

JANET M. STAVNEZER, PH.D.

Education

Swarthmore College, Swarthmore, Pennsylvania, 6/66. Major: Biology. B.A. with Honors.

Johns Hopkins University, Baltimore, Maryland, 4/71. Ph.D.

Biology Department: Major: Biochemistry

Postdoctoral Training:

Purification of immunoglobulin  $\kappa$  chain mRNA

Advisor: Dr. Ru Chih Huang (4/71 - 3/72), Johns Hopkins University, Baltimore MD

Reiteration of the genes for immunoglobulin  $\kappa$  chain

Advisor: Dr. J. Michael Bishop (4/72 - 11/76), University of California Medical School,  
San Francisco, California

Supported by Jane Coffin Childs Fellowship, Damon Runyan Fellowship, and Basil O'Connor  
Fellowship from the March of Dimes

Positions and Appointments:

Dec. 1976 - June 1985

Assistant Member  
Sloan-Kettering Institute  
New York, New York 10021

July 1977 - June 1985

Assistant Professor  
Cornell Medical School Graduate Division  
New York, New York 10021

July 1985 - Jan 1992

Associate Professor  
Dept. of Molecular Genetics & Microbiology  
University of Massachusetts Medical School  
Worcester, Massachusetts 01655-0122

Feb. 1992 -

Professor  
Dept. of Molecular Genetics & Microbiology  
University of Massachusetts Medical School

Sept. 1994 - Sept. 97

Chair  
Program in Immunology and Virology  
University of Massachusetts Medical School

Editorial Board:

Section Editor: Journal of Immunology, 1989 - 1992

Deputy Editor: Journal of Immunology, 1992 - 1997

Advisory Editor: Journal of Experimental Medicine, 2003 -

Journal reviewer:

Science, Nature, Nature Immunol., Nat Rev Immunol., J Exp Med, J. Immunol, Mol Cell Biol, Mol  
Immunol, J Clin Invest, EMBO J, Immunity, Blood

Grant Review Committees

Member of American Cancer Society Scientific Advisory Committee on  
Clinical Investigations I-Immunology and Immunotherapy, 1990 - 1994

Outside Reviewer for National Science Foundation Grants

Member of American Heart Association Immunology and Microbiology II Peer Review Study  
Committee, 1997-2000.

