

Ivan Maillard, MD-PhD
Assistant Professor
Center for Stem Cell Biology, Life Sciences Institute
Division of Hematology/Oncology, Department of Internal Medicine
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Education and Training

08/1984-07/1986 Gymnase de Chamblandes, Lausanne, Switzerland
Baccalaureat (BA equivalent) awarded in 07/1986

10/1986-12/1993 Medical School, University of Lausanne and Zurich, Switzerland
Swiss Federal Diploma of Medicine awarded in 12/1993

04/1994-09/1997 MD-PhD program, Swiss Academy of Medical Sciences
University of Lausanne, Switzerland
Thesis work: "New insights into the interaction of Mouse Mammary Tumor
Virus with the immune system of its host"
Mentor: Heidi Diggelmann, MD; PhD awarded in 10/1999

Certification and Licensure

08/1994 USMLE step II
06/1997 USMLE step I
02/2000 Clinical skills assessment
04/2000 ECFMG certification (valid indefinitely)
07/2001 Swiss Boards of Internal Medicine (FMH, Swiss Medical Association)
09/2002 USMLE step III
07/2001-06/2004 State Medical Training License, Pennsylvania (MT-178698-T)
10/2004-12/2008 State Medical License, Pennsylvania (MD-423465)
07/2007-01/2011 State Medical License, Michigan (#4301090943)

Academic, Administrative, and Clinical Appointments

01/1994-03/1994 Resident Physician in Internal Medicine
University of Lausanne Medical Center, Lausanne, Switzerland

10/1997-06/2001 Resident Physician in Internal Medicine and Hematology-Oncology
University of Lausanne Medical Center, Lausanne, Switzerland

07/2001-06/2004 Fellow, Division of Hematology-Oncology
University of Pennsylvania School of Medicine, Philadelphia, PA

07/2004-06/2006 Research Associate, Division of Hematology-Oncology
University of Pennsylvania School of Medicine, Philadelphia, PA

07/2002-06/2007 Post-doctoral fellow- Mentor: Warren S. Pear, MD-PhD
University of Pennsylvania School of Medicine, Philadelphia, PA

08/2005-06/2007 Attending Physician in Hematology-Oncology (Leukemia/BMT Unit)
Hospital of the University of Pennsylvania, Philadelphia, PA

07/2006-06/2007 Instructor in Medicine, Division of Hematology-Oncology
University of Pennsylvania School of Medicine, Philadelphia, PA

07/2007-present Research Assistant Professor, Center for Stem Cell Biology, Life Sciences
Institute, University of Michigan, Ann Arbor, MI

07/2007-present Assistant Professor, Division of Hematology/Oncology, Department of
Internal Medicine and Department of Cell and Developmental Biology,
University of Michigan Medical School, Ann Arbor, MI

Research Interests

1. Hematopoiesis
2. Hematopoietic Stem Cells
3. Notch signaling
4. T cell immunology

Honors and Awards

10/1999	Thesis Award, Faculty of Sciences, University of Lausanne, Switzerland
12/2004	Basic Research Scholar Award, American Society of Hematology (declined)
02/2006	European Commission's Scholarship and Best Poster Award ESH-AACR Conference, Cascais, Portugal
07/2007-present	Biological Sciences Scholar, University of Michigan, Ann Arbor, MI
02/2008	Rackham Graduate School Faculty Research Grant, University of Michigan

Memberships in Professional Societies

12/1993-present	Swiss Medical Association
03/2002-present	American Society of Hematology (ASH)
02/2008-present	International Society for Stem Cell Research (ISSCR)

Scientific Activities

Journal Reviewer:

Blood 2007, 2008
EMBO, 2008
Haematologica 2007, 2008
Molecular and Cellular Biology 2007, 2008
Stem Cells 2006, 2007

Program Memberships:

2007-present	Member, University of Michigan Comprehensive Cancer Center, Ann Arbor, MI
2007-present	Member, Graduate Program in Immunology and Graduate Students Affairs Committee, University of Michigan Medical School, Ann Arbor, MI
2007-present	Member, Graduate Program in Cellular and Molecular Biology, University of Michigan, Ann Arbor, MI

