Yi-Fen Lu（呂宜棻）, Ph.D.
Postdoctoral Research Fellow

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Areas of Expertise

- Hematopoietic stem cells
- Cell engineering
- Induced pluripotent stem cell reprogramming
- Single cell RNA-Seq (Fluidigm)
- Microarray Analysis
- Flow Cytometry
- Antibody-based immunotherapy
- Cell-based immunotherapy
- Cancer immunotherapy
- Autoimmune diseases
- CRISPR/Cas9 targeted genome editing
- Vaccine development
- Stem cell biology
- Immunology
- Hematology
- Oncology
- Molecular biology
- Retrovirology
- Genetics
- Animal models

Education & Industrial Research Experiences

Research Fellow, Laboratory of George Daley, M.D., Ph.D.
Division of Hematology/Oncology, Children's Hospital Boston, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School
Boston, MA, since Nov 2011

- Identify gene regulatory networks required in engineering definitive hematopoietic stem cell from embryonic stem cell and induced pluripotent stem cell.
- Define key transcriptional regulators important in cell fate transition from early embryonic endothelium to hematopoietic stem and progenitors.
- Develop stem cell therapies for hematopoietic malignancies and genetic blood disorders.
- Investigate the therapeutic potential of CRISPR/Cas9 mediated genome editing in treating oncogenic viral infection.

Education & Industrial Research Experiences (continued)

Postdoctoral Fellow, Laboratory of Richard Van Etten, M.D., Ph.D.
Molecular Oncology Research Institute, Tufts Medical Center
Boston, MA, Mar-Oct 2011

- Interrogate the molecular mechanisms of leukemic stem cell eradication in an adoptive immunotherapy model of chronic myeloid leukemia (CML).
- Initiate pioneer study for CML immunotherapy through targeting the leukemic stem cell-specific antigen IL-1 receptor accessory protein.

Ph.D. in Immunology, Laboratory of Richard Van Etten, M.D., Ph.D.,
Sackler School of Graduate Biomedical Science, Tufts University
Boston, MA, Sep 2005-Feb 2011

- Establish preclinical models of adoptive immunotherapy for chronic myeloid leukemia in mice, Ph.D. thesis.
- Develop Natural Killer cell-based adoptive immunotherapy for acute lymphoblastic leukemia.
- Assist NIH/NCI grant submission, 2R01 CA90576-07.

Assistant Scientist, AbGenomics Corporation
Taipei, Taiwan, Aug 2001-Aug 2005

- Support identification of PSGL-1 as a novel T cell apoptosis-inducing molecule.
- Conduct animal studies of anti-PSGL-1 therapy for inflammatory autoimmune diseases including rheumatoid arthritis, type I diabetes, as well as for transplant-related skin-graft surgery and systemic graft-versus-host disease models.
- Execute preclinical safety trial of anti-PSGL-1 therapy in primates.
- Facilitate U.S. patent application for anti-PSGL-1 antibodies (No. 20110172397).
- Promote the process of establishing license agreement with Boehringer Ingelheim Pharmaceuticals to develop, manufacture and commercialize anti-PSGL-1 antibody.

M.S. in Immunology, Laboratory of Rong-Hwa Lin, Ph.D.,
Graduate Institute of Immunology, National Taiwan University
Taipei, Taiwan, Sep 1999-May 2001

- Characterize the apoptosis-inducing property of a novel monoclonal antibody that preferentially targets activated T cells, Master thesis.

B.S., Department of Medical Technology, National Cheng Kung University
Tainan, Taiwan, Sep 1995-May 1999

Academic Awards and Public Presentations

2014 Invited Speaker, Boston Taiwanese Biotechnology Association Academic Seminar
2014 Invited Speaker, 6th Progenitor Cell Biology Consortium (PCBC)
2014 Invited Poster Presentations, 12th International Society for Stem Cell Research (ISSCR)
2013 Invited Speaker, 5th Progenitor Cell Biology Consortium (PCBC)
2013 Invited Poster Presentations, 11th International Society for Stem Cell Research (ISSCR)
2013 Invited Poster Presentations, Keystone Symposia: Hematopoiesis
2012 Louis Lasagna Award in Translational Research, Sackler School of Graduate Biomedical Science, Tufts University
2011 Invited Speaker, ESH-iCML13th International Conference Chronic Myeloid Leukemia: Biology and Therapy
2011 Invited Speaker and Poster Presentations, Keystone Symposia: Hematopoiesis
2011 Invited Speaker, 19th Annual Sidney Leskowitz Memorial Lecture, Tufts University
2009 Student Travel Award, Sackler School of Graduate Biomedical Science, Tufts University
2008 Student Travel Award, Sackler School of Graduate Biomedical Science, Tufts University
2007 Student Travel Award, Sackler School of Graduate Biomedical Science, Tufts University
2006 Student Travel Award, Sackler School of Graduate Biomedical Science, Tufts University
1999 Scholarship Award, Tai-Lei Culture and Education Foundation
1998 Scholarship Award, College of Medicine, National Cheng Kung University

Teaching Experiences

2015 Mentoring HHMI summer interns, Harvard University
2014 Mentoring HHMI summer interns, Harvard University
2013 Invited graduate lecture on cancer stem cells, Institute of Biomedical Engineering, National Tsing Hua University
2013 Mentoring research associates and summer interns, Harvard University
2012 Mentoring graduate students, Harvard University
2009 Teaching Assistant in Immunology, Tufts University
2006 Teaching Assistant in Biochemistry, Tufts University

Professional Memberships

- International society for stem cell research (ISSCR) - member
- Progenitor Cell Biology Consortium (PCBC) – PCBC Fellow

Bibliography

- Jang IH, **Lu YF**, Zhao L, Wenzel PL, Kume T, Datta SM, et al. Notch1 acts via Foxc2 to induce the endothelial to hematopoietic transition during embryonic development. Blood. 2015 Feb 26;125(9):1418-26.
  * Jang IH & **Lu YF** contributed equally to this study.

- Kim PG, Albacker CE, **Lu YF**, Jang IH, Heffner GC, Lim Y, et al. A signaling axis involving Hedgehog, Notch, and Scl promotes the embryonic endothelial to hematopoietic transition. Proceedings of the National Academy of Sciences of the United States of America. 2013 110(2):E141-50

- **Lu YF**, Gavrilescu C, Betancur M, Lazarides K, Klingemann H, Van Etten RA. Distinct graft-vs-leukemic stem cell effects of early or delayed donor leukocyte infusions in a mouse chronic myeloid leukemia model. Blood. 2012 Jan 5;119(1):273-84.

- Huang CC, **Lu YF**, Wen SN, Hsieh WC, Lin YC, Liu MR, et al. A novel apoptosis-inducing anti-PSGL-1 antibody for T cell-mediated diseases. Eur J Immunol. 2005 Jul;35(7):2239-49.
  * Huang CC & **Lu YF** contributed equally to this study.