

CURRICULUM VITA

Abul K. Abbas

EDUCATION:

1969 MBBS (MD equivalent) All-India Institute of Medical Sciences, New Delhi, India

POSTDOCTORAL TRAINING:

Internship and Residencies:

1970-1973 Resident, Chief Resident in Pathology, Peter Bent Brigham Hospital

Research Fellowships:

1973-1975 Research Fellow, Department of Pathology, Harvard Medical School, Boston

1975-1977 Visiting Scientist, Division of Immunology, National Institute for Medical Research, Mill Hill, London, England

LICENSURE AND CERTIFICATION:

1973 Board of Registration in Medicine, Commonwealth of Massachusetts

1974 American Board of Pathology (Anatomic Pathology)

ACADEMIC APPOINTMENTS:

1977-1981 Assistant Professor of Pathology, Harvard Medical School

1981-1991 Associate Professor of Pathology, Harvard Medical School

1991-1999 Professor of Pathology, Harvard Medical School

1999-2018 Distinguished Professor in Pathology and Chair, Department of Pathology, University of California San Francisco School of Medicine

2018- Professor and Chairman Emeritus, Department of Pathology, University of California San Francisco School of Medicine

HOSPITAL APPOINTMENTS:

1977-1999 Staff Pathologist, Brigham and Women's Hospital, Boston

1991-1999 Head, Immunology Research Division, Department of Pathology, Brigham and Women's Hospital, Boston

AWARDS AND HONORS:

1968 Nuffield Scholar, University of Leeds Medical School, Leeds, England
1969 Institute Gold Medal, All-India Institute of Medical Sciences, New Delhi, India
1987 Warner-Lambert/Parke-Davis Award, American Association of Pathologists
1988 Irving M. London Teaching Award, Harvard-MIT Division of Health Sciences and Technology
1990 Burroughs-Wellcome Visiting Professor, Universidad Centrale del Caribe, San Juan, PR
1990 Meyer Bodansky Lecturer and McLaughlin Scholar, University of Texas Medical Branch at Galveston
1994 Harvard Medical School Faculty Prize for Excellence in Teaching
1994-2004 NIH MERIT Award
1995 Pre-Clinical Teaching Award, Harvard Medical School
1999 15th Brindley Visiting Professor, University of Texas Medical Branch at Galveston
2002 Pfizer Visiting Professor, Creighton University
2002 Member, National Academy of Medicine (formerly Institute of Medicine)
2002, 2008, 2010, 2012 Outstanding Lecture Series, UCSF School of Medicine
2002-2003 Vice-President, American Society of Investigative Pathology
2003-2004 President, American Society of Investigative Pathology
2004 Jack Battisto Lecturer, Cleveland Clinic Foundation
2005 Ramzi S. Cotran Memorial Lecture, New England Society of Pathologists, Boston
2006 Melville Hare Lecturer, University of Rochester School of Medicine
2006 John H. Siegel, MD Distinguished Lecturer, University of Medicine and Dentistry of New Jersey
2007 Latta Lecturer, UCLA, Los Angeles
2008 Rous-Whipple Award, American Society for Investigative Pathology
2009 Fellow, American Academy of Arts and Sciences
2010 Honorary Member, Scandinavian Society of Immunology
2010 Robbins Distinguished Educator Award, American Society of Investigative Pathology
2010 Honorary Member, Scandinavian Immunology Society
2011-2013 President, Federation of Clinical Immunology Societies (FOCIS)
2102 Leskowitz Lecturer, Tufts University
2013 Honorary Member, South African Immunology Society
2017 Lifetime Achievement in Mentoring Award, UCSF
2018 Honorary Member, Indian Immunology Society

2019 Distinguished Fellow, American Association of Immunologists
2021 Gold-Headed Cane Award, American Society of Investigative Pathology

EDITORIAL BOARDS:

1981-1985 Associate Editor, The Journal of Immunology
1987-1991 Section Editor, The Journal of Immunology
1992-1996 Associate Editor, American Journal of Pathology
1993-1996 Editor, Immunity
1997-2018 Editorial Board, Immunity
1997-2000 Editorial Board, Journal of Clinical Immunology
2000-2010 Associate Editor, Cell
2004-2018 Founding Editor and Co-editor, Annual Review of Pathology: Mechanisms of Disease
2012-2017 Consulting Editor, Journal of Clinical Investigation
2016-2019 Chief Scientific Advisor, Science Immunology
2019- Editorial Board, Science Immunology

