradation in autoimmune diseases. *Cell Mol Life Sci* 64(19-20):2542-2546, 2007.
373. Shachaf CM, Perez O, Youssef S, Fan A, Elchuri S, Goldstein M, Shirer A, Sharpe O, Chen J, Mitchell D, Chang M, Nolan G, Steinman L and Felsher D. Inhibition of HMGCoA Reductase by Atorvastatin Prevents and Reverses MYC-Induced Lymphomagenesis, *Blood* 110:2674-2684, 2007.
374. Weber M, Prod'homme T, Youssef S, Rundle CD, Dunn SE, Lee L, Steinman L, Zamvil S. Type II monocytes modulate T cell-mediated central nervous system autoimmunity. *Nature Medicine*, 13:935-943, 2007.
375. Kaper T, Looger LL, Platten M, Steinman L, Frommer W. Nanosensor detection of an immunoregulatory tryptophan influx/kynurenine efflux cycle. *PLoS Biology*, 5(10):e257, 2007.
376. Luo, J, Ho PP, Buckwalter MS, Hus T, Lee LY, Zhang H, Kim D, Kim S, Gambhir SS, Steinman L and Wyss-Cory T. Glia-dependent TGF-beta Signaling, Independent of the TH17 Pathway, is Critical for Initiation of Autoimmune Encephalomyelitis. *Journal of Clinical Investigation*, 117:3306-3315, 2007.
377. Bar-Or A, Vollmer T, Antel J, Arnold D, Bodner C, Campagnolo D, Jalili F, Kachuk N, Lapierre Y, Niino M, Oger J, Price M, Rhodes S, Robinson WH, Shi F, Utz PJ, Valone F, Weiner L, Steinman L, Garren H. Induction of Antigen-specific Tolerance in Multiple Sclerosis After Immunization with DNA Encoding Myelin Basic Protein in a Randomized, Placebo-Controlled Phase 1-2 Trial. *Archives of Neurology* 64: 1407-1415, 2007
378. Zeiser R, Sawsan Youssef, Jeanette Baker, Neeraja Kambham, Lawrence Steinman, and Robert S Negrin. Preemptive HMG-CoA reductase inhibition provides graft-versus-host disease protection by Th-2 polarization while sparing graft-versus-leukemia activity. *Blood* 110:4588-4598, 2007.
379. Han MH, Hwang S, Roy DB, Lundgren DH, Price JV, Ousman S, Fernald G, Gerlitz B, Robinson WH, Baranzini SE, Grinnell BW, Raine CS, Sobel RA, Han DK, and Steinman L. Proteomic Analysis of Active Multiple Sclerosis Lesions Reveals Therapeutic Targets. *Nature*, 451:1076-1081, 2008.

380. Garren H, Robinson W, Krasulová E, Havrdová E, Nadj C, Selmaj K, Losy J, Nadj I, Radue EW, Kidd BA, Gianettoni J, Tersini K, Utz PJ, Valone F, Steinman L and the BHT-3009 Study Group. Phase 2b Trial of a DNA Vaccine Encoding Myelin Basic Protein in Relapsing Multiple Sclerosis. *Annals of Neurology*, 63(5):611-620, 2008.
381. Luo J, Ho P, Steinman L, Wyss-Coray T. Bioluminescence in vivo imaging of autoimmune encephalomyelitis predicts disease. *J Neuroinflammation* 5(1):6, 2008.
382. Scabeni S, Lapilla M, Musio S, Gallo B, Ciusani E, Steinman L, Mantegazza R, Pedotti R. CD4+CD25+ Regulatory T Cells Specific for a Thymus-Expressed Antigen Prevent the Development of Anaphylaxis to Self. *Journal of Immunology* 180(7):4433-4440, 2008.
383. Johansson CB, Youssef S, Koleckar K, Holbrook C, Doyonnas R, Corbel SY, Steinman L, Rossi FM, Blau HM. Extensive fusion of haematopoietic cells with Purkinje neurons in response to chronic inflammation. *Nature Cell Biology* 5:575-583, 2008.
384. Axtell R and Steinman L. Type I Interferons Cool the Inflamed Brain. *Immunity*, 600-602, 2008.
385. Ho PP, Steinman L. The aryl hydrocarbon receptor: a regulator of Th17 and Treg cell development in disease. *Cell Res.* 2008 Jun;18(6):605-8.
386. Steinman L. A rush to judgment on Th17. *Journal of Experimental Medicine*, 205(7):1517-1522.
387. Graham KL, Lee LY, Higgins JP, Steinman L, Utz PJ, Ho PP. Failure of oral atorvastatin to modulate a murine model of systemic lupus erythematosus. *Arthritis Rheum.* 2008 Jul;58(7):2098-2104
388. Jensen DC, Su X, Shin S, Li L, Youssef S, Yamaski S, Steinman L, Saito T, Locksley RM, Davis MM, Baumgarth N, and Chien YH. Thymic Selection Determines Gamma Delta T Cell Effector Fate: Antigen-Naïve Cells Make Interleukin-17 and Antigen-Experienced Cells Make Interferon Gamma. *Immunity* 29(1):90-100, 2008.
389. Steinman L. Nuanced roles of cytokines in three major human brain disorders. *Journal of Clinical Investigation*, 118:3557-3563, 2008.
390. Steinman L. New targets for treatment of multiple sclerosis. *Journal of Neurological Sciences* 274:1-4, 2008.
391. Lee JW, Wang P, Kattah M, Youssef S, Steinman L, DeFea K, Straus DS. Differential regulation of chemokines by IL-17 colonic epithelial cells. *Journal of Immunology* 181:6536-6545, 2008.
392. Kidd BA, Ho PP, Sharpe O, Zhao X, Tomooka BH, Kanter JL, Steinman L, Robinson WH. Epitope spreading to citrullinated antigens in mouse models of autoimmune arthritis. *Arthritis Research and Therapy* 1:R119, 2008.

393. Solvason N, Lou YP, Peters W, Evans E, Martinez J, Ramirez U, Ocampo A, Yun R, Ahmad S, Liu E, Yu L, Eisenbarth G, Leviten M, Steinman L, Garren H. Improved efficacy of a tolerizing DNA vaccine for reversal of hyperglycemia through enhancement of gene expression and localization to intracellular sites. *Journal of Immunology* 181:8298-8307, 2008.
394. Villoslada P, Steinman L, Baranzini, S.E. Systems biology and its application to the understanding of neurological diseases. *Annals of Neurology* 65: 124-139, 2009.
395. Musio S, Pedotti P, Mantegazza R, Ohtsu H, Boon L, Steinman L, Galli SJ, Pedotti R. Anaphylaxis to a self-peptide in the absence of mast cells or histamine. *Laboratory Investigation* 89:398-405, 2009.
396. Zeiser R, Maas K, Youssef S, Durr C, Steinman L and Negrin RS. Regulation of different inflammatory diseases by impacting the mevalonate pathway. *Immunology* 127:18-25, 2009.
397. Newsom-Davis T, Wang D, Steinman L, Chen P, Wang L, Simon A, Screaton G. Enhanced recognition of cryptic glycan markers in human tumors. *Cancer Research* 69: 2018–2025, 2009.
398. Axtell R and Steinman L. Gaining entry to an uninfamed brain. *Nature Immunology*, 10:453-455, 2009.
399. Steinman L. A molecular trio in relapse and remission for multiple sclerosis. *Nature Reviews Immunology*, 9:440-447, 2009.
400. Schulze-Tophoff U, Prat A, Prozorovski T, Siffrin V, Paterka M, Herz J, Bendix I, Ifergan I, Schadock I, Mori M, van Horssen J, Schroter F, Han MH, Bader M, Steinman L, Aktas, O, and Zipp F. Activation of kinin receptor B1 limits encephalitogenic T lymphocyte recruitment to the central nervous system. *Nature Medicine*, 15:788-793, 2009.
401. Steinman L. Gray Aspects of White Matter Disease in Multiple Sclerosis. *Proceedings of the National Academy of Sciences USA*. 106:8083-8084, 2009.
402. Han M and Steinman L. Systems Biology for Identification of Molecular Networks in Multiple Sclerosis. *Multiple Sclerosis* 15: 529-530, 2009.
403. Platten M, Youssef S, Hur EM, Ho PP, Han MH, Lanz TV, Phillips LK, Goldstein MJ, Bhat R, Raine CS, Sobel RA, and Steinman L. Blocking angiotensin converting enzyme induces potent regulatory T cells and modulates TH1 and TH17-mediated autoimmunity, *Proceedings of the National Academy of Sciences USA*, 106:14948-14953, 2009.
404. Steinman L. Shifting therapeutic attention in MS to osteopontin, type 1 and type 2 Interferon. *European Journal of Immunology*, 39:2358-2360, 2009.
405. Bhat, R. and Steinman L. Innate and Adaptive Autoimmunity Directed to the Central Nervous System. *Neuron*, 64(1):123-132, 2009.
406. Mukundan L, Odegaard JI, Morel CR, Heredia JE, Mwangi JW, Ricardo-Gonzalez RR, Goh YP, Eagle AR, Dunn SE, Awakuni JU, Nguyen KD, Steinman L, Michie SA, Chawla A. PPAR-delta senses and orchestrates clearance of apoptotic cells to promote tolerance. *Nature* 15(11):1266-1272, 2009.

