



UNIVERSITAT DE BARCELONA



FACULTAT DE FARMÀCIA

Departament de Bioquímica i Biologia Molecular

**Estudios sobre la inducción de tolerancia  
inmunológica mediante la expresión de  
antígenos en células hematopoyéticas murinas.  
Aplicación a un modelo experimental de  
enfermedad autoinmune.**

Herena Eixarch Ahufinger  
2008

## **BIBLIOGRAFÍA**



- Acha-Orbea, H., Mitchell, D. J., et al. (1988). "Limited heterogeneity of T cell receptors from lymphocytes mediating autoimmune encephalomyelitis allows specific immune intervention." Cell **54**(2): 263-73.
- Adelmann, M., Wood, J., et al. (1995). "The N-terminal domain of the myelin oligodendrocyte glycoprotein (MOG) induces acute demyelinating experimental autoimmune encephalomyelitis in the Lewis rat." J Neuroimmunol **63**(1): 17-27.
- Aggarwal, S., Ghilardi, N., et al. (2003). "Interleukin-23 promotes a distinct CD4 T cell activation state characterized by the production of interleukin-17." J Biol Chem **278**(3): 1910-4.
- Aiuti, A., Slavin, S., et al. (2002). "Correction of ADA-SCID by stem cell gene therapy combined with nonmyeloablative conditioning." Science **296**(5577): 2410-3.
- Alam, S. M., Travers, P. J., et al. (1996). "T-cell-receptor affinity and thymocyte positive selection." Nature **381**(6583): 616-20.
- Alderuccio, F., Murphy, K., et al. (2003). "Stem cells engineered to express self-antigen to treat autoimmunity." Trends Immunol **24**(4): 176-80.
- Alderuccio, F., Siatskas, C., et al. (2006). "Haematopoietic stem cell gene therapy to treat autoimmune disease." Curr Stem Cell Res Ther **1**(3): 279-87.
- Allen, P. M. (1994). "Peptides in positive and negative selection: a delicate balance." Cell **76**(4): 593-6.
- An, D. S., Wersto, R. P., et al. (2000). "Marking and gene expression by a lentivirus vector in transplanted human and nonhuman primate CD34(+) cells." J Virol **74**(3): 1286-95.
- Anderson, R. E., Olson, G. B., et al. (1977). "Radiosensitivity of T and B lymphocytes. IV. Effect of whole body irradiation upon various lymphoid tissues and numbers of recirculating lymphocytes." J Immunol **118**(4): 1191-200.
- Andersson, G., Denaro, M., et al. (2003a). "Engraftment of retroviral EGFP-transduced bone marrow in mice prevents rejection of EGFP-transgenic skin grafts." Mol Ther **8**(3): 385-91.
- Andersson, G., Illigens, B. M., et al. (2003b). "Non-Myeloablative Conditioning Is Sufficient to Allow Engraftment of Egfp-Expressing Bone Marrow and Subsequent Acceptance of Egfp-Transgenic Skin Grafts in Mice." Blood **6**: 6.
- Appleman, L. J. and Boussiotis, V. A. (2003). "T cell anergy and costimulation." Immunol Rev **192**: 161-80.
- Arnold, B., Schonrich, G., et al. (1993). "Multiple levels of peripheral tolerance." Immunol Today **14**(1): 12-4.
- Aubert, D., Menoret, S., et al. (2002). "Cytotoxic immune response blunts long-term transgene expression after efficient retroviral-mediated hepatic gene transfer in rat." Mol Ther **5**(4): 388-96.
- Bacchetta, R., Bigler, M., et al. (1994). "High levels of interleukin 10 production in vivo are associated with tolerance in SCID patients transplanted with HLA mismatched hematopoietic stem cells." J Exp Med **179**(2): 493-502.
- Bachar-Lustig, E., Li, H. W., et al. (1998). "Tolerance induction by megadose stem cell transplants: synergism between SCA-1+ Lin- cells and nonalloreactive T cells." Transplant Proc **30**(8): 4007-8.
- Bagley, J., Bracy, J. L., et al. (2002a). "Establishing immunological tolerance through the induction of molecular chimerism." Front Biosci **1**(7): d1331-7.
- Bagley, J., Tian, C., et al. (2002b). "Induction of T-cell tolerance to an MHC class I alloantigen by gene therapy." Blood **99**(12): 4394-9.
- Baldwin, T. A., Hogquist, K. A., et al. (2004). "The fourth way? Harnessing aggressive tendencies in the thymus." J Immunol **173**(11): 6515-20.
- Barczyk, A., Pierzchala, W., et al. (2003). "Interleukin-17 in sputum correlates with airway hyperresponsiveness to methacholine." Respir Med **97**(6): 726-33.

