



## Emmanuel Katsanis, M.D.

Professor, Pediatrics, Pathology and Immunobiology  
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## EDUCATION

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Medical School: National University of Athens, Athens, Greece, 1974-1980  
Post Doctoral Research Associate, McGill University, Montreal, Canada, 1981-82  
Internship: McGill University, Montreal, Canada, 1982-1983  
Residency: Pediatrics, University of Ottawa, Ottawa, Canada, 1983-1987  
Fellowship: Hematology/Oncology, University of Minnesota, Minneapolis, MN, 1987-1990  
Post Doctoral Research Associate: University of Minnesota, Minneapolis, MN, 1990-1991

## PROFESSIONAL POSITIONS

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### University of Minnesota, Medical School, Minneapolis, MN

Instructor of Pediatrics, 1991-1993  
Assistant Professor of Pediatrics, 1993-1997

### University of Arizona, College of Medicine, Tucson, AZ

Assistant Professor of Pediatrics, 1997-1998  
Associate Professor of Pediatrics, 1998-2004  
Associate Professor of Pathology, 1999-2004  
Professor of Pediatrics, 2004-present  
Professor of Pathology, 2004-present  
Interim Head, Division of Pediatric Hematology/Oncology/BMT, 2004-2005  
Head, Division of Pediatric Hematology/Oncology/BMT, 2005-present  
Louise Thomas Endowed Chair in Pediatric Cancer Research, 2005-present  
Professor of Immunobiology, 2007-present  
Director, M.D.-Ph.D. Program, College of Medicine, 2010-present  
Associate Chair for Research, Department of Pediatrics, 2011-present



## CERTIFICATION

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Educational Commission for Foreign Medical Graduates, ECFMG, 1980  
Medical Council of Canada Evaluating Examination, MCCEE, 1981  
Licentiate of the Medical Council of Canada, LMCC, 1983  
Federation Licensing Examination, FLEX, 1986  
Royal College of Physicians and Surgeons of Canada, Pediatrics, FRCPC, 1987  
American Board of Pediatrics, Pediatrics, 1987  
American Board of Pediatrics, Pediatric Hematology-Oncology, 1990  
American Board of Pediatrics, Pediatric Hematology-Oncology, re-certification, 1997  
American Board of Pediatrics, Pediatric Hematology-Oncology, re-certification, 2002

## LICENSURE

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Medical Association of Athens, Greece, 1981-83  
College of Physicians and Surgeons of Ontario, #53061, 1983-96  
State of Minnesota Medical License, #31044, 1987-97  
State of Arizona Medical License, #25119, 1997-present

## HONORS & AWARDS

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Gordon E. Richard Award, Canadian Cancer Society Fellowship, 1986-1987  
Award for Best Research Presentation by a Pediatric Resident, University of Ottawa, 1987  
Wyeth Award for Excellence Achieved in Research, University of Ottawa, 1987  
Outstanding Pediatric Fellow Award, University of Minnesota, 1988  
Variety Club Fellowship, 1989-1990  
Fellowship Award, Medical Research Council of Canada, 1989-1991  
First Place Award, University of Minnesota Pediatric Fellows' Research Symposium, 1990  
Irvine McQuarrie Research Scholar Award, 1992-1994  
Young Investigator Award, American Society of Pediatric Hematology/Oncology, 1992  
Clinical Oncology Career Development Award, American Cancer Society, 1993-1996  
America's Top Pediatricians (Consumers' Research Council of America), 2004-2006  
America's Top Oncologists (Consumers' Research Council of America), 2007-2010  
Louise Thomas Endowed Chair in Pediatric Cancer Research, 2005-present  
Leading Edge Researcher Award, University of Arizona, 2009



## SCIENTIFIC ACTIVITIES

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### Faculty Member

University of Minnesota Cancer Center, 1994-1997  
University of Minnesota Center for Immunology, 1995-1997  
University of Arizona Cancer Center, 1997-present  
University of Arizona Steele Children's Research Center, 1997-present  
University of Arizona Interdisciplinary Graduate Program in Cancer Biology, 1998-present  
University of Arizona Graduate Program in Immunobiology, 1999-present  
University of Arizona BIO5 Institute, 2005-present

### NIH Study Sections/Site Visits

NIH/NCI Program Project Site Visit Committee, Children's Hospital Los Angeles, USC, 1998  
NIH/NCI Scientific Review Committee D, Clinical Research Studies, 1999  
NIH/NCI Program Project Site Visit Committee, Rush University Medical Center, 2003  
NIH/NCI Special Emphasis Panel/Approaches in Cancer Therapeutics, 2005  
NIH/NCI Cancer Immunopathology and Immunotherapy Study Section, 2006  
NIH/NCI Special Emphasis Panel/Cancer Therapy (Onc-B), 2006  
NIH/NCI Cancer Immunopathology and Immunotherapy Study Section, Jan-2008  
NIH/NCI Cancer Immunopathology and Immunotherapy Study Section, Oct-2008  
NIH/NCI Clinical Oncology Study Section, Feb-2009  
NIH/NCI Clinical Oncology Study Section, May-2009  
NIH/NCI RFA OD-09-003 Challenge Grants Panel 10, June-2009  
NIH/NCI Cancer Immunopathology and Immunotherapy Study Section, Sep-2009  
NIH/NCI LRP OD09-109 Pediatric L40 A2, May-2010  
NIH/NCI ZR61 OTC-Y (02)-Cancer Therapeutics, Dec-2010  
NIH/NCI Intramural Program Site Visit Committee, Pediatric Oncology Branch, May 2011  
NIH/NCI Clinical Oncology Study Section, Chartered Member 2010-2014

### Other Study Sections/Grant Reviews

American Cancer Society, Scientific Advisory Committee on Immunology, 1993  
Manitoba Health Research Council, 1995  
University of Manitoba Health Sciences Centre Foundation, 1995  
Children's Hospital of Winnipeg Research Foundation, 1995  
Children's Hospital of Eastern Ontario Research Institute, 1996  
University of Manitoba Health Sciences Centre Foundation, 1996  
American Cancer Society, Peer Review Committee on Cancer Immunology, 1997  
Miami Children's Hospital Research Institute, 2004  
Italian Association for Cancer Research, 2004  
Dept. of Defense (DOD) Chronic Myelogenous Leukemia Research Program (CMLRP), 2004  
National Medical Research Council of Singapore, 2004  
Italian Association for Cancer Research (preferred reviewers program), 2009-present  
Greek Ministry for Education (Grant proposal review), 2011-present



#### Journal Editorial Boards

HAEMA, 2005-present  
Cancer Immunology Immunotherapy, 2007-present  
International Journal of Oncology, 2008-present  
International Journal of Pediatrics, 2009-present