407. Lanz T, Opitz C, Ho P, Agrawal A, Lutz C, Weller M, Mellor A, Steinman L, Wick W, Platten M. Mouse mesenchymal stem cells suppress antigen-specific TH-cell immunity independent of indoleamine 2,3-dioxygenase 1 (IDO1). *Stem Cells Dev.* 2009 Nov 3. [Epub ahead of print]
408. Graham KL, Lee LY, Higgins JP, Steinman L, Utz PJ, Ho PP. Treatment with a Toll-like receptor inhibitory GpG oligonucleotide delays and attenuates lupus nephritis in NZB/W mice. *Autoimmunity.* 2009 Oct 22. [Epub ahead of print]
409. Steinman L. Mixed results with modulation of TH-17 cells in human autoimmune diseases. *Nature Immunology*, 11:41-44, 2010.
410. Ho PP, Lee LY, Zhao X, Tomooka BH, Paniagua RT, Sharpe O, Benbarak MJ, Chandra PE, Hueber W, Steinman L, Robinson WH. Autoimmunity Against Fibrinogen Mediates Inflammatory Arthritis in Mice. *Journal of Immunology.* 184(1):379-390, 2010.
411. Bababeygy SR, Plevaya NV, Youssef S, Sun A, Xiong A, Prugnichailers T, Veeravagu A, Hou LC, Steinman L, Tse V. HMG-CoA reductase inhibition causes increased necrosis and apoptosis in an in vivo mouse glioblastoma multiforme model. *Anticancer Research* 29:4901-4908, 2009.
412. Langer-Gould A, Gupta R, Huang S, Hagan A, Atkuri K, Leimpeter AD, Albers KB, Greenwood E, Van Den Eeden SK, Steinman L, Nelson L. Interferon-gamma-producing T cells, pregnancy, and postpartum relapses of multiple sclerosis. *Archives of Neurology.* 67(1):51-57, 2010.
413. Itoh S, Nakae S, Axtell RC, Velotta JB, Kimura N, Kajiwara N, Iwakura Y, Saito H, Adachi H, Steinman L, Robbins RC, Fischbein MP. IL-17 Contributes to the Development of Chronic Rejection in a Murine Heart Transplant Model. *Journal of Clinical Immunology* Feb 4 epub, 2010 30(2):235-40, 2010 PMID: 20130970
414. Bhat R, Axtell R, Mitra A, Miranda M, Lock C, Tsien RW, Steinman L. Inhibitory role for GABA in autoimmune inflammation. *Proc Natl Acad Sci U S A.* 2580-2585, 107: 2010 Feb 1, 2010 [Epub ahead of print] *Proc Natl Acad Sci U S A.* 2010 Feb 9;107(6):2580-2585, 2010. PMID: 20133656
414. Axtell RC, de Jong BA, Boniface K, van der Voort F, Bhat R, De Sarno P, Naves R, Han M, Zhong F, Castellanos JG, Mair R, Christakos A, Kolkowitz I, Katz L, Killestein J, Polman CH, de Waal Malefyt R, Steinman L and Raman C. T helper type 1 and 17 cells determine Efficacy of IFN- β in multiple sclerosis and experimental encephalomyelitis. *Nature Med*, 16:406-412, 2010 PMID: 20348925
415. Kleiter I, Song J, Lukas D, Hasan M, Neumann B, Croxford AL, Pedré X, Hövelmeyer N, Yogev N, Mildner A, Prinz M, Wiese E, Reifenberg K, Bittner S, Wiendl H, Steinman L, Becker C, Bogdahn U, Neurath MF, Steinbrecher A, Waisman A. Smad7 in T cells drives T helper 1 responses in multiple sclerosis and experimental autoimmune encephalomyelitis. *Brain.* 33(Pt 4):1067-81. PMID: 20354004, 2010.
416. Steinman L. Inverse vaccination, the opposite of Jenner's concept, for therapy of autoimmunity. *Journal of Internal Medicine*, 267:441-451, 2010. PMID: 20433574

417. van Noort JM, Bsibsi M, Gerritsen WH, van der Valk P, Bajramovic JJ, Steinman L, Amor S. AlphaB-crystallin is a target for adaptive immune responses and a trigger of innate responses in preactive multiple sclerosis lesions. *J Neuropathol Exp Neurol*. 2010 Jul;69(7):694-703. PMID: 20535035
418. Lanz TV, Ding Z, Ho PP, Luo J, Agrawal AN, Srinagesh H, Axtell R, Zhang H, Platten M, Wyss-Coray T, Steinman L. Angiotensin II sustains brain inflammation in mice via TGF-beta. *Journal of Clinical Investigation* 120(8):2782-2794, 2010. PMID: 20628203
419. Dunn SE, Bhat R, Straus DS, Sobel RA, Axtell R, Johnson A, Nguyen K, Mukundan L, Moshkova M, Dugas JC, Chawla A, Steinman L. Peroxisome proliferator-activated receptor δ limits the expansion of pathogenic Th cells during central nervous system autoimmunity. *Journal of Experimental Medicine* 207(8):1599-1608, 2010. PMID: 20624891
420. Langer-Gould A, Huang S, Van Den Eeden SK, Gupta R, Leimpeter AD, Albers KB, Horst R, Hollis B, Steinman L, Nelson LM. Vitamin D, Pregnancy, Breastfeeding, and Postpartum Multiple Sclerosis Relapses. *Arch Neurol*. 67(1):51-57, 2010.
421. Lapilla M, Gallo B, Martinello M, Procaccini C, Costanza M, Musio S, Rossi B, Angiari S, Farina C, Steinman L, Matarese G, Constantin G, Pedotti R. Histamine regulates autoreactive T cell activation and adhesiveness in inflamed brain microcirculation. *J Leukoc Biol*. 89(2):259-267, 2011
422. Steinman L, Inverse Vaccination to silence immunity to myelin in multiple sclerosis. *Can J Neurol Sci*. 37 Suppl 2:S49-58, 2010.
423. Steinman L. Modulation of postoperative cognitive decline via blockade of inflammatory cytokines outside the brain. *Proc Natl Acad Sci U S A*. 107(48):20595-20596, 2010.
424. Kornum BR, Kawashima M, Faraco J, Lin L, Rico TJ, Hesselson S, Axtell RC, Kuipers H, Weiner K, Hamacher A, Kassack MU, Han F, Knudsen S, Li J, Dong X, Winkelmann J, Plazzi G, Nevsimalova S, Hong SC, Honda Y, Honda M, Högl B, Ton TG, Montplaisir J, Bourgin P, Kemlink D, Huang YS, Warby S, Einen M, Eshragh JL, Miyagawa T, Desautels A, Ruppert E, Hesla PE, Poli F, Pizza F, Frauscher B, Jeong JH, Lee SP, Strohl KP, Longstreth WT Jr, Kvale M, Dobrovolska M, Ohayon MM, Nepom GT, Wichmann HE, Rouleau GA, Gieger C, Levinson DF, Gejman PV, Meitinger T, Peppard P, Young T, Jennum P, Steinman L, Tokunaga K, Kwok PY, Risch N, Hallmayer J, Mignot E. Common variants in P2RY11 are associated with narcolepsy. *Nature Genetics*, 43(1):66-71, 2011.
425. Rothbard J, Zhao, X, Sharpe O, Strohman M, Kurnellas M, Mellins E, Robinson W, Steinman L. The chaperone activity of alpha B crystallin is responsible for the incorrect assignment the protein as an autoantigen in multiple sclerosis. *Journal of Immunology*, 186(7):4263-4268, 2011.
426. Pangratz-Fuehrer S, Kaur K, Ousman SS, Steinman L and Liao YJ. Functional rescue of experimental ischemic optic neuropathy with aB-crystallin. *Eye*, 25(6):809-817, 2011
427. Axtell RC, Raman C, Steinman L. Interferon- β exacerbates Th17-mediated inflammatory disease. *Trends Immunol*. 32(6):272-277, 2011.