- Barquinero, J., Segovia, J. C., et al. (2000). "Efficient transduction of human hematopoietic repopulating cells generating stable engraftment of transgene-expressing cells in NOD/SCID mice." Blood **95**(10): 3085-93.
- Battaglia, M., Stabilini, A., et al. (2006). "Induction of Tolerance in Type 1 Diabetes via Both CD4+CD25+ T Regulatory Cells and T Regulatory Type 1 Cells." Diabetes **55**(6): 1571-80.
- Baum, C., Kustikova, O., et al. (2006). "Mutagenesis and oncogenesis by chromosomal insertion of gene transfer vectors." Hum Gene Ther **17**(3): 253-63.
- Bender, J. G., Unverzagt, K. L., et al. (1992). "Functional characterization of mouse granulocytes and macrophages produced in vitro from bone marrow progenitors stimulated with interleukin 3 (IL-3) or granulocyte-macrophage colony-stimulating factor (GM-CSF)." Exp Hematol **20**(9): 1135-40.
- Berger, T., Rubner, P., et al. (2003). "Antimyelin antibodies as a predictor of clinically definite multiple sclerosis after a first demyelinating event." N Engl J Med **349**(2): 139-45.
- Betelli, E., Carrier, Y., et al. (2006). "Reciprocal developmental pathways for the generation of pathogenic effector TH17 and regulatory T cells." Nature **441**(7090): 235-8.
- Billingham, R. E., Brent, L., et al. (1953). "Activity acquired tolerance of foreign cells." Nature **172**(4379): 603-6.
- Bischof, F., Wienhold, W., et al. (2001). "Specific treatment of autoimmunity with recombinant invariant chains in which CLIP is replaced by self-epitopes." Proc Natl Acad Sci U S A **98**(21): 12168-73.
- Blaese, R. M., Culver, K. W., et al. (1993). "Treatment of severe combined immunodeficiency disease (SCID) due to adenosine deaminase deficiency with CD34+ selected autologous peripheral blood cells transduced with a human ADA gene. Amendment to clinical research project, Project 90-C-195, January 10, 1992." Hum Gene Ther **4**(4): 521-7.
- Blaese, R. M., Culver, K. W., et al. (1995). "T lymphocyte-directed gene therapy for ADA- SCID: initial trial results after 4 years." Science **270**(5235): 475-80.
- Bodine, D. M., McDonagh, K. T., et al. (1991). "Survival and retrovirus infection of murine hematopoietic stem cells in vitro: effects of 5-FU and method of infection." Exp Hematol **19**(3): 206-12.
- Bordignon, C., Notarangelo, L. D., et al. (1995). "Gene therapy in peripheral blood lymphocytes and bone marrow for ADA- immunodeficient patients." Science **270**(5235): 470-5.
- Brabb, T., Goldrath, A. W., et al. (1997). "Triggers of autoimmune disease in a murine TCR-transgenic model for multiple sclerosis." J Immunol **159**(1): 497-507.
- Bracy, J. L., Sachs, D. H., et al. (1998). "Inhibition of xenoreactive natural antibody production by retroviral gene therapy." Science **281**(5384): 1845-7.
- Brenner, M. K. and Rill, D. R. (1994). "Gene marking to improve the outcome of autologous bone marrow transplantation." Prog Clin Biol Res **389**: 587-91.
- Brenner, M. K., Rill, D. R., et al. (1993). "Gene marking to determine whether autologous marrow infusion restores long-term haemopoiesis in cancer patients." Lancet **342**(8880): 1134-7.
- Brocker, T., Riedinger, M., et al. (1997). "Targeted expression of major histocompatibility complex (MHC) class II molecules demonstrates that dendritic cells can induce negative but not positive selection of thymocytes in vivo." J Exp Med **185**(3): 541-50.
- Brodsky, R. A., Petri, M., et al. (1998). "Immunoablative High-Dose Cyclophosphamide without Stem-Cell Rescue for Refractory, Severe Autoimmune Disease." Ann Intern Med **129**(12): 1031-1035.
- Bruno, R., Sabater, L., et al. (2002). "Multiple sclerosis candidate autoantigens except myelin oligodendrocyte glycoprotein are transcribed in human thymus." Eur J Immunol **32**(10): 2737-47.

- Carstens, C., Newman, D. K., et al. (2000). "Invariant chains with the class II binding site replaced by a sequence from influenza virus matrix protein constrain low-affinity sequences to MHC II presentation." Int Immunol **12**(11): 1561-8.
- Cavazzana-Calvo, M., Hacein-Bey, S., et al. (2000). "Gene therapy of human severe combined immunodeficiency (SCID)-X1 disease." Science **288**(5466): 669-72.
- Cavazzana-Calvo, M., Thrasher, A., et al. (2004). "The future of gene therapy." Nature **427**(6977): 779-81.
- Chalfie, M., Tu, Y., et al. (1994). "Green fluorescent protein as a marker for gene expression." Science **263**(5148): 802-5.
- Chan, J., Clements, W., et al. (2006). "Transplantation of bone marrow genetically engineered to express proinsulin II protects against autoimmune insulinitis in NOD mice." J Gene Med **8**(11): 1281-90.
- Chen, C. C., Rivera, A., et al. (2001). "A gene therapy approach for treating T-cell-mediated autoimmune diseases." Blood **97**(4): 886-894.
- Chiang, C. S., Mason, K. A., et al. (1992). "Alteration in myelin-associated proteins following spinal cord irradiation in guinea pigs." Int J Radiat Oncol Biol Phys **24**(5): 929-37.
- Chiang, C. S., McBride, W. H., et al. (1993). "Myelin-associated changes in mouse brain following irradiation." Radiother Oncol **27**(3): 229-36.
- Coles, A. J., Wing, M., et al. (1999a). "Pulsed monoclonal antibody treatment and autoimmune thyroid disease in multiple sclerosis." Lancet **354**(9191): 1691-5.
- Coles, A. J., Wing, M. G., et al. (1999b). "Monoclonal antibody treatment exposes three mechanisms underlying the clinical course of multiple sclerosis." Ann Neurol **46**(3): 296-304.
- Congdon, K. L. and Reya, T. (2008). "Divide and conquer: how asymmetric division shapes cell fate in the hematopoietic system." Curr Opin Immunol **20**(3): 302-7.
- Conneally, E., Bardy, P., et al. (1996). "Rapid and efficient selection of human hematopoietic cells expressing murine heat-stable antigen as an indicator of retroviral-mediated gene transfer." Blood **87**(2): 456-64.
- Cormack, B. P., Valdivia, R. H., et al. (1996). "FACS-optimized mutants of the green fluorescent protein (GFP)." Gene **173**(1 Spec No): 33-8.
- Cresswell, P. (1994). "Assembly, transport, and function of MHC class II molecules." Annu Rev Immunol **12**: 259-93.
- Cua, D. J., Sherlock, J., et al. (2003). "Interleukin-23 rather than interleukin-12 is the critical cytokine for autoimmune inflammation of the brain." Nature **421**(6924): 744-8.
- Dahlman, I., Jacobsson, L., et al. (1999). "Genome-wide linkage analysis of chronic relapsing experimental autoimmune encephalomyelitis in the rat identifies a major susceptibility locus on chromosome 9." J Immunol **162**(5): 2581-8.
- Deisseroth, A. B., Kavanagh, J., et al. (1994). "Use of safety-modified retroviruses to introduce chemotherapy resistance sequences into normal hematopoietic cells for chemoprotection during the therapy of ovarian cancer: a pilot trial." Hum Gene Ther **5**(12): 1507-22.
- Delarasse, C., Daubas, P., et al. (2003). "Myelin/oligodendrocyte glycoprotein-deficient (MOG-deficient) mice reveal lack of immune tolerance to MOG in wild-type mice." J Clin Invest **112**(4): 544-53.
- Dhodapkar, M. V., Steinman, R. M., et al. (2001). "Antigen-specific inhibition of effector T cell function in humans after injection of immature dendritic cells." J Exp Med **193**(2): 233-8.
- Di Domenico, C., Villani, G. R., et al. (2005). "Gene therapy for a mucopolysaccharidosis type I murine model with lentiviral-IDUA vector." Hum Gene Ther **16**(1): 81-90.
- Doi, K., Kong, J., et al. (2004). "Transient immunosuppression stops rejection of virus-transduced enhanced green fluorescent protein in rabbit retina." J Virol **78**(20): 11327-33.