COMMITTEE APPOINTMENTS:

National/International

1984-1988 Pathology B Study Section, NIH (Member 1984-1986; Chairman 1986-1988)
1988-93; 97-99 Member, Overseas Advisory Committee for Biotechnology, Government of India
1989 Section Chairman, National Institute of Allergy and Infectious Disease Task Force on "Initiatives in Immunology and Allergy", NIH
1992-1996 Member, Nominating Committee, American Society of Investigative Pathology
1994-1996 Member, Program Committee, American Association of Immunologists
1994 Member, NIAID/NIA Task Force on Immunobiology of Aging
1994-1997 Member, Committee on Pathogenesis, WHO Special Program for Research & Training in Tropical Diseases, Geneva
1994-1996 Member, Cross-Step Task Force on Immunity, National Board of Medical Examiners
1994-1996 Consultant, Genetics Institute, Inc., Cambridge, MA
1994-1998 Consultant, Millennium, Inc., Cambridge, MA
1994-1997 Scientific Advisory Committee, Knapp Center for Immunology, University of Chicago
1995-1996 Member, NIH AIDS Research Program Evaluation Working Group, Office of AIDS Research, NIH
1996-2000 Board of Scientific Counselors, NIAID, NIH
1996-1999 Chairman, Education Committee, American Association of Immunologists

1996-1999 Scientific Advisory Board, Megabios Corporation, Burlingame, CA
1998-2007 Organizing Committees, International Congress of Immunology (New Delhi 1998; Montreal 2004; Rio de Janeiro 2007)
1999-2002 Scientific Advisory Board, Entelos Corporation, Palo Alto, CA
1999-2000 Chairman, Nominating Committee, American Association of Immunologists
2000-2004 Member, Steering Committee, Midwinter Conference of Immunologists
2000-2003 Consultant, Genentech Inc., South San Francisco, CA
2001-2007 Scientific Advisory Board, Lexicon Genetics
2005, 2008, 2016 Consultant, Novartis Institute of Biomedical Research
2004-2009 Vice Chair of Education Committee, Federation of Clinical Immunology Societies
2004-2017 Member, Executive Committee and Board of Directors, Federation of Clinical Immunology Societies
2011-2018 Scientific Advisory Board, UCB Pharma
2016-2019 Scientific Advisory Board, Celgene
2016- Scientific Advisory Board, ILTOO Pharma
2020- Scientific Advisory Board, Sarepta Therapeutics
2020- Scientific Advisory Board, Neuvogen
2020- Scientific Advisory Board, Cue Biopharma

Harvard Medical School/Brigham & Women's Hospital

1988-1996 Member, Steering Committee, Harvard Medical School Committee on Immunology
1988-1991 Member, Curriculum Committee, Harvard-MIT Division of Health Sciences & Technology
1988-1990 Co-chairman, Brigham & Women's Hospital Animal Users Committee
1986-1991 Board of Directors, Brigham & Women's Hospital Pathology Foundation
1989-1999 Co-Director, Training Program, Department of Pathology, Brigham and Women's Hospital
1990-1993 Member, Alumni Council, Brigham & Women's Hospital
1994-1995 Scientific Advisory Committee, General Clinical Research Center, Brigham & Women's Hospital
1995-1998 Subcommittee of Professors, Harvard Medical School
1995-1996 Faculty Council, Harvard Medical School
1996-1999 Member, Brigham and Women's Hospital Research Council; Chairman, Infrastructure and Operations Subcommittee
1997-1999 Member, Executive Committee, Program in Immunology, Harvard Medical School
1997-1998 Member, Partners Committee on Senior Appointments

University of California San Francisco

1999-2000 Member, Strategic Planning Committee

1999-2000	Member, Essential Core Curriculum Steering Committee
2000-2003	Member, Executive Committee, Clinical Cancer Center
2001-2004	Member, Long Range Planning Committee
2002-2010	Council, Medical Scientists' Training Program
2002-2010	Council, Molecular Medicine Training Program
2002-2004	Member, UCSF Parnassus Heights Leadership Council
2008-2017	Member, Review Committee Sandler Program in Breakthrough Biomedical Research
2010- 2013	Member, UCSF Space Committee
2011-2012	Member, Long Range Planning Committee