428. Velotta JB, Kimura N, Chang SH, Chung J, Itoh S, Rothbard J, Yang PC, Steinman L, Robbins RC, Fischbein MP. α B-Crystallin Improves Murine Cardiac Function and Attenuates Apoptosis in Human Endothelial Cells Exposed to Ischemia-Reperfusion. *Ann Thorac Surg*. 2011 Jun;91(6):1907-1913, 2011.
429. Robinson WH and Steinman L. Human Peptidome Display. *Nature Biotechnology*, 29(6):500-502, 2011.
430. Lee LF, Axtell R, Tu GH, Logronio K, Dilley J, Yu J, Rickert M, Han B, Evering W, Walker MG, Shi J, de Jong BA, Killestein J, Polman CH, Steinman L, Lin JC. IL-7 Promotes TH1 Development and Serum IL-7 Predicts Clinical Response to Interferon- β in Multiple Sclerosis. *Sci Transl Med*. 3(93):93ra68, 2011.
431. Arac A, Brownell SE, Rothbard JB, Chen C, Ko RM, Pereira MP, Albers GW, Steinman L, Steinberg GK, Systemic augmentation of α B-crystallin provides therapeutic benefit twelve hours post-stroke onset via immune modulation, *Proc Natl Acad Sci U S A*. 2011 Aug 9;108(32):13287-13292.
432. Crespo O, Kang SC, Daneman R, Lindstrom TM, Ho PP, Sobel RA, Steinman L, Robinson WH. Tyrosine Kinase Inhibitors Ameliorate Autoimmune Encephalomyelitis in a Mouse Model of Multiple Sclerosis. *J Clin Immunol*. 231(6):1010-1020, 2011.
433. Noorbakhsh F, Ellestad KK, Maingat F, Warren KG, Han MH, Steinman L, Baker GB, Power C. Impaired neurosteroid synthesis in multiple sclerosis. *Brain* 134:2703-2721, 2011.
434. Zhuang X, Xiang X, Grizzle W, Sun D, Zhang S, Axtell RC, Ju S, Mu J, Zhang L, Steinman L, Miller D, Zhang HG. Treatment of Brain Inflammatory Diseases by Delivering Exosome Encapsulated Anti-inflammatory Drugs From the Nasal Region to the Brain. *Molecular Therapy* 19:1769-1779, 2011 doi: 10.1038/mt.2011.164, 2011.
435. Itoh S, Kimura N, Axtell RC, Velotta JB, Gong Y, Wang X, Kajiwara N, Nambu A, Shimura E, Adachi H, Iwakura Y, Saito H, Okumura K, Sudo K, Steinman L, Robbins RC, Nakae S, Fischbein MP. Interleukin-17 accelerates allograft rejection by suppressing regulatory T cell expansion. *Circulation* Sep 13;124(11 Suppl):S187-196, 2011.
436. Joshi S, Pantalena LC, Liu XK, Gaffen SL, Liu H, Rohowsky-Kochan C, Ichiyama K, Yoshimura A, Steinman L, Christakos S, Youssef S. 1,25-dihydroxyvitamin D(3) ameliorates Th17 autoimmunity via transcriptional modulation of interleukin-17A. *Mol Cell Biol*. Sep;31(17):3653-3669, 2011.
437. Steinman L, Merrill JT, McInnes IB, Peakman M. Optimization of current and future therapy for autoimmune diseases *Nature Medicine* 18(1):59-65, 2012
438. Zamvil SS and Steinman L. Combining statins with interferon beta in multiple sclerosis: think twice, it might not be all right. *Lancet Neurology* 10:672-673, 2012
439. Rothbard JB, Kurnellas MP, Brownell S, Adams CM, Su L, Axtell RC, Chen R, Fathman CG, Robinson WH, Steinman L. Therapeutic effects of systemic administration of the chaperone α B crystallin associated with binding proinflammatory plasma proteins. *J Biol Chem*. 287(13):9708-9721, 2012