- Donahue, R. E., Wersto, R. P., et al. (2000). "High levels of lymphoid expression of enhanced green fluorescent protein in nonhuman primates transplanted with cytokine-mobilized peripheral blood CD34(+) cells." Blood **95**(2): 445-52.
- Espejo, C., Carrasco, J., et al. (2001). "Differential expression of metallothioneins in the CNS of mice with experimental autoimmune encephalomyelitis." Neuroscience **105**(4): 1055-65.
- Evans, G. L. and Morgan, R. A. (1998). "Genetic induction of immune tolerance to human clotting factor VIII in a mouse model for hemophilia A." Proc Natl Acad Sci U S A **95**(10): 5734-9.
- Fazilleau, N., Delarasse, C., et al. (2007). "T cell repertoire diversity is required for relapses in myelin oligodendrocyte glycoprotein-induced experimental autoimmune encephalomyelitis." J Immunol **178**(8): 4865-75.
- Fazilleau, N., Delarasse, C., et al. (2006). "Persistence of autoreactive myelin oligodendrocyte glycoprotein (MOG)-specific T cell repertoires in MOG-expressing mice." Eur J Immunol **36**(3): 533-43.
- Ferber, I., Schonrich, G., et al. (1994). "Levels of peripheral T cell tolerance induced by different doses of tolerogen." Science **263**(5147): 674-6.
- Fields, P. A., Kowalczyk, D. W., et al. (2000). "Role of vector in activation of T cell subsets in immune responses against the secreted transgene product factor IX." Mol Ther **1**(3): 225-35.
- Flasshove, M., Bardenheuer, W., et al. (2000). "Type and position of promoter elements in retroviral vectors have substantial effects on the expression level of an enhanced green fluorescent protein reporter gene." J Cancer Res Clin Oncol **126**(7): 391-9.
- Forman, D., Kang, E. S., et al. (2006). "Induction of alloreactive CD4 T cell tolerance in molecular chimeras: a possible role for regulatory T cells." J Immunol **176**(6): 3410-6.
- Fujino, S., Andoh, A., et al. (2003). "Increased expression of interleukin 17 in inflammatory bowel disease." Gut **52**(1): 65-70.
- Gambotto, A., Dworacki, G., et al. (2000). "Immunogenicity of enhanced green fluorescent protein (EGFP) in BALB/c mice: identification of an H2-K<sup>d</sup>-restricted CTL epitope." Gene Therapy **7**: 2036-2040.
- Gardinier, M. V., Amiguet, P., et al. (1992). "Myelin/oligodendrocyte glycoprotein is a unique member of the immunoglobulin superfamily." J Neurosci Res **33**(1): 177-87.
- Gardner, J. M., Devoss, J. J., et al. (2008). "Deletional tolerance mediated by extrathymic Aire-expressing cells." Science **321**(5890): 843-7.
- Gaspar, H. B., Parsley, K. L., et al. (2004). "Gene therapy of X-linked severe combined immunodeficiency by use of a pseudotyped gammaretroviral vector." Lancet **364**(9452): 2181-7.
- Genain, C. P., Cannella, B., et al. (1999). "Identification of autoantibodies associated with myelin damage in multiple sclerosis." Nat Med **5**(2): 170-5.
- Genain, C. P., Nguyen, M. H., et al. (1995). "Antibody facilitation of multiple sclerosis-like lesions in a nonhuman primate." J Clin Invest **96**(6): 2966-74.
- Giebel, B. and Punzel, M. (2008). "Lineage development of hematopoietic stem and progenitor cells." Biol Chem **389**(7): 813-24.
- Goerner, M., Horn, P. A., et al. (2001). "Sustained multilineage gene persistence and expression in dogs transplanted with CD34(+) marrow cells transduced by RD114-pseudotype oncoretrovirus vectors." Blood **98**(7): 2065-70.
- Goodell, M. A., Brose, K., et al. (1996). "Isolation and functional properties of murine hematopoietic stem cells that are replicating in vivo." J Exp Med **183**(4): 1797-806.
- Goodnow, C. C. (1992). "B-cell tolerance." Curr Opin Immunol **4**(6): 703-10.