Teaching and related services

Mentoring:

1988-1989	Tutor in Anatomy, University of Lausanne
2002-2007	Mentorship role for undergraduate and graduate students, Pear laboratory
2004-2007	Mentorship role for fellows, residents and medical students, Leukemia/BMT Unit, Hospital of the University of Pennsylvania
2004-2007	Tutor in Hematopathology, University of Pennsylvania School of Medicine
2008-present	Mentoring of undergraduate students, University of Michigan Ivy Tran, Undergraduate Research Opportunity Program Gloria Shan, MCDB 300 laboratory course

2008-present Mentoring of graduate students, University of Michigan
 Jiaying Tan, rotating PhD student (PIBS program)

2008-present Thesis committee member, University of Michigan
 Tim Bauler
 Andrew Kaczorowski
 Jae Y. Lee

Lectures – University of Michigan Medical School:

“To be or not to be: what Notch does and does not do in the hematopoietic system.” Hematological malignancies interest group, Division of Hematology-Oncology, November 2007.

“Notch and graft-versus-host disease.” Research seminar series, Division of Hematology-Oncology,” November 2007.

“Notch signaling in hematopoietic stem cell and T cell homeostasis.” Dept. of Cell and Developmental Biology seminar series, November 2007.

“Notch and hematopoiesis.” Mouse club seminar series, Dept. of Human Genetics, January 2008.

“To be or Notch to be: Notch and the hematopoietic stem cell niche.” Life Sciences Institute colloquium, March 2008.

Extramural Invited Presentations

11/2004 Ludwig Institute for Cancer Research, Lausanne, Switzerland
 “Notch signaling in T lineage commitment and early T cell development”

04/2006 Abbott Pharmaceuticals, Abbott Park, IL
 “Notch signaling in hematopoiesis and lymphoid development”

10/2006 Fox Chase Cancer Center, Philadelphia, PA
 “Notch signaling in hematopoiesis and lymphoid development”

11/2006 Max Planck Institute of Immunobiology, Freiburg, Germany
 “Notch signaling in hematopoiesis and lymphoid development”

11/2006 Swiss institute for Experimental Cancer Research, Epalinges, Switzerland
 “Regulation of fetal and adult hematopoietic stem cell homeostasis by the Notch pathway”

12/2006 Life Sciences Institute, University of Michigan, Ann Arbor, MI
 “Notch signaling in hematopoiesis and lymphoid development”

01/2007 Division of Oncology, Washington University, St Louis, MO
 “Notch signaling in hematopoiesis and lymphoid development”

03/2007 Institute for Medicine and Engineering, Univ. of Pennsylvania, Philadelphia, PA
 “Notch signaling and hematopoietic stem cells”

09/2007 International Society for Experimental Hematology (ISEH), Hamburg, Germany
 “Notch signaling and hematopoietic stem cell homeostasis”

12/2007 Session moderator, “Acute Lymphoblastic Leukemia: biology and pathophysiology”,
 49th American Society of Hematology annual meeting, Dec 7-11, Atlanta, GA

Bibliography

Publications – peer-reviewed:

1. Maillard I, Erny K, Acha-Orbea H, Diggelmann H. A Vbeta4-specific superantigen encoded by a new exogenous mouse mammary tumor virus. *Eur. J. Immunol.* 26(5):1000-1006, 1996.
2. Luther SA, Maillard I, Luthi F, Scarpellino L, Diggelmann H, Acha-Orbea H. Early neutralizing antibody response against mouse mammary tumor virus: critical role of viral infection and superantigen-reactive T cells. *J. Immunol.* 159(6):2807-2814, 1997.
3. Launois P, Maillard I, Pingel S, Swihart KG, Xenarios I, Acha-Orbea H, Diggelmann H,