440. Steinman L, Zamvil SS. Re-engineering of pathogenic aquaporin 4-specific antibodies as molecular decoys to treat neuromyelitis optica. *Ann Neurol.* 71(3):287-288, 2012.
441. Papadopoulou A, von Felten S, Traud S, Rahman A, Quan J, King R, Garren H, Steinman L, Cutter G, Kappos L, Radue EW. Evolution of MS lesions to black holes under DNA vaccine treatment. *J Neurol.* 2012 Jan 6. [Epub ahead of print]
442. Herges K, de Jong BA, Kolkowitz I, Dunn C, Mandelbaum G, Ko RM, Maini A, Han MH, Killestein J, Polman C, Goodyear AL, Dunn J, Steinman L, Axtell RC. Protective effect of an elastase inhibitor in a neuromyelitis optica-like disease driven by a peptide of myelin oligodendroglial glycoprotein. *Mult Scler. J* 18(4):398-408, 2012
443. Axtell RC, Raman C, Steinman L. Type I Interferons: Beneficial in Th1 and Detrimental in Th17 Autoimmunity. *Clin Rev Allergy Immunol.* 2012 Jan 10. [Epub ahead of print]
444. Sato DK, Callegaro D, de Haidar Jorge FM, Nakashima I, Nishiyama S, Takahashi T, Simm RF, Apostolos-Pereira SL, Misu T, **Steinman L**, Aoki M, Fujihara K. CSF AQP-4 levels in NMO attacks. *Ann Neurol.* 2014 Aug;76(2):305-9. doi: 10.1002/ana.24208.
445. Steinman L. Lessons learned at the intersection of immunology and neuroscience. *J Clin Invest.* 122(4):1146-1148, 2012.
446. Steinman L. Nostalgia: The Similarities between Immunological and Neurological Memory, *Immunological Reviews*, 248(1):5-9, 2012.
447. Ho P, Kanter J, Johnson AM, Srinagesh H, Chang E, Purdy TM, van Haren KP, Wikoff, WR, Kind T, Khademi M, Matloff L, Narayana S, Hur EM, Lindstrom TM, He Z, Fiehn Ok Olsson T, Han X Han MH, Steinman L and Robinson WH. Identification of Naturally Occurring Fatty Acids of the Myelin Sheath That Resolve Neuroinflammation. *Sci Transl Med* 4(137):137ra73, 2012
448. Han MH, Lundgren DH, Jaiswal S, Chao M, Graham KL, Garris CS, Axtell RC, Ho PP, Lock CB, Woodward JI, Brownell SE, Zoudilova M, Hunt JFV, Branzini S, Butcher E, Raine CS, Sobel RA, Han DK, Weissman I, and Steinman L. Janus-Like Opposing Roles of CD47 in Autoimmune Brain Inflammation. *J Exp Med*, 209:1325-1334, 2012
449. Zhang MA , Rego D, Moshkova M, Kebir H, Chruscinski A, Nguyen HK , Akkermann R, Stanczyk FZ, Prat A, Steinman L, Dunn S. Peroxisome proliferator-activated receptors (PPAR)- α and - γ regulate IFN γ and IL-17A production by human T cells in a sex-specific way. *Proc Natl Acad Sci* 109(24):9505-9510, 2012.
450. Grant JL, Bou Ghosn EE , Axtell RC, Herges K, Kuipers HF, Woodling NS, Andreasson K, Herzenberg LA, Herzenberg LA, Lawrence Steinman L. Unexpected Therapeutic Benefit from Peripheral Administration of Amyloid- β in Th1- and Th17-Versions of Experimental Autoimmune Encephalomyelitis. *Sci Transl Med*, 4: 145ra105, 2012.
451. Arellano B, Hussain R, Zacharias T, Yoon J, David C, Zein S, Steinman L, Forsthuber T, Greenberg BM, Lambracht-Washington D, Ritchie AM, Bennett JL, Stüve O. Human Aquaporin 4 281-300 Is the Immunodominant Linear Determinant in the Context of HLA-DRB1*03:01: Relevance for Diagnosing and Monitoring Patients With Neuromyelitis Optica Immunodominant Linear Determinants of hAQP4. *Arch Neurol.* Jul2:1-7, 2012.

452. Kurnellas MP, Brownell SE, Su L, Malkovskiy AV, Rajadas J, Dolganov G, Chopra S, Schoolnik GK, Sobel RA, Webster J, Ousman SS, Becker RA, Steinman L, Rothbard JB. Chaperone activity of small heat shock proteins underlies therapeutic efficacy in experimental autoimmune encephalomyelitis. *J Biol Chem.* 287:36423-36434,2012
453. Steinman L. The Discovery of Natalizumab, A Potent Therapeutic for Multiple Sclerosis. *Journal of Cell Biology* 199(3):413-6, 2012.
454. Bushnell SE, Zhao Z, Stebbins CC, Cadavid D, Buko AM, Whalley ET, Davis JA, Versage EM, Richert JR, Axtell RC, Steinman L, Medori R. Serum IL-17F does not predict poor response to IM IFN β -1a in relapsing-remitting MS. *Neurology.* 79 (6): 531-537, 2012
455. Rudick R, Polman C, Clifford D, Miller D, and Steinman L. Natalizumab Bench to Bedside and Beyond. *JAMA Neurol.* 2013 Feb;70(2):172-82. doi: 10.1001/jamaneurol.2013.598.
456. Steinman L, Axtell RC, Barbieri D, Bhat R, Brownell S, de Jong BA, Dunn SE, Grant JL, Han MH, Ho P, Kuipers HF, Kurnellas MP, Ousman SS, and Rothbard J. Piet Mondrian's trees and the evolution in understanding multiple sclerosis, Charcot Prize Lecture 2011 *Multiple Sclerosis Journal* 19:5-14, 2013.
457. Steinman L. Inflammatory cytokines at the summits of pathological signal cascades in brain diseases. *Sci Signal.* 6(258):pe3 2013 doi: 10.1126/scisignal.2003898.
458. Steinman L. Weighing in on Autoimmune disease: 'Hub and Spoke' T cell Traffic in Autoimmunity. *Nature Medicine,* 19:139-141, 2013.
459. Steinman L. A Tip Leads Cytotoxic T Cells to the Crime Scene in Neuroinflammation. *Nature Immunology,* 14(3):196-7. doi: 10.1038/ni.2551, 2013.
460. Brownell SE, Price JV and Steinman L. The impact of a writing-intensive course on developing undergraduate biology students' perception and confidence of their abilities to read primary scientific literature and communicate science. *Adv Physiol Educ,* 37(1):70-79, 2013. doi: 10.1152/advan.00138.2012..
461. Sarikonda G, Sachithanatham S, Manenkova Y, Kupfer T, Posgai A, Wasserfall C, Bernstein P, Straub L, Pagni PP, Schneider D, Calvo TR, Coulombe M, Herold K, Gill RG, Atkinson M, Nepom G, Ehlers M, Staeva T, Garren H, Steinman L, Chan AC, von Herrath M. Transient B-Cell Depletion with Anti-CD20 in Combination with Proinsulin DNA Vaccine or Oral Insulin: Immunologic Effects and Efficacy in NOD Mice. *PLoS One* 8(2):e54712. doi: 10.1371/journal.pone.0054712, 2013.
462. Kurnellas MP, Adams CM, Sobel RA, Steinman L and Rothbard JR. Amyloid Fibrils Composed of Hexameric Peptides Attenuate Neuroinflammation. *Science Translational Medicine,* 179 179ra42, 2013.
463. Gnanapavan S, Ho P, Heywood W, Jackson S, Grant D, Rantell K, Keir G, Mills K, Steinman L, Giovannoni G. Progression in multiple sclerosis is associated with low endogenous NCAM. *J Neurochem.* 2013 Mar 15. doi: 10.1111/jnc.12236.
464. Greenberg BM, Balcer L, Calabresi PA, Cree B, Cross A, Frohman T, Gold R, Havrdova E,

Hemmer B, Kieseier BC, Lisak R, Miller A, Racke MK, Steinman L, Stuve O, Wiendl H, Frohman E. Interferon beta use and disability prevention in relapsing-remitting multiple sclerosis. *JAMA Neurol.* Feb;70(2):248-251, 2013.

465. Quach QL, Metz LM, Thomas JC, Rothbard JB, Steinman L, Ousman SS. CRYAB modulates the activation of CD4+ T cells from relapsing-remitting multiple sclerosis patients. *Multiple Sclerosis Journal*, in press. PMID: 23736536

466. van Haren K, Tomooka BH, Kidd BA, Banwell B, Bar-Or A, Chitnis T, Tenembaum SN, Pohl D, Rostasy K, Dale RC, O'Connor KC, Hafler DA, Steinman L and Robinson WH. Serum autoantibodies to myelin peptides distinguish acute disseminated encephalomyelitis from relapsing-remitting multiple sclerosis. *Multiple Sclerosis Journal*, 19(13):1726-33, 2013. PMID: 23612879

467. Rafalski VA, Ho PP, Brett JO, Ucar D, Dugas JC, Pollina EA, Chow LM, Ibrahim A, Baker SJ, Barres BA, Steinman L, Brunet A. Expansion of oligodendrocyte progenitor cells following SIRT1 inactivation in the adult brain. *Nature Cell Biology.* 15:614-624. doi: 10.1038/ncb2735 2013.

