

KRISTI LIN-RAHARDJA

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SUMMARY

I am currently a fifth-year PhD candidate in Systems Biology and Bioinformatics at Case Western Reserve University, in Dr. Jacob Scott's lab at the Cleveland Clinic. I am utilizing both experimental and computational methods to explore the evolution of drug resistance and sensitivity in cancer, and exploiting these findings to predict drug response and personalize chemotherapy. Following the completion of my doctoral degree, I am eager to continue the advancement of personalized and precision medicine in cancer through computational studies.

EDUCATION

Case Western Reserve University

Ph.D. in Systems Biology & Bioinformatics

August 2020 - Present

Cleveland, OH

- Cleveland Clinic Lerner Research Institute, Jacob Scott's Lab
- Biomedical Graduate Student Organization - Secretary

University of Kansas

Bachelors of Applied Science in Biotechnology, Minor in Business

August 2017 - May 2020

Overland Park, KS

- Summa Cum Laude, Dean's List
- Chancellor's scholarship
- Phi Kappa Phi Honor Society

RESEARCH EXPERIENCE

Ph.D. Candidate

Jacob Scott, M.D., D.Phil

January 2021 - Present

Cleveland Clinic Lerner Research Institute

- Experimentally evolve treatment resistance in Ewings sarcoma and screen for instances of collateral drug sensitivity. From the resulting data, extract predictive biomarkers of drug sensitivity to personalize chemotherapy for patients with advanced disease.
- Utilize public datasets of cancer drug sensitivity and transcriptomics (cell lines and clinical data) to computationally derive and validate gene signatures predictive of chemotherapeutic sensitivity, and create a framework for predicting relative response to multiple drugs on an individual basis.

Bioinformatics Intern

Bioinformatics Department

June 2022 - September 2022

Trailhead Biosystems

- Created a computational pipeline to mine, process, and analyze a large number of single-cell RNA sequencing datasets.
- Developed a web application for the company's bench scientists to explore the collected and pre-processed datasets and easily extract relevant information for their research.

Ph.D. Rotation Student

Andrew Pieper, M.D., Ph.D.

October 2020 - December 2020

Case Western Reserve University

- Analyzed metabolomic data to identify potential mechanisms by which chronic effects of traumatic brain injury are perpetuated, as well as screen for potential biomarkers to characterize severity of injury.
- Analyzed proteomic data to validate accuracy of an improved protocol for purification of neuronal mitochondria.

Ph.D. Rotation Student*Jacob Scott, M.D., D.Phil*

September 2020 - October 2020

Cleveland Clinic Lerner Research Institute

- Created a simulation for stochastic modeling of evolution in Python
- Built a self-contained bacterial evolutionary bioreactor (EVE) to continuously culture E. coli in various drug sequences and observe development of collateral resistance or collateral sensitivity

Ph.D. Rotation Student*Thomas LaFramboise, Ph.D.*

August 2020 - September 2020

Case Western Reserve University

- Analyzed expression of genes relevant to microbial and viral inflammatory pressure in myeloid cells of Epstein Barr Virus-positive patients using R
- Developed a pipeline to identify variants in mitochondrial DNA that may be potential drivers of leukemia

Research Technician*Michele Pritchard, Ph.D.*

September 2019 - July 2020

University of Kansas Medical Center

- Investigated the activation mechanisms of hepatic stellate cells by ethanol and its metabolite, acetaldehyde, to produce hyaluronan in vitro and in vivo.

Biotechnology Senior Capstone Research*Independent capstone research project*

August 2019 - May 2020

University of Kansas

- Planned and budgeted project of choice; recruited and trained local high schoolers to assist in lab work.
- Intended to engineer and optimize E. coli to produce PET plastic degrading enzymes for bioremediation of plastic in the environment. Unable to complete lab work due to pandemic.
- In place of lab work, an extensive literature review was composed exploring various methods of enzyme and host organism optimization.

Undergraduate Research Fellow*Udayan Apte, Ph.D.*

June 2019 - August 2019

University of Kansas Medical Center

- Investigated the role of HNF4a during and after APAP-induced liver toxicity.
- Gathered and analyzed data on various injury and cell death pathways comparing mouse livers with and without HNF4a knockout using western blots, ALT, and qPCR.

Undergraduate Research Assistant*Joseph Hayden, BAS*

February 2018 - May 2018

University of Kansas

- Assisted a senior Biotechnology undergraduate with capstone research.
- Developed and tested an assay using synthetic organic membranes to analyze absorption rate of various drugs and test for adjustments that could be made to increase absorption rate.