- Locksley RM, MacDonald HR, Louis JA. IL-4 rapidly produced by Vbeta4 Valpha8 CD4+ T cells instructs Th2 development and susceptibility to *Leishmania major* in BALB/c mice. *Immunity* 6(5):541-549, 1997.
4. Maillard I, Luthi F, Acha-Orbea H, Diggelmann H. Role of the immune response induced by superantigens in the pathogenesis of microbial infections. *Parasitology* 115:S67-S78, 1997.
 5. Maillard I, Launois P, I. Xenarios I, Louis JA, Acha-Orbea H, Diggelmann H. Immune response to mouse mammary tumor virus in mice lacking the alpha/beta interferon or the gamma interferon receptor. *J. Virol.* 72(4):2638-2646, 1998.
 6. Maillard I, Xenarios I, Diggelmann H, Acha-Orbea H. Differential reactivity of TCR Vbeta10 alleles to a mouse mammary tumor virus superantigen. *Eur. J. Immunol.* 28(10):3075-3085, 1998.
 7. Baribaud F, Maillard I, Vacheron S, Brocker T, Diggelmann H, Acha-Orbea H. Role of dendritic cells in the immune response induced by mouse mammary tumor virus superantigen. *J. Virol.* 73(10):8403-8410, 1999.
 8. Himmelrich H, Launois P, Maillard I, Biedermann T, Tacchini-Cottier F, Locksley RM, Rocken M, Louis JA. In BALB/c mice, IL-4 production during the initial phase of infection with *Leishmania major* is necessary and sufficient to instruct Th2 cell development resulting in progressive disease. *J. Immunol.* 164(9):4819-4825, 2000.
 9. Nishino I., Spinazzola A, Papadimitriou A, Hammans S, Steiner I, Hahn CD, Connolly AM, Verloes A, Guimaraes J, Maillard I, et al. Mitochondrial neurogastrointestinal encephalomyopathy: an autosomal recessive disorder due to thymidine phosphorylase mutations. *Ann. Neurol.* 47(6):792-800, 2000.
 10. Maillard I, Schweizer V, Broccard A, Duscher A, Liaudet L, Schaller MD. Use of botulinum toxin type A to avoid tracheal intubation or tracheostomy in severe paradoxical vocal cord movement. *Chest* 118(3):874-877, 2000.
 11. Maillard I, Launois P, Himmelrich H, Acha-Orbea H, Diggelmann H, Locksley RM, Louis JA. Functional plasticity of the LACK-reactive Vbeta4-Valpha8 CD4+ T cells normally producing the early IL-4 instructing Th2 cell development and susceptibility to *Leishmania major* infection in BALB/c mice. *Eur. J. Immunol.* 31(4):1288-1296, 2001.
 12. Baribaud F, Wirth S, Maillard I, Valsesia S, Acha-Orbea H, Diggelmann H. Identification of key amino acids of the mouse mammary tumor virus superantigen involved in the specific interaction with T-cell receptor Vbeta domains. *J. Virol.* 75(16):7453-7456, 2001.
 13. Stupp R, Dietrich PY, Ostermann Kraljevic S, Pica A, Maillard I, Maeder P, Meuli R, Janzer R, Pizzolatto G, Miralbell R, Porchet F, Regli L, de Tribolet N, Mirimanoff RO, Leyvraz S. Promising survival for patients with newly diagnosed glioblastoma multiforme treated with concomitant radiation plus temozolomide followed by adjuvant temozolomide. *J. Clin. Oncol.* 20(5):1375-1382, 2002.
 14. Allenspach EJ, Maillard I, Aster JC, Pear WS. Notch signaling in cancer. *Cancer Biol. Ther.* 1(5):466-476, 2002.
 15. Maillard I and Pear WS. Notch and cancer: Best to avoid the ups and downs. *Cancer Cell* 3(3):203-5, 2003.
 16. Maillard I, He Y, Pear WS. From the yolk sac to the spleen: new roles for Notch in regulating hematopoiesis. *Immunity* 18(5):587-589, 2003.
 17. Tsai DE, Maillard I, Schuster SJ, Nasta SD, Porter DL, Klumpp TR, Goldenberg DM, Luger SM, Alavi A, Sharkey RM, Hartzell KB, Stadtmauer EA. Use of ibritumomab tiuxetan anti-CD20 radioimmunotherapy in a non-Hodgkin's lymphoma patient previously treated with a yttrium-90-labeled anti-CD22 monoclonal antibody. *Clin Lymphoma* 4(1):56-59, 2003.
 18. Maillard I, Adler SH, Pear WS. Notch and the immune system. *Immunity*, 19(6):781-791, 2003.
 19. Tsai DE, Maillard I, Downs L, Alavi A, Nasta SD, Stadtmauer EA, Porter DL, Klumpp TR, Luger SM, Schuster SJ. Use of Iodine ¹³¹I Tositumomab Radioimmunotherapy in a Patient with Waldenstrom's Macroglobulinemia. *Leuk Lymphoma*, 45(3):591-595, 2004.
 20. Maillard I, Weng AP, Carpenter AC, Rodriguez CG, Sai H, Xu L, Allman D, Aster JC, Pear WS. Mastermind critically regulates Notch-mediated lymphoid cell fate decisions. *Blood*, 104(6):1696-1702, 2004.
 21. Kumar R, Maillard I, Schuster SJ, Alavi A. Utility of fluorodeoxyglucose-PET imaging in the management of patients with Hodgkin's and non-Hodgkin's lymphomas. *Radiol Clin North Am*, 42(6):1083-1100, 2004.