468. Roep BO, Solvason N, Gottlieb PA, Abreu JRF, Harrison LC, Eisenbarth GS, Yu L, Leviten M, Hagopian WA, Buse JB, von Herrath M, Quan J, King R, Robinson WH, Utz PJ, Garren H, the BHT 3021 Investigators and Lawrence Steinman. Plasmid encoded proinsulin preserves C-peptide while specifically reducing proinsulin specific CD8 T cells in type 1 diabetes. *Science Translational Medicine*, Jun 26;5(191):191ra82. doi: 10.1126/scitranslmed.3006103, 2013.

469. Marabelle A, Kohrt H, Sagiv-Barfi I, Ajami B, Axtell RC, Zhou G, Rajapaksa R, Green MR, Torchia J, Brody J, Luong R, Rosenblum MD, Steinman L, Levitsky HI, Tse V, Levy R. Depleting tumor-specific Tregs at a single site eradicates disseminated tumors. *J Clin Invest.* 123(6):2447-63.2013 doi:pii: 64859. 10.1172/JCI64859

470. Hartung HP, Steinman L, Goodin DS, MD; Comi G, Cook S, Filippi M, O'Connor P, MD; Douglas JR, Kappos L, Axtell R, Knappertz V, Bogumil T, Schwenke S, Croze E, Sandbrink R, Pohl C. Interleukin 17F Level and Interferon Beta Response in Patients With Multiple Sclerosis *JAMA Neurol.* 70(8):1017-21. doi: 10.1001/jamaneurol.2013.192.

471. Steinman L. The Road Not Taken: Antigen-Specific Therapy and Neuroinflammatory Disease. *JAMA Neurology*, 1:1-2. doi: 10.1001/jamaneurol.2013.3553.

472. Brück W, Gold R, Lund BT, Oreja-Guevara C, Prat A, Spencer CM, Steinman L, Tintoré M, Vollmer TL, Weber MS, Weiner LP, Ziemssen T, Zamvil SS. Therapeutic Decisions in Multiple Sclerosis: Moving Beyond Efficacy. *JAMA Neurol.* 2013 Aug 5. doi:10.1001/jamaneurol.2013.3510.

473. Naves R, Singh SP, Cashman KS, Rowse AL, Axtell RC, Steinman L, Mountz JD, Steele C, De Sarno P, Raman C. The Interdependent, Overlapping, and Differential Roles of Type I and II IFNs in the Pathogenesis of Experimental Autoimmune Encephalomyelitis. *J Immunol.* 191(6):2967-2977, 2013. doi: 10.4049/jimmunol.1300419.

474. Davidson MG, Alonso MN, Yuan R, Axtell RC, Kenkel JA, Suhoski MM, González JC, Steinman L, Engleman EG. Th17 cells induce Th1-polarizing monocyte-derived dendritic cells. *J Immunol.* 191(3):1175-87, 2013. doi: 10.4049/jimmunol.1203201. Epub 2013 Jun 21.

475. Garris CS, Wu L, Acharya S, Arac A, Blaho VA, Huang Y, Moon BS, Axtell RC, Ho PP, Steinberg GK, Lewis DB, Sobel RA, Han DK, Steinman L, Snyder MP, Hla T, Han MH. Defective sphingosine 1-phosphate receptor 1 (S1P1) phosphorylation exacerbates TH17-mediated autoimmune neuroinflammation. *Nature Immunology*. 14: 166-172, 2013 PMID: 24076635
476. Steinman L. Pathogenic T helper 1 cells reach the brain before T helper 17 cells, and T regulatory cells suppress them albeit incompletely. *Acta Neuropathol*. 126: 517-8, 2013 PMID: 24045898
477. Gottlieb P, Utz PJ, Robinson W, Steinman L. Clinical optimization of antigen specific modulation of type 1 diabetes with the plasmid DNA platform. *Clin Immunol*. 149: 297-306, 2013 PMID: 24094739
478. Fugger L and Steinman L A scientific sequel to Stieg Larsson: relationship between Pandemrix - pandemic influenza vaccine - and the subsequent development of narcolepsy. *J Intern Med*. 2013 Nov 8. doi: 10.1111/joim.12158.
479. Brownell SE, Price JV, Steinman L. *J Undergrad Neurosci Educ*. 12(1):E6-E10. 2013.PMID: 24319399 [PubMed]
480. Steinman L. Immunology of Relapse and Remission in Multiple Sclerosis. *Annu Rev Immunol*. 32:257-81, 2014. doi: 10.1146/annurev-immunol-032713-120227. Epub 2014 Jan 15.
481. Zinnanti WJ, Lazovic J, Housman C, Antonetti DA, Koeller DM, Connor JR, Steinman L. Mechanism of metabolic stroke and spontaneous cerebral hemorrhage in glutaric aciduria type I. *Acta Neuropathol Commun*. 2014 Jan 27;2(1):13. doi: 10.1186/2051-5960-2-13.
482. Ding Z, Mathur V, Ho PP, James ML, Lucin KM, Hoehne A, Alabsi H, Gambhir SS, Steinman L, Luo J, Wyss-Coray T. Antiviral drug ganciclovir is a potent inhibitor of microglial proliferation and neuroinflammation. *J Exp Med*. 2014 Feb 10;211(2):189-98. doi: 10.1084/jem.20120696.
483. Weber MS, Prod'homme T, Youssef S, Dunn SE, Steinman L, Zamvil SS. Neither T-helper type 2 nor Foxp3+ regulatory T cells are necessary for therapeutic benefit of atorvastatin in treatment of central nervous system autoimmunity. *J Neuroinflammation*. 2014 Feb 6;11:29. doi: 10.1186/1742-2094-11-29.
484. Ahmed SS, Schur PH, Macdonald NE, Steinman L. Narcolepsy, 2009 A(H1N1) pandemic influenza, and pandemic influenza vaccinations: What is known and unknown about the neurological disorder, the role for autoimmunity, and vaccine adjuvants. *J Autoimmun*. 2014 50C:1-11. doi: 10.1016/j.jaut.2014.01.033.
485. Wang D, Bhat R, Sobel RA, Huang W, Wang LX, Olsson T, Steinman L. Uncovering Cryptic Glycan Markers in Multiple Sclerosis (MS) and Experimental Autoimmune Encephalomyelitis (EAE). *Drug Dev Res*. 2014 75(3):172-88 Mar 11. doi: 10.1002/ddr.21169.
486. Steinman L, Rothbard JB, Kurnellas MP. Janus Faces of Amyloid Proteins in Neuroinflammation. *J Clin Immunol*. 2014 Apr 8. [Epub ahead of print]
487. Steinman L. Development of therapies for autoimmune disease at Stanford: a tale of multiple shots and one goal. *Immunol Res*. 2014 Apr 27. [Epub ahead of print] DOI

10.1007/s12026-014-8509-0

488. Kurnellas M, Schartner JM, Fathman CG, Jagger A, Steinman L, Rothbard J. Mechanisms of Action of Therapeutic Amyloidogenic Hexapeptides In Amelioration of Inflammatory Brain Disease. *J Exp Med*, 211(9):1847-56, 2014.

489. Meyer Zu Horste G, Mausberg AK, Cordes S, El-Haddad H, Partke HJ, Leussink VI, Roden M, Martin S, Steinman L, Hartung HP, Kieseier BC. Thymic Epithelium Determines a Spontaneous Chronic Neuritis in Icam1tm1JcgrNOD Mice. *J Immunol*. 15;193(6):2678-90. doi: 10.4049/jimmunol.1400367. 2014

490. Steinman L. Why are prions and amyloid structures immune suppressive and other intriguing questions facing neuroimmunologists in the future. *Rev Neurol (Paris)*. 170: 602-607 2014 doi: 10.1016/j.neurol.2014.07.011.

