

## **Todd N. Eagar, Ph.D.**

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### **Education and professional experience**

- 2010-present **Assistant Professor of Pathology and Immunology**  
**Director in Training of HLA/Histocompatibility Laboratories**  
University of Texas Southwestern Medical Center, Dallas, TX, USA
- 2010-present **Fellow in HLA and immunogenetics training program**  
The Methodist Hospital, Houston, TX, USA  
(Mentor: Dr. Geoffrey Land)
- 2006-2010 **Assistant Professor of Neurology and Immunology**  
University of Texas Southwestern Medical Center, Dallas, TX, USA
- 2002-2006 **Postdoctoral fellowship in immunology**  
University of California at San Francisco, San Francisco, CA  
(Mentor: Dr. Jeffrey A. Bluestone)
- 1995-2001 **Immunology and Molecular Pathogenesis Graduate Program**  
Northwestern University Medical School, Chicago, IL 60611  
(Mentor: Dr. Stephen D. Miller)  
Degree conferred: **Ph.D.**
- 1987-1993 **Undergraduate program in Zoology**  
Brigham Young University, Provo, UT 60611  
(Mentor: Dr. Richard Heckman)  
Degree conferred: **B.S.**

### **Memberships in Professional Societies**

American Association of Immunologists  
American Association for the Advancement of Science  
American Society for Histocompatibility and Immunogenetics  
Texas Transplant Society

### **Personal development as a clinical laboratory scientist**

In May 2010, I was recruited by the Department of Pathology and changed from the tenure track to the clinician track with the purpose of becoming an ASHI-certified director of the transplant immunology laboratory at UTSW. Directorship requires 2 years of clinical experience/training and board certification by the American Board of Histocompatibility and Immunogenetics (ABHI). In July 2010, I entered training in the Histocompatibility and Immunogenetics Training Fellowship Program at the Methodist Hospital, Houston TX under the direction of Dr. Geoff Land. As part of the fellowship program, I spent 9 months in Houston training in the Transplant Immunology laboratory at the Methodist Hospital and the Histocompatibility laboratory at UT MD Anderson hospital. I am currently completing the fellowship training while working at UTSW. I plan to take the ABHI exams in September of 2012 as a step toward ASHI certification.

### **Clinical lab**

The transplant immunology laboratory provides pre-transplant molecular typing and histocompatibility testing and post-transplant immunological monitoring to the bone marrow and

solid organ transplant programs at Children's Medical Center, Parkland Memorial Hospital and the University Hospital St. Paul. We have identified three areas of development in the lab: (1) Re-structuring the lab and reporting regarding the renal/non renal designations to better fit the Medicare regulations; (2) Improving the efficiency and accuracy of our testing by training the technicians, incorporating new software and by implementing a more stringent review process; and (3) Developing new functional immunological tests for the diagnosis of immunodeficiencies, as part of Veripath development.

### **Current Research**

1. Functions of Notch signaling in the regulation of Multiple Sclerosis.  
We have developed and applied conditional gene targeting approaches to dissect the influences of the Notch signaling pathway on T cell and APC function in the experimental autoimmune encephalomyelitis model of Multiple Sclerosis.
2. Application of Gene Vaccination for the prevention of Alzheimer's Disease.  
We are studying the impact A $\beta$ 1-42 gene vaccination on the development of Alzheimer's disease in mice. The goals are to establish a protocol that reduces plaque burden associated with disease while preventing the occurrence of pathogenic autoimmunity.

### **Invited Lectures**

Texas Transplant Society Annual Meeting, 2011  
University of Texas San Antonio, Microbial pathogenesis program, 2009  
National MS Society Texas Chapter, Research Symposium, 2008  
University of Kentucky, Immunology seminar series, 2006  
Beckman Research Institute, Immunology seminar series, 2006  
Barbara Davis Center for Childhood Diabetes, Seminar series, 2006  
University of Miami, Immunology seminar series, 2005  
Keystone Symposia, Tolerance and Autoimmunity, 2003