- Gotter, J., Brors, B., et al. (2004). "Medullary epithelial cells of the human thymus express a highly diverse selection of tissue-specific genes colocalized in chromosomal clusters." J Exp Med **199**(2): 155-66.
- Groux, H. and Cottrez, F. (2003). "The complex role of interleukin-10 in autoimmunity." J Autoimmun **20**(4): 281-5.
- Groux, H., O'Garra, A., et al. (1997). "A CD4+ T-cell subset inhibits antigen-specific T-cell responses and prevents colitis." Nature **389**(6652): 737-42.
- Hacein-Bey-Abina, S., Le Deist, F., et al. (2002). "Sustained correction of X-linked severe combined immunodeficiency by ex vivo gene therapy." N Engl J Med **346**(16): 1185-93.
- Hacein-Bey-Abina, S., von Kalle, C., et al. (2003a). "A serious adverse event after successful gene therapy for X-linked severe combined immunodeficiency." N Engl J Med **348**(3): 255-6.
- Hacein-Bey-Abina, S., Von Kalle, C., et al. (2003b). "LMO2-associated clonal T cell proliferation in two patients after gene therapy for SCID-X1." Science **302**(5644): 415-9.
- Han, W. G., Unger, W. W., et al. (2008). "Identification of the immunodominant CTL epitope of EGFP in C57BL/6 mice." Gene Ther **15**(9): 700-1.
- Hawiger, D., Inaba, K., et al. (2001). "Dendritic cells induce peripheral T cell unresponsiveness under steady state conditions in vivo." J Exp Med **194**(6): 769-79.
- Hayashi, T., Kusunoki, Y., et al. (2003). "Radiation dose-dependent increases in inflammatory response markers in A-bomb survivors." Int J Radiat Biol **79**(2): 129-36.
- Herrmann, M. M., Gaertner, S., et al. (2005). "Tolerance induction by bone marrow transplantation in a multiple sclerosis model." Blood **106**(5): 1875-83.
- Hildinger, M., Abel, K. L., et al. (1999). "Design of 5' untranslated sequences in retroviral vectors developed for medical use." J Virol **73**(5): 4083-9.
- Hirata, S., Senju, S., et al. (2005). "Prevention of experimental autoimmune encephalomyelitis by transfer of embryonic stem cell-derived dendritic cells expressing myelin oligodendrocyte glycoprotein peptide along with TRAIL or programmed death-1 ligand." J Immunol **174**(4): 1888-97.
- Hofstetter, H. H., Ibrahim, S. M., et al. (2005). "Therapeutic efficacy of IL-17 neutralization in murine experimental autoimmune encephalomyelitis." Cell Immunol **237**(2): 123-30.
- Holz, A., Bielekova, B., et al. (2000). "Myelin-associated oligodendrocytic basic protein: identification of an encephalitogenic epitope and association with multiple sclerosis." J Immunol **164**(2): 1103-9.
- Ierino, F. L., Gojo, S., et al. (1999). "Transfer of swine major histocompatibility complex class II genes into autologous bone marrow cells of baboons for the induction of tolerance across xenogeneic barriers." Transplantation **67**(8): 1119-28.
- Itoh, M., Takahashi, T., et al. (1999). "Thymus and autoimmunity: production of CD25+CD4+ naturally anergic and suppressive T cells as a key function of the thymus in maintaining immunologic self-tolerance." J Immunol **162**(9): 5317-26.
- Izembart, A., Aguado, E., et al. (1999). "In vivo retrovirus-mediated gene transfer to the liver of dogs results in transient expression and induction of a cytotoxic immune response." Hum Gene Ther **10**(18): 2917-25.
- Jacobs, L. D., Beck, R. W., et al. (2000). "Intramuscular interferon beta-1a therapy initiated during a first demyelinating event in multiple sclerosis. CHAMPS Study Group." N Engl J Med **343**(13): 898-904.
- Johnson, K. P., Brooks, B. R., et al. (1998). "Extended use of glatiramer acetate (Copaxone) is well tolerated and maintains its clinical effect on multiple sclerosis relapse rate and degree of disability. Copolymer 1 Multiple Sclerosis Study Group." Neurology **50**(3): 701-8.



- Kabat, E. A., Wolf, A., et al. (1946). "Rapid Production of Acute Disseminated Encephalomyelitis in Rhesus Monkeys by Injection of Brain Tissue With Adjuvants." Science **104**(2703): 362-363.
- Kabat, E. A., Wolf, A., et al. (1947). "The rapid production of acute disseminated encephalomyelitis in rhesus monkeys by injection of heterologous and homologous brain tissue with adjuvants " J. Exp. Med. **85**(1): 117-130.
- Kabat, E. A., Wolf, A., et al. (1949). "Studies on acute disseminated encephalomyelitis produced experimentally in rhesus monkeys; disseminated encephalomyelitis produced in monkeys with their own brain tissue." J Exp Med **89**(4): 395-8.
- Kang, E., Giri, N., et al. (2001). "In Vivo Persistence of Retrovirally Transduced Murine Long-Term Repopulating Cells Is Not Limited by Expression of Foreign Gene Products in the Fully or Minimally Myeloablated Setting." Hum Gene Ther **12**(13): 1663-72.
- Kang, E. S. and Iacomini, J. (2002). "Induction of central deletional T cell tolerance by gene therapy." J Immunol **169**(4): 1930-5.
- Kantoff, P. W., Gillio, A. P., et al. (1987). "Expression of human adenosine deaminase in nonhuman primates after retrovirus-mediated gene transfer." J Exp Med **166**(1): 219-34.
- Karim, M., Feng, G., et al. (2005). "CD25+CD4+ regulatory T cells generated by exposure to a model protein antigen prevent allograft rejection: antigen-specific reactivation in vivo is critical for bystander regulation." Blood **105**(12): 4871-7.
- Kaye, J. F., Kerlero de Rosbo, N., et al. (2000). "The central nervous system-specific myelin oligodendrocytic basic protein (MOBP) is encephalitogenic and a potential target antigen in multiple sclerosis (MS)." J Neuroimmunol **102**(2): 189-98.
- Kerlero de Rosbo, N., Bernard, C. C., et al. (1985). "Concomitant detection of changes in myelin basic protein and permeability of blood-spinal cord barrier in acute experimental autoimmune encephalomyelitis by electroimmunoblotting." J Neuroimmunol **9**(6): 349-61.
- Kiem, H. P., Heyward, S., et al. (1997). "Gene transfer into marrow repopulating cells: comparison between amphotropic and gibbon ape leukemia virus pseudotyped retroviral vectors in a competitive repopulation assay in baboons." Blood **90**(11): 4638-45.
- Kohn, D. B., Weinberg, K. I., et al. (1995). "Engraftment of gene-modified umbilical cord blood cells in neonates with adenosine deaminase deficiency." Nat Med **1**(10): 1017-23.
- Komiyama, Y., Nakae, S., et al. (2006). "IL-17 plays an important role in the development of experimental autoimmune encephalomyelitis." J Immunol **177**(1): 566-73.
- Kornek, B., Storch, M. K., et al. (2000). "Multiple sclerosis and chronic autoimmune encephalomyelitis: a comparative quantitative study of axonal injury in active, inactive, and remyelinated lesions." Am J Pathol **157**(1): 267-76.
- Kuhle, J., Pohl, C., et al. (2007). "Lack of association between antimyelin antibodies and progression to multiple sclerosis." N Engl J Med **356**(4): 371-8.
- Kwok, W. W., Schuening, F., et al. (1986). "Retroviral transfer of genes into canine hemopoietic progenitor cells in culture: a model for human gene therapy." Proc Natl Acad Sci U S A **83**(12): 4552-5.
- Kyewski, B. and Klein, L. (2006). "A central role for central tolerance." Annu Rev Immunol **24**: 571-606.
- Langrish, C. L., Chen, Y., et al. (2005). "IL-23 drives a pathogenic T cell population that induces autoimmune inflammation." J Exp Med **201**(2): 233-40.
- Lassmann, H., Kitz, K., et al. (1980). "Structural variability of demyelinating lesions in different models of subacute and chronic experimental allergic encephalomyelitis." Acta Neuropathol **51**(3): 191-201.