491. Costanza M, Di Dario M, Steinman L, Farina C, Pedotti R. Gene expression analysis of histamine receptors in peripheral blood mononuclear cells from individuals with clinically-isolated syndrome and different stages of multiple sclerosis *J Neuroimmunol* 277(1-2):186-8, 2014.

492. Steinman L. A Century of Pavlovian Experiments Forming a Circuit from the Elucidation of Neural Reflexes to Pharmaceuticals and Electroceuticals To Treat Diseases. *Brain Behavior and Immunity* Feb;44:17-8, 2015.

493. Steinman L and Shoenfeld Y. From defining antigens to new therapies in multiple sclerosis: Honoring the contributions of Ruth Amon and Michael Sela. *J Autoimmun*. 54:1-7 2014

494. Steinman L. Conflicting consequences of immunity to cancer versus autoimmunity to neurons: Insights from paraneoplastic disease. *Eur J Immunol*. 44(11):3201-3205, 2014.

495. Steinman L. Going viral and the fatal vulnerability of neurons from immunity, not from infection. *Proc Natl Acad Sci U S A*. Dec 2;111(48):16982-3, 2014.

496. Schubert R, Hu Y, Kumar G, Szeto S, Abraham P, Winderl J, Guthridge JM, Pardo G, Dunn J, Steinman L and Axtell B. Interferon- β treatment requires B cells for efficacy in neuro-autoimmunity. *Journal of Immunology*, Feb 2. pii: 1402029.

497. Steinman L. Role reversal: infiltrating T cells protect the brain. *Journal of Clinical Investigation*, 2;125(2):493-4. doi: 10.1172/JCI80279.

498. Berkovich R, Togasaki D, Cen S, Steinman L. CD4 Cell Response to Interval Therapy with Natalizumab, *Annals of Clinical and Translational Neurology*, in press, doi: 10.1002/acn3.190

499. Steinman L. No Quiet Surrender: Molecular Guardians In Multiple Sclerosis Brain. *Journal of Clinical Investigation*, 125: 1371-1378, 2015.

500. Doyle KP, Quach LN, Solé M, Axtell RC, Nguyen TV, Soler-Llavina GJ, Jurado S, Han J, Steinman L, Longo FM, Schneider JA, Malenka RC, Buckwalter MS. B-Lymphocyte-Mediated Delayed Cognitive Impairment following Stroke. *J Neurosci*. 2015 Feb 4;35(5):2133-45. doi: 10.1523/JNEUROSCI.4098-14.2015.

501. Costanza M, Binart N, Steinman L, Pedotti R. Prolactin: A versatile regulator of inflammation

and autoimmune pathology. *Autoimmun Rev.* 2015 Mar;14(3):223-230.

502. Abou-Hamdan M, Costanza M, Fontana E, Di Dario M, Musio S, Congiu C, Onnis V, Lattanzi R, Radaelli M, Martinelli V, Salvadori S, Negri L, Poliani PL, Farina C, Balboni G, Steinman L, Pedotti R. Critical role for prokineticin 2 in CNS autoimmunity. *Neurol Neuroimmunol Neuroinflamm.* 2015 Apr 9;2(3):e95.

503. Steinman L. The re-emergence of antigen-specific tolerance as a potential therapy for MS. *Mult Scler.* 2015 Sep;21(10):1223-38. doi: 10.1177/1352458515581441.. pii: 1352458515581441.

504. Kurnellas MP, Rothbard JB, Steinman L. Self-Assembling Peptides Form Immune Suppressive Amyloid Fibrils Effective in Autoimmune Encephalomyelitis. *Curr Top Behav Neurosci.* 2015 May 17. PMID 25981913

505. Berkovich R, Togasaki DM, Cen SY, Steinman L. CD4 cell response to interval therapy with natalizumab. *Ann Clin Transl Neurol.* 2015 May;2(5):570-4. doi: 10.1002/acn3.190. Epub 2015 Mar 6. PMID: 26000328

506. Seder R, Reed SG, O'Hagan D, Malyala P, D'Oro U, Laera D, Abrignani S, Cerundolo V, Steinman L, Bertholet S. Gaps in knowledge and prospects for research of adjuvanted vaccines. *Vaccine.* 2015 Jun 8;33 Suppl 2:B40-B43. doi: 10.1016/j.vaccine.2015.03.057.

507. Blaho VA, Galvani S, Engelbrecht E, Liu C, Swendeman SL, Kono M, Proia RL, Steinman L, Han MH, Hla T. HDL-bound sphingosine-1-phosphate restrains lymphopoiesis and neuroinflammation. *Nature.* 523(7560):342-6, 2015 PMID: 26053123

508. Ahmed SS, W. Volkmuth, J. Duca, L. Corti, M. Pallaoro, A. Pezzicoli, A. Karle, F. Rigat, R. Rappuoli, V. Narasimhan, I. Julkunen, A. Vuorela, O. Vaarala, H. Nohynek, F. L. Pasini, E. Montomoli, C. Trombetta, C. M. Adams, J. Rothbard, L. Steinman, Antibodies to influenza nucleoprotein cross-react with human hypocretin receptor 2. *Sci. Transl. Med.* 7, 294ra105 (2015).

509. van Strien ME, de Vries HE, Chrobok NL, Bol JG, Breve JJ, van der Pol SM, Kooij G, van Buul JD, Karpuz M, Steinman L, Wilhelmus MM, Sestito C, Drukarch B, Dam AV. Macrophage-derived tissue Transglutaminase contributes to experimental multiple sclerosis pathogenesis and clinical outcome. *Brain Behav Immun.* 2015 Jun 29. pii: S0889-1591(15)00232-9. doi: 10.1016/j.bbi.2015.06.023.

510. Schaffert SA, Loh C, Wang S, Arnold CP, Axtell RC, Newell EW, Nolan G, Ansel KM, Davis MM, Steinman L, Chen CZ. mir-181a-1/b-1 Modulates Tolerance through Opposing Activities in Selection and Peripheral T Cell Function. *J Immunol.* 195(4):1470-9, 2015 PMID: 26163591

511. Steinman L. Parsing Physiologic Functions of Erythropoietin One Domain at a Time. *Neurotherapeutics.* 2015 Aug 27. [Epub ahead of print]

512. Sotirchos ES, Pavan Bhargava P, Eckstein CP, Van Haren KP, Baynes M, Ntranos A, Gocke A, Steinman L, Mowry EM, and Calabresi PA. Safety and immunologic effects of high vs. low-dose cholecalciferol in multiple sclerosis *Neurology*

513. Kurnellas MP, Ghosn EE, Schartner JM, Baker J, Rothbard JJ, Negrin RS, Herzenberg LA, Fathman CG, Steinman L, Rothbard JB. Amyloid fibrils activate B-1a lymphocytes to ameliorate