22. Maillard I, Fang T, Pear WS. Regulation of lymphoid development, differentiation and function by the Notch pathway. *Annu Rev Immunol*, 23:945-974, 2005.
23. Sambandam A*, Maillard I*, Zediak VP, Xu L, Gerstein RM, Aster JC, Pear WS, Bhandoola A. Notch signaling controls the generation and differentiation of early T lineage progenitors. *Nature Immunology*, 6(7):663-670, 2005 (*equal contribution).
24. Zediak VP, Maillard I, Bhandoola A. Closer to the source: Notch and the nature of thymus settling cells. *Immunity*, 23(3):245-248, 2005.
25. Tu L, Fang TC, Artis D, Shestova O, Pross SE, Maillard I, Pear WS. Notch signaling is an important regulator of type 2 immunity. *J. Exp. Med.*, 202(8):1037-1042, 2005.
26. Maillard I, Schwarz B, Sambandam A, Fang T, Shestova O, Xu L, Bhandoola A, Pear WS. Notch-dependent T lineage commitment occurs at extrathymic sites following bone marrow transplantation. *Blood*, 107(9):3511-3519, 2006.
27. Maillard I, Tu L, Sambandam A, Yashiro-Ohtani Y, Millholland J, Keeshan K, Shestova O, Xu L, Bhandoola A, Pear WS. The requirement for Notch signaling at the beta selection checkpoint in vivo is absolute and independent of the pre-T cell receptor. *J. Exp. Med.*, 203(10):2239-2245, 2006.
28. Keeshan K, He Y, Wouters BJ, Shestova O, Sai H, Rodriguez CG, Maillard I, Tobias JW, Valk P, Carroll M, Aster JC, Delwel R, Pear WS. Tribbles homolog 2 (Trib2) inactivates C/EBP alpha and causes acute myelogenous leukemia. *Cancer Cell*, 10(5):401-411, 2006.
29. Talebian L, Li Z, Guo Y, Gaudet J, Speck ME, Sugiyama D, Kaur P, Pear WS, Maillard I*, Speck NA*. T lymphoid, megacaryocyte, and granulocyte development are sensitive to decreases in CBFbeta dosage. *Blood (Plenary paper)*, 109(1):11-21, 2007 (*corresponding authors).
30. Thomas M, Calamito M, Srivastava B, Maillard I, Pear WS, Allman D. Notch activity synergizes with B cell receptor and CD40 signaling to enhance B cell activation. *Blood*, 109(8):3342-3350, 2007.
31. Schwarz BA, Sambandam A, Maillard I, Harman BC, Love PE, Bhandoola A. Selective thymus settling regulated by cytokine and chemokine receptors. *J. Immunol.*, 178(4):2008-2017, 2007.
32. Zediak VP, Maillard I, Bhandoola A. Multiple pre-thymic defects underlie age-related loss of T progenitor competence. *Blood*, 110(4):1161-1167, 2007.
33. Maillard I and Pear WS. Keeping a tight leash on Notch. *Science*, 316(5826):840-842, 2007.
34. Wu L*, Maillard I*, Nakamura M, Pear WS, Griffin JD. The transcriptional co-activator Maml1 is required for Notch2-mediated marginal zone B cell development. *Blood*, 110(10):3618-3623, 2007 (*equal contribution).
35. Santos MA, Sarmiento LM, Rebelo M, Doce AA, Maillard I, Dumortier A, Neves H, Radtke F, Pear WS, Parreira L, Demengeot J. Notch1 engagement by Delta-like-1 promotes differentiation of B lymphocytes to antibody-secreting cells. *Proc Acad Natl Sci USA*, 104(39):15454-15459, 2007.
36. Guo Y, Maillard I, Chakraborti S, Rothenberg EV, Speck NS. Core binding factors are necessary for natural killer cell development, and cooperate with Notch signaling during T cell specification. *Blood*, epub ahead of print, 2008.
37. Maillard I, Koch U, Dumortier A, Shestova O, Xu L, Sai H, Pross SE, Aster JC, Bhandoola A, Radtke F, Pear WS. Canonical Notch signaling is dispensable for the maintenance of adult hematopoietic stem cells. *Cell Stem Cell*, 2(4), 356-366, 2008.