### **Trainees**

1. Matthew Cummings, MS  
PhD Candidate; Integrative Biology Graduate Program 2008-present
2. Alicia Villegas, BS  
SURF Student (Undergraduate Summer Fellowship); Summer 2009
3. Kyra Orr, BS  
SURF Student (Undergraduate Summer Fellowship); Summer 2008

### **Other Professional activities**

2011-present Section Editor, Archives of Pathology  
2010-present Member, Integrated Biology graduate training program, UTSWMC  
2009-present Co-course Director Genetic manipulation of the mouse Graduate course  
2009-present Ad hoc reviewer NIH Challenge Grant Panel  
2008-present Participant, Immunology Training Grant, UTSWMC  
2008-present Participant, Medical Sciences Training Program Grant, UTSWMC  
2007-present Member, Immunology graduate training program, UTSWMC  
2007-present Lecturer T cell development and lymphocyte activation/signaling  
2006-present Ad hoc reviewer: Archives of Neurology, Biophysical Journal, Blood, Diabetes, Journal of Immunology, Journal of Medicinal Chemistry and PLoS ONE, Journal of Clinical Immunology

### **Other Experience**

Wood Badge Training Course- Boy Scouts of America, 2008

Intensive corporate leadership training program focused on communication, project management and team building.

### **Peer-Reviewed Publications**

1. Monson NL, Cravens P, Hussain R, Harp CT, Cummings M, de Pilar Martin M, Ben LH, Do J, Lyons JA, Lovette-Racke A, Cross AH, Racke MK, Stuve O, Shlomchik M, **Eagar TN**. 2011. Rituximab therapy reduces organ-specific T cell responses and ameliorates experimental autoimmune encephalomyelitis. *PLoS One* 6: e17103
2. Lambracht-Washington D, Qu BX, Fu M, Anderson LD, Jr., Stuve O, **Eagar TN\*\***, Rosenberg RN. 2011. DNA Immunization Against Amyloid beta 42 has High Potential as Safe Therapy for Alzheimer's Disease as it Diminishes Antigen-Specific Th1 and Th17 Cell Proliferation. *Cell Mol Neurobiol* . \*\*Co Senior Author
3. Cravens PD, Hussain RZ, Zacharias TE, Ben LH, Hernden E, Vinnakota R, Lambracht-Washington D, Nessler S, Zamvil SS, **Eagar TN**, Stuve O. 2011. Lymph node-derived donor encephalitogenic CD4+ T cells in C57BL/6 mice adoptive transfer experimental autoimmune encephalomyelitis highly express GM-CSF and T-bet. *J Neuroinflammation* 8: 73
4. Qu BX, Lambracht-Washington D, Fu M, **Eagar TN**, Stuve O, Rosenberg RN. 2010. Analysis of three plasmid systems for use in DNA A beta 42 immunization as therapy for Alzheimer's disease. *Vaccine* 28: 5280-7
5. Pacheco MF, Jacobe H, **Eagar TN**, Stuve O. 2010. Reversible alopecia associated with glatiramer acetate. *Arch Neurol* 67: 1154
6. Hu W, Nessler S, Hemmer B, **Eagar TN**, Kane LP, Leliveld SR, Muller-Schiffmann A, Gocke AR, Lovett-Racke A, Ben LH, Hussain RZ, Breil A, Elliott JL, Puttapparthi K, Cravens PD, Singh MP, Petsch B, Stitz L, Racke MK, Korth C, Stuve O. 2010. Pharmacological prion protein silencing accelerates central nervous system autoimmune disease via T cell receptor signalling. *Brain* 133: 375-88
7. Harp CT, Ireland S, Davis LS, Remington G, Cassidy B, Cravens PD, Stuve O, Lovett-Racke AE, **Eagar TN**, Greenberg BM, Racke MK, Cowell LG, Karandikar NJ, Frohman EM, Monson NL. 2010. Memory B cells from a subset of treatment-naive relapsing-remitting multiple sclerosis patients elicit CD4(+) T-cell proliferation and IFN-gamma production in response to myelin basic protein and myelin oligodendrocyte glycoprotein. *Eur J Immunol*
8. Martin Mdel P, Cravens PD, Winger R, Kieseier BC, Cepok S, **Eagar TN**, Zamvil SS, Weber MS, Frohman EM, Kleinschmidt-Demasters BK, Montine TJ, Hemmer B, Marra CM, Stuve O. 2009. Depletion of B lymphocytes from cerebral perivascular spaces by rituximab. *Arch Neurol* 66: 1016-20
9. Lambracht-Washington D, Qu BX, Fu M, **Eagar TN**, Stuve O, Rosenberg RN. 2009. DNA beta-amyloid(1-42) trimer immunization for Alzheimer disease in a wild-type mouse model. *JAMA* 302: 1796-802
10. Hussain RZ, Hopkins SC, Frohman EM, **Eagar TN**, Cravens PC, Greenberg BM, Vernino S, Stuve O. 2009. Direct and consensual murine pupillary reflex metrics: establishing normative values. *Auton Neurosci* 151: 164-7