- inflammatory brain disease. *Proc Natl Acad Sci U S A*. 2015 Dec 8;112(49):15016-23.
514. Yiu G, Rasmussen TK, Ajami B, Haddon DJ, Chu AD, Tangsombatvisit S, Haynes WA, Diep V, Steinman L, Faix J, Utz PJ. Development of Th17-associated interstitial kidney inflammation in lupus-prone mice lacking the gene encoding STAT-1 *Arthritis Rheumatol*. 2015 Dec 4. doi: 10.1002/art.39535.
515. Sotirchos ES, Bhargava P, Eckstein C, Van Haren K, Baynes M, Ntranos A, Gocke A, Steinman L, Mowry EM, Calabresi PA. Safety and immunologic effects of high- vs low-dose cholecalciferol in multiple sclerosis. *Neurology*. 2015 Dec 30. pii: 10.1212/WNL.0000000000002316.
516. Kuipers HF, Rieck M, Gurevich I, Nagy N, Butte MJ, Negrin RS, Wight TN, Steinman L, Bollyky PL. Hyaluronan synthesis is necessary for autoreactive T-cell trafficking, activation, and Th1 polarization. *Proc Natl Acad Sci U S A*. 2016 Feb 2;113(5):1339-44. doi: 10.1073/pnas.1525086113.
517. Ho P and Steinman L. [Obeticholic acid, a synthetic bile acid agonist of the farnesoid X receptor, attenuates experimental autoimmune encephalomyelitis](#). *PNAS* 2016 Feb 9;113(6):1600-5. doi: 10.1073/pnas.1524890113.
518. Davis T Profile of Lawrence Steinman *PNAS* 2016 ; published ahead of print January 25, 2016, doi:10.1073/pnas.1600083113
519. Sajda T, Hazelton J, Patel M, Seiffert-Sinha K, Steinman L, Robinson W, Haab BB, Sinha AA. Multiplexed autoantigen microarrays identify HLA as a key driver of anti-desmoglein and - non-desmoglein reactivities in pemphigus. *Proc Natl Acad Sci U S A*. 2016 Feb 16;113(7):1859-64. doi: 10.1073/pnas.1525448113.
520. Hegen H, Adrianto I, Lessard CJ, Millonig A, Bertolotto A, Comabella M, Giovannoni G, Guger M, Hoelzl M, Khalil M, Fazekas F, Killestein J, Lindberg RL, Malucchi S, Mehling M, Montalban X, Rudzki D, Schautzer F, Sellebjerg F, Sorensen PS, Deisenhammer F, Steinman L, Axtell RC. Cytokine profiles show heterogeneity of interferon- β response in multiple sclerosis patients. *Neurol Neuroimmunol Neuroinflamm*. 2016 Jan 27;3(2):e202. doi: 10.1212/NXI.0000000000000202. eCollection 2016 Apr.
521. Ahmed SS, Steinman L. Mechanistic insights into influenza vaccine-associated narcolepsy. *Hum Vaccin Immunother*. 2016 Mar 31:1-6. [Epub ahead of print]
522. Steinman L, Ahmed SS. Response to comment on "Antibodies to influenza nucleoprotein cross-react with human hypocretin receptor 2" *Sci Transl Med*. 2015 Nov 18;7(314):314lr2. doi: 10.1126/scitranslmed.aad6789.
523. Steinman L, Zamvil SS. Beginning of the end of two-stage theory purporting that inflammation then degeneration explains pathogenesis of progressive multiple sclerosis. *Curr Opin Neurol*. 2016 Jun;29(3):340-4. doi: 10.1097/WCO.0000000000000317.
524. Kim JH, Furrow E, Ritt MG, Utz PJ, Robinson WH, Yu L, Eckert A, Stuebner K, O'Brien TD, Steinman L, Modiano JF. Anti-Insulin Immune Responses Are Detectable in Dogs with Spontaneous Diabetes. *PLoS One*. 2016 Mar 31;11(3):e0152397. doi: 10.1371/journal.pone.0152397. eCollection 2016.

525. Yu C, Burns JC, Robinson WH, Utz PJ, Ho PP, Steinman L, Frey AB. Identification of Candidate Tolerogenic CD8(+) T Cell Epitopes for Therapy of Type 1 Diabetes in the NOD Mouse Model. *J Diabetes Res.* 2016;2016:9083103. doi: 10.1155/2016/9083103.
526. Schulze-Topphoff U, Varrin-Doyer M, Pekarek K, Spencer CM, Shetty A, Sagan SA, Cree BA, Sobel RA, Wipke BT, Steinman L, Scannevin RH, Zamvil SS. Dimethyl fumarate treatment induces adaptive and innate immune modulation independent of Nrf2. *Proc Natl Acad Sci U S A.* 2016 Apr 26;113(17):4777-82. doi: 10.1073/pnas.1603907113.
527. Kuipers HF, Nagy N, Ruppert SM, Sunkari VG, Marshall PL, Gebe JA, Ishak HD, Keswani SG, Bollyky J, Frymoyer AR, Wight TN, Steinman L, Bollyky PL. The Pharmacokinetics and Dosing of Oral 4-Methylumbelliferone for Inhibition of Hyaluronan Synthesis in Mice. *Clin Exp Immunol.* 2016 May 24. doi: 10.1111/cei.12815
528. Ahmed S, Montomoli E, Pasini FL, Steinman L. The Safety of Adjuvanted Vaccines Revisited: Vaccine-Induced Narcolepsy. *Isr Med Assoc J.* 2016 Mar-Apr;18(3-4):216-20
529. Steinman L. A Journey in Science: The Privilege of Exploring the Brain and the Immune System. *Molecular Medicine* 21:1047-1062, 2016 doi: 10.2119/molmed.2015.00263
530. Kraus A, Race B, Phillips K, Winkler C, Saturday G, Kurnellas M, Rothbard JB, Groveman BR, Steinman L, Caughey B. Genetic background modulates outcome of therapeutic amyloid peptides in treatment of neuroinflammation. *J Neuroimmunol.* 2016 Sep 15;298:42-50. doi: 10.1016/j.jneuroim.2016.06.010.
531. Steinman L, Bar-Or A, Behne JM, Benitez-Ribas D, Chin PS, Clare-Salzler M, Healey D, Kim JI, Kranz DM, Lutterotti A, Martin R, Schippling S, Villoslada P, Wei CH, Weiner HL, Zamvil SS, Yeaman MR, Smith TJ. Restoring immune tolerance in neuromyelitis optica: Part I. *Neurol Neuroimmunol Neuroinflamm.* 2016 Sep 7;3(5):e276. doi: 10.1212/NXI.0000000000000276.
532. Bar-Or A, Steinman L, Behne JM, Benitez-Ribas D, Chin PS, Clare-Salzler M, Healey D, Kim JI, Kranz DM, Lutterotti A, Martin R, Schippling S, Villoslada P, Wei CH, Weiner HL, Zamvil SS, Smith TJ, Yeaman MR. Restoring immune tolerance in neuromyelitis optica: Part II. *Neurol Neuroimmunol Neuroinflamm.* 2016 Sep 7;3(5):e277. doi: 10.1212/NXI.0000000000000277
533. Rovituso DM, Scheffler L, Wunsch M, Kleinschnitz C, Dörck S, Ulzheimer J, Bayas A, Steinman L, Ergün S, Kuerten S. CEACAM1 mediates B cell aggregation in central nervous system autoimmunity. *Sci Rep.* 2016 Jul 20;6:29847. doi: 10.1038/srep29847.
544. Kildebeck EJ, Narayan R, Nath A, Weiner H, Beh S, Calabresi PA, Steinman L, Major EO, Frohman TC, Frohman EM. The emergence of neuroepidemiology, neurovirology and neuroimmunology: the legacies of John F. Kurtzke and Richard 'Dick' T. Johnson. *J Neurol.* 2016 Oct 12.
545. Inoue M, Chen PH, Siecinski S, Li QJ, Liu C, Steinman L, Gregory SG, Benner E, Shinohara ML. An interferon- β -resistant and NLRP3 inflammasome-independent subtype of EAE with neuronal damage. *Nat Neurosci.* 2016 Nov 7. doi: 10.1038/nn.4421.
546. Berkovich R, Bakshi R, Amezcua L, Axtell RC, Cen SY, Tauhid S, Neema M, and Steinman