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

1976	American Association of Pathologists
1978	American Association of Immunologists

TEACHING EXPERIENCE:

Harvard Medical School

1972-1974	Teaching Fellow, Harvard Medical School (Laboratory Instructor, General Pathology and Renal Pathophysiology)
1977-1986	Principal faculty (Lecturer & Laboratory Instructor), Human Pathology course (HST 030) of the Harvard-MIT Program in Health Sciences and Technology
1987-1991	Course Director, Cellular and Molecular Immunology course (HST 175) of the Harvard-MIT Program in Health Sciences & Technology
1991-1996	Principal Faculty, Cellular and Molecular Immunology course (HST 175) of the Harvard-MIT Program in Health Sciences & Technology
1991-1999	Co-Director, Identity, Microbes & Defense Course, Harvard Medical School (Director of Immunology section)

University of California San Francisco

2001-2018	Principal faculty, Medical School Immunology course
1999-2003	Faculty, Graduate Immunology course
2003-8, 2013-15	Faculty, first year medical school course, Prologue

US-Canadian Academy of Pathology

1986-1991	Guest faculty, Pathobiology Update course
1987-1991	Co-Director, Pathobiology Update course
1992-1996	Director, Course on Mechanisms of Immunologic Diseases

PRINCIPAL CLINICAL AND HOSPITAL SERVICE RESPONSIBILITIES

1977-1999

Staff Pathologist, Brigham and Women's Hospital, Boston

MAJOR RESEARCH INTERESTS

1. Cellular interactions in immune responses
2. Tolerance and autoimmunity
3. Cytokines
4. Lymphocyte apoptosis

PUBLICATIONS

1. Abbas AK, Corson JM, Carpenter CB, Galvanek EG, Merrill JP, Dammin GJ. Immunologic enhancement of rat renal allografts. I. Comparative morphology of acutely rejecting and passively enhanced grafts. *Am J Pathol.* 1974; 75:225-270. PMID: 4595938
2. Abbas AK, Corson JM, Carpenter CB, Galvanek EG, Merrill JP, Dammin GJ. Immunologic enhancement of rat renal allografts. II. Immunohistology of acutely rejecting and passively enhanced grafts. *Am J Pathol.* 1974; 75:271-284. PMID: 4595939
3. Abbas AK, Ault AK, Karnovsky MJ, Unanue ER. Non-random distribution of surface immunoglobulin on murine B lymphocytes. *J Immunol* 1975; 114:1197-1203. PMID: 1090667
4. Abbas AK, Corson JM, Carpenter CB, Strom TB, Merrill JP, Dammin GJ. Immunologic enhancement of rat renal allografts. III. Immunopathologic lesions and rejection in long-surviving passively enhanced grafts. *Am J Pathol.* 1975; 79:255-70. PMID: 1096634
5. Strom TB, Carpenter CB, Garovoy MR, Abbas AK, Corson JM, Bear RA, Souillou, JP. Modification of the rat alloimmune response by enhancing antibodies and the role of blocking factors in the survival of renal grafts. *Transplantation.* 1975; 20:368-380. PMID: 1108311
6. Abbas AK, Unanue ER. Interrelationship of surface immunoglobulin and Fc receptors on mouse B lymphocytes. *J Immunol.* 1975; 115:1665-1671. PMID: 1102608
7. Unanue ER, Abbas AK. Relationship on the B cell surface of immunoglobulin, Fc receptors and histocompatibility antigens. In: Seligmann M, Kourilsky FM, eds. *Proceedings of the Symposium on the surface receptors of lymphocytes.* Paris: 1975.
8. Abbas AK, Dorf ME, Unanue ER, Karnovsky MJ. The distribution of Ia antigens on the surface of mouse spleen lymphocytes. *J Immunol.* 1976; 116:371-378. PMID: 1082455
9. Carpenter CB, d'Apice AJF, Abbas AK. The role of antibodies in the rejection and enhancement of organ allografts. *Advances in Immunology* 1976; 22:1-65. PMID: 769500
10. Abbas AK, Unanue ER, Karnovsky MJ. Current techniques for the detection of surface immunoglobulin on lymphocytes. In: Glock D, Rosenbaum R R., Eds. *Technic Biochem Biophys Morphology.* New York: John Wiley, 1977; 3:139-176.
11. Klaus GGB, Abbas AK. Antigen-receptor interactions in the induction of B lymphocyte unresponsiveness. *Curr Top Microbiol Immunol* 1977; 78:31-68. PMID: 74305

