KERIM B. KAYLAN
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Department of Bioengineering ◆ Medical Scholars Program
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EDUCATION

08/2012-Present **MD, PhD in Bioengineering**, University of Illinois at Urbana-Champaign, Urbana, IL *(UIUC)*
Medical Scholars Program (MSP)
University of Illinois College of Medicine
Department of Bioengineering
Adviser: Prof. Gregory H. Underhill
Cumulative GPA: 3.81/4.00

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

HONORS, AWARDS, AND FELLOWSHIPS

08/2014 O'Morchoe Leadership Fellowship, College of Medicine, UIUC
Out in Medicine
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
• Designing microtechnological methods to control environmental cues and cell signaling *in vitro*
• Studying the role of regulation by Notch, Wnt, and TGFβ1 in liver progenitor fate
• Identifying key cell-matrix interactions in lung cancer conducive to drug resistance and metastasis

10/2009-05/2011 **Research Assistant**, Takayama Lab, Department of Biomedical Engineering, UM
Advisers: Prof. Shuichi Takayama, Dr. 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$_1$)
• 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

01/2014-05/2014 **Grader**, BIOE 498/598 GU *(Stem Cell Bioengineering)*, Department of Bioengineering, UIUC
• Graded and provided written feedback on homework assignments

TEACHING AND MENTORING EXPERIENCE (CONTINUED)

08/2012-Present **Graduate Student Mentor**, Underhill Lab, Department of Bioengineering, UIUC
- Trained 16 new lab members regarding lab safety, wet lab techniques, and lab-specific protocols
- Guided mentees through the process of conducting research and helped them understand the broader importance and justification for each experiment and project

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, Viktoriya E, Underhill GU. "Combinatorial microenvironmental regulation of liver progenitor differentiation by JAG1, DLL1, TGFβ1, and ECM." *Cell Reports.* (*In review.*)

Atefi A, Fyffe D, **Kaylan KB**, Tavana H. "Characterization of Phase Diagrams of Aqueous Two-Phase Systems From Volume and Density Measurements." *J. Chromatogr. B.* (*In review.*)

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. *(In press.)*

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

04/2015 **Kaylan KB**, Gentile SD, Milling LE, Bhinge KN, Kosari F, Underhill GH. "Combinatorial cell microarrays for analyzing ECM regulation of tumor cell drug response." Poster.
- College of Medicine Research Day, Urbana, IL. Apr 16 2015.
- American Physician Scientists Association Annual Meeting, Chicago, IL. Apr 25 2015.
- Medical Scholars Program Retreat, Monticello, IL. 23 Aug 2015.

10/2014 **Kaylan K**, Ermilova V, Underhill G. "Arrayed Microenvironments for Probing Liver Progenitor Cell Fate Decisions." Poster. Biomedical Engineering Society Meeting, San Antonio, TX. Oct 25 2014.

02/2014-08/2014 **Kaylan K**, Ermilova V, Underhill G. "Deconstructing combinatorial microenvironmental regulation in hepatoblastoma using cell microarrays." Poster.
- Bioengineering Days, Urbana, IL. 21 Feb 2014.
- College of Medicine Research Day, Urbana, IL. 17 Apr 2014.
- Medical Scholars Program Retreat, Monticello, IL. 23 Aug 2014.
- Graduate Cancer Community Fall Symposium, Urbana, IL. 16 Sep 2014.

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

05/2014-Present **Out in Medicine**, College of Medicine, UIUC
Co-Chair

LEADERSHIP (CONTINUED)

08/2013-Present	**Graduate Cancer Community @ Illinois**, UIUC
	Project Organizer
02/2013	**Bioengineering the Future**, Agora Week course, University Lab High School, Urbana, IL
11/2012-12/2012	**Climate Survey Steering Commitee**, College of Engineering, UIUC
10/2012-09/2014	**MSP Retreat Committee**, College of Medicine, UIUC
	Program Committee, Co-Chair
09/2012-08/2013	**Engineering Graduate Student Advisory Committee**, College of Engineering, UIUC
	Secretary, Seminars Sub-Committee
08/2012-Present	**MSP Advisory Committee**, College of Medicine, UIUC
	Secretary, Entering Class Representative, Class I Representative
09/2010-05/2011	**Biomedical Engineering Society**, College of Engineering, UM
	Executive Board Member, Webmaster

PROFESSIONAL MEMBERSHIPS

12/2014-Present	American Heart Association
03/2014-Present	Biomedical Engineering Society
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 (Ubuntu)
Languages: R, MATLAB, LaTeX, C++, Markdown, HTML, CSS
Applications: RStudio, ImageJ (Fiji), CellProfiler, GIMP, Inkscape, Emacs (org-mode), LabVIEW