Member of NIH Study Section: Allergy and Immunology, 2000-2004[

Society Committees

Publications Committee, American Association of Immunologists, 1995 - 1997

### Publications:

1. Stavnezer, J. and Huang, R.C. (1971). Synthesis of a mouse immunoglobulin light chain in a rabbit reticulocyte cell-free system. *Nature N.B.* 230, 172-176.
2. Bishop, J.M., Faras, A.J., Garapin, A.C., Goodman, H.M., Levinson, W.E., Stavnezer, J., Taylor, J.M. and Varmus, H.E. (1973). Characteristics of the transcription of RNA by the DNA polymerase of Rous Sarcoma Virus. In: *DNA Synthesis in Vitro*. (R.D. Wells and R.B. Inman, Eds.) University Park Press, Baltimore, pp. 341-359.
3. Smith, M.M., Stavnezer, J., Gurdon, J., Lane, C.D. and Huang, R.C. (1973). Translation of messenger RNA for mouse immunoglobulin light chains in living frog oocytes. *J. Mol. Biol.* 80, 553.
4. Sullivan, D., Palacios, R., Stavnezer, J., Taylor, J.M., Faras, A.J., Kiely, M., Summers, N.M., Bishop, J.M. and Schimke, R. (1973). Synthesis of a deoxyribonucleic acid sequence complementary to ovalbumin messenger ribonucleic acid and quantification of ovalbumin genes. *J. Biol. Chem.* 248, 7530-7539.
5. Varmus, H.E., Stavnezer, J., Medeiros, E. and Bishop, J.M. (1975). Detection and characterization of RNA tumor virus-specific DNA in cells. *Proc. of 4<sup>th</sup> Intl. Symposium on Comparative Leukemia Research* (Y. Ito and R.M. Dutchens, Eds.) Univ. of Tokyo Press, Tokyo, pp. 451-461.
6. Stavnezer, J., Huang, R.C., Stavnezer, E. and Bishop, J.M. (1974). Isolation of messenger RNA for immunoglobulin kappa chain and enumeration of genes for the constant region of kappa chain in the mouse. *J. Mol. Biol.* 88, 43-63.
7. Stavnezer, J. and Bishop, J.M. (1977). Synthesis and isolation of DNA complementary to nucleotide sequences encoding the variable region of immunoglobulin kappa chain. *Biochem.* 16, 4225-4232.
8. Cayre, Y., Palladino, M.A., Marcu, K.M. and Stavnezer, J. (1981). Expression of an antigen receptor on T cells does not require recombination at the immunoglobulin J<sub>H</sub>-C<sub>μ</sub> locus. *Proc. Natl. Acad. Sci. USA* 78, 3814-3818.
9. Kikutani, J., Sitia, R., Good, R.A. and Stavnezer, J. (1981). Synthesis and processing of the a heavy chains of secreted and membrane-bound IgA. *Proc. Nat. Acad. Sci. USA* 78, 6436-6440.
10. Stavnezer, J., McGrath, J.P., Slavin, K.J., Li, R., Li, Y., Herz, R. and Alhadeff, B. (1981). The numbers and rearrangements of genes in the T15 κ group. In: *Immunoglobulin Idiotypes and their Expression*. ICN-UCLA Symposia on Molecular and Cellular Biology, XX. (C. Janeway, E.E. Sercarz, H. Wigzell and C.F. Fox, Eds.) Academic Press, New York, pp. 65-73.
11. Campbell, V., Stavnezer, J. and Claflin, J.L. (1981). Organization of Vκ genes encoding allelic phenotypes in BALB/c and AKR mice. In: *Immunoglobulin Idiotypes and their Expression*. ICN-UCLA Symposia on Molecular and Cellular Biology, XX(C. Janeway, E.E. Sercarz, H. Wigzell and C.F. Fox, Eds.) Academic Press, New York, pp. 95-104.
12. Sitia, R., Kikutani, H., Rubartelli, R., Bushkin, Y., Stavnezer, J. and Hammerling, U. (1982). Membrane-bound and secreted IgA contain structurally different α chains. *J. Immunol.* 128, 712-716.
13. Stavnezer, J., Marcu, K.B., Sirlin, S., Alhadeff, B. and Hammerling, (1982). Rearrangements and deletions of immunoglobulin heavy chain genes in the double-producing B cell lymphoma, I.29. *Mol. Cell. Biol.* 2, 1002-1013.
14. Shin, H.-S., Stavnezer, J., Artzt, K. and Bennett, D. (1982). The genetic structure and origin of T-haplotypes of mice, analyzed with H-2 cDNA probes. *Cell* 29, 969-976.
15. Stavnezer, J. (1983). Molecular genetics of immunoglobulin heavy chain switching. *Survey of Immunol. Res.* 2, 267-270.
16. Stavnezer, J., Abbott, J. and Sirlin, S. (1984). Immunoglobulin heavy chain switching in cultured I.29 murine B lymphoma cells: commitment to an IgA or IgE switch. *Curr. Top. Microb. Immunol.* 113, 109-116.
17. Sitia, R., Rubartelli, A., Kikutani, H., Hammerling, U. and Stavnezer, J. (1985). The regulation of membrane-bound and secreted α chain biosynthesis during differentiation of the B cell lymphoma I.29. *J. Immunol.* 35, 2859-2864.