12. Abbas AK, Klaus GGB, McElroy PJ. Mechanisms of B cell tolerance. I. Dynamic nature of the induction of hapten-specific unresponsiveness by hapten-conjugated pneumococcal polysaccharide. *Eur J Immunol.* 1977; 7:382-387. PMID: 19263
13. Klaus GGB, Abbas AK, McElroy PJ. Mechanisms of B cell Tolerance. II. Evidence for inhibition of antigen receptor expression as a mechanism of unresponsiveness. *Eur J Immunol.* 1977; 7:387-393. PMID: 19264
14. Abbas AK, Klaus GGB. Inhibition of antibody production in plasmacytoma cells by antigen. *Eur J Immunol.* 1977; 7:667-674. PMID: 73462
15. Abbas AK, Klaus GGB. Antigen-antibody complexes suppress antibody production by mouse plasmacytoma cells *in vitro*. *Eur J Immunol.* 1978; 8:217-220. PMID: 350594
16. Abbas AK. Inhibition of antibody production in plasmacytoma cells. III. Interactions of suppressive and non-suppressive DNP conjugates with MOPC 315 cells. *J Immunol.* 1979; 122:1791-1797. PMID: 87442
17. Abbas AK. T lymphocyte mediated suppression of myeloma function *in vitro*. I. Suppression by allogeneically activated T lymphocytes. *J Immunol.* 1979; 123:2011-2018. PMID: 114584
18. Abbas AK. Two distinct mechanisms of B lymphocyte tolerance. *Cell Immunol.* 1979; 46:178-183. PMID: 90555
19. Garovoy MR, Reddish M, Abbas AK. Antibody producing cells are generated in mixed lymphocyte culture. *Transplant Proceed.* 1979; 11:1974-1977. PMID: 161104
20. Abbas AK. Antigen and T lymphocyte mediated suppression of myeloma cells: Model systems for regulation of lymphocyte function. *Immunological Reviews.* 1979; 48:99-115. PMID: 397919
21. Abbas AK, Perry L, Bach BA, Greene MI. Idiotype-specific T cell immunity. I. Generation of effector and suppressor T lymphocytes reactive with myeloma idiotype determinants. *J Immunol.* 1980; 24:1160-1166. PMID: 6153672
22. Abbas AK, Ratnofsky SE, Burakoff SJ. T lymphocyte mediated suppression of myeloma function *in vitro*. II. Evidence for regulation of hapten-binding myelomas by syngeneic hapten-specific cytolytic T lymphocytes. *J Exp Med.* 1980; 152:306-323. PMID: 6156985
23. Abbas AK, Burakoff SJ, Gefer ML, Greene MI. T lymphocyte mediated suppression of myeloma function *in vitro*. III. Regulation of antibody production in hybrid myeloma cells by T lymphocytes. *J Exp Med.* 1980; 152:968-978. PMID: 6158552
24. Bankert RB, Abbas AK. Myeloma cells as models to study lymphocyte activation and suppression. In: Potter M., Ed. *Progress in myelomas.* Elsevier-North Holland Publishing, Inc. 1980; 1:109-128.
25. Abbas AK, Gefer ML, Greene, MI. Regulation of myeloma cells by idiotype-reactive suppressor T lymphocytes. In: Klinman N, Mosier D, Scher I, Vitetta ES, eds. *B Lymphocytes in the Immune Response.* New York: Elsevier-North Holland, 1981; 523-530.
26. Abbas AK, Greene MI. Selective regulation of idiotype production by suppressor T lymphocytes. In: Janeway CA, Sercarz E, Wigzell H., Eds. *Immunoglobulin Idiotypes and Their Expression,* New York: Academic Press, 1981; 613-622.