#### Journal Reviewer

Biology of Blood and Marrow Transplantation  
Blood  
Cancer Gene Therapy  
Cancer Research  
Cellular Immunology  
Hospital Physician  
European Journal of Immunology  
Immunobiology  
Immunological Investigations  
International Immunopharmacology  
International Journal of Cancer  
Journal of Cellular Biochemistry  
Journal of Immunology  
Journal of Immunotherapy  
Journal of Leukocyte Biology  
Journal of Pediatrics  
Journal of Pharmacology and Experimental Therapeutics  
Journal of the National Cancer Institute  
Leukemia  
Nature Medicine  
Neuro-Oncology  
Oncogene  
Transplantation

#### Scientific Conferences

Session Chairperson, International Society for Experimental Hematology Meeting, 1994

#### Memberships in Professional Societies

Fellow of the Royal College of Physicians and Surgeons of Canada, 1987-2009  
American Association for Cancer Research, 1989- present  
International Society for Biological Therapy of Cancer, 1992- present  
American Association of Immunologists, 1995- present  
American Society of Hematology, 1997- present  
Children's Oncology Group, 2000- present  
European Society for Cancer Immunology and Immunotherapy, 2006- present  
World Hellenic Bioscientific Association, USA, 2006- present  
American Society of Pediatric Hematology/Oncology, 2008- present  
American Society for Blood and Marrow Transplantation, 2010- present  
Pediatric Blood and Marrow Transplant Consortium, 2010- present


**PUBLICATIONS** (1774 citations, h-index 25; Thomson-Reuters, ISI Web of Science)

1. Tolis G, Montes J, Katsanis E, Bertrand G. Aspects of prolactin pathophysiology in relation to prolactin secreting adenomas. **Period Biol**, 1983 85(suppl 1): 29-36.
2. Katsanis E, McLaine PN. Wegener granulomatosis. **J Pediatr** 1986 May;108(5 Pt 1):792-3. PMID: 3701531
3. Katsanis E, Hsu E, Luke KH, McKee JA. Systemic lupus erythematosus and sickle hemoglobinopathies: a report of two cases and review of the literature. **Am J Hematol** 1987 Jun;25(2):211-4. PMID: 3605068
4. Katsanis E, Luke KH, Hsu E, Yates JR. Hemoglobin E: a common hemoglobinopathy among children of Southeast Asian origin. **CMAJ** 1987 Jul 1;137(1):39-42. PMID: 3594333
5. Katsanis E, Luke KH, Hsu E, Carpenter BF, Mantynen PR. Neutrophilic eccrine hidradenitis in acute myelomonocytic leukemia. **Am J Pediatr Hematol Oncol** 1987 Fall;9(3):204-8. PMID: 3479026
6. Katsanis E, Luke KH, Hsu E, Li M, Lillcrap D. Prevalence and significance of mild bleeding disorders in children with recurrent epistaxis. **J Pediatr** 1988 Jul;113(1 Pt 1):73-6. PMID: 3385532
7. Kempe A., Hall C.B., MacDonald N.E., Foye H.R., Woodin K.A., Cohen H.J., Lewis E.D., Gullace M., Gala C.L., Dulberg C.S., Katsanis E. Influenza in children with cancer. **J of Pediatr** 1989 115: 33-39.
8. Katsanis E, Ramsay NK. Treatment of acquired severe aplastic anemia. **Am J Pediatr Hematol Oncol** 1989 Fall;11(3):360-7. PMID: 2675662
9. Katsanis E, Malone B, Smith C. Recurrent epistaxis. **Pediatr Update** 1990 Vol. 10, No. 12
10. Anderson PM, Katsanis E, Leonard AS, Schow D, Loeffler CM, Goldstein MB, Ochoa AC. Increased local antitumor effects of interleukin 2 liposomes in mice with MCA-106 sarcoma pulmonary metastases. **Cancer Res** 1990 Mar 15;50(6):1853-6. PMID: 2306737
11. Katsanis E, Shapiro RS, Robison LL, Haake RJ, Kim T, Pescovitz OH, Ramsay NK. Thyroid dysfunction following bone marrow transplantation: long-term follow-up of 80 pediatric patients. **Bone Marrow Transplant** 1990 May;5(5):335-40. PMID: 2350628
12. Katsanis E, Bausero MA, Ochoa AC, Loeffler CM, Blazar BR, Leonard AS, Anderson PM. Importance in timing of cyclophosphamide on the enhancement of interleukin-2-induced cytotoxicity. **Cancer Immunol Immunother** 1991 34(2):74-8. PMID: 1760819
13. Loeffler CM, Platt JL, Anderson PM, Katsanis E, Ochoa JB, Urba WJ, Longo DL, Leonard AS, Ochoa AC. Antitumor effects of interleukin 2 liposomes and anti-CD3-stimulated T-cells against murine MCA-38 hepatic metastasis. **Cancer Res** 1991 Apr 15;51(8):2127-32. PMID: 1826232
14. Katsanis E, Anderson PM, Filipovich AH, Hasz DE, Rich ML, Loeffler CM, Ochoa AC, Weisdorf DJ. Proliferation and cytotoxic function of anti-CD3 + interleukin-2 stimulated peripheral blood mononuclear cells following bone marrow transplantation. **Blood** 1991 Sep 1;78(5):1286-91. PMID: 1831682
15. Sencer SF, Rich ML, Katsanis E, Ochoa AC, Anderson PM. Anti-tumor vaccine adjuvant effects of IL-2 liposomes in mice immunized against MCA-102 sarcoma. **Eur Cytokine Netw** 1991 Nov-Dec;2(5):311-8. PMID: 1804322