- Lassmann, H. and Wisniewski, H. M. (1979). "Chronic relapsing experimental allergic encephalomyelitis: clinicopathological comparison with multiple sclerosis." Arch Neurol **36**(8): 490-7.
- Lee, J. C., Hapel, A. J., et al. (1982). "Constitutive production of a unique lymphokine (IL 3) by the WEHI-3 cell line." J Immunol **128**(6): 2393-8.
- Lenz, D. C., Wolf, N. A., et al. (1999). "Strain variation in autoimmunity: attempted tolerization of DA rats results in the induction of experimental autoimmune encephalomyelitis." J Immunol **163**(4): 1763-8.
- Li, C. L. and Johnson, G. R. (1995). "Murine hematopoietic stem and progenitor cells: I. Enrichment and biologic characterization." Blood **85**(6): 1472-9.
- Limon, A., Briones, J., et al. (1997). "High-titer retroviral vectors containing the enhanced green fluorescent protein gene for efficient expression in hematopoietic cells." Blood **90**(9): 3316-21.
- Linard, C., Ropenga, A., et al. (2003). "Abdominal irradiation increases inflammatory cytokine expression and activates NF-kappaB in rat ileal muscularis layer." Am J Physiol Gastrointest Liver Physiol **285**(3): G556-65.
- Liston, A., Lesage, S., et al. (2005). "Genetic lesions in T-cell tolerance and thresholds for autoimmunity." Immunol Rev **204**: 87-101.
- Lucchinetti, C., Bruck, W., et al. (2000). "Heterogeneity of multiple sclerosis lesions: implications for the pathogenesis of demyelination." Ann Neurol **47**(6): 707-17.
- Lutzko, C., Kruth, S., et al. (1999). "Genetically corrected autologous stem cells engraft, but host immune responses limit their utility in canine alpha-L-iduronidase deficiency." Blood **93**(6): 1895-905.
- Lyons, J. A., Ramsbottom, M. J., et al. (2002). "Critical role of antigen-specific antibody in experimental autoimmune encephalomyelitis induced by recombinant myelin oligodendrocyte glycoprotein." Eur J Immunol **32**(7): 1905-13.
- Maatta, J. A., Kaldman, M. S., et al. (1998). "Encephalitogenicity of myelin-associated oligodendrocytic basic protein and 2',3'-cyclic nucleotide 3'-phosphodiesterase for BALB/c and SJL mice." Immunology **95**(3): 383-8.
- Mahnke, K., Qian, Y., et al. (2003). "Induction of CD4+/CD25+ regulatory T cells by targeting of antigens to immature dendritic cells." Blood **101**(12): 4862-9.
- Mangan, P. R., Harrington, L. E., et al. (2006). "Transforming growth factor-beta induces development of the T(H)17 lineage." Nature **441**(7090): 231-4.
- Marta, C. B., Oliver, A. R., et al. (2005). "Pathogenic myelin oligodendrocyte glycoprotein antibodies recognize glycosylated epitopes and perturb oligodendrocyte physiology." Proc Natl Acad Sci U S A **102**(39): 13992-7.
- Matusevicius, D., Kivisakk, P., et al. (1999). "Interleukin-17 mRNA expression in blood and CSF mononuclear cells is augmented in multiple sclerosis." Mult Scler **5**(2): 101-4.
- Mauch, E., Kornhuber, H. H., et al. (1992). "Treatment of multiple sclerosis with mitoxantrone." Eur Arch Psychiatry Clin Neurosci **242**(2-3): 96-102.
- Mauch, E., Kornhuber, H. H., et al. (1989). "Effective treatment of chronically progressive multiple sclerosis with low-dose cyclophosphamide with minor side-effects." Eur Arch Psychiatry Neurol Sci **238**(3): 115-7.
- Mavilio, F., Ferrari, G., et al. (1994). "Peripheral blood lymphocytes as target cells of retroviral vector-mediated gene transfer." Blood **83**(7): 1988-97.
- Mendel, I., Kerlero de Rosbo, N., et al. (1995). "A myelin oligodendrocyte glycoprotein peptide induces typical chronic experimental autoimmune encephalomyelitis in H-2b mice: fine specificity and T cell receptor V beta expression of encephalitogenic T cells." Eur J Immunol **25**(7): 1951-9.
- Meyer, A. L., Benson, J. M., et al. (1996). "Suppression of murine chronic relapsing experimental autoimmune encephalomyelitis by the oral administration of myelin basic protein." J Immunol **157**(9): 4230-8.