18. Stavnezer, J., Sirlin, S. and Abbott, J. (1985). Induction of immunoglobulin heavy chain switching in cultured I.29 B lymphoma cells; characterization of the accompanying rearrangements of heavy chain genes. *J. Exp. Med.* 161, 577-601.
19. Stavnezer-Nordgren, J., Kekish, O. and Zegers, B.J. (1985). Molecular defects in a human immunoglobulin  $\kappa$  chain deficiency. *Science* 230, 458-461.
20. Stavnezer, J., Kekish, O., Batter, D., Grenier, J., Balazs, I., Henderson, E. and Zegers, B.J. (1985). Aberrant recombination events in B cell lines derived from a  $\kappa$ -deficient human. *Nucl. Acids. Res.* 13, 3495-3514.
21. Koziner, B., Stavnezer, J. and Al-Katib, A. (1985). Surface immunoglobulin light chain expression by the "common" ALL cell line REH. *Clin. Immunol. Immunopath.* 37, 135-141.
22. Koziner, B., Stavnezer, J., Al-Katib, A., Gebhard, D., Mittelman, A., Andreeff, A. and Clarkson, B. (1986). Surface immunoglobulin light chain expression in pre-B cell leukemias. *Anal. N.Y. Acad. Sci.* 468, 211-226.
23. Stavnezer-Nordgren, J. and Sirlin, S. (1986). Specificity of immunoglobulin heavy chain switch correlates with activity of germline heavy chain genes prior to switching. *EMBO J.* 5, 95-102.
24. Stavnezer, J., Al-Katib, A., and Koziner, B. (1986). Expression of immunoglobulin  $\lambda$  light chain by the promyelocytic cell line HL-60. *J. Immunol.* 137, 3978-3982.
25. Stavnezer, J. (1986). The presence of a poly(A)<sup>+</sup> RNA fragment containing the membrane-encoding domain for immunoglobulin  $\alpha$  chain indicates that both secreted and membrane-bound  $\alpha$  mRNAs can be produced from the same transcript. *Nucl. Acids Res.* 14, 6129-6144.
26. Stavnezer, J. and Zegers, B.J.M. (1986). Aberrant kappa constant region genes in a patient lacking type kappa immunoglobulins. In: *Primary Immunodeficiency Diseases*. (M.M. Eibel and F.S. Rosen, Eds.) Elsevier Science Publ. B.V., pp. 55-59.
27. Stavnezer, J. and Severinson, E. (1988). The I.29 B cell lymphoma as a model for memory IgM<sup>+</sup> cells precommitted to an IgA, IgE or IgG<sub>2a</sub> switch. *Mucosal Immunity and Infection at Mucosal Surfaces*, edit. W. Strober, M.E. Lamm, and J. McGhee, S.P. Jones. Oxford Univ. Press.
28. Klein, D., Nietupski, J.A., Sirlin, S. and Stavnezer, J. (1988). I.29 B lymphoma cells express a nonmutated V<sub>H</sub> gene before and after heavy chain switch. *J. Immunol.* 140, 1676-1684.
29. Stavnezer, J., Radcliffe, G. and Severinson, E. (1988). Specificity of immunoglobulin heavy chain switching by cultured I.29 B lymphoma cells. *Monogr. Allergy* 24, 197-207.
30. Lorenz, W., Schable, K.F., Thiebe, R., Stavnezer, J. and Zachau, H.G. (1988). The J<sub>K</sub> proximal region of the human  $\kappa$  locus contains three uncommon V<sub>K</sub> genes which are arranged in opposite transcriptional polarities. *Mol. Immunol.* 25, 479-484.
31. Stavnezer, J., Radcliffe, G., Y.-C. Lin, Nietupski, J., Berggren, L., Sitia, R. and Severinson, E. (1988). Immunoglobulin heavy chain switching may be directed by prior induction of transcripts from constant region genes. *Proc. Nat. Acad. Sci. USA.* 85, 7704-7708.
32. Stavnezer, J., Lasky, J.L., Ponzio, N., Scheid, M.P. and Thorbecke, G.J. (1989). Reticulum cell sarcomas of SJL mice have rearranged immunoglobulin heavy and light chain genes. *Europ. J. Immunol.* 19, 1063-1069.
33. Dunnick, W., Wilson, M. and Stavnezer, J. (1989). Mutations, duplication and a deletion of recombined switch regions suggest a role for DNA replication in the immunoglobulin heavy-chain switch. *Mol. Cell. Biol.* 9, 1850-1856.
34. Waters, S., Saikh, K. and Stavnezer, J. (1989). A B cell-specific nuclear protein that binds to DNA sites 5' to immunoglobulin Sa tandem repeats is regulated during differentiation. *Mol. Cell. Biol.* 9, 5594-5601.
35. Jarvis, C.D., Cannon, L.E. and Stavnezer, J. (1989). Mouse antibody response to Group A Streptococcal carbohydrate. *J. Immunol.* 143, 4213-4220.
36. Dunnick, W. and Stavnezer, J. (1990). Copy-choice mechanism of immunoglobulin heavy chain switch recombination. *Mol. Cell. Biol.* 10, 397-400.

