Kerim B. Kaylan
Graduate Student, University of Illinois at Urbana-Champaign
Department of Bioengineering ◆ Medical Scholars Program
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Education

08/2012-Present **M.D., Ph.D. in Bioengineering**, University of Illinois at Urbana-Champaign, Urbana, IL *(UIUC)*
Medical Scholars Program (MSP)
Adviser: Prof. Gregory H. Underhill
Cumulative GPA: 4.00/4.00

08/2008-05/2012 **B.S.E. in Biomedical Engineering**, University of Michigan, Ann Arbor, MI *(UM)*
Magna Cum Laude
Cumulative GPA: 3.57/4.00

Honors, Awards, and Fellowships

05/2010-08/2010 Summer Biomedical and Life Sciences Fellowship, UM Undergraduate Research Opportunity Program
(Sponsored by the Howard Hughes Medical Institute and the Genentech Foundation)
09/2008-05/2009 Michigan Promise Scholarship
09/2008-05/2009 Michigan Competitive Scholarship

Research Experience

08/2012-Present **Research Assistant**, Underhill Lab, Department of Bioengineering, UIUC
Adviser: Prof. Gregory H. Underhill
• Developing microtechnological methods to control environmental cues and cell signaling *in vitro*
• Studying the role of microenvironmental regulation in the genesis of childhood liver cancer

10/2009-05/2011 **Research Assistant**, Takayama Lab, Department of Biomedical Engineering, UM
Advisers: Prof. Shuichi Takayama, Prof. Hossein Tavana
• Investigated the applications of polymeric aqueous two-phase systems (ATPS) to the patterning of lipids, proteins, cells, and other biologically significant molecules and particles
• Designed and validated a high throughput ATPS cell migration assay
• Formulated standard operating procedures for automated lab equipment

Industry Experience

06/2011-12/2011 **Co-op**, Biological Technologies, Genentech, Inc., South San Francisco, CA
Manager: Dr. Guoying Jiang
• Designed and optimized a functional cell-based assay for a therapeutic monoclonal antibody (MAb_1)
• Confirmed the function and identity of a key protein lot for commercial use with MAb_1
• Investigated alternative assay formats reflective of the mechanism of action of MAb_1
• Screened and explored alternative cell lines for response and efficacy in the assay

09/2010-05/2011 **Student Engineer**, NeuroNexus Technologies, Inc., Ann Arbor, MI
Managers: Dr. John Seymour, Dr. Gregory Gage
• Conducted research on the needs of neuroscientists engaged in optogenetic studies with respect to desirable characteristics of optical neural stimulation systems for use with mice
• Designed and prototyped an advanced portable optical neural stimulation system
• Optimized optoelectrode/diode coupling efficiency using simulations and empirical methods

Teaching and Mentoring Experience

08/2012-Present **Graduate Student Mentor**, Underhill Lab, Department of Bioengineering, UIUC
• Trained and mentored two new undergraduate assistants regarding common wet lab techniques
• Guided mentees through the process of conducting research and helped them understand the broader importance and justification for each experiment and project

Teaching and Mentoring Experience (continued)

01/2012-04/2012 **Teaching Assistant**, BIOMEDE 418-001 *(Quantitative Cell Biology)*, Department of Biomedical Engineering, UM
Primary Instructor: Prof. Shuichi Takayama
• Held office hours 2-3 hours a week in addition to grading and administering homework and exams
• Met with students one-on-one as needed to answer questions about key concepts and to ameliorate any knowledge gaps, basic (*e.g.*, combinations and permutations) or otherwise
• Organized and carried out high-content review sessions for exams

08/2010-05/2011 **Peer Mentor**, Engineering Advising Center, UM
• Counseled mentee on how to gain research and industry experience as an undergraduate
• Served as a general resource for information regarding academics and course scheduling at UM

Publications

Kaylan KB, Underhill GH. *Hydrogels for Hepatic Tissue Engineering.* Abidian MR, Demirci U, Edalat F, Gurkan UA, Khademhosseini A, editors. Applications of Hydrogels in Regenerative Medicine. Hackensack, NJ: World Scientific Publishing; 2013. *(In review.)*

Tavana H, **Kaylan K**, Bersano-Begey T, Luker KE, Luker GD and Takayama S. *Rehydration of Polymeric, Aqueous, Biphasic System Facilitates High Throughput Cell Exclusion Patterning for Cell Migration Studies.* Adv Funct Mater. **2011**; 21(15): 2920-2926. DOI: 10.1002/adfm.201002559. (Highlighted as frontispiece; DOI: 10.1002/adfm.201190062.)

Posters and Presentations

02/2013 **Kaylan K**. *Bioengineering the Future.* Lecture. Agora Week, University High School, Urbana, IL. 19 Feb 2013.

10/2011 **Kaylan K**, Lesaca I, Jiang G, Gazzano-Santoro H. *Development of a Functional Assay for MAb_1 Utilizing Peptide Uptake.* Poster. Genentech Analytical Development and Quality Control Poster Mixer, South San Francisco, CA. 3 Oct 2011.

08/2011 **Kaylan K**, Lesaca I, Jiang G, Gazzano-Santoro, H. *Development of a Functional Assay for MAb_1.* Poster. Genentech Intern Poster Day, South San Francisco, CA. 11 Aug 2011.

11/2010 **Kaylan K**, Tavana H, Takayama S. *A Novel Cell Migration Assay Utilizing Polymeric Aqueous Two-Phase Systems.* Poster. Student Biomedical Research Forum, Ann Arbor, MI. 4 Nov 2010.

Leadership

10/2012-08/2013 **Medical Scholars Program Retreat Committee**, College of Medicine, UIUC

09/2012-08/2013 **Engineering Graduate Student Advisory Committee**, College of Engineering, UIUC
Secretary, Seminars Sub-Committee

08/2012-Present **Medical Scholars Program Advisory Committee**, College of Medicine, UIUC
Secretary, Entering Class Representative

11/2012-12/2012 **Climate Survey Steering Commitee**, College of Engineering, UIUC

09/2010-05/2011 **Executive Board Member**, Biomedical Engineering Society, College of Engineering, UM
Webmaster

Professional Memberships

03/2013-Present American Physician Scientists Association
09/2012-Present Graduate Cancer Community @ Illinois
08/2012-Present American Medical Student Association
09/2009-05/2012 Biomedical Engineering Society *(UM Student Chapter)*

Computer Skills

Platforms: Mac OS X, Windows, GNU/Linux
Languages: R, MATLAB, LaTeX, C++, HTML/CSS, Markdown
Applications: Emacs, LabVIEW, ImageJ, ZEMAX, SolidWorks, GIMP, Inkscape, ipe