27. Abbas AK, James SL, Sher A. Immunogenicity of haptenedated schistosomula *in vitro*. J Immunol. 1981; 126:1022-1024. PMID: 7007499
28. Garovoy, MR, Reddish MA, Abbas AK. Generation of immunoglobulin secreting cells in mixed lymphocyte culture. Human Immunol. 1981; 3:31-44. PMID: 6456247
29. Abbas AK. Immunologic regulation of lymphoid tumor cells: model systems for lymphocyte function. Advances in Immunology 1982; 32: 301-368. PMID: 6180611
30. Abbas AK, Takaoki M, Greene MI. T lymphocyte-mediated suppression of myeloma function *in vitro*. IV. Generation of effector suppressor cells specific for myeloma idiotypes. J Exp Med. 1982; 155:1216-1221. PMID: 6174675
31. Moser G, Burakoff SJ and Abbas AK. Suppression of anti-hapten antibody responses by hapten-specific cytolytic T lymphocytes: role of I-A associated antigen on target B lymphocytes. J Immunol. 1982; 729:63-69. PMID: 6177761
32. Abbas AK. Immunoglobulin idiotypes: experimental and clinical applications. Ind J Pediatrics 1982; 49:641-648. PMID: 6325340
33. Schatten S, Drebin JA, Takaoki M, Carter R, Tominaga A, Abbas AK, Finberg R, Greene MI. Regulation of the immune response to cell surface antigens. In: Vitetta ES, ed. ICN-UCLA Symposium on Molecular and Cellular Biology, 1983.
34. Abbas AK. Immune response to myeloma cells and idiotypes. Survey of Immunological Research, 1983; 2:315-317. PMID: 6232671
35. Mendrick DL, Rennke HG, Cotran RS, Springer TA and Abbas AK. Monoclonal antibodies against rat glomerular antigens: production and specificity. Lab. Invest. 1983; 49:107-114. PMID: 6191120
36. Moser G, Tominaga A, Greene MI and Abbas AK. Accessory cells in immune suppression. I. Role of I-A positive accessory cells in effector phase idotype-specific suppression of myeloma function. J Immunol. 1983; 131:1728-1733. PMID: 6225797
37. Rock KL, Benacerraf B and Abbas AK. Antigen presentation by hapten-specific B lymphocytes. I. Role of surface immunoglobulin receptors. J Exp Med. 1984; 160:1102-1113. PMID: 6207262
38. Moser G, Kauffman MG and Abbas AK. Accessory cells in immune suppression. II. Evidence for presentation of idotype-specific suppressor factors by Ia-positive accessory cells. J Immunol., 1985; 135:1661-1667. PMID: 2580003
39. Abbas AK, Haber S and Rock KL. Antigen presentation by hapten-specific B lymphocytes. II. Specificity and properties of antigen-presenting B cells, and function of immunoglobulin receptors. J Immunol., 1985; 135:1661-1667. PMID: 2410498
40. Moser G, Cheng G and Abbas AK. Accessory cells in immune suppression. III. Differential requirements for suppression by idotype- and hapten-specific suppressor factors. J. Immunol., 1986; 137:3074-3079. PMID: 2430014
41. Rock KL, Haber S, Liano D, Benacerraf B and Abbas AK. Antigen presentation by hapten-specific B lymphocytes. III. Analysis of the Ig-dependent pathway of antigen presentation to IL 1-dependent T lymphocytes. Eur. J. Immunol., 1986; 16:1407-1412. PMID: 2946591

