KEVIN MOYUNG

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EDUCATION

Duke University   *Durham, NC*
Ph.D Candidate in Computational Biology and Bioinformatics   *Aug 2019 - Present*
Advisors: David MacAlpine and Alex Hartemink

University of California, San Diego   *La Jolla, CA*
B.S. in Biology: Bioinformatics   *Sep 2015 - Jun 2019*

RESEARCH EXPERIENCE

MacAlpine Lab, Duke University   *Durham, NC*
Graduate Student Researcher   *Apr 2020 - Present*

· Analyzed how chromatin occupancy changes in response to genetic perturbations and linking them with transcriptional programs to better understand gene regulation in yeast.
· Developed statistical and computational approaches to analyze epigenomic (MNase-seq) and transcriptomic (RNA-seq, Microarray) data to yield new insights into gene regulatory networks

Xie Group, Duke University   *Durham, NC*
Research Rotation   *Jan 2020 - Mar 2020*

· Developed statistical and computational approaches to study chromatin remodeling and transcriptomic changes in T cell memory formation by leveraging bulk RNA-seq and ATAC-seq data in mice.

Wray Lab, Duke University   *Durham, NC*
Research Rotation   *Sep 2019 - Nov 2019*

· Analyzed single-cell RNA-seq data during the early development of sea urchin embryos.
· Identified novel transcription factors that could illuminate uncovered aspects of the developmental gene regulatory network in the Lytechinus Variegatus species.

Insel Lab, UC San Diego   *La Jolla, CA*
Bioinformatics Researcher   *Nov 2016 - May 2019*

· Assisted in the development and implementation of an RNA-seq analysis pipeline using bioinformatics tools such as Kallisto and EdgeR.
· Analyzed RNA-seq data for differential gene expression of G-protein coupled receptors in solid tumors.
· Mined and visualized data for mutations, copy number variation and gene expression using TCGA and GTEX public databases, incorporating tools from UCSC Xena.

WORK EXPERIENCE

Data+ Program, Duke University   *Durham, NC*
Project Manager   *May 2022 - Aug 2022*

· Managed a team of 20 undergraduate and masters students from Duke and Duke Kunshan University (China) to investigate the social, behavioral, environmental, and cultural determinants of cancer in regions across China.
· Developed a plan for students to efficiently execute research related to their projects while facilitating weekly meetings with students and professors from the U.S. and China.

Ferring Pharmaceuticals, Inc. *San Diego, CA*
Bioinformatics Intern *Jun 2018 - Aug 2018*
· Developed and optimized machine learning models to stratify non-muscle invasive bladder cancer patients into various molecular and prognostic subgroups.
· Performed survival analysis on overall survival and tumor progression derived from molecular gene signatures.
· Developed and optimized a cross-platform analysis pipeline for high dimensional RNA-seq and Microarray datasets.

Aduro Biotech, Inc. *Berkeley, CA*
Immune Monitoring and Biomarker Development Intern *Jun 2017 - Sep 2017*
· Optimized data mining from the prediction of immunogenic peptides using NetMHC 4.0 and Epitope Prediction using R.
· Built a graphical user interface in Python that quickly mines the PubMed database for article abstracts.
· Developed a database to store and access ELISPOT and high dimensional clinical data using SQL and Access.

Karin Lab, UC San Diego *La Jolla, CA*
Lab Assistant *Jan 2016 - May 2017*
· Performed and optimized Polymerase Chain Reactions (PCR) on over 100 strains of mice.
· Generated data from amplified DNA via Gel Electrophoresis.

PUBLICATIONS

GPCRs show widespread differential mRNA expression, frequent mutation and copy number variation in solid tumors
PLOS Biology (2019)

Krishna