16. Anderson PM, Katsanis E, Sencer SF, Hasz D, Ochoa AC, Bostrom B. Depot characteristics and biodistribution of interleukin-2 liposomes: importance of route of administration. **J Immunother** 1992 Jul;12(1):19-31. PMID: 1637781
17. Katsanis E, Orchard PJ, Bausero MA, Gorden KB, McIvor RS, Blazar BR. Interleukin-2 gene transfer into murine neuroblastoma decreases tumorigenicity and enhances systemic immunity causing regression of preestablished retroperitoneal tumors. **J Immunother** 1994 Feb;15(2):81-90. PMID: 8136949
18. Katsanis E, Bausero MA, Xu H, Orchard PJ, Xu Z, McIvor RS, Brian AA, Blazar BR. Transfection of the mouse ICAM-1 gene into murine neuroblastoma enhances susceptibility to lysis, reduces in vivo tumorigenicity and decreases ICAM-2-dependent killing. **Cancer Immunol Immunother** 1994 Feb;38(2):135-41. PMID: 7905790
19. Katsanis E, Blazar BR, Bausero MA, Gunther R, Anderson PM. Retroperitoneal inoculation of murine neuroblastoma results in a reliable model for evaluation of the antitumor immune response. **J Pediatr Surg** 1994 Apr;29(4):538-42. PMID: 8014811
20. Katsanis E, Weisdorf DJ, Xu Z, Dancisak BB, Halet ML, Blazar BR. Infusions of interleukin-1 alpha after autologous transplantation for Hodgkin's disease and non-Hodgkin's lymphoma induce effector cells with antilymphoma cytolytic activity. **J Clin Immunol** 1994 May;14(3):205-11. PMID: 7929695
21. Weisdorf D, Katsanis E, Verfaillie C, Ramsay NK, Haake R, Garrison L, Blazar BR. Interleukin-1 alpha administered after autologous transplantation: a phase I/II clinical trial. **Blood** 1994 Sep 15;84(6):2044-9. PMID: 7915916
22. Katsanis E, Xu Z, Anderson PM, Dancisak BB, Bausero MA, Weisdorf DJ, Blazar BR, Ochoa AC. Short-term ex vivo activation of splenocytes with anti-CD3 plus IL-2 and infusion post-BMT into mice results in in vivo expansion of effector cells with potent anti-lymphoma activity. **Bone Marrow Transplant** 1994 Oct;14(4):563-72. PMID: 7858530
23. Katsanis E, Xu Z, Bausero MA, Dancisak BB, Gorden KB, Davis G, Gray GS, Orchard PJ, Blazar BR. B7-1 expression decreases tumorigenicity and induces partial systemic immunity to murine neuroblastoma deficient in major histocompatibility complex and costimulatory molecules. **Cancer Gene Ther** 1995 Mar;2(1):39-46. PMID: 7542553
24. Bausero MA, Panoskaltsis-Mortari A, Blazar BR, Katsanis E. Effective immunization against neuroblastoma using double-transduced tumor cells secreting GM-CSF and interferon-gamma. **J Immunother** 1996 Mar;19(2):113-24. PMID: 8732694
25. Katsanis E, Bausero MA, Panoskaltsis-Mortari A, Dancisak BB, Xu Z, Orchard PJ, Davis CG, Blazar BR. Irradiation of singly and doubly transduced murine neuroblastoma cells expressing B7-1 and producing interferon-gamma reduces their capacity to induce systemic immunity. **Cancer Gene Ther** 1996 Mar-Apr;3(2):75-82. PMID: 8729905
26. Orchard PJ, Katsanis E, Boyer M, May C, McIvor RS, Blazar BR. Interleukin-2 secretion by transduced and unselected BDL-2 lymphoma results in increased survival in mice with previously established disseminated disease. **Cancer Biother Radiopharm** 1996 Apr;11(2):155-64. PMID: 10851532
27. Katsanis E, Xu Z, Panoskaltsis-Mortari A, Weisdorf DJ, Widmer MB, Blazar BR. IL-15 administration following syngeneic bone marrow transplantation prolongs survival of lymphoma bearing mice. **Transplantation** 1996 Sep 27;62(6):872-5. PMID: 8824494



28. Saltzman DA, Katsanis E, Heise CP, Hasz DE, Vigdorovich V, Kelly SM, Curtiss R 3rd, Leonard AS, Anderson PM. Antitumor mechanisms of attenuated Salmonella typhimurium containing the gene for human interleukin-2: a novel antitumor agent? **J Pediatr Surg** 1997 Feb;32(2):301-6. PMID: 9044141
29. Davies SM, Wagner JE, Shu XO, Blazar BR, Katsanis E, Orchard PJ, Kersey JH, Dusenbery KE, Weisdorf DJ, McGlave PB, Ramsay NK. Unrelated donor bone marrow transplantation for children with acute leukemia. **J Clin Oncol** 1997 Feb;15(2):557-65. PMID: 9053477
30. Xu Z, Katsanis E. Improved immunostimulatory function of bone marrow derived macrophages transduced with the granulocyte-macrophage colony stimulating factor gene. **Cancer Biother Radiopharm** 1997 Feb; 12(1):27-36. PMID: 10851444
31. Saltzman DA, Katsanis E, Heise CP, Hasz DE, Kelly SM, Curtiss R 3rd, Leonard AS, Anderson PM. Patterns of hepatic and splenic colonization by an attenuated strain of Salmonella typhimurium containing the gene for human interleukin-2: a novel anti-tumor agent. **Cancer Biother Radiopharm** 1997 Feb;12(1):37-45. PMID: 10851445
32. Davies SM, Wagner JE, DeFor T, Blazar BR, Katsanis E, Kersey JH, Orchard PJ, McGlave PB, Weisdorf DJ, Ramsay NK. Unrelated donor bone marrow transplantation for children and adolescents with aplastic anaemia or myelodysplasia. **Br J Haematol** 1997 Mar;96(4):749-56. PMID: 9074418
33. Khanna C, Anderson PM, Hasz DE, Katsanis E, Neville M, Klausner JS. Interleukin-2 liposome inhalation therapy is safe and effective for dogs with spontaneous pulmonary metastases. **Cancer** 1997 Apr 1;79(7):1409-21. PMID: 9083164
34. Miller JS, Tessmer-Tuck J, Pierson BA, Weisdorf D, McGlave P, Blazar BR, Katsanis E, Verfaillie C, Lebkowski J, Radford J Jr, Burns LJ. Low dose subcutaneous interleukin-2 after autologous transplantation generates sustained in vivo natural killer cell activity. **Biol Blood Marrow Transplant** 1997 Apr;3(1):34-44. PMID: 9209739
35. Boyer MW, Vallera DA, Taylor PA, Gray GS, Katsanis E, Gorden K, Orchard PJ, Blazar BR. The role of B7 costimulation by murine acute myeloid leukemia in the generation and function of a CD8+ T-cell line with potent in vivo graft-versus-leukemia properties. **Blood** 1997 May 1;89(9):3477-85. PMID: 9129056
36. Khanna C, Waldrep JC, Anderson PM, Weichelbaum RW, Hasz DE, Katsanis E, Klausner JS. Nebulized interleukin 2 liposomes: aerosol characteristics and biodistribution. **J Pharm Pharmacol** 1997 Oct;49(10):960-71. PMID: 9364403
37. Katsanis E. Immunobiology and biologic therapy of neuroblastoma. In Bertino J.R. ed. **Encyclopedia of Cancer** 1997, 1st ed., Academic Press, San Diego CA. 1142-1154.
38. Katsanis E, Weisdorf DJ, Miller JS. Activated peripheral blood mononuclear cells from patients receiving subcutaneous interleukin-2 following autologous stem cell transplantation prolong survival of SCID mice bearing human lymphoma. **Bone Marrow Transplant** 1998 Jul;22(2):185-91. PMID: 9707028
39. Smith DF, Whitesell L, Katsanis E. Molecular chaperones: biology and prospects for pharmacological intervention. **Pharmacol Rev** 1998 Dec;50(4):493-514. PMID: 9860803
40. Perentesis J, Katsanis E, DeFor T, Neglia J, Ramsay N. Autologous stem cell transplantation for high-risk pediatric solid tumors. **Bone Marrow Transplant** 1999 Sep;24(6):609-15. PMID: 10490725