Abstracts and presentations (since 2003):

1. Ivan Maillard, Andrew P. Weng, Lanwei Xu, Carlos Rodriguez, Andrea C. Carpenter, Hong Sai, Dave Allman, Jon C. Aster, and Warren S. Pear. Mastermind is required for Notch-mediated lymphoid cell fate decisions. Oral presentation. FASEB Research Conference, Lymphocytes and the immune system. Tucson, AZ, 07/2003.
2. Ivan Maillard, Andrew P. Weng, Arivazhagan Sambandan, Andrea C. Carpenter, Hong Sai, Lanwei Xu, David Allman, Avinash Bhandoola, Jon C. Aster, and Warren S. Pear. Mastermind critically regulates lymphoid cell fate decisions. Oral presentation. American Society of Hematology, Annual Meeting. San Diego, CA, 12/2003.
3. Ivan Maillard, David Herman, Murat F Bozkurt, Rakesh Kumar, Srikant Sankaran, Liang Guan, Hongming Zhuang, Joel Green, Lisa Downs, Rebecca Elstrom, Abass Alavi and Stephen J

- Schuster. Comparison of conventional staging studies and FDG-PET imaging in Hodgkin's, diffuse large B-cell and follicular lymphomas. Poster presentation. American Society of Hematology, Annual Meeting. San Diego, CA, 12/2003.
4. Jon C. Aster, Andrew P. Weng, Stephen C. Blacklow, Frederick G. Karnell, John Millholland, Ivan Maillard, Warren S. Pear. Activated Notch4 induces T lymphocyte development without causing T cell transformation. Poster presentation. American Society of Hematology, Annual Meeting. San Diego, CA, 12/2003.
 5. Ivan Maillard, John M. Millholland, Yiping He, Andrea C. Carpenter, Jon C. Aster, Avinash Bhandoola and Warren S. Pear. Assessing the activity of individual Notch family members and selected downstream targets in fetal thymic organ cultures. Poster presentation. Cold Spring Harbor Laboratory Spring Meeting, Gene expression and signaling in the immune system. Cold Spring Harbor, NY, 04/2004.
 6. Ivan Maillard, Arivazhagan Sambandam, Valerie P. Zediak, Benjamin Schwarz, Lanwei Xu, Jon C. Aster, Warren S. Pear, Avinash Bhandoola. Intrathymic and extrathymic Notch-dependent T lineage checkpoints during normal development and after bone marrow transplantation. Poster presentation. American Society of Hematology, Annual Meeting. San Diego, CA, 12/2004.
 7. Seth Pross. John M. Millholland, Hong Sai, Andrew P. Weng, Jon C. Aster, Warren S. Pear, Ivan Maillard. Efficient inhibition of Notch3 and Notch4 family members in vivo by a dominant negative mutant of Mastermind. Poster presentation. American Society of Hematology, Annual Meeting. San Diego, CA, 12/2004.
 8. Ivan Maillard, Laleh Talebian, Zhe Li, Yalin Guo, Daisuke Sugiyama, Maren E. Speck, Warren S. Pear, Nancy A. Speck. A Hypomorphic *Cbfb* Allele Reveals a Critical Dosage-Sensitive Function of Core Binding Factors at the Earliest Stages of T Cell Development. Oral presentation. American Society of Hematology, Annual Meeting. Atlanta, GA, 12/2005.