- L. Adrenocorticotrophic hormone versus methylprednisolone added to interferon β in patients with multiple sclerosis experiencing breakthrough disease: a randomized, rater-blinded trial. *Ther Adv Neurol Disord*. 2017 Jan;10(1):3-17. doi: 10.1177/1756285616670060.
547. Sagan SA, Winger RC, Cruz-Herranz A, Nelson PA, Hagberg S, Miller CN, Spencer CM, Ho PP, Bennett JL, Levy M, Levin MH, Verkman AS, Steinman L, Green AJ, Anderson MS, Sobel RA, Zamvil SS. Tolerance checkpoint bypass permits emergence of pathogenic T cells to neuromyelitis optica autoantigen aquaporin-4. *Proc Natl Acad Sci U S A*. 2016 Dec 20;113(51):14781-14786. doi: 10.1073/pnas.1617859114.
548. Ahmed SS, Steinman L. Narcolepsy and influenza vaccination-induced autoimmunity. *Ann Transl Med* 2017;5(1):25. doi: 10.21037/atm.2016.12.63
549. Kuipers H, Yoon J, van Horssen J, Han MH, Bollyky PL, Palmer TD, Steinman L. Phosphorylation of alphaB-crystallin supports reactive astrogliosis in demyelination *Proc. Natl Acad Sci* 2017 Feb 28;114(9):E1745-E1754.
550. Endriz J, Ho PP, Steinman L. Time correlation between mononucleosis and initial symptoms of MS *Neurol Neuroimmunol Neuroinflamm*. 2017 Feb 27;4(3):e308. doi: 10.1212/NXI.0000000000000308.
551. Marella M, Ouyang J, Zombeck J, Zhao C, Huang L, Connor RJ, Phan KB, Jorge MC, Printz MA, Paladini RD, Gelb AB, Huang Z, Frost GI, Sugarman BJ, Steinman L, Wei G, Shepard HM, Maneval DC, Lapinskas PJ. PH20 is not expressed in murine CNS and oligodendrocyte precursor cells. *Ann Clin Transl Neurol*. 2017 Feb 23;4(3):191-211. doi: 10.1002/acn3.393.
552. Hohlfeld R, Steinman L. T Cell-Transfer Experimental Autoimmune Encephalomyelitis: Pillar of Multiple Sclerosis and Autoimmunity. *J Immunol*. 2017 May 1;198(9):3381-3383. doi: 10.4049/jimmunol.1700346.
553. Steinman L. Induction of New Autoimmune Diseases After Alemtuzumab Therapy for Multiple Sclerosis: Learning From Adversity. *JAMA Neurol*. 2017 Aug 1;74(8):907-908. doi: 10.1001/jamaneurol.2017.0325.
554. Musio S, Costanza M, Poliani PL, Fontana E, Cominelli M, Abolafio G, Steinman L, Pedotti R. Treatment with anti-Fc ϵ R1 α antibody exacerbates EAE and T-cell immunity against myelin. *Neurol Neuroimmunol Neuroinflamm*. 2017 Apr 14;4(3):e342. doi: 10.1212/NXI.0000000000000342.
555. Lepka K, Volbracht K, Bill E, Schneider R, Rios N, Hildebrandt T, Ingwersen J, Prozorovski T, Lillig CH, van Horssen J, Steinman L, Hartung HP, Radi R, Holmgren A, Aktas O, Berndt C. Iron-sulfur glutaredoxin 2 protects oligodendrocytes against damage induced by nitric oxide release from activated microglia. *Glia*. 2017 Sep;65(9):1521-1534. doi: 10.1002/glia.23178.
556. Sagan SA, Cruz-Herranz A, Spencer CM, Ho PP, Steinman L, Green AJ, Sobel RA, Zamvil SS. Induction of Paralysis and Visual System Injury in Mice by T Cells Specific for Neuromyelitis Optica Autoantigen Aquaporin-4. *J Vis Exp*. 2017 Aug 21;(126). doi: 10.3791/56185.
557. DeFalco J, Harbell M, Manning-Bog A, Baia G, Scholz A, Millare B, Sumi M, Zhang D, Chu F, Dowd C, Zuno-Mitchell P, Kim D, Leung Y, Jiang S, Tang X, Williamson KS, Chen X, Carroll SM, Espiritu Santo G, Haaser N, Nguyen N, Giladi E, Minor D, Tan YC, Sokolove JB, Steinman L,

Serafini TA, Cavet G, Greenberg NM, Glanville J, Volkmoth W, Emerling DE, Robinson WH. Non-progressing cancer patients have persistent B cell responses expressing shared antibody paratopes that target public tumor antigens. *Clin Immunol*. 2017 Oct 12. pii: S1521-6616(17)30501-6. doi: 10.1016/j.clim.2017.10.002

558. Bhat R, Mahapatra S, Axtell RC, Steinman L. Amelioration of ongoing experimental autoimmune encephalomyelitis with fluoxetine. *J Neuroimmunol*. 2017 Dec 15;313:77-81. doi: 10.1016/j.jneuroim.2017.10.012.

559. Bruinsma IB, van Dijk M, Bridel C, van de Lisdonk T, Haverkort SQ, Runia TF, Steinman L, Hintzen RQ, Killestein J, Verbeek MM, Teunissen CE, de Jong BA. Regulator of oligodendrocyte maturation, miR-219, a potential biomarker for MS. *J Neuroinflammation*. 2017 Dec 4;14(1):235. doi: 10.1186/s12974-017-1006-3.

560. Ajami B, Samusik N, Wieghofer P, Ho P, Crotti A, Bjornson Z, Prinz M, Fantl W, Nolan GP, and Steinman L. Single cell mass cytometry reveals distinct populations of brain myeloid cells in mouse models of neuroinflammatory and neurodegenerative diseases. *Nature Neuroscience* 21(4):541-551 e-pub 5 March 2018 doi:10.1038/s41593-018-0100-x

561. Ajami B, Steinman L. Nonclassical monocytes: are they the next therapeutic targets in multiple sclerosis? *Immunol Cell Biol*. 2018 Feb;96(2):125-127.

562. Steinman L. Blocking immune intrusion into the brain suppresses epilepsy in Rasmussen's encephalitis model. *J Clin Invest*. 2018 Apr 9. pii: 120444. doi: 10.1172/JCI120444.

563. Kaneko K, Sato DK, Nakashima I, Ogawa R, Akaishi T, Takai Y, Nishiyama S, Takahashi T, Misu T, Kuroda H, Tanaka S, Nomura K, Hashimoto Y, Callegaro D, Steinman L, Fujihara K, Aoki M. CSF cytokine profile in MOG-IgG+ neurological disease is similar to AQP4-IgG+ NMOSD but distinct from MS: a cross-sectional study and potential therapeutic implications. *J Neurol Neurosurg Psychiatry* 2018 Jun 6. pii: jnnp-2018-317969. doi: 10.1136/jnnp-2018-317969.

564. Rothbard JB, Rothbard JJ, Soares L, Fathman CG, Steinman L. Identification of a common immune regulatory pathway induced by small heat shock proteins, amyloid fibrils, and nicotine. *Proc Natl Acad Sci U S A*. 115 (27) 7081-708 2018 Jun 18. pii: 201804599. doi: 10.1073/pnas.1804599115.

565. Moreno MA, Or-Geva N, Aftab BT, Khanna R, Croze E, Steinman L, Han MH. Molecular signature of Epstein-Barr virus infection in MS brain lesions. *Neurol Neuroimmunol Neuroinflamm*. 2018 Jun 7;5(4):e466. doi: 10.1212/NXI.0000000000000466. eCollection 2018 Jul

566. Mahapatra S, Ying L, Ho PP, Kurnellas M, Rothbard J, Steinman L, Cornfield DN. An amyloidogenic hexapeptide derived from amylin attenuates inflammation and acute lung injury in murine sepsis. *PLoS One*. 2018 Jul 10;13(7):e0199206. doi: 10.1371/journal.pone.0199206.