- Miller, D. M., Weinstock-Guttman, B., et al. (2000). "A meta-analysis of methylprednisolone in recovery from multiple sclerosis exacerbations." Mult Scler **6**(4): 267-73.
- Modlich, U., Kustikova, O. S., et al. (2005). "Leukemias following retroviral transfer of multidrug resistance 1 (MDR1) are driven by combinatorial insertional mutagenesis." Blood **105**(11): 4235-46.
- Mokhtarian, F., McFarlin, D. E., et al. (1984). "Adoptive transfer of myelin basic protein-sensitized T cells produces chronic relapsing demyelinating disease in mice." Nature **309**(5966): 356-8.
- Montero, E., Nussbaum, G., et al. (2004). "Regulation of experimental autoimmune encephalomyelitis by CD4+, CD25+ and CD8+ T cells: analysis using depleting antibodies." J Autoimmun **23**(1): 1-7.
- Morris, J. C., Conerly, M., et al. (2004). "Induction of cytotoxic T-lymphocyte responses to enhanced green and yellow fluorescent proteins after myeloablative conditioning." Blood **103**(2): 492-9.
- Morris-Downes, M. M., McCormack, K., et al. (2002). "Encephalitogenic and immunogenic potential of myelin-associated glycoprotein (MAG), oligodendrocyte-specific glycoprotein (OSP) and 2',3'-cyclic nucleotide 3'-phosphodiesterase (CNPase) in ABH and SJL mice." J Neuroimmunol **122**(1-2): 20-33.
- Muraro, P. A. and Douek, D. C. (2006). "Renewing the T cell repertoire to arrest autoimmune aggression." Trends Immunol **27**(2): 61-7.
- Muraro, P. A., Douek, D. C., et al. (2005). "Thymic output generates a new and diverse TCR repertoire after autologous stem cell transplantation in multiple sclerosis patients." J Exp Med **201**(5): 805-16.
- Murphy, C. A., Langrish, C. L., et al. (2003). "Divergent pro- and antiinflammatory roles for IL-23 and IL-12 in joint autoimmune inflammation." J Exp Med **198**(12): 1951-7.
- Neefjes, J. J., Stollorz, V., et al. (1990). "The biosynthetic pathway of MHC class II but not class I molecules intersects the endocytic route." Cell **61**(1): 171-83.
- Nordal, R. A., Nagy, A., et al. (2004). "Hypoxia and hypoxia-inducible factor-1 target genes in central nervous system radiation injury: a role for vascular endothelial growth factor." Clin Cancer Res **10**(10): 3342-53.
- Nordal, R. A. and Wong, C. S. (2004). "Intercellular adhesion molecule-1 and blood-spinal cord barrier disruption in central nervous system radiation injury." J Neuropathol Exp Neurol **63**(5): 474-83.
- O'Garra, A. and Vieira, P. (2004). "Regulatory T cells and mechanisms of immune system control." Nat Med **10**(8): 801-5.
- Oliver, A. R., Lyon, G. M., et al. (2003). "Rat and human myelin oligodendrocyte glycoproteins induce experimental autoimmune encephalomyelitis by different mechanisms in C57BL/6 mice." J Immunol **171**(1): 462-8.
- Parmar, K., Sauk-Schubert, C., et al. (2003). "Sca+CD34- murine side population cells are highly enriched for primitive stem cells." Exp Hematol **31**(3): 244-50.
- Paterson, P. Y. (1960). "Transfer of allergic encephalomyelitis in rats by means of lymph node cells." J Exp Med **111**: 119-36.
- Pawliuk, R., Kay, R., et al. (1994). "Selection of retrovirally transduced hematopoietic cells using CD24 as a marker of gene transfer." Blood **84**(9): 2868-77.
- Pelayo, R., Tintore, M., et al. (2007). "Antimyelin antibodies with no progression to multiple sclerosis." N Engl J Med **356**(4): 426-8.
- Pender, M. P. (1987). "Demyelination and neurological signs in experimental allergic encephalomyelitis." J Neuroimmunol **15**(1): 11-24.
- Persons, D. A., Allay, J. A., et al. (1997). "Retroviral-mediated transfer of the green fluorescent protein gene into murine hematopoietic cells facilitates scoring and selection of transduced progenitors in vitro and identification of genetically modified cells in vivo." Blood **90**(5): 1777-86.

- Persons, D. A., Allay, J. A., et al. (1998). "Use of the green fluorescent protein as a marker to identify and track genetically modified hematopoietic cells." Nat Med **4**(10): 1201-5.
- Peters, T. R., Bodine, D. M., et al. (2000). "Retrovirus mediated gene transfer of the self antigen MBP into the bone marrow of mice alters resistance to experimental autoimmune encephalomyelitis." J Neuroimmunol **103**(1): 51-62.
- Pettinelli, C. B. and McFarlin, D. E. (1981). "Adoptive transfer of experimental allergic encephalomyelitis in SJL/J mice after in vitro activation of lymph node cells by myelin basic protein: requirement for Lyt 1+ 2- T lymphocytes." J Immunol **127**(4): 1420-3.
- Polman, C. H., Dijkstra, C. D., et al. (1986). "Immunohistological analysis of macrophages in the central nervous system of Lewis rats with acute experimental allergic encephalomyelitis." J Neuroimmunol **11**(3): 215-22.
- Polman, C. H., Matthaei, I., et al. (1988). "Low-dose cyclosporin A induces relapsing remitting experimental allergic encephalomyelitis in the Lewis rat." J Neuroimmunol **17**(3): 209-16.
- Pribyl, T. M., Campagnoni, C. W., et al. (1993). "The human myelin basic protein gene is included within a 179-kilobase transcription unit: expression in the immune and central nervous systems." Proc Natl Acad Sci U S A **90**(22): 10695-9.
- Prinz, M., Garbe, F., et al. (2006). "Innate immunity mediated by TLR9 modulates pathogenicity in an animal model of multiple sclerosis." J Clin Invest **116**(2): 456-64.
- Puig, T., Kadar, E., et al. (2002). "Myeloablation enhances engraftment of transduced murine hematopoietic cells, but does not influence long-term expression of the transgene." Gene Ther **9**(21): 1472-9.
- Rachamim, N., Gan, J., et al. (1998). "Tolerance induction by "megadose" hematopoietic transplants: donor-type human CD34 stem cells induce potent specific reduction of host anti- donor cytotoxic T lymphocyte precursors in mixed lymphocyte culture." Transplantation **65**(10): 1386-93.
- Raine, C. S. and Cross, A. H. (1989). "Axonal dystrophy as a consequence of long-term demyelination." Lab Invest **60**(5): 714-25.
- Raine, C. S., Mokhtarian, F., et al. (1984). "Adoptively transferred chronic relapsing experimental autoimmune encephalomyelitis in the mouse. Neuropathologic analysis." Lab Invest **51**(5): 534-46.
- Reddy, J., Illes, Z., et al. (2004). "Myelin proteolipid protein-specific CD4+CD25+ regulatory cells mediate genetic resistance to experimental autoimmune encephalomyelitis." Proc Natl Acad Sci U S A **101**(43): 15434-9.
- Roche, P. A. and Cresswell, P. (1991). "Proteolysis of the class II-associated invariant chain generates a peptide binding site in intracellular HLA-DR molecules." Proc Natl Acad Sci U S A **88**(8): 3150-4.
- Roncarolo, M. G., Gregori, S., et al. (2006). "Interleukin-10-secreting type 1 regulatory T cells in rodents and humans." Immunol Rev **212**: 28-50.
- Rosenzweig, M., Connole, M., et al. (2001). "Induction of cytotoxic T lymphocyte and antibody responses to enhanced green fluorescent protein following transplantation of transduced CD34(+) hematopoietic cells." Blood **97**(7): 1951-9.
- Roth, M. P., Viratelle, C., et al. (1999). "A genome-wide search identifies two susceptibility loci for experimental autoimmune encephalomyelitis on rat chromosomes 4 and 10." J Immunol **162**(4): 1917-22.
- Rouvier, E., Luciani, M. F., et al. (1993). "CTLA-8, cloned from an activated T cell, bearing AU-rich messenger RNA instability sequences, and homologous to a herpesvirus saimiri gene." J Immunol **150**(12): 5445-56.
- Sarkar, R., Gao, G. P., et al. (2000). "Partial correction of murine hemophilia A with neo-antigenic murine factor VIII." Hum Gene Ther **11**(6): 881-94.