42. Lichtman AH, Reynolds DS, Faller DV and Abbas AK. Immortalization of mature murine B lymphocytes by Kirsten sarcoma virus. *Nature* 1986; 324:489-491. PMID: 3024015
43. Abbas AK. Regulation of immunoglobulin synthesis and secretion in B lymphocytes. In: Cantin, M. ed., "Cell Biology of the Secretory Process", Basel: S. Karger, 1984; 590-609.
44. Abbas AK. Humoral immunity: cellular events and regulation. In: S. Baron, ed. *Medical Microbiology*, Addison-Wesley Publishing Co., 1986, p. 35.
45. Schreiner GF and Abbas AK. Cells and tissues of immune responses. In: S. Baron, ed. *Medical Microbiology*, Addison-Wesley Publishing Co., 1986; p. 23.
46. Lichtman AH, Kurt-Jones EA and Abbas AK. B cell stimulatory factor 1 and not interleukin 2 is the autocrine growth factor for some helper T lymphocytes. *Proc. Nat. Acad. Sci., USA*, 1987; 84:824-827. PMID: 2949327
47. Lichtman AH, Williams ME, Ohara J, Paul WE, Faller DV and Abbas AK. Retrovirus infection alters the growth factor responses of T lymphocytes. *J. Immunol.*, 1987; 38:3276-3283. PMID: 3033071
48. Lichtman AH, Tony HP, Parker DC and Abbas AK. Antigen presentation by hapten-specific B lymphocytes. IV. Comparative abilities of B cells to present specific antigen and anti-Ig antibodies. *J. Immunol.* 1987; 138:2822-2825. PMID: 3494773
49. Reynolds DS, Boom WH and Abbas AK. Inhibition of B cell activation by gamma interferon. *J. Immunol.* 1987; 139:767-773. PMID: 2955050
50. Liano D and Abbas AK. Antigen presentation by hapten-specific B lymphocytes. V. Requirements for activation of antigen-presenting B cells. *J. Immunol.* 1987; 139:2562-2566. PMID: 2958554
51. Kurt-Jones EA, Hamberg S, Ohara J, Paul WE and Abbas AK. Heterogeneity of helper/inducer T lymphocytes. I. Lymphokine production and lymphokine responsiveness. *J. Exp. Med.* 1987; 166:1774-1787. PMID: 2960773
52. Abbas AK. Warner-Lambert/Parke-Davis award lecture. Cellular interactions in the immune response: role of B cells and interleukin 4. *Amer J Path*, 1987; 129:26-33. PMID: 2959156
53. Kurt-Jones EA, Liano D, Hayglass KA, Benacerraf B, Sy M-S and Abbas AK. Role of antigen presenting B cells in T cell priming *in vivo*: studies of B cell deficient mice. *J. Immunol.* 1988; 140:3773-3778. PMID: 2453554
54. Wall DA, Hamberg S, Reynolds DS, Burakoff SJ, Abbas AK and Ferrara J. Immunodeficiency in graft versus host disease. I. Mechanisms of immune suppression. *J. Immunol.* 1988, 140:2970-2976. PMID: 3129505
55. Powers GD, Abbas AK and Miller RA. Frequencies of IL-2 and IL4-secreting T cells in naive and antigen-stimulated lymphocyte populations. *J. Immunol.* 1988; 140:3352-3357. PMID: 3258881
56. Umetsu DT, Jabara HH, DeKruyff RH, Abbas AK, Abrams JS and Geha RS. Functional heterogeneity among human inducer T cell clones. *J. Immunol.* 1988; 140:4211-4216. PMID: 2967331