37. Severinson, E., Fernandez, C. and Stavnezer, J. (1990) Induction of germline Ig heavy chain transcripts by mitogens and interleukins prior to switch recombination. *Europ. J. Immunol.* 20, 1079-1084
38. Radcliffe, G., Lin, Y.-C., Julius, M., Marcu, K.B. and Stavnezer, J. (1990). Structure of germline immunoglobulin  $\alpha$  heavy-chain RNA and its location on polysomes. *Mol. Cell. Biol.* 10, 382-386.
39. Xu, M. and Stavnezer, J. (1990) Structure of germline immunoglobulin heavy chain  $\gamma_1$  transcripts in IL-4 treated mouse spleen cells. *Develop. Immunol.* 1, 11-17.
40. Stavnezer, J., Shockett, P., Lin, Y.C., Saikh, K.U. and Xu, M. (1990) The I.29 mouse B cell lymphoma: regulation of the antibody class switch. *Cytokines. Molecular Biology of B Cell Development.* Vol. 3: 154-169. Edit. C. Sorg. Basel, Karger.
41. Lin, Y.-C. A., Shockett, P., and Stavnezer, J. (1991). Regulation of the antibody class switch to IgA. *Immunol. Res.*, 10, 376-380.
42. Stavnezer, J. (1991). Triple helix stabilization? *Nature* 351, 447-448.
43. Shockett, P., and Stavnezer, J. (1991) Effect of cytokines on switching to IgA and  $\alpha$ -germline transcripts in the B lymphoma I.29 $\mu$ : TGF $\beta$  activates transcription of the unrearranged C $\alpha$  gene. *J. Immunol.* 147, 4374-4383.
44. Xu, M., and Stavnezer, J. (1992) Regulation of transcription of immunoglobulin germ-line  $\gamma_1$  RNA: analysis of the promoter/enhancer. *EMBO J.* 11, 145-155.
45. Lin, Y.C.A., Shockett, P. and Stavnezer, J. (1992) Regulation of transcription of the germline immunoglobulin  $\alpha$  constant region gene. *Current Topics in Micro. and Immunol.* 182, 157-165.
46. Lin, Y.C.A., and Stavnezer, J. (1992). Regulation of transcription of the germ-line Ig $\alpha$  constant region gene by an ATF element and by novel TGF $\beta$ -responsive elements. *J. Immunol.* 149, 2914-2925.
47. Shockett, P. and Stavnezer, J. (1993) Inhibitors of poly(ADP-ribose) polymerase increase antibody class switching. *J. Immunol.* 151, 6962-6976.
48. Dunnick, W., Elenich, L., Berry, J., Albrecht, D., Stavnezer, J., and Claflin, J.L. (1992) Regulation of switch recombination to the murine  $\gamma_1$  gene. *Curr. Top. Micro.& Immunol.* 182, 143-148.
49. Lundgren, M., Larsson, C., Femino, A., Xu, M., Stavnezer, J. and Severinson, E. (1994) Activation of the immunoglobulin germ line  $\gamma_1$  promoter: involvement of C/EBP transcription factors and their possible interaction with a NF-IL4 site. *J. Immunol.* 153, 2983-2995.
50. Delphin, S.A. and Stavnezer, J. (1995) Characterization of an IL-4 responsive region in the immunoglobulin heavy chain germline  $\epsilon$  promoter: regulation by NF-IL4, a C/EBP family member and NF- $\kappa$ B/p50/. *J. Exp. Med.* 181, 181-192.
51. Delphin, S.A. and Stavnezer, J. (1995) Regulation of antibody class switching to IgE: Characterization of an IL-4 responsive region in the immunoglobulin heavy chain germline  $\epsilon$  promoter. *Ann. N.Y. Acad. Sci.* 764, 123-135.
52. Lundgren, M., Strom, L., Bergquist, L.-O., Skog, S., Heiden, T., Stavnezer, J. and Severinson, E. (1995) Cell cycle regulation of immunoglobulin class switch recombination and germ-line transcription: potential role of Ets family members. *Europ. J. Immunol.* 25, 2042-2051.
53. Pal, A. , Romain, P.L., Singer, N.G., Fox, D. and Stavnezer, J. (1996) Mouse CD6: Sequence of cDNA and expression of mRNA. *Immunol. Lett.* 49, 133-137.
54. Lin, S.C. and Stavnezer, J. (1996) Activation of NF- $\kappa$ B/Rel by CD40 signaling induces the promoter for mouse germline Ig C $\gamma_1$  transcripts *Mol. Cell. Biol.* 16, 4591-4603.
55. Schrader, C.E., Stavnezer, J., Kikutani, H. and Parker, D.C. (1997) Cognate T cell help for CD40-deficient B cells induces *c-myc* RNA expression, but DNA synthesis requires an additional signal through surface Ig. *J. Immunol.* 158, 153- 162.
56. Iciek, L.A., Delphin, S.A. and Stavnezer, J. (1997) CD40 cross-linking induces Ig  $\epsilon$  germ-line transcripts in B cells via activation of NF- $\kappa$ B: Synergy with IL-4 induction. *J. Immunol.* 158, 4769-4779.
57. Shen, C.-H. and Stavnezer, J. (1998) Interaction of Stat6 and NF- $\kappa$ B: Direct association and synergistic activation of IL-4 induced transcription. *Mol. Cell. Biol.* 18 , 3395-3404.
58. Qiu, G. and Stavnezer, J. (1998) Over-expression of BSAP/Pax-5 inhibits switching to IgA and enhances switching to IgE in the I.29 $\mu$  B cell line. *J. Immunol.* 161, 2906-2918.