11. Hu W, Metselaar J, Ben LH, Cravens PD, Singh MP, Frohman EM, **Eagar TN**, Racke MK, Kieseier BC, Stuve O. 2009. PEG minocycline-liposomes ameliorate CNS autoimmune disease. *PLoS One* 4: e4151
12. Fife BT, Pauken KE, **Eagar TN**, Obu T, Wu J, Tang Q, Azuma M, Krummel MF, Bluestone JA. 2009. Interactions between PD-1 and PD-L1 promote tolerance by blocking the TCR-induced stop signal. *Nat Immunol* 10: 1185-92
13. Stuve O, Korth C, Gabatto P, Cameron EM, Hu W, **Eagar TN**, Monson NL, Frohman EM, Racke MK, Zabetian CP, Oksenberg JR. 2009. Genetic polymorphism at codon 129 of the prion protein gene is not associated with multiple sclerosis. *Arch Neurol* 66: 280-1
14. Singh MP, Meyer zu Horste G, Hu W, Mausberg AK, Cravens PD, Eagar T, Lober S, Klingenstein R, Gmeiner P, Korth C, Kieseier BC, Stuve O. 2009. Quinpramine is a novel compound effective in ameliorating brain autoimmune disease. *Exp Neurol* 215: 397-400
15. Martin MD, Cravens PD, Winger R, Frohman EM, Racke MK, **Eagar TN**, Zamvil SS, Weber MS, Hemmer B, Karandikar NJ, Kleinschmidt-Demasters BK, Stuve O. 2008. Decrease in the Numbers of Dendritic Cells and CD4+ T Cells in Cerebral Perivascular Spaces Due to Natalizumab. *Arch Neurol*
16. Fife BT, Guleria I, Gubbels Bupp M, **Eagar TN**, Tang Q, Bour-Jordan H, Yagita H, Azuma M, Sayegh MH, Bluestone JA. 2006. Insulin-induced remission in new-onset NOD mice is maintained by the PD-1-PD-L1 pathway. *J Exp Med* 203: 2737-47
17. Smith CE, **Eagar TN**, Strominger JL, Miller SD. 2005. Differential induction of IgE-mediated anaphylaxis after soluble vs. cell-bound tolerogenic peptide therapy of autoimmune encephalomyelitis. *Proc Natl Acad Sci U S A* 102: 9595-600
18. **Eagar TN**, Turley DM, Padilla J, Karandikar NJ, Tan L, Bluestone JA, Miller SD. 2004. CTLA-4 regulates expansion and differentiation of Th1 cells following induction of peripheral T cell tolerance. *J Immunol* 172: 7442-50
19. **Eagar TN**, Tang Q, Wolfe M, He Y, Pear WS, Bluestone JA. 2004. Notch 1 signaling regulates peripheral T cell activation. *Immunity* 20: 407-15
20. Olson JK, **Eagar TN**, Miller SD. 2002. Functional activation of myelin-specific T cells by virus-induced molecular mimicry. *J Immunol* 169: 2719-26
21. **Eagar TN**, Karandikar NJ, Bluestone JA, Miller SD. 2002. The role of CTLA-4 in induction and maintenance of peripheral T cell tolerance. *Eur J Immunol* 32: 972-81
22. Theien BE, Vanderlugt CL, **Eagar TN**, Nickerson-Nutter C, Nazareno R, Kuchroo VK, Miller SD. 2001. Discordant effects of anti-VLA-4 treatment before and after onset of relapsing experimental autoimmune encephalomyelitis. *J Clin Invest* 107: 995-1006
23. Vanderlugt CL, Neville KL, Nikcevich KM, **Eagar TN**, Bluestone JA, Miller SD. 2000. Pathologic role and temporal appearance of newly emerging autoepitopes in relapsing experimental autoimmune encephalomyelitis. *J Immunol* 164: 670-8
24. Karandikar NJ, **Eagar TN**, Vanderlugt CL, Bluestone JA, Miller SD. 2000. CTLA-4 downregulates epitope spreading and mediates remission in relapsing experimental autoimmune encephalomyelitis. *J Neuroimmunol* 109: 173-80
25. Karandikar NJ, Vanderlugt CL, **Eagar T**, Tan L, Bluestone JA, Miller SD. 1998. Tissue-specific up-regulation of B7-1 expression and function during the course of murine relapsing experimental autoimmune encephalomyelitis. *J Immunol* 161: 192-9