41. Graner M, Raymond A, Romney D, He L, Whitesell L, Katsanis E. Immunoprotective activities of multiple chaperone proteins isolated from murine B-cell leukemia/lymphoma. **Clin Cancer Res** 2000 Mar;6(3):909-15. PMID: 10741715
42. Yorgin PD, Hartson SD, Fellah AM, Scroggins BT, Huang W, Katsanis E, Couchman JM, Matts RL, Whitesell L. Effects of geldanamycin, a heat-shock protein 90-binding agent, on T cell function and T cell nonreceptor protein tyrosine kinases. **J Immunol** 2000 Mar 15;164(6):2915-23. PMID: 10706677
43. Graner M, Raymond A, Akporiaye E, Katsanis E. Tumor-derived multiple chaperone enrichment by free-solution isoelectric focusing yields potent antitumor vaccines. **Cancer Immunol Immunother** 2000 Nov;49(9):476-84. PMID: 11092614
44. McEarchern JA, Kobie JJ, Mack V, Wu RS, Meade-Tollin L, Arteaga CL, Dumont N, Besselsen D, Seftor E, Hendrix MJ, Katsanis E, Akporiaye ET. Invasion and metastasis of a mammary tumor involves TGF-beta signaling. **Int J Cancer** 2001 Jan 1;91(1):76-82. PMID: 11149423
45. He L, Feng H, Raymond A, Kreeger M, Zeng Y, Graner M, Whitesell L, Katsanis E. Dendritic-cell-peptide immunization provides immunoprotection against bcr-abl-positive leukemia in mice. **Cancer Immunol Immunother** 2001 Mar;50(1):31-40. PMID: 11315508
46. Feng H, Zeng Y, Whitesell L, Katsanis E. Stressed apoptotic tumor cells express heat shock proteins and elicit tumor-specific immunity. **Blood** 2001 Jun 1;97(11):3505-12. PMID: 11369644
47. Feng H, Zeng Y, Graner MW, Katsanis E. Stressed apoptotic tumor cells stimulate dendritic cells and induce specific cytotoxic T cells. **Blood** 2002 Dec 1;100(12):4108-15. Epub 2002 Jul 25. PMID: 12393401
48. Katsanis E, Whitesell L. Neuroblastoma. In Bertino J.R. ed. **Encyclopedia of Cancer** 2002, 2nd ed., Academic Press, San Diego CA. 315-321.
49. Feng H, Zeng Y, Graner MW, Likhacheva A, Katsanis E. Exogenous stress proteins enhance the immunogenicity of apoptotic tumor cells and stimulate antitumor immunity. **Blood** 2003 Jan 1;101(1):245-52. Epub 2002 Aug 22. PMID: 12393411
50. Graner MW, Zeng Y, Feng H, Katsanis E. Tumor-derived chaperone-rich cell lysates are effective therapeutic vaccines against a variety of cancers. **Cancer Immunol Immunother** 2003 Apr;52(4):226-34. Epub 2003 Feb 18. PMID: 12669247
51. Zeng Y, Feng H, Graner MW, Katsanis E. Tumor-derived, chaperone-rich cell lysate activates dendritic cells and elicits potent antitumor immunity. **Blood** 2003 Jun 1;101(11):4485-91. Epub 2003 Feb 6. PMID: 12576309
52. Feng H, Zeng Y, Graner MW, Whitesell L, Katsanis E. Evidence for a Novel, Caspase-8-Independent, Fas Death Domain-Mediated Apoptotic Pathway. **J Biomed Biotechnol** 2004 2004(1):41-51. PMID: 15123887
53. Zeng Y, Graner MW, Feng H, Li G, Katsanis E. Imatinib mesylate effectively combines with chaperone-rich cell lysate-loaded dendritic cells to treat bcr-abl+ murine leukemia. **Int J Cancer** 2004 Jun 10;110(2):251-9. PMID: 15069690
54. Graner MW, Likhacheva A, Davis J, Raymond A, Brandenberger J, Romanoski A, Thompson S, Akporiaye E, Katsanis E. Cargo from tumor-expressed albumin inhibits T-cell activation and responses. **Cancer Res** 2004 Nov 1;64(21):8085-92. PMID: 15520220