59. Lin, S.-C., Wortis, H.H. and Stavnezer, J. (1998) The ability of CD40L, but not lipopolysaccharide, to initiate immunoglobulin switching to IgG1 is explained by differential induction of NF- $\kappa$ B/Rel proteins. *Mol. Cell. Biol.* 18, 5523-5532.
60. Shi, M.-J. and Stavnezer, J. (1998) CBF $\alpha$  (AML2) is induced by TGF- $\beta$ 1 to bind and activate the mouse germline Ig  $\alpha$  promoter. *J. Immunol.* 161, 6751-6760.
61. Qiu, G., Harriman, G.R. and Stavnezer, J. (1999) I $\alpha$  exon-replacement mice synthesize a spliced HPRT-C $\alpha$  transcript which may explain their ability to switch to IgA: Inhibition of switching to IgG in these mice. *Int. Immunol.* 11, 37-46.
62. Stavnezer, J., Bradley, S.P., Rousseau, N., Pearson, T., Shanmugam, A., Waite, D.J., Rogers, P.R., and Kenter, A.L. (1999) Switch recombination in a transfected plasmid occurs specifically in a B cell line that undergoes switch recombination of its chromosomal Ig heavy chain genes. *J. Immunol.* 163, 2028-2040.
63. Schrader, C.E., Edelmann, W., Kucherlapati, R. and Stavnezer, J. (1999) Reduced isotype switching in splenic B cells from mice deficient in mismatch repair enzymes. *J. Exp. Med.* 190, 323-330.
64. Hanai, J., L.F. Chen, Kanno, T. Fujita, N., W.Y. Kim, Guo, W.-H., Imamura, T., Ishidou, Y., Fukuchi, M., Shi, M.-J., Stavnezer, J., Kawabata, M., Miyazono, K., and Ito, Y. (1999) Interaction and functional cooperation of PEBP2/CBF with Smads: synergistic induction of the immunoglobulin germline C $\alpha$  promoter. *J. Biol. Chem.* 274, 31577-31582.
65. Shanmugam, A., Shi, M.-J., Yauch, L., Stavnezer, J. and Kenter, A. (2000) Evidence for class specific factors in immunoglobulin isotype switching. *J. Exp. Med.* 191, 1365-1380
66. Pan, Q., Stavnezer, J. and Hammarstrom, L. (2000) Regulation of the promoter for human immunoglobulin  $\gamma$ 3 germline transcription and its interaction with the 3' $\alpha$  enhancer. *Europ. J. Immunol.* 30, 1019-1029.
67. Luby, T., Schrader, C.E., Stavnezer, J. and Selsing, E. (2001) Antibody class switch recombination does not require the  $\mu$  switch region tandem repeats. *J. Exp. Med.* 193, 159-168.
68. Shen, C.-H. and Stavnezer, J. (2001) Activation of the mouse immunoglobulin germline  $\epsilon$  promoter is dependent on AP-1 transcription factors. *J. Immunol.* 166, 411-423.
69. Shi, M.-J., Park, S.-R., Kim, P.-H. Kim and Stavnezer, J. (2001) Roles of Ets Proteins, NF- $\kappa$ B and Nocodazole in Regulating Transcription of Mouse Germline Ig  $\alpha$  RNA by TGF- $\beta$ 1, *Int. Immunol.* 13, 733-746
70. Mao, C.-S. and Stavnezer, J., (2001) Differential regulation of transcription of Ig germline  $\gamma$ 1 and  $\epsilon$  RNA. *J. Immunol.* 167, 1522-1534.
71. Drouin, E.E.\*, Schrader, C.E.\*, Stavnezer, J. and Hansen, U. (2002) The ubiquitously expressed mammalian transcription factor LSF binds Ig switch regions and represses class switching to IgA. *J. Immunol.* 168, 2847-2856. \* These two authors contributed equally.
72. Schrader, C.E., Vardo, Joycelyn and Stavnezer, J. (2002) Role for mismatch repair proteins Msh2, Mlh1 and Pms2 in immunoglobulin class switching shown by sequence analysis of recombination junctions. *J. Exp. Med.* 195, 367-373.
73. Schrader, C.E., Vardo, J. and Stavnezer, J. (2003) Mlh1 can function in antibody class switch recombination independently of Msh2. *J. Exp. Med.* 197, 1377-1383.
74. Min, I.M., Schrader, C.E., Vardo, Luby, T.M., D'Avirro, N., Stavnezer, J. and Erik Selsing (2003) The S $\mu$  tandem repeat region is critical for Ig isotype switching in the absence of Msh2. *Immunity* 19, 515-524.
75. Schrader, C.E., Bradley, S.P., Vardo, J., Mochegova, S.N., Flanagan, E. and Stavnezer, J. (2003) Mutations occur in the Ig S $\mu$  region but not in S $\gamma$  regions prior to class switch recombination. *EMBO J.* (22) 5893-5903.
76. Schrader, C.E., Vardo, J., Linehan, E., Twarog, M.Z, Niedernhofer, L.J., Hoeijmakers, J.H.J., Stavnezer, J. (2004) Deletion of the nucleotide excision repair gene Ercc1 reduces Ig class switching and alters mutations near switch recombination junctions. *J. Exp. Med.* 200, 321-330.
77. Park, S.R., Seo, G.Y., Choi, A.J., Stavnezer, J., and Kim, P.H. (2005) Analysis of TGF $\beta$ 1-induced Ig germ-line  $\gamma$ 2b transcription and its implication for IgA isotype switching. *Europ. J. Immunol.* 35, 946-956.

