

Alan Louis Hutchison



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Education

- 2011–2019 **M.D. (anticipated)**, *The University of Chicago, Pritzker School of Medicine*, Chicago, IL.
- 2011–2016 **Ph.D.**, *The University of Chicago, Biological Sciences Division*, Chicago, IL,
Interdisciplinary Scientist Training Program/ Biophysical Sciences.
“Improved Methods for Detecting Circadian Rhythms in High-Throughput Data”
- 2007–2011 **B.S.**, *Yale University*, New Haven, CT, *Physics with Honors*.

Awards

- 2018 **Clinton Global Initiative University Conference Invited Attendee**.
For a project to legalize and establish Prescription Drug Repositories in Illinois
- 2016 **University of Chicago Student Leader Jane Morton and Henry C. Murphy Award**.
For work improving LGBTQ policies at UChicago Medicine via the Healthcare Equality Index survey
- 2011 **New England Journal of Medicine Scholar**,.
Essay: “Harnessing information technology to build stronger communities and reduce health care disparities”

Publications

- 2018 Hutchison AL, Allada R, Dinner AR. “Bootstrapping and Empirical Bayes Methods Improve Rhythm Detection in Sparsely Sampled Data.” *J Biol Rhythms*. 2018 Aug;33(4):339-349. doi: 10.1177/0748730418789536. PubMed PMID: 30101659.
- 2017 Pekow J, Hutchison AL, Meckel K, Harrington K, Deng Z, Talasila N, Rubin DT, Hanauer SB, Hurst R, Umanskiy K, Fichera A, Hart J, Dinner AR, Bissonnette M. “miR-4728-3p Functions as a Tumor Suppressor in Ulcerative Colitis-associated Colorectal Neoplasia Through Regulation of Focal Adhesion Signaling.” *Inflamm Bowel Dis*. 2017 Aug;23(8):1328-1337. doi: 10.1097/MIB.0000000000001104. PubMed PMID: 28594651.
- Hutchison RL, Hutchison AL, Hirthler MA. “An Experimental Survey on the Effect of Using the CTS-6 Tool on the Diagnosis of Carpal Tunnel Syndrome by Hand Surgeons.” *J Hand Surg Asian Pac Vol*. 2017 Mar;22(1):88-92. doi: 10.1142/S0218810417500150. PubMed PMID: 28205476.
- Hutchison AL, Dinner AR. “Correcting for Dependent P-values in Rhythm Detection” *bioRxiv*, 2017. 118547. doi: <https://doi.org/10.1101/118547>.
- 2016 Gibbons SM, Scholz M, Hutchison AL, Dinner AR, Gilbert JA, Coleman ML. “Disturbance Regimes Predictably Alter Diversity in an Ecologically Complex Bacterial System.” *MBio*. 2016 Dec 20;7(6). pii: e01372-16. doi: 10.1128/mBio.01372-16. PubMed PMID: 27999158.