55. Graner MW, Katsanis E. Chaperone proteins/Heat shock proteins as anticancer vaccines. In Morse M.A., Clay T.M., Lysterly H.K. ed. **Handbook of Cancer Vaccines 2004**, Humana Press, Totowa NJ. 297-316, .
56. Zeng Y, Graner MW, Thompson S, Marron M, Katsanis E. Induction of BCR-ABL-specific immunity following vaccination with chaperone-rich cell lysates derived from BCR-ABL+ tumor cells. **Blood** 2005 Mar 1;105(5):2016-22. Epub 2004 Sep 16. PMID: 15374884
57. Ramanathapuram LV, Hahn T, Graner MW, Katsanis E, Akporiaye ET. Vesiculated alpha-tocopheryl succinate enhances the anti-tumor effect of dendritic cell vaccines. **Cancer Immunol Immunother** 2006 Feb;55(2):166-77. Epub 2005 Jul 23. PMID: 16041582
58. Zeng Y, Graner MW, Katsanis E. Chaperone-rich cell lysates, immune activation and tumor vaccination. **Cancer Immunol Immunother** 2006 Mar;55(3):329-38. Epub 2005 May 11. PMID: 15887013
59. Chen X, Zeng Y, Li G, Larmonier N, Graner MW, Katsanis E. Peritransplantation vaccination with chaperone-rich cell lysate induces antileukemia immunity. **Biol Blood Marrow Transplant** 2006 Mar;12(3):275-83. PMID: 16503496
60. Larmonier N, Mérimo D, Nicolas A, Cathelin D, Besson A, Bateman A, Solary E, Martin F, Katsanis E, Bonnotte B. Apoptotic, necrotic, or fused tumor cells: an equivalent source of antigen for dendritic cell loading. **Apoptosis** 2006 Sep;11(9):1513-24. PMID: 16738802
61. Zeng Y, Chen X, Larmonier N, Larmonier C, Li G, Sepassi M, Marron M, Andreansky S, Katsanis E. Natural killer cells play a key role in the antitumor immunity generated by chaperone-rich cell lysate vaccination. **Int J Cancer** 2006 Dec 1;119(11):2624-31. PMID: 16989012
62. Larmonier N, Marron M, Zeng Y, Cantrell J, Romanoski A, Sepassi M, Thompson S, Chen X, Andreansky S, Katsanis E. Tumor-derived CD4(+)CD25(+) regulatory T cell suppression of dendritic cell function involves TGF-beta and IL-10. **Cancer Immunol Immunother** 2007 Jan;56(1):48-59. Epub 2006 Apr 13. PMID: 16612596
63. Chen X, Zhou B, Li M, Deng Q, Wu X, Le X, Wu C, Larmonier N, Zhang W, Zhang H, Wang H, Katsanis E. CD4(+)CD25(+)FoxP3(+) regulatory T cells suppress Mycobacterium tuberculosis immunity in patients with active disease. **Clin Immunol** 2007 Apr;123(1):50-9. Epub 2007 Jan 17. PMID: 17234458
64. Li G, Zeng Y, Chen X, Larmonier N, Sepassi M, Graner MW, Andreansky S, Brewer MA, Katsanis E. Human ovarian tumour-derived chaperone-rich cell lysate (CRCL) elicits T cell responses in vitro. **Clin Exp Immunol** 2007 Apr;148(1):136-45. PMID: 17349014
65. Kislin KL, Marron MT, Li G, Graner MW, Katsanis E. Chaperone-rich cell lysate embedded with BCR-ABL peptide demonstrates enhanced anti-tumor activity against a murine BCR-ABL positive leukemia. **FASEB J** 2007 Jul;21(9):2173-84. Epub 2007 Feb 27. PMID: 17327358
66. Larmonier N, Cathelin D, Larmonier C, Nicolas A, Merino D, Janikashvili N, Audia S, Bateman A, Thompson J, Kottke T, Hartung T, Katsanis E, Vile R, Bonnotte B. The inhibition of TNF-alpha anti-tumoral properties by blocking antibodies promotes tumor growth in a rat model. **Exp Cell Res** 2007 Jul 1;313(11):2345-55. Epub 2007 Mar 30. PMID: 17466973
67. Li G, Andreansky S, Helguera G, Sepassi M, Janikashvili N, Cantrell J, Lacasse CL, Larmonier N, Penichet ML, Katsanis E. A chaperone protein-enriched tumor cell lysate vaccine generates protective humoral immunity in a mouse breast cancer model. **Mol Cancer Ther.** 2008 Mar;7(3):721-9. PMID: 18347157



68. Larmonier N, Cantrell J, Lacasse C, Li G, Janikashvili N, Situ E, Sepassi M, Andreansky S, Katsanis E. Chaperone-rich tumor cell lysate-mediated activation of antigen-presenting cells resists regulatory T cell suppression. **J Leukoc Biol** 2008 Apr;83(4):1049-59. Epub 2008 Jan 3. PMID: 18174364
69. Bleifuss E, Bendz H, Sirch B, Thompson S, Brandl A, Milani V, Graner MW, Drexler I, Kuppner M, Katsanis E, Noessner E, Issels RD. Differential capacity of chaperone-rich lysates in cross-presenting human endogenous and exogenous melanoma differentiation antigens. **Int J Hyperthermia** 2008 Dec;24(8):623-37. PMID: 18608582
70. Larmonier N, Janikashvili N, LaCasse C, Larmonier C, Cantrell J, Situ E, Li G, Bonnotte B, Katsanis E. Imatinib mesylate suppresses CD4+CD25+ regulatory T cell activity and enhances active immunotherapy against BCR-ABLnegative tumors. **J Immunol** 2008 Nov 181:6955-63. PMID: 18981115
71. Larmonier N, Fraszczak J, Lakomy D, Bonnotte B, Katsanis E. Killer dendritic cells and their potential for cancer immunotherapy. **Cancer Immunol Immunother** 2010 Jan 59(1):1-11. Epub 2009 Jul 18. PMID: 19618185
72. Janikashvili N., Larmonier N., Katsanis E. Personalized dendritic cell-based tumor immunotherapy. **Immunother** 2010 Jan 2(1):57-68. PMID: 20161666
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## ABSTRACTS

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## GRANT SUPPORT

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### Federal Government

#### **Medical Research Council of Canada Fellowship**

Identification of mechanisms of immunosuppression

7/1/89 - 6/30/91

Total Direct Costs: \$80,000

PI: Katsanis (100%)

#### **NIH P01 CA21737**

Autologous bone marrow transplantation for lymphoma: Immunotherapeutic studies

3/1/92-12/31/96

Total Direct Costs: \$520,000

PI: Kersey, PI Project #3: Weisdorf, Co-PI Project #3 Katsanis (15%)

#### **Department of Defense DAMD17-03-1-0208**

Chronic Myelogenous Leukemia Research Program

Chaperone rich cell lysate (CRCL) vaccine for chronic myelogenous leukemia

5/22/03 - 5/21/06 relinquished 2/29/04 due to funding of NIH R01 CA104926

Total Direct Costs: \$483,501

PI: Katsanis (25%)

#### **NIH R21 CA102410**

Multiple chaperone complexes: Natural adjuvants and antigens for dendritic cell based vaccines

7/1/03 - 6/30/06

Total Direct Costs: \$300,000

PI: Katsanis (20%)

#### **NIH R01 CA104926-1**

Chaperone rich cell lysate (CRCL) vaccine for chronic myelogenous leukemia

3/1/04 - 2/29/09

Total Direct Costs: \$738,000

PI: Katsanis (25%)

#### **NIH K23 CA107450**

Hsp90 as a target for the treatment of childhood cancer

9/1/06-8/31/11

Total Direct Costs: \$552,500

PI: R. Bagatell, Primary Mentor: Katsanis

#### **NIH R01 CA104926-5**

Immunotherapy for chronic myelogenous leukemia

7/1/09 - 4/30/14

Total Direct Costs: \$900,935

PI: Katsanis (25%)



**NIH R01 NR010889**

Childhood leukemia: Oxidative stress, cognitive changes & academic outcomes  
6/1/09 - 3/31/14

Total Direct Costs: \$2,089,367

PI: Moore, Co-investigator: Katsanis (5%)

**NIH K08 AR054323**

Characterization of pathogenic Th17 responses in collagen induced arthritis  
7/1/09-6/30/14

Total Direct Costs: \$587,500

PI: S. Sarkar, Primary Mentor:Katsanis

**GRANT SUPPORT**

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**State Government**

**Arizona Disease Control Research Commission**

Improvement of anticancer immune responses generated by chaperone protein associated tumor peptides  
7/1/99 - 6/30/01