78. Min, I.M., Rothlein, L.R., Schrader, C.E., Stavnezer, J. and Selsing, E. (2005) Shifts in targeting of class switch recombination sites in mice that lack u switch region tandem repeats or Msh2. *J. Exp. Med.* 201, 1885-1890.
79. Schrader, C.E., Linehan, E.K., Mochevova, S.N., Woodland, R.T., and Stavnezer, J. (2005) Inducible DNA breaks in Ig S regions are dependent on AID and UNG. *J. Exp. Med.* 202, 561-568.
80. Stavnezer, J. and Schrader, C.E. (2006) Mismatch repair converts AID-instigated nicks to double-strand breaks for antibody class switch recombination. *Trends Gen.* 22, 23-28.
81. Bradley, S.P., Kaminski, D.A., Peters, A.H.F.M., Jenuwein, T. and Stavnezer, J. (2006) The histone methyltransferase Suv39h1 increases class switch recombination specifically to IgA. *J. Immunol.* 177: 1179-1188.
82. Kaminski, D.A. and Stavnezer, J. (2006) Enhanced IgA class switching in marginal zone and B1 B cells relative to follicular/B2 B cells. *J. Immunol.* 177: 6025-6029.
83. Kaminski, D.A. and Stavnezer, J. (2007) Stimuli that enhance IgA class switching increase histone 3 acetylation at  $\alpha$ , but poorly stimulate sequential switching from IgG2b. *Europ. J. Immunol.* 37: 240-251
84. Kaminski, D.A. and Stavnezer, J. (2007) Antibody class switching differs among SJL, C57BL/6 and 129 mice. *Intl. Immunol.* 19: 545-556.
85. Wu, X. and Stavnezer, J. (2007) DNA polymerase  $\beta$  is able to repair breaks in switch regions and plays an inhibitory role during immunoglobulin class switch recombination. *J. Exp. Med.* 204, 1677-1690. (Article was commented on at the beginning of the issue)
86. Schrader, C.E., Guikema, J.E.J., Linehan, E.K., Selsing, E. and Stavnezer, J. (2007) Double-strand breaks instigated by AID during class switch recombination occur in G1 phase and are MMR-dependent. *J. Immunol.* In press.
87. Guikema, J.E.J., Linehan, E.K., Tsuchimoto, D., Nakabeppu, Y., Strauss, P.R., Stavnezer, J. and Carol E. Schrader C.E. APE1 and APE2 dependent DNA breaks in immunoglobulin class switch recombination. Submitted

