

EDUCATION

- 08/2012-Present **MD, PhD in Bioengineering**, University of Illinois at Urbana-Champaign, Urbana, IL (*UIUC*)
Medical Scholars Program (MSP)
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
- 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, 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 (MAb₁)
 - Confirmed the function and identity of a key protein lot for commercial use with MAb₁
 - Investigated alternative assay formats reflective of the mechanism of action of MAb₁
 - 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 and mentored six 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
- 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; 2014. (*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

- 02/2014-08/2014 **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. 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 MAb₁ 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 MAb₁*. 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*
- 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 Committee**, College of Engineering, UIUC
- 10/2012-Present **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*

LEADERSHIP (CONTINUED)

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

PROFESSIONAL MEMBERSHIPS

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, CellProfiler, GIMP, Inkscape, Emacs, LabVIEW