Total Direct Costs: \$392,791

PI: Katsanis

**Arizona Disease Control Research Commission**

Development of antisense oligonucleotides as chemotherapeutic agents for intratumoral administration  
7/1/99 - 6/30/01

Total Direct Costs: \$383,032

PI: Whitesell, Co-Investigator: Katsanis

**Arizona Disease Control Research Commission**

Heat shock proteins as targets for drug discovery  
7/1/01 - 6/30/03

Total Direct Costs: \$367,236

PI: Whitesell, Co-Investigator: Katsanis

**Arizona Disease Control Research Commission (#8-028)**

Chaperone rich cell lysate vaccine for ovarian cancer  
7/1/03 - 6/30/06

Total Direct Costs: \$273,828

PI: Katsanis



## GRANT SUPPORT

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### National Private Foundations

#### **Canadian Cancer Society Fellowship, Gordon E. Richard Award**

Treatment of pediatric cancers  
7/1/86 - 6/30/87  
Total Direct Costs: \$34,440  
PI: Katsanis

#### **Ronald McDonald Children's Charities**

Use of immunochemotherapeutic agents against murine neuroblastoma  
10/1/91 - 9/30/92  
Total Direct Costs: \$17,350  
PI: Katsanis

#### **American Cancer Society Clinical Oncology Career Development Award 93-30,**

Generation of a specific immune response against neuroblastoma  
7/1/93 - 6/30/96  
Total Direct Costs: \$90,000  
PI: Katsanis (50%)

#### **Cancer Research Foundation of America**

Development of anti-tumor vaccines for neuroblastoma  
10/1/94 - 9/30/95  
Total Direct Costs: \$30,000  
PI: Katsanis

#### **Concern Foundation for Cancer Research**

Induction of antitumor immunity against neuroblastoma by gene modified antigen presenting cells  
1/1/96 - 6/30/98  
Total Direct Costs: \$35,120  
PI: Katsanis

#### **American Cancer Society IM-785**

Augmentation of anti-tumor T cell responses by GM-CSF activated antigen presenting cells 1/1/96 - 12/31/99  
Total Direct Costs: \$255,200  
PI: Katsanis (25%)

#### **W.M. Keck Foundation**

Development of tumor-specific immunity in transgenic mice  
7/1/98 - 6/30/01  
Total Direct Costs: \$165,000  
PI of project #4: Katsanis



**Leukemia and Lymphoma Society, Translational Research Grant**

Analysis of T cell response to the bcr/abl gene product

12/31/98-12/30/02

Total Direct Costs: \$300,000

PI: Katsanis (20%)

**Leukemia and Lymphoma Society Fellow Award**

Modulation of regulatory T cell suppressive activity by chaperone rich cell lysate

7/1/06-6/28/09

Total Direct Costs: \$141,000

PI: Larmonier, Primary Mentor: Katsanis

**America Cancer Society, Mentored Research Scholars Grant**

A multiepitope heat shock protein based tumor vaccine against HER-2 cancers

1/1/08-12/31/12

Total Direct Costs: \$585,000

PI: S. Andreansky, Primary Mentor: Katsanis

**Alex's Lemonade Stand Foundation for Childhood Cancer Young Investigator Award**

Reciprocal interactions between tumor killer DC and tumor-induced Treg

7/1/08-6/30/10

Total Direct Costs: \$80,000

PI: Larmonier, Primary Mentor: Katsanis



## **PATENTS**

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Methods of recovering chaperone proteins and complexes thereof

Patent Filed: March 5, 2002,

Approved: April 5, 2005

U.S. Patent No. 6,875,849

Vaccine compositions and methods

Patent Filed: May 5, 2008

Serial No. 61/050,294



## PRESENTATIONS (2000-present)

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- Translational Research Progress Report Meeting, The Leukemia and Lymphoma Society, Washington, DC, Analysis of T cell response to the bcr/abl gene product, 2000
- Cancer Vaccines Workshop, Tucson, Arizona, Dendritic cell based vaccines, 2000
- Department of Pediatrics Research Conference, Steele Children's Research Center, Auto-focused vaccine against cancer, 2001
- Immuno-Designed Molecules (IDM) Inc, Paris, France, Stress proteins and anti-tumor responses, 2001
- Grand Rounds, Phoenix Children's Hospital, Phoenix, Arizona, Biologic therapy of cancer, 2001
- Arizona Cancer Center Retreat, Westin La Paloma, Tucson, Arizona, Multiple chaperone complexes: The new wave of anticancer vaccines, 2002
- American Society for Clinical Laboratory Science, Arizona/Nevada Division Symposium Southern Arizona Veteran's Administration Hospital, Tucson, Arizona, New immunobiologic approaches for cancer, 2002
- Pediatric Grand Rounds, University Medical Center, The top ten Hem/Onc list for the pediatrician, 2002
- Pediatric Specialty Conference, Childhood leukemia, 2002
- 4th Annual Immunobiology of Cancer Workshop, Tucson, Arizona, Tumor-derived multiple chaperone complexes are effective therapeutic vaccines, 2002
- Earle A. Chiles Research Institute, Portland, Oregon, Tumor derived chaperone rich cell lysates: Effective adjuvants and antigens for cancer, Immunotherapy, 2003
- Pediatrics Club Meeting, University of Arizona Medical School, Introduction to Pediatric Cancer, 2003
- Women's Cancers Scientific Retreat, Tucson, Arizona, Ovarian tumor-derived chaperone-rich cell lysates elicit T cell responses in vitro, 2005
- Grand Rounds, Phoenix Children's Hospital, Phoenix, Arizona, The hematologic response to systemic illness in children, 2005
- Obstetrics and Gynecology, Grand Rounds, University of Arizona Health Sciences Center, Tumor-Derived Chaperone-Rich Cell Lysate (CRCL) is an effective autologous vaccine with potential applications against gynecologic malignancies, 2005
- Ovarian Cancer Forum, Tucson, Arizona, Ovarian cancer vaccine: fact or fiction, 2006
- Frontiers in Immunobiology and Immunopathogenesis, Hilton El Conquistador, Oro Valley, Arizona, Chaperone rich cell lysate: Antigen, Adjuvant, Activator, 2006
- Department of Pediatrics Research Conference, Steele Children's Research Center, CRCL Vaccine: Closing the Circle on Cancer, 2006
- Pediatric Specialty Conference, Solid progress against pediatric liquid tumors, 2006
- Pediatric Grand Rounds, The blood's response to pediatric diseases, 2006
- Frontiers in Medical Research Seminar, College of Medicine, Heat shock proteins as anticancer vaccines, 2006