#### Invited Reviews

- Stavnezer, J. (1995) Commentary: Regulation of antibody production and class switching by TGF- $\beta$ . *J. Immunol.* 155, 1647-1651.
- Stavnezer, J. (1996) TGF $\beta$  regulation of B cell proliferation, differentiation, and class switching. *Cytokine Regulation of Immunoglobulin Synthesis and Class Switching*. Edit. C. Snapper, publ. Wiley & Sons, Ltd. pp. 289-324.
- Stavnezer, J. (1996) Antibody class switching. *Adv. Immunol.* 61, 79-146.
- Stavnezer, J. (1996) Ig class switching. *Curr. Opin. Immunol.* 8, 199-205.
- Stavnezer, J. (2000) Molecular processes that regulate class switching. *Curr. Top. Micro. Immunol.* 245/II p. 127-168. Editors: K.A. Siminovitch and L.B. Justement.
- Stavnezer, J. (2000) Perspective: A touch of antibody class. *Science* 288, 984-984.
- Stavnezer, J. and Bradley, S.P. (2002) Research Update: Does activation induced deaminase initiate antibody diversification by DNA deamination? *Trends Gen.* 18, 541-543.
- Storb, U. and Stavnezer, J. (2002) Immunoglobulin genes: generating diversity with AID and UNG. *Curr. Biol.* 12, R725-R727.
- Stavnezer, J., Kinoshita, K., Muramatsu, M. and Honjo, T. "Molecular mechanisms of class switch recombination" in *Molecular Biology of B Cells*, edit F.W. Alt, T. Honjo and M.S. Neuberger, Elsevier Science, London. 2004.
- Kaminski, D.A. and Stavnezer, J. (2004) Antibody class switching: uncoupling S region accessibility from transcription. *Trends Gen.* 20, 337-340.
- Stavnezer, J. and Amemiya, CT (2004) Evolution of isotype switching. *Semin Immunol* 16: 257-75.
- Malissen, B. and Stavnezer, J. (2006) Co-Editor of the Lymphocyte Activation Issue of *Current Opinion in Immunology* 18 issue 4.

#### Meetings: Talks and workshop chairs (2001 and later)

April 2001 - Keystone symposium on B cells in health and disease - major symposium talk  
July 2001 - International Congress of Immunology - workshop co-chair  
April 2002 - Cold Spring Harbor meeting on Immune system - major symposium talk  
Aug 2002 - Gordon Conference on Immunochemistry and Immunobiology - session chair and speaker  
Jan 2003 - Keystone Symposium on B cells - workshop co-chair and major symposium talk  
July 2003 - FASEB meeting on Lymphocyte biology - session chair and speaker  
July 2004 - International Congress of Immunology - workshop talk  
Nov 2004 - ASM meeting on DNA repair - major symposium talk  
Mar 2005 - Keystone Symposium on B Lymphocytes in Health and Disease - major symposium talk  
Dec 2005 - Boston Immunology Meeting (Cell Press) - symposium talk  
April 2006 - Cold Spring Harbor meeting on Immune system - short symposium talk  
May 2006 - AAI meeting, workshop chair  
Feb 2007 - Keystone Symposium on B Lymphocytes in Health and Disease - short symposium talk

Other invited seminars (2001 and later)

Univ of Iowa, Iowa City, IA, Oct 31, 2001, " A role for mismatch repair in antibody class switch recombination"

Harvard University Medical School, Spring 2002, "DNA repair and class switch recombination"