## Review Articles and Book Chapters

1. **Eagar TN**, and Miller SD. Helper T cell Subsets and Control of the Inflammatory Response. 2011. Clinical Immunology Principles and Practice Fourth Edition, Robert Rich Editor. Mosby International. (In Press)
2. German DC, **Eagar TN**, Sonsalla PK. 2011. Parkinson's Disease: A Role for the Immune System. Current molecular pharmacology. (In Press).
3. Hu W, Kieseier B, Frohman E, **Eagar TN**, Rosenberg RN, Hartung HP, Stuve O. 2008. Prion proteins: physiological functions and role in neurological disorders. J Neurol Sci 264: 1-8
4. Stuve O, Kieseier BC, Hemmer B, Hartung HP, Awad A, Frohman EM, Greenberg BM, Racke MK, Zamvil SS, Phillips JT, Gold R, Chan A, Zettl U, Milo R, Marder E, Khan O, **Eagar TN**. 2010. Translational research in neurology and neuroscience 2010: multiple sclerosis. Arch Neurol 67: 1307-15
5. Rosenberg RN, Stuve O, Eagar T. 2009. 200 years after Darwin. Jama 301: 660-2
6. Stuve O, **Eagar TN**. 2008. B cells, antibodies, and tertiary lymphoid tissue in MS brains. Lancet Neurol 7: 766-7
7. Stuve O, Cravens PD, **Eagar TN**. 2008. DNA-based vaccines: the future of multiple sclerosis therapy? Expert Rev Neurother 8: 351-60
8. **Eagar TN**, and Miller SD. Helper T cell Subsets and Control of the Inflammatory Response. 2008. Clinical Immunology Principles and Practice Third Edition, Robert Rich Editor. Mosby International. 17.1-14
9. Frohman EM, **Eagar TN**, Monson NL, Stuve O, Karandikar NJ. Immunologic mechanisms of multiple sclerosis. 2008. Neuroimaging clinics of North America. 577-88.
10. Stuve O, **Eagar TN**, Frohman EM, Cravens PD. 2007. DNA plasmid vaccination for multiple sclerosis. Arch Neurol 64: 1385-6
11. **Eagar TN**, Tompkins SM and Miller SD. Helper T cell Subsets and Control of the Inflammatory Response. 2001. Clinical Immunology Principles and Practice Second Edition, Robert Rich Editor. Mosby International. 16.1-12
12. Miller SD, **Eagar TN**. 2001. Functional role of epitope spreading in the chronic pathogenesis of autoimmune and virus-induced demyelinating diseases. Adv Exp Med Biol 490: 99-107
13. Vanderlugt CL, Begolka WS, Neville KL, Katz-Levy Y, Howard LM, **Eagar TN**, Bluestone JA, Miller SD. 1998. The functional significance of epitope spreading and its regulation by co-stimulatory molecules. Immunol Rev 164: 63-72