- Shull, R., Lu, X., et al. (1996). "Humoral immune response limits gene therapy in canine MPS I [letter]." Blood **88**(1): 377-9.
- Simmons, R. D., Bernard, C. C., et al. (1982). "Experimental autoimmune encephalomyelitis. An anatomically-based explanation of clinical progression in rodents." J Neuroimmunol **3**(4): 307-18.
- Sjoo, F., Hassan, Z., et al. (2006). "Myeloablative and immunosuppressive properties of treosulfan in mice." Exp Hematol **34**(1): 115-21.
- Skelton, D., Satake, N., et al. (2001). "The enhanced green fluorescent protein (eGFP) is minimally immunogenic in C57BL/6 mice." Gene Ther **8**(23): 1813-4.
- Smith, S. L., Bender, J. G., et al. (1993). "Expansion of neutrophil precursors and progenitors in suspension cultures of CD34+ cells enriched from human bone marrow." Exp Hematol **21**(7): 870-7.
- Sojka, D. K., Huang, Y. H., et al. (2008). "Mechanisms of regulatory T-cell suppression - a diverse arsenal for a moving target." Immunology **124**(1): 13-22.
- Sorrentino, B. P., Brandt, S. J., et al. (1992). "Selection of drug-resistant bone marrow cells in vivo after retroviral transfer of human MDR1." Science **257**(5066): 99-103.
- Spangrude, G. J., Heimfeld, S., et al. (1988). "Purification and characterization of mouse hematopoietic stem cells [published erratum appears in Science 1989 Jun 2;244(4908):1030]." Science **241**(4861): 58-62.
- Stafford, E. A. and Rose, N. R. (2000). "Newer insights into the pathogenesis of experimental autoimmune thyroiditis." Int Rev Immunol **19**(6): 501-33.
- Stepaniak, J. A., Wolf, N. A., et al. (1997). "Interstrain variability of autoimmune encephalomyelitis in rats: multiple encephalitogenic myelin basic protein epitopes for DA rats." J Neuroimmunol **78**(1-2): 79-85.
- Stephens, R. J., Ritchie, J. M., et al. (2003). "Transfer of hematopoietic stem cells encoding autoantigen prevents autoimmune diabetes." J Clin Invest **111**(9): 1357-63.
- Stevens, D. B., Chen, K., et al. (1999). "Oligodendrocyte-specific protein peptides induce experimental autoimmune encephalomyelitis in SJL/J mice." J Immunol **162**(12): 7501-9.
- Stewart, F. M., Crittenden, R. B., et al. (1993). "Long-term engraftment of normal and post-5-fluorouracil murine marrow into normal nonmyeloablated mice [see comments]." Blood **81**(10): 2566-71.
- Stripecke, R., Carmen Villacres, M., et al. (1999). "Immune response to green fluorescent protein: implications for gene therapy." Gene Ther **6**(7): 1305-1312.
- Sun, D., Whitaker, J. N., et al. (2001). "Myelin antigen-specific CD8+ T cells are encephalitogenic and produce severe disease in C57BL/6 mice." J Immunol **166**(12): 7579-87.
- Taubert, R., Schwendemann, J., et al. (2007). "Highly variable expression of tissue-restricted self-antigens in human thymus: implications for self-tolerance and autoimmunity." Eur J Immunol **37**(3): 838-48.
- Thornton, A. M. and Shevach, E. M. (2000). "Suppressor effector function of CD4+CD25+ immunoregulatory T cells is antigen nonspecific." J Immunol **164**(1): 183-90.
- Tian, C., Ansari, M. J., et al. (2007). "Induction of robust diabetes resistance and prevention of recurrent type 1 diabetes following islet transplantation by gene therapy." J Immunol **179**(10): 6762-9.
- Tian, C., Bagley, J., et al. (2004). "Induction of central tolerance by mature T cells." J Immunol **173**(12): 7217-22.
- Tripathy, S. K., Black, H. B., et al. (1996). "Immune responses to transgene-encoded proteins limit the stability of gene expression after injection of replication-defective adenovirus vectors." Nat Med **2**(5): 545-50.

