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KERIM B. KAYLAN

education

M.D., College of Medicine, University of Illinois at Chicago, 2021 (expected).

Ph.D., Bioengineering, University of Illinois at Urbana–Champaign, 2017.
Dissertation: *Dissecting combinatorial microenvironmental regulation of cell fate and function using a multi-modal arraying platform.* Advisor: Gregory H. Underhill.

M.S., Bioengineering, University of Illinois at Urbana–Champaign, 2016.
Thesis: *Engineered microenvironments for studying liver progenitor differentiation.* Advisor: Gregory H. Underhill.

B.S.E., Biomedical Engineeering, University of Michigan—Ann Arbor, 2012.
Graduated *magna cum laude*.

positions

Graduate Research Assistant, Tissue Development and Engineering Laboratory, Urbana, IL, 2012–2017.
Principal Investigator: Gregory H. Underhill.

Co-op, Biological Technologies, Genentech, Inc., South San Francisco, CA, 2011.
Manager: Guoying Jiang.

Student Engineer, NeuroNexus, Inc., Ann Arbor, MI, 2010–2011.
Manager: John Seymour.

Undergraduate Research Assistant, Micro/Nano/Molecular Biotechnology Laboratory, Ann Arbor, MI, 2009–2011.
Principal Investigator: Shuichi Takayama.

publications

Journal Articles

Roberto C. Andresen Eguiluz, Kerim B. Kaylan, Gregory H. Underhill, and Deborah E. Leckband. "Substrate stiffness and VE-cadherin mechano-transduction coordinate to regulate endothelial monolayer integrity." *Biomaterials* 140: 45–57. 2017.

Kerim B. Kaylan, Andreas P. Kourouklis, and Gregory H. Underhill. "High-throughput cell microarray platform for correlative analysis of cell differentiation and traction forces." *Journal of Visualized Experiments* 121: e55362. 2017.

Kerim B. Kaylan, Stefan D. Gentile, Lauren E. Milling, Kaustubh N. Bhinge, Farhad Kosari, and Gregory H. Underhill. "Mapping tumor cell drug responses as a function of matrix context and genotype using combinatorial cell microarrays." *Integrative Biology* 8(12): 1221–1231. 2016.

Andreas P. Kourouklis*, Kerim B. Kaylan*, and Gregory H. Underhill. "Substrate stiffness and matrix composition coordinately control the differentiation of liver progenitor cells." *Biomaterials* 99: 82–94. 2016.

Kerim B. Kaylan*, Viktoriya Ermilova*, Ravi Chandra Yada, and Gregory H. Underhill. "Combinatorial microenvironmental regulation of liver progenitor differentiation by Notch ligands, TGFβ, and extracellular matrix." *Scientific Reports* 6(23490). 2016.

Ehsan Atefi, Darcy Fyffe, Kerim B. Kaylan, and Hossein Tavana. "Characterization of aqueous two-phase systems from volume and density measurements." *Journal of Chemical and Engineering Data* 61(4): 1531–1539. 2016.

Hossein Tavana, Kerim Kaylan, Tommaso Bersano-Begey, Kathryn E. Luker, Gary D. Luker, and Shuichi Takayama. "Rehydration of polymeric, aqueous, biphasic system facilitates high throughput cell exclusion patterning for cell migration studies." *Advanced Functional Materials* 21(15): 2920–2926. 2011.

Book Chapter

Kerim B. Kaylan and Gregory H. Underhill. 2016. "Hydrogels for Hepatic Tissue Engineering," in *Gels Handbook: Fundamentals, Properties and Applications*, vol. 2, edited by Mohammad R. Abidian, Umut A. Gurkan, Faramarz Edalat. Hackensack, NJ: World Scientific. 427–462.

peer-reviewed conference presentations

Oral

Kaylan KB, Gentile SD, Milling LE, Bhinge KN, Kosari F, Underhill GH. "Mapping tumor cell drug response as a function of matrix context using combinatorial cell microarrays." Biomedical Engineering Society Annual Meeting, Minneapolis, MN. 6 Oct 2016.

Kaylan KB, Ermilova V, Yada RC, Underhill GH. "Cellular microarrays reveal combinatorial effects of Notch ligands, TGFβ, and extracellular matrix on liver progenitor differentiation." American Society of Mechanical Engineers NanoEngineering for Medicine and Biology Conference, Houston, TX. 23 Feb 2016.

Poster

Kaylan KB, Gentile SD, Milling LE, Bhinge KN, Kosari F, Underhill GH. "Combinatorial cell microarrays for analyzing ECM regulation of tumor cell drug response." American Physician Scientists Association Annual Meeting, Chicago, IL. 25 Apr 2015.

Kaylan K, Ermilova V, Underhill G. "Arrayed microenvironments for probing liver progenitor cell fate decisions." Biomedical Engineering Society Meeting, San Antonio, TX. 25 Oct 2014.

local/regional conference presentations

Oral

Kaylan KB. "Combinatorial microenvironmental regulation of liver progenitor differentiation by Notch ligands, TGFβ, and extracellular matrix." oSTEM Minority Research Symposium, Urbana, IL. 28 Apr 2016.