- The Biodesign Institute, Arizona State University, Tempe, Arizona, CRCL Vaccine: Closing the Circle on Cancer, 2006
- Pediatric Specialty Conference, Leukemia, 2008
- Conversations with Colleagues, Finding your scholarship, University of Arizona Health Sciences Center, 2008
- Pediatric Specialty Conference, Thrombocytopenias, 2009
- Caring for the Seriously Ill: Clinical Updates in Oncology Symposium, Arizona Cancer Center, Pediatric Leukemia, 2009
- Frontiers in Medical Research Seminar, College of Medicine, Tumor Immunology, 2009
- Pediatric Specialty Conference, BMT emergencies, 2010
- Pediatric Specialty Conference, Bone marrow failure, 2010
- Pediatric Grand Rounds, Acute Myelogenous Leukemia: chemotherapy and beyond, 2010
- Pediatric Hematology/Oncology/BMT Clinical Lecture Series, Overview of stem cell transplantation, 2010



## MENTORING ACTIVITIES (University of Arizona)

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### Junior Faculty Mentor

Nicolas Larmonier, Ph.D., Research Assistant Professor Pediatrics, 7/06-6/09, LLS Fellow  
Rochelle Bagatell, M.D., Associate Professor Pediatrics, 9/06-8/11, NIH K23 award  
Samita Andreansky, Ph.D., Res. Assistant Prof, 1/08-12/12, ACS Mentored Research Scholar  
Sujata Sarkar, M.D., Assistant Professor Medicine 7/09- NIH K08 award

### Junior Faculty Research Committees

Nicolas Larmonier, Ph.D., Habilitation à Diriger des Recherches, Université de Bourgogne, 2008

### Postgraduate Level Mentor

Adnan Sarcevic, M.D., M.S. 4/97 - 10/97 ⇒ Resident, SUNY at Stony Brook  
Lin He, M.D., M.S. 7/97 - 12/99 ⇒ Post-Doc, Northwestern University  
Michael Graner, Ph.D. 8/97 - 6/04 ⇒ Research Associate Professor, Duke University  
Yi Zeng, M.D., Ph.D. 8/03 - 5/06 ⇒ Resident Pediatrics, Indiana University  
Nicolas Larmonier, Ph.D. 8/04 - 12/06 ⇒ Research Assistant Professor, University of Arizona  
Nona Janikashvili, Ph.D. 1/07 - 3/10 ⇒ Post-Doc, Université de Bourgogne  
Gang Li, Ph.D., 3/07 - 8/08 ⇒ Post-Doc, University of Arizona  
Raquel Bravo, M.D., 7/09- present

### Graduate Level Mentor

Hanping Feng, Ph.D. Immunology, 2/99 - 7/02 ⇒ Post-Doc, Harvard Medical School  
Yi Zeng, M.D., Ph.D. Immunology, 9/99 - 8/03 ⇒ Post-Doc, University of Arizona  
Xinchun Chen, M.D., Ph.D. Immunology, 8/02 - 11/06 ⇒ Associate Professor, Shenzhen, China  
Kerri Kislin, Ph.D., Cancer Biology, 3/03 - 9/06 ⇒ Translational Genomics Research Institute  
Gang Li, Ph.D., Immunology, 8/02 - 3/07 ⇒ Post-Doc, University of Arizona  
Jessica Cantrell, Ph.D., Cancer Biology, 7/05 - 5/09 ⇒ U. of Colorado, C. of Veterinary Medicine  
Collin J. LaCasse, Immunobiology, 12/06- present  
Tamara Lundeen, M.S. Immunobiology, 8/08 - 8/09 withdrew ⇒ Medical School, U. of Arizona  
Sara Bustamante, Cancer Biology, 4/08 - present  
Neale Hanke, Cancer Biology 3/10- present  
Darya Alizadeh, Cancer Biology 2/11- present  
Alexis Bucknam, Immunobiology 2/11 - present



### Graduate Level Supervisory Committees (not primary mentor)

John Richards, Ph.D. Immunology, 1998 - 2002  
James Kobie, Ph.D. Immunology, 1999 - 2003  
Tong Zhang, Ph.D. Immunology, 1999 - 2003  
Vivian Mack, M.S. Immunology, 1999 - 2004  
Lalitha Ramanathapuram, Ph.D. Immunology 2002 - 2006  
Naihsuan Guy, M.S. Immunobiology, 2005 - 2006  
Matthew Rausch, Ph.D. Immunobiology, 2005 - 2009  
Maria Ordaz, M.S. Immunobiology, 2006 - 2009  
Lora Grainger, Ph.D. Immunobiology, 2006 - 2010  
Claire Larmonier, Ph.D. Immunobiology, 2007 - 2010

### Graduate Level (laboratory Rotations)

Suzanne Stratton, Cancer Biology 9/97 - 12/97  
Manolis Demetriou, Cancer Biology 9/99 - 12/99  
Elizabeth Tyszka, Cancer Biology 8/00 - 12/00  
Michael DeNiro, Cancer Biology 5/02 - 7/02  
Maria Ordaz, Immunobiology 4/05 - 9/05  
Mark Teng, Cancer Biology 1/08 - 4/08  
Rajalakshmy Ramalingam, Immunobiology 4/08 - 6/08

### Undergraduate Level Mentor

Davis Romney, 11/97 - 5/98, ⇒ Medical School, University of Virginia  
Amber Kyle, 5/99 - 12/99, ⇒ Medical School, University of Michigan  
Nicole Davis, 5/98 - 12/99, ⇒ School of Public Health, Drexel University  
Hector Sandoval, 6/99 - 5/00, ⇒ Graduate School, Baylor University  
Amy Raymond, 1/99 - 6/00, ⇒ Graduate School, UC San Diego  
Susan Hoy, 11/98 - 12/00, ⇒ Graduate School, University of Colorado  
Kamalesh Ramaiya, 5/99 - 5/01, ⇒ Medical School, University of Arizona  
Jared Brandenberger, 6/00 - 5/02, ⇒ Medical School, University of Arizona  
Anna Likhacheva, 5/00 - 5/03, ⇒ Medical School, University of Arizona  
Jane Davis, 5/02 - 5/04, ⇒ Medical School, University of Arizona  
Sylvia Thompson, 5/03 - 4/05, ⇒ Medical School, University of Arizona  
M. Angela Romanoski, 5/03 - 7/05, ⇒ Medical School, University of Arizona  
Xuemei Cai, 2/03 - 7/05, ⇒ Medical School, Harvard University  
Marjan Sepassi, 3/04 - 8/07, ⇒ School of Pharmacy, University of Arizona  
Elaine Situ, 8/06 - 5/09 ⇒ Medical School, University of Arizona  
Amanda Herrell, 1/08 - 5/10 ⇒ Peace Corps  
Andres Longoria, 10/09 - 8/10 ⇒ Medical School, University of Arizona  
Leila Amini, 9/10 -