- van der Veen, R. C., Trotter, J. L., et al. (1989). "The adoptive transfer of chronic relapsing experimental allergic encephalomyelitis with lymph node cells sensitized to myelin proteolipid protein." J Neuroimmunol **21**(2-3): 183-91.
- van Gelder, M., Kinwel-Bohre, E. P., et al. (1993). "Treatment of experimental allergic encephalomyelitis in rats with total body irradiation and syngeneic BMT." Bone Marrow Transplant **11**(3): 233-41.
- van Hennik, P. B., Versteegen, M. M., et al. (1998). "Highly efficient transduction of the green fluorescent protein gene in human umbilical cord blood stem cells capable of cobblestone formation in long-term cultures and multilineage engraftment of immunodeficient mice." Blood **92**(11): 4013-22.
- van Loo, G., De Lorenzi, R., et al. (2006). "Inhibition of transcription factor NF-kappaB in the central nervous system ameliorates autoimmune encephalomyelitis in mice." Nat Immunol **7**(9): 954-61.
- van Os, R., Sheridan, T. M., et al. (2001). "Immunogenicity of Ly5 (CD45)-antigens hampers long-term engraftment following minimal conditioning in a murine bone marrow transplantation model." Stem Cells **19**(1): 80-7.
- Vanderlugt, C. L., Neville, K. L., et al. (2000). "Pathologic role and temporal appearance of newly emerging autoepitopes in relapsing experimental autoimmune encephalomyelitis." J Immunol **164**(2): 670-8.
- Veldhoen, M., Hocking, R. J., et al. (2006). "TGFbeta in the context of an inflammatory cytokine milieu supports de novo differentiation of IL-17-producing T cells." Immunity **24**(2): 179-89.
- Weerth, S., Berger, T., et al. (1999). "Encephalitogenic and neuritogenic T cell responses to the myelin-associated glycoprotein (MAG) in the Lewis rat." J Neuroimmunol **95**(1-2): 157-64.
- Weissert, R., Wallstrom, E., et al. (1998). "MHC haplotype-dependent regulation of MOG-induced EAE in rats." J Clin Invest **102**(6): 1265-73.
- Weissert, R., Wiendl, H., et al. (2003). "Action of treosulfan in myelin-oligodendrocyte-glycoprotein-induced experimental autoimmune encephalomyelitis and human lymphocytes." J Neuroimmunol **144**(1-2): 28-37.
- Wekerle, H., Kojima, K., et al. (1994). "Animal models." Ann Neurol **36 Suppl**(53): S47-53.
- Wells, A. D., Walsh, M. C., et al. (2001). "Signaling through CD28 and CTLA-4 controls two distinct forms of T cell anergy." J Clin Invest **108**(6): 895-903.
- Whittingham, S. and Mackay, I. R. (2005). "Autoimmune gastritis: historical antecedents, outstanding discoveries, and unresolved problems." Int Rev Immunol **24**(1-2): 1-29.
- Williams, D. A., Lemischka, I. R., et al. (1984). "Introduction of new genetic material into pluripotent haematopoietic stem cells of the mouse." Nature **310**(5977): 476-80.
- Witowski, J., Ksiazek, K., et al. (2004). "Interleukin-17: a mediator of inflammatory responses." Cell Mol Life Sci **61**(5): 567-79.
- Wraith, D. C., Smilek, D. E., et al. (1989). "Antigen recognition in autoimmune encephalomyelitis and the potential for peptide-mediated immunotherapy." Cell **59**(2): 247-55.
- Wujek, J. R., Bjartmar, C., et al. (2002). "Axon loss in the spinal cord determines permanent neurological disability in an animal model of multiple sclerosis." J Neuropathol Exp Neurol **61**(1): 23-32.
- Xu, B., Haviernik, P., et al. (2006). "Bone marrow transplantation combined with gene therapy to induce antigen-specific tolerance and ameliorate EAE." Mol Ther **13**(1): 42-8.
- Xu, H., Exner, B. G., et al. (2004). "CD45 congenic bone marrow transplantation: evidence for T cell-mediated immunity." Stem Cells **22**(6): 1039-48.

- Yang, Y., Nunes, F. A., et al. (1994). "Cellular immunity to viral antigens limits E1-deleted adenoviruses for gene therapy." Proc Natl Acad Sci U S A **91**(10): 4407-11.
- Yang, Y. G., deGoma, E., et al. (1998). "Tolerization of anti-Galalpha1-3Gal natural antibody-forming B cells by induction of mixed chimerism." J Exp Med **187**(8): 1335-42.
- Yao, Z., Painter, S. L., et al. (1995). "Human IL-17: a novel cytokine derived from T cells." J Immunol **155**(12): 5483-6.
- Yee, J. K., Friedmann, T., et al. (1994). "Generation of high-titer pseudotyped retroviral vectors with very broad host range." Methods Cell Biol **43**: 99-112.
- Yu, S. F., von Ruden, T., et al. (1986). "Self-inactivating retroviral vectors designed for transfer of whole genes into mammalian cells." Proc Natl Acad Sci U S A **83**(10): 3194-8.
- Zamvil, S. S. and Steinman, L. (1990). "The T lymphocyte in experimental allergic encephalomyelitis." Annu Rev Immunol **8**: 579-621.
- Zhong, M. C., Cohen, L., et al. (2000). "T-cells specific for soluble recombinant oligodendrocyte-specific protein induce severe clinical experimental autoimmune encephalomyelitis in H-2(b) and H-2(s) mice." J Neuroimmunol **105**(1): 39-45.
- Zhou, D., Srivastava, R., et al. (2006). "Identification of a pathogenic antibody response to native myelin oligodendrocyte glycoprotein in multiple sclerosis." Proc Natl Acad Sci U S A **103**(50): 19057-62.
- Zhou, D., Yu, T., et al. (2001). "Effects of NF-kappaB1 (p50) targeted gene disruption on ionizing radiation-induced NF-kappaB activation and TNFalpha, IL-1alpha, IL-1beta and IL-6 mRNA expression in vivo." Int J Radiat Biol **77**(7): 763-72.