Kaylan KB. "Combinatorial microenvironmental regulation of liver progenitor differentiation by Notch ligands, TGFβ, and extracellular matrix." Bioengineering Graduate Student Seminar Series, Urbana, IL. 28 Sep 2015.

Poster

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

Kaylan K, Ermilova V, Underhill G. "Arrayed microenvironments for probing liver progenitor cell fate decisions." Biomedical Engineering Society Meeting, San Antonio, TX. 25 Oct 2014.

Kaylan K, Ermilova V, Underhill G. "Deconstructing combinatorial microenvironmental regulation in hepatoblastoma using cell microarrays." Graduate Cancer Community Fall Symposium, Urbana, IL. 16 Sep 2014.

Kaylan K, Ermilova V, Underhill G. "Deconstructing combinatorial microenvironmental regulation in hepatoblastoma using cell microarrays." Medical Scholars Program Retreat, Monticello, IL. 23 Aug 2014.

Kaylan K, Ermilova V, Underhill G. "Deconstructing combinatorial microenvironmental regulation in hepatoblastoma using cell microarrays." College of Medicine Research Day, Urbana, IL. 17 Apr 2014.

Kaylan K, Ermilova V, Underhill G. "Deconstructing combinatorial microenvironmental regulation in hepatoblastoma using cell microarrays." Bioengineering Days, Urbana, IL. 21 Feb 2014.

Kaylan K, Lesaca I, Jiang G, Gazzano-Santoro H. "Development of a functional assay for MAb1 utilizing peptide uptake." Genentech Analytical Development and Quality Control Poster Mixer, South San Francisco, CA. 3 Oct 2011.

Kaylan K, Lesaca I, Jiang G, Gazzano-Santoro, H. "Development of a functional assay for MAb1." Genentech Intern Poster Day, South San Francisco, CA. 11 Aug 2011.

Kaylan K, Tavana H, Takayama S. "A novel cell migration assay utilizing polymeric aqueous two-phase systems." Student Biomedical Research Forum, Ann Arbor, MI. 4 Nov 2010.

grants, honors, and awards

Teacher Ranked as Excellent, University of Illinois at Urbana–Champaign, 2017.

Teacher Ranked as Excellent, University of Illinois at Urbana–Champaign, 2016.
Outstanding ratings; top 10% of teaching assistants as ranked by their students.

Medical Student Interest Group Matching Grant Program, Intersociety Council for Pathology Information, $500, 2016.

I-Corps, University of Illinois at Urbana–Champaign Site Cohort 11, National Science Foundation, $2,000, 2016.

Medical Student Interest Group Matching Grant Program, Intersociety Council for Pathology Information, $750, 2015.

O'Morchoe Leadership Fellowship for Out in Medicine, University of Illinois College of Medicine, $1,500, 2014.

Summer Biomedical and Life Sciences Fellowship, University of Michigan Undergraduate Research Opportunity Program, $4,000, 2010.

Michigan Promise Scholarship, State of Michigan, $1,000, 2008.

Michigan Competitive Scholarship, State of Michigan, $1,300, 2008.

teaching

Instructor, Cell and Tissue Biology, University of Illinois College of Medicine, 2016–2017.

Facilitator, Discover Bioengineering and WYSE summer camps, University of Illinois at Urbana–Champaign, 2015–2016.

Organizer, Bioengineering the Future, University Lab High School, Urbana, IL. 2013.

Mentor, Tissue Development and Engineering Laboratory, Urbana, IL 2012–2017.
Mentored 16 undergraduate students in analytical and experimental research methods.

Instructor, Quantitative Cell Biology, University of Michigan—Ann Arbor, 2012.

Peer Mentor, Engineering Advising Center, University of Michigan—Ann Arbor, 2010–2011.

professional service

Member, USMLE Preparedness Committee, University of Illinois College of Medicine, 2017–present.

Member, Student Curricular Board, University of Illinois College of Medicine, 2017–present.

Member, Medical Scholars Program Steering Committee, University of Illinois College of Medicine, 2017.
Member, Selection committee for Teaching Excellence and Innovation in Education awards, University of Illinois College of Medicine, 2017.
Co-Chair, Medical Scholars Program Advisory Committee, University of Illinois College of Medicine, 2016–2017.
Organizer, Pathology Interest Group, University of Illinois College of Medicine, 2015–2017.
Co-President, Out in Medicine, University of Illinois College of Medicine, 2014–2017.
Organizer, Graduate Cancer Community @ Illinois, University of Illinois at Urbana–Champaign, 2013–2016.
Co-Chair, Medical Scholars Program Retreat Committee, University of Illinois College of Medicine, 2013–2014.
Member, Climate Survey Steering Committee, University of Illinois at Urbana–Champaign, 2012.
Member, Medical Scholars Program Retreat Committee, University of Illinois College of Medicine, 2012–2014.
Member, Engineering Graduate Student Advisory Committee, University of Illinois at Urbana–Champaign, 2012–2013.
Member, Medical Scholars Program Advisory Committee, University of Illinois College of Medicine, 2012–2017.
Executive Board Member, Biomedical Engineering Society, University of Michigan—Ann Arbor, 2010–2011.

professional affiliations

American College of Physicians, 2017–present.
Tau Beta Pi—The Engineering Honor Society, 2014–present.
Biomedical Engineering Society, 2014–present.
American Physician Scientists Association, 2013–present.