Univ of Ohio Medical School, Columbus OH, fall 2002, "DNA repair and class switch recombination"

Harvard University Medical School, Nov 2004

Univ of Chicago, Dec 2004

Univ of Illinois, Dec 2004

Tufts Univ, Feb 2005

Johns Hopkins Univ, Feb 2006

SUNY at Syracuse, May 2006

CURRENT FUNDING:

NIH RO1AI23283-23 Molecular Basis of Immunoglobulin Heavy Chain Switch; 8/01/85 - 4/30/10. The Aims are (1) to determine the roles of the mismatch repair (MMR) proteins Msh2, Msh6, Mlh1 and Pms2 in class switch recombination; (2) to determine the role of the S $\mu$  tandem repeats and the function of their interaction with MMR proteins; (3) to determine the role of UNG in CSR; and (4) to determine whether additional MMR genes have roles in CSR. Direct costs: \$250,000 annually.

NIH RO1AI63026-03 DNA repair and Ig class switching; 2/01/05 - 1/31/08. The Aims are (1) to determine if components of the nucleotide excision repair pathway are involved in class switch recombination and (2) to determine if the base excision repair enzymes APE1 or APE2 create the initiating DNA breaks in the S $\mu$  segments. Direct costs: \$200,000 annually.

NIH R2162738-02 Isotype specific regulation of Ig class switching; 7/01/05 - 6/30/08. The Aims are (1) to determine how Suv39h1 stimulates S $\mu$ -S $\alpha$  switch recombination and (2) to determine how LSF inhibits switch recombination specifically to IgA. Direct costs: \$200,000 for the first year, \$175,000 for the second year.

TEACHING:

1995-present - Coordinated the course and teach several lectures in the introductory immunology course for Graduate Students (MG/IM770) Mol and Cell Immunol part I. Starting in 2005, I lecture and lead discussions in this course, but no longer coordinate it.

2006-to present - Teach two lectures in MG/IM742 and one lecture and one discussion class in IM/Mg770, one lecture in the DNA repair course, one RAPS section on DNA repair.

1999 - present - Graduate advisor for the Immunology and Virology Graduate Program.

UNIVERSITY COMMITTEES since 2000:

2004 - present - MGM representative to Faculty Council

## TRAINEES

### Graduate students since 1994:

Shih-Chang Lin, Ph.D. in 1999. Current position: Assistant Professor, Dept of Microbiology, Kaohsiung Medical University, Kaohsiung, Taiwan and Attending Physician, Dept of Allergy and Immunology, Cathay General Hospital Taipei, Taiwan.

Ching-Hung Shen, Ph.D. in 2000. Current position: Postdoctoral Fellow, Dept of Biology, Massachusetts Institute of Technology, Cambridge MA

Sanjay Ranjit, current student (MGM).

### Postdoctoral fellows since 1994:

Laurie Iciek, Ph.D., Postdoctoral fellow from 1996 - 98. Current position: Research Investigator II, Bristol-Myers Squibb Pharmaceutical Research Institute, Syracuse NY

Meng-Jiao Shi, Ph.D., Postdoctoral fellow from 1993 - 2001. Current position: Scientist, ViaCell Inc., Worcester MA

Chungshen Mao, Ph.D., Postdoctoral fellow from 1999 - 2001. Current position: Scientist, Novagenetics Inc., Vancouver BC Canada.

Sean P. Bradley, Ph.D., Postdoctoral fellow from 1998 - 2003. Current position: Scientist, One Cell Systems.

Carol E. Schrader, Ph.D., Postdoctoral fellow from 1999 - 2003. Current position: Research Assistant Professor, Univ of Massachusetts Medical School, Worcester MA.

Denise A. Kaminski, Ph.D., Postdoctoral fellow from 2003 - 2006

Jeroen Guikema, Ph.D., Postdoctoral fellow from fall 2005 - present

Xiaoming Wu, Ph.D., Postdoctoral fellow from fall 2005 - May 2007. Currently postdoc at Harvard Med School, Boston MA

Wenfang Wu, Ph.D., Postdoctoral fellow from Jan 2006 - Oct 2006.

Saravanan Yuvaraj, Ph.D. Postdoctoral fellow from June 2007 - present.

Ori Staszewski, Ph.D. Postdoctoral fellow from August 2007 - present.