- 2015 Perelis M, Marcheiva B, Ramsey KM, Schipma MJ, Hutchison AL, Taguchi A, Peek CB, Hong H, Huang W, Omura C, Allred AL, Bradfield CA, Dinner AR, Barish GD, Bass J. "Pancreatic β cell enhancers regulate rhythmic transcription of genes controlling insulin secretion." *Science*. 2015 Nov 6;350(6261):aac4250. doi:10.1126/science.aac4250. PubMed PMID: 26542580.
- Flourakis M, Kula-Eversole E, Hutchison AL, Han TH, Aranda K, Moose DL, White KP, Dinner AR, Lear BC, Ren D, Diekman CO, Raman IM, Allada R. "A Conserved Bicycle Model for Circadian Clock Control of Membrane Excitability." *Cell*. 2015 Aug 13;162(4):836-48. doi: 10.1016/j.cell.2015.07.036. PubMed PMID: 26276633.
- Leone V, Gibbons SM, Martinez K, Hutchison AL, Huang EY, Cham CM, Pierre JF, Heneghan AF, Nadimpalli A, Hubert N, Zale E, Wang Y, Huang Y, Theriault B, Dinner AR, Musch MW, Kudsk KA, Prendergast BJ, Gilbert JA, Chang EB. "Effects of diurnal variation of gut microbes and high-fat feeding on host circadian clock function and metabolism." *Cell Host Microbe*. 2015 May 13;17(5):681-9. doi: 10.1016/j.chom.2015.03.006. Epub 2015 Apr 16. PubMed PMID: 25891358.
- Hutchison AL, Maienschein-Cline M, Chiang AH, Tabei SM, Gudjonson H, Bahroos N, Allada R, Dinner AR. "Improved statistical methods enable greater sensitivity in rhythm detection for genome-wide data." *PLoS Comput Biol*. 2015 Mar 20;11(3):e1004094. doi: 10.1371/journal.pcbi.1004094. eCollection 2015 Mar. PubMed PMID: 25793520.
- 2014 Deng X, Liang H, Ulanovskaya OA, Ji Q, Zhou T, Sun F, Lu Z, Hutchison AL, Lan L, Wu M, Cravatt BF, He C. "Steady-state hydrogen peroxide induces glycolysis in *Staphylococcus aureus* and *Pseudomonas aeruginosa*." *J Bacteriol*. 2014 Jul;196(14):2499-513. doi: 10.1128/JB.01538-14. Epub 2014 Apr 25. PubMed PMID:24769698.
- 2012 Yang L, Shklyar I, Lee HW, Ezeani CC, Anaya J, Balakirsky S, Han X, Enamandram S, Men C, Cheng JY, Nunn A, Mayer T, Francois C, Albrecht M, Hutchison AL, Yap EL, Ing K, Didebulidze G, Xiao B, Hamid H, Farooque P, Detyniecki K, Giacino JT, Blumenfeld H. "Impaired consciousness in epilepsy investigated by a prospective responsiveness in epilepsy scale (RES)." *Epilepsia*. 2012 Mar;53(3):437-47. doi: 10.1111/j.1528-1167.2011.03341.x. Epub 2011 Dec 9. PubMed PMID: 22150524.
- 2011 McCullough BR, Grintsevich EE, Chen CK, Kang H, Hutchison AL, Henn A, Cao W, Suarez C, Martiel JL, Blanchoin L, Reisler E, De La Cruz EM. "Cofilin-linked changes in actin filament flexibility promote severing." *Biophys J*. 2011 Jul 6;101(1):151-9. doi: 10.1016/j.bpj.2011.05.049. PubMed PMID: 21723825.
- 2010 Hutchison AL, Hutchison RL. "Fibonacci, littler, and the hand: a brief review." *Hand (N Y)*. 2010 Dec;5(4):364-8. doi: 10.1007/s11552-010-9268-6. Epub 2010 Apr 8. PubMed PMID: 22131915.
- Hutchison RL, Hutchison AL. "César Roux and his original 1893 paper." *Obes Surg*. 2010 Jul;20(7):953-6. doi: 10.1007/s11695-010-0141-z. PubMed PMID:20373047.

Conference Presentations

Oral Presentations

- 2016 **DARPA Biochronicity Meeting**, Cincinnati, OH. April 25-26, 2016. *Quantifying Differences in Rhythmicity and Phase*. Contributed Talk.
- 2015 **Quantitative Biology (q-bio) 9th Annual Conference**, Blacksburg, VA. August 5-8, 2015. *Stochastic Modeling of Variability in Circadian Rhythms Utilizing Measured Variance*. Contributed Talk.

Poster Presentations

- 2015 **Gordon Research Conference and Seminar on Chronobiology**, Girona, Spain. June 26-July 2, 2015. *Modeling the role of PRL-1 in D. melanogaster core circadian clock dynamics.*
- American Physician Scientists Association Annual Meeting**, Chicago, IL. April 24-26, 2015. *Differential Cycling Method for the Analysis of Phase-Shifts in Circadian Rhythms.*
- DARPA Biochronicity Meeting, Arlington, VA. March 12-13, 2015.** *Improved Statistical Methods Enable Greater Sensitivity for Rhythm Detection in Genome-wide Data.*
- Genetics Society of America Drosophila Research Conference**, Chicago, IL. March 5-7, 2015. *Improved Statistical Methods Enable Greater Sensitivity for Rhythm Detection in Genome-wide Data.*
- 2014 **The University of Chicago Biophysical Sciences Retreat**, Turkey Run, IN. September 8-9, 2014. *Improved Detection of Cycling Gene Expression.*
- National Institute of Biomedical Imaging and Bioengineering**, Bethesda, MD. June 5-6, 2014. *Improved Detection of Cycling Gene Expression.*
- DARPA Biochronicity Meeting**, San Francisco, CA. January 7-8, 2014. *A Network Approach to Identifying Cycling Genes Associated with Neurodegenerative Disease. Improved Detection of Cycling Gene Expression. Tissue and Stress Specific Features of Cycling Gene Networks.*
- 2013 **The University of Chicago Institute of Genomics and Systems Biology Retreat**, St. Charles, IL. September 15, 2013. *Exploring the Dynamics of the Virulence Response in S. aureus.*
- The University of Chicago Institute of Biophysical Dynamics-Peking University Retreat**, Beijing, China. August 23-25, 2013. *Exploring the Dynamics of the Virulence Response in S. aureus.*
- National Institute of Allergy and Infectious Disease/ Infectious Disease Society of America Infectious Diseases Research Careers Meeting**, Bethesda, MD. June 5, 2013. *Exploring the Dynamics of the Virulence Response in S. aureus.*
- 2011 **Biophysical Society National Meeting**, Baltimore, MD. March 5-9, 2011. *Molecular Simulations of the Configurational Entropy of the Trp-Cage Miniprotein.*

 Academic Research Experience

- Dec 2017 – **IEEE/ACM Transactions on Computational Biology and Bioinformatics.**
Present Reviewer/Referee
- Oct 2012 – **Dinner Group, University of Chicago, Chicago, IL**, Thesis Advisor: Aaron R. Dinner,
Present Graduate Researcher.
Detecting and Modeling Rhythmicity in Circadian Systems
- July 2012 – **He Group, University of Chicago, Chicago, IL**, Faculty Advisor: Chaun He, Graduate
Dec 2013 Researcher.
Exploring the Dynamics of the Virulence Response in *S. aureus*
- Sept 2010 – **De La Cruz Group, Yale University, New Haven, CT**, Faculty Advisor: Enrique De La
May 2011 Cruz, Undergraduate Researcher.
The Effect of Gelsolin on the Mechanical Properties of Actin Filaments

- June 2010 – **García Group**, *Rensselaer Polytechnic Institute, Troy, NY*, Faculty Advisor: Angel García,
Aug 2010 Undergraduate Researcher.
The Conformational Entropy of the Trp-cage Miniprotein
- Jan 2010 – **Blumenfeld Group**, *Yale University, New Haven, CT*, Faculty Advisor: Hal Blumenfeld,
May 2010 Undergraduate Researcher.
The Responsiveness in Epilepsy Scale
- Dec 2009 – **NASA Systems Engineering Educational Discovery program**, *Yale University, New Haven, CT*, Faculty Advisor: Sidney Cahn and Zarana Patel, Undergraduate Researcher.
May 2010 3D Cell Culture Apparatus in Microgravity
- June 2009 – **Tipton Group**, *Yale University, New Haven, CT*, Faculty Advisor: Paul Tipton, Undergraduate Researcher.
August 2009 ATLAS Particle Detector Development

Institutional Service

- Aug 2016 – **Pritzker School of Medicine Dean's Council**, *University of Chicago*.
Present MSTP Student Representative
- Aug 2012 – **Pritzker School of Medicine MSTP Admissions Committee**, *University of Chicago*.
May 2016 Student Representative
- Aug 2012 – **Biological Sciences Division Dean's Council**, *University of Chicago*.
May 2016 MSTP Student Representative
- Aug 2012 – **Pritzker School of Medicine MSTP Student Council**, *University of Chicago*.
May 2016 President
- Aug 2011 – **Pritzker School of Medicine Medical Scientist Training Program Student Council**,
Present *University of Chicago*.
Student Representative

Advocacy

- 2018 – **Prescription Drug Repositories**, Chicago, IL
Present
- Sept 17, 2014 **Rally for Medical Research Capitol Hill Day**, Washington D.C.
- Mar 28, 2012 **Coalition of Life Sciences Capitol Hill Day**, Washington D.C.
- 2011 – 2016 **Healthcare Inequality Index**, University of Chicago Medical Center, Chicago, IL

Community Service

- 2014 – **University of Chicago Charter School Woodlawn Campus Garden**, *Chicago, IL*,
Present Community Volunteer.
- Dec 2015 **Brains! Workshops for Middle School Students**, *Chicago, IL*, Student Volunteer.
- 2011-2012 **New Life Volunteering Society Free Clinic**, *Chicago, IL*, Student Volunteer.
- 2011-2012 **Washington Park Free Clinic**, *Chicago, IL*, Student Volunteer.

Computer Languages

- Python
- Mathematica
- Bash
- R
- Matlab
- C++