57. Reynolds DS, Serafin WE, Faller DV, Wall DA, Abbas AK, Dvorak AM, Austen KF and Stevens RL. Immortalization of murine connective tissue-type mast cells at multiple stages of their differentiation by coculture of splenocytes with fibroblasts that produce Kirsten sarcoma virus. *J. Biol. Chem.* 1988; 263:12783-12791. PMID: 2457591
58. Boom WH, Liano D, and Abbas AK. Heterogeneity of helper/inducer T lymphocytes. II. Effects of interleukin 4 and interleukin 2-producing T cell clones on resting B lymphocytes. *J. Exp. Med.* 1988; 167:1350-1363. PMID: 2965736
59. Lichtman AH, Chin J, Schmidt JA and Abbas AK. The role of interleukin-1 in the activation of T lymphocytes. *Proc. Nat. Acad. Sci. USA*, 1988; 85:9699-9703. PMID: 3264404
60. Harel-Bellan A, Durum S, Muegge K, Abbas AK and Farrar WL. Specific inhibition of lymphokine biosynthesis and autocrine growth using antisense oligonucleotides in Th1 and Th2 helper T cell clones. *J. Exp. Med.* 1988; 168:1309-1318. PMID: 2974066
61. Abbas AK. A reassessment of the mechanisms of antigen-specific, T cell-dependent lymphocyte activation. *Immunology Today*, 1988; 9:89-94. PMID: 3076764
62. Abbas AK, Liano D, Kurt-Jones EA and Lichtman AH. Antigen presentation by B lymphocytes. In: L. B. Schook and J. Tew, eds. "Antigen Presenting Cells", New York: Alan R. Liss, 1988; 269-280.
63. Boom WH, Liano D, Lichtman AH and Abbas AK. Antigen-specific interactions between B lymphocytes and helper T cell clones. In: O.N. Witte, N.R. Klinman and M.C. Howard, eds. "B Cell Development", New York: Alan R. Liss, 1988; 189-198.
64. Rock KL, Benacerraf B and Abbas AK. The role of specific B lymphocytes in antigen processing and presentation to T cells. In: B. Pernis, S. C. Silverstein and H. J. Vogel, eds. "Processing and Presentation of Antigens", San Diego: Academic Press, Inc., 1988; 221-226.
65. Wall DA, Hamberg S, Ferrara JLM and Abbas AK. Immunodeficiency in graft-vs-host disease. II. Effects of GVHD-induced suppressor cells on CD4⁺ T cell clones. *J. Immunol.*, 1989; 143:74-78. PMID: 2525150
66. Abbas A K. Antigen presentation by B lymphocytes: mechanisms and functional significance. *Semin Immunol* 1989; 1:5-12. PMID: 15630954
67. Kurt-Jones EA, Chang T-L and Abbas AK. Antigen presentation by B lymphocytes *in vivo* and *in vitro*. In: C.A. Janeway, J. Sprent and E. Sercarz, eds., "Immunogenicity", New York: Alan R. Liss Inc., 1990; 167-174.
68. Romagnani S and Abbas AK, editors. *Cytokines: Basic Principles and Clinical Applications*. New York: Raven Press, 1990.
69. Williams ME, Lichtman AH and Abbas AK. Anti-CD3 antibody induces unresponsiveness to IL-2 in Th1 clones but not in Th2 clones. *J. Immunol.* 1990; 144:1208-1214. PMID: 2137485
70. Abbas AK, Urioste S, Collins TL and Boom WH. Heterogeneity of helper/inducer T lymphocytes. IV. Stimulation of resting and activated B cells by Th1 and Th2 clones. *J. Immunol.*, 1990; 144:2031-2037. PMID: 2138191

71. Shaw AC, Mitchell RN, Weaver YK, Campos-Terros J, Abbas A K and Leder P. Mutations of immunoglobulin transmembrane and cytoplasmic domains: effects on intracellular signaling and antigen presentation. *Cell*, 1990; 63:381-392. PMID: 2119890
72. Tepper RI, Levinson DA, Stanger BZ, Campos-Terros J, Abbas AK and Leder P. IL-4 induces allergic-like inflammatory disease and alters T cell development in transgenic mice. *Cell*, 1990; 62:457-467. PMID: 2116236
73. Chang T-L, Shea CM, Urioste S, Thompson RC, Boom WH and Abbas A K. Heterogeneity of helper/inducer T lymphocytes III. Responses of IL-2 and IL-4 producing (Th1 and Th2) clones to antigens presented by different accessory cells. *J. Immunol.*, 1990; 145:2803-2808. PMID: 1976705
74. Boom WH, Liebster L, Abbas AK and Titus RL. Patterns of cytokine secretion in murine leishmaniasis: correlation with disease progression or resolution. *Infection & Immunity*, 1990; 58:3863-3870. PMID: 2123823
75. Chang T-L, Capraro G, Kleinman RE and Abbas AK. Anergy in immature B lymphocytes: differential responses to receptor-mediated stimulation and helper T cells. *J. Immunol.*, 1991; 147:750-756. PMID: 1830597
76. Mitchell RN, Shaw AC, Weaver YK, Leder P and Abbas AK. Cytoplasmic tail deletion converts membrane immunoglobulin to a PI-linked form lacking signalling and efficient antigen presentation functions. *J. Biol. Chem.*, 1991; 266:8856-8860. PMID: 2026599
77. Bogen SA, Weinberg DS and Abbas AK. Histologic analysis of T lymphocyte activation in reactive lymph nodes. *J. Immunol.*, 1991; 147:1537-1541. PMID: 1880415
78. Burstein H, Tepper RI, Leder P and Abbas AK. Humoral immune functions in IL-4 transgenic mice. *J. Immunol.*, 1991; 147:2950-2956. PMID: 1919000
79. Williams ME, Chang T-L, Burke SK, Lichtman AH and Abbas AK. Activation of functionally distinct subsets of CD4+ T lymphocytes. *Research in Immunology*, 1991; 142:23-28. PMID: 1829256
80. Burstein HJ and Abbas AK. T cell mediated activation of B cells. *Curr. Opin. in Immunol.* 1991; 3:345-349. PMID: 1716914
81. Abbas AK, Williams ME, Burstein HJ, Chang T-L, Bossu P and Lichtman AH. Activation and functions of CD4+ T cell subsets. *Immunological Reviews*, 1991; 123:5-22. PMID: 1684783
82. Tepper RI, Burstein HJ, Leder P and Abbas AK. Immunologic effects of interleukin 4 *in vivo*: Studies with transgenic mice. In: H. Spits, ed., *Structure and Function of Interleukin 4*, Boca Raton: CRC Press, 1992; 205-220.
83. Romagnani S, Mosmann TR and Abbas AK, editors. *New Advances on Cytokines*. New York: Raven Press, 1992.
84. Bogen SA, Baldwin HS, Watkins SC, Albelda SM and Abbas AK. Association of murine CD31 with transmigrating lymphocytes following antigenic stimulation. *Amer. J. Pathol.*, 1992; 141:843-854. PMID: 1415479