### Minority Health Disparities Summer Research Program



Irene Adu-Gyamfi, 6/06 - 8/06

**Minority Research Training Program**

Bradley Bowman, 6/09 - 8/09

**Medical Student Research Program**

Jason Wright, 5/08 - 7/10

**Medical Students**

Elaine Situ, 5/09 - present

Joseph Chao, 2/11 - present

**Pediatric Resident Clinical Advisor**

Alejandro de la Torre, M.D., 7/04 - 6/07

Nathan Price, M.D., 7-07 - 6/08

Kiran Kulkarni, M.D., 7-08 - present



## TEACHING ACTIVITIES (2000-present)

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### Graduate School Courses

Clinical Cancer Biology C BIO 561, **Course Director, 2008- present**

Participating Faculty, Clinic Shadowing in Pediatric Oncology, 2004-present

Neuroblastoma, 2008

Pediatric Leukemia, 2009

Hematopoietic stem cell transplantation, 2011

Cancer Therapeutics C BIO 555,

Cancer Immunotherapy, 2009

Cancer Immunology and Immunotherapy C BIO 565

Cytokines & adoptive cell transfer, 2010

Bone marrow transplantation, 2010

Cancer vaccines, 2010

Advanced Topics in Immunobiology IMB564

Cancer Immunotherapy, 2011

### Medical School Courses

Medical Microbiology/Immunology 801/501 (Facilitator, Clinical correlates)

Lymphoma, 2000

Autoimmunity, 2000

Transplantation, 2000

Transplantation, 2001

Dean's Rounds (Facilitator)

Cultural competency and the cross-cultural interview, 2004

Cancer Block (AZ Med)

Pediatric Leukemias, 2008

Pediatric Leukemias, 2009

Anemia, 2009

Acute Lymphoblastic Leukemia CBI Case Conference, 2009

Advance Topics Block (AZ Med)

Anemia, 2010

Acute Leukemia, 2010

Acute Lymphoblastic Leukemia CBI Case Conference, 2010



### **Resident Teaching Conferences**

Pediatric stem cell transplantation: an overview, 2001  
Cancer chemotherapy, 2001  
Supportive care for the pediatric oncology patient, 2001  
Blood transfusions, 2002  
Oncologic emergencies, 2002  
Childhood leukemias, 2002  
Diagnostic approach to the child with anemia, 2003  
Acute lymphoblastic leukemia, 2004  
Bleeding disorders in children, 2005  
Childhood leukemias, 2006  
Pediatric lymphomas, 2006  
Supportive care for children with cancer, 2007

### **Nursing Teaching Conferences**

Infections following stem cell transplantation, 2000  
Acute lymphoblastic leukemia, 2006  
Tumor lysis syndrome, 2006

### **Clinical Teaching**

Medical Student Attending, *General Pediatrics* (3 wk/yr), 1997- 2009  
Pediatric Residents and Medical Students: Ward team and electives 1997-present



**COMMITTEE & ADMINISTRATIVE ACTIVITIES** \*denotes active

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National - International

Organizing committee, Annual Meeting of the International Society for Experimental Hematology, 1994

University

Faculty Council, University of Ottawa, 1983-84

Transfusion Sub-Committee, University of Ottawa, 1984-87

Frontiers in Immunobiology and Immunopathogenesis Symposium Planning Committee, 2005-08

Chairman, Committee for Review of the Head of the Dept. of Pediatrics, U. of AZ, 2006-07

Founders Day Selection Committee, U. of Arizona, College of Medicine, 2009

Promotion and Tenure Committee, U. of Arizona, College of Medicine, 2008-2010

\* Endowed Chair Committee, U. of Arizona, College of Medicine, 2009-present

\* M.D.-Ph.D. Program Advisory Committee, U. of Arizona, College of Medicine, 2010-present

Centers

\* Blood and Marrow Transplantation Committee, Arizona Cancer Center, 1997-present

Immunobiology Core Committee, Arizona Cancer Center, 1999-04

Stem Cell Transplantation M&M Committee, Arizona Cancer Center, 2004-05

Experimental Mouse Shared Service Committee, Arizona Cancer Center, 2004-05

\* Arizona Cancer Center Director's Committee, 2006-present

\* Arizona Cancer Center Clinical Operations Executive Committee, 2008 - present

\* Arizona Cancer Center - Phoenix Campus Executive Architect Committee, 2010 - present

Departments

Pediatric Bone Marrow Transplantation Committee, U of Minnesota, 1991-97

Faculty Development Committee, Dept. of Pediatrics, U. of Arizona, 1998-02

Computer Committee, Dept. of Pediatrics, U. of Arizona, 1998-02

Director of Transfusion Medicine Search Committee, Dept. of Pathology, U. of Arizona, 2001

Space Committee, Dept. of Pediatrics, U. of Arizona, 2008-10

Faculty Recruitment Search Committee, Dept. of Immunobiology, 2008 - 10

\* Clinical Steering Committee, Dept. of Pediatrics, U. of Arizona, 2004 - present

\* Promotion and Evaluation Committee, Dept. of Immunobiology, 2007- present

\* Executive Committee, Dept. of Pediatrics, U. of Arizona, 2011-present

Graduate Programs

Interviewer, Interdisciplinary Graduate Program in Cancer Biology, U. of Arizona, 2005-07

Admissions Committee, Dept. of Immunobiology Graduate Program, U. of Arizona, 2005-08

Executive Committee, Immunobiology Graduate Program, U. of Arizona, 2007- 2010

\* Executive Committee, Cancer Biology Graduate Interdisciplinary Program , U. of Arizona, 2007-present

\* Admissions Committee, Cancer Biology Graduate Interdisciplinary Program, U. of Arizona, 2007-present

\* NIH T32 Training Grant Selection Committee, Cancer Biology Graduate Interdisciplinary Program, U. of Arizona, 2010-present

\* Curriculum Committee, Cancer Biology Graduate Interdisciplinary Program , U. of Arizona, 2010-present



## **OTHER SERVICE**

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Interviewer, Department of Pediatrics Residency Program, University of Arizona, 1998-present

Interviewer, College of Medicine Admissions, University of Arizona, 1999- 2008

Interviewer, Department of Surgery, Faculty Recruitment, 2007-2008

## **CLINICAL ACTIVITIES**

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Attending Physician, Pediatric BMT, U. of Minnesota, 1991-1997

Attending Physician, Pediatric Hem-Onc-BMT, U. of Arizona, 1997- present

Medical Director, Blood and Marrow Transplant Laboratory, University Medical Center, 1999-present

Medical Director, Pediatric Oncology, University Medical Center, 2008-present

Medical Director, Pediatric BMT, University Medical Center, 2010-present