 9. Ivan Maillard, Seth E. Pross, Olga Shestova, Hong Sai, Jon C. Aster, Avinash Bhandoola and Warren S. Pear. Canonical Notch Signaling is Dispensable for the Maintenance of Adult Hematopoietic Stem Cells. Oral presentation. American Society of Hematology, Annual Meeting. Atlanta, GA, 12/2005.
 10. Ivan Maillard, Seth E. Pross, Olga Shestova, Hong Sai, Jon C. Aster, Avinash Bhandoola and Warren S. Pear. Canonical Notch Signaling is Dispensable for the Maintenance of Adult Hematopoietic Stem Cells. Poster and oral presentation. ESH-AACR conference, The molecular basis for targeted therapy for leukemia. Cascais, Portugal, 02/2006.
 11. Ivan Maillard, Seth E. Pross, Olga Shestova, Hong Sai, Jon C. Aster, Avinash Bhandoola and Warren S. Pear. Canonical Notch Signaling is Dispensable for the Maintenance of Adult Hematopoietic Stem Cells. Poster presentation. Cold Spring Harbor Laboratory Spring Meeting, Gene expression and signaling in the immune system. Cold Spring Harbor, NY, 04/2006.
 12. Ivan Maillard, Olga Shestova, Hong Sai, Frances High, Jon Epstein, Jon C. Aster, Avinash Bhandoola, Warren S. Pear. Differential requirements for canonical Notch signaling in the maintenance of adult and mid-gestation fetal hematopoietic stem cells. Poster presentation. Leukemia and Lymphoma Society meeting on Notch and hematopoiesis. Miami, FL, 11/2006.
 13. Ivan Maillard, Frances High, Olga Shestova, Priya Dedhia, Jonathan Epstein, Warren S. Pear. Notch signaling regulates hematopoietic stem cell homeostasis in the fetal liver through a non-cell-autonomous mechanism. Oral presentation. American Society of Hematology, Annual Meeting. Orlando, FL, 12/2006.
 14. Lizi Wu, Ivan Maillard, Makoto Nakamura, Warren S. Pear, James D. Griffin. The MAML1 transcriptional co-activator is required for the development of marginal zone B cells. Oral presentation. American Society of Hematology, Annual Meeting. Orlando, FL, 12/2006.
 15. Ivan Maillard, Frances High, Olga Shestova, Jon C. Aster, Jonathan Epstein, Warren S. Pear. Notch signaling regulates hematopoietic stem cell homeostasis in the fetal liver through effects on the stem cell microenvironment. Poster and oral presentation. Keystone conference on Stem cell interactions with their microenvironmental niche. Keystone, CO, 03/2007.
 16. Ivan Maillard, Ya-Xiong Chen, Anthony T. Tubbs, Olga Shestova, Warren S. Pear, Xianxin Hua. Menin regulates the function of lymphoid progenitors and hematopoietic stem cells. Poster presentation. American Society of Hematology, Annual Meeting. Atlanta, GA, 12/2007.