85. Sen J, Bossu P, Burakoff SJ and Abbas AK. T cell surface molecules regulating noncognate B lymphocyte activation: role of CD2 and LFA-1. *J. Immunol.* 1992; 148:1037-1042. PMID: 1346620
86. Williams ME, Shea CM, Lichtman AH and Abbas AK. Antigen receptor-mediated anergy in resting T lymphocytes and T cell clones. Correlation with lymphokine secretion patterns. *J. Immunol.* 1992; 149:1921-1926. PMID: 1387666
87. Burstein HJ, Shea CM and Abbas AK. Aqueous antigens induce *in vivo* tolerance selectively in IL-2- and IFN- γ -producing (Th1) cells. *J. Immunol.* 1992; 148:3687-3691. PMID: 1534821
88. Grupp SA, Campbell K, Mitchell RN, Cambier JC and Abbas AK. Signaling-defective mutants of the B lymphocyte antigen receptor fail to associate with Ig- α and Ig- β . *J. Biol. Chem.*, 1993; 268:25776-25779. PMID: 8245014
89. Abbas AK, Burstein HJ and Bogen SA. Determinants of helper T cell-dependent antibody production. *Seminars in Immunology*, 1993; 5:441-447. PMID: 8123797
90. Bogen SA, Fogelman I and Abbas AK. Analysis of IL2, IL4 and IFN- γ -producing cells *in situ* during immune responses to protein antigens. *J. Immunol.*, 1993; 150:4197-4205. PMID: 8482832
91. Burstein HJ and Abbas AK. *In vivo* role of interleukin 4 in T cell tolerance induced by aqueous protein antigens. *J. Exp. Med.*, 1993; 177:457-463. PMID: 8426114
92. Bossu P, Singer GG, Andres P, Ettinger RE, Marshak-Rothstein A and Abbas AK. Mature CD4⁺ T lymphocytes from MRL/*lpr* mice are resistant to receptor-mediated tolerance and apoptosis. *J. Immunol.*, 1993; 151:7233-7239. PMID: 7903104
93. Ettinger RE, Wang, J, Bossu, P, Papas K, Sidman CL, Abbas AK and Marshak-Rothstein A. Functional distinctions between MRL/*lpr* and MRL/*gld* lymphocytes due to reciprocal defects in receptor-ligand interactions. *J. Immunol.*, 1994; 152:1557-1568. PMID: 8120369
94. McKnight AJ, Zimmer G, Fogelman I, Wolf SF and Abbas AK. Effects of interleukin-12 on helper T cell-dependent immune responses *in vivo*. *J. Immunol.*, 1994; 152:2172-2179. PMID: 7907633
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