PUBLICATIONS

Lin-Rahardja, Kristi, Davis T. Weaver, Jessica A. Scarborough, and Jacob G. Scott. "Evolution-Informed Strategies for Combating Drug Resistance in Cancer." *International Journal of Molecular Sciences* 24, no. 7 (2023): 6738.

Manasi Kotulkar, Dakota R Robarts, **Kristi Lin-Rahardja**, Tara McQuillan, Jordan Surgnier, Sarah E Tague, Maciej Czerwinski, Katie L Dennis, Michele T Pritchard. "Hyaluronan synthesis inhibition normalizes ethanol-enhanced hepatic stellate cell activation." *Alcoholism: Clinical and Experimental Research* (2023).

Kotulkar, Manasi, Diego Paine-Cabrera, Sarah Abernathy, Dakota R. Robarts, Wendena S. Parkes, **Kristi Lin-Rahardja**, September Numata, Margitta Lebofsky, Hartmut Jaeschke, and Udayan Apte.

"Role of HNF4alpha-cMyc interaction in liver regeneration and recovery after acetaminophen-induced acute liver injury." *Hepatology* (2023): 10-1097.

Vargas, Roberto, Aaron Petty, Arda Durmaz, **Kristi Lin-Rahardja**, Ofer Reizes, Rob Debernardo, and Jacob Scott. "Leveraging the p53 signaling pathway as a radio-sensitization strategy in endometrial cancer." *bioRxiv* (2022): 2022-09.

Noterman, Maria F., Kalyani Chaubey, **Kristi Lin-Rahardja**, Anjali M. Rajadhyaksha, Andrew A. Pieper, and Eric B. Taylor. "Dual-process brain mitochondria isolation preserves function and clarifies protein composition." *Proceedings of the National Academy of Sciences* 118, no. 11 (2021): e2019046118.

PRESENTATIONS

Gordon Research Conference - Microbial Populations Biology (July 2023). "Uncovering predictive signatures of Ewings Sarcoma drug sensitivity during the evolution of resistance". **K. Lin-Rahardja**, J. Scarborough, M. Hitomi, M. Dinh, J. Scott. Andover, NH.

Math Oncology (May 2023). "Uncovering predictive signatures of Ewings Sarcoma drug sensitivity during the evolution of resistance". **K. Lin-Rahardja**, J. Scarborough, M. Hitomi, M. Dinh, J. Scott. Scottsdale, AZ.

American Association for Cancer Research (AACR) Annual Meeting (April 2023). "Uncovering predictive signatures of Ewings Sarcoma drug sensitivity during the evolution of resistance". **K. Lin-Rahardja**, J. Scarborough, M. Hitomi, M. Dinh, J. Scott. Orlando, FL.

Biomedical Graduate Student Symposium (Sep 2022). "Predicting and ranking response to multiple chemotherapies with gene expression signatures". **K. Lin-Rahardja**, J. Scarborough, J. Scott. Case Western Reserve University, Cleveland, OH.

American Association for Cancer Research (AACR) Evolutionary Dynamics in Carcinogenesis and Response to Therapy (Mar 2022). "Uncovering polygenic signatures of Ewings Sarcoma drug sensitivity during the evolution of resistance". **K. Lin-Rahardja**, J. Scarborough, M. Hitomi, M. Dinh, J. Scott. Tampa, FL.

Biomedical Graduate Student Symposium (Nov 2021). "Uncovering polygenic signatures of Ewings Sarcoma drug sensitivity during the evolution of resistance". **K. Lin-Rahardja**, J. Scarborough, M. Hitomi, M. Dinh, J. Scott. Case Western Reserve University, Cleveland, OH.

Case Comprehensive Cancer Center Retreat (Jul 2021). "Development of an Evolutionary bioEactor (EVE) to explore the evolution of drug resistance in leukemia". **K. Lin-Rahardja**, V. Gopalakrishnan, D. Shiferaw Tadele, L. Opasic, M. Dinh, J. Scott. Case Western Reserve University, Cleveland, OH.

Biotechnology Senior Capstone Showcase (May 2020). "Let's Eat Plastic! Induced degradation of polyethylene terephthalate (PET) by *Escherichia Coli*". **K. Lin**, J. Trembl, R. Logan. University of Kansas, Overland Park, KS.

Summer Undergraduate Research Fellowship (Jul 2019). "The role of HNF4a during and after acetaminophen-induced liver toxicity". **K. Lin**, S. Griffith, U. Apte. University of Kansas Medical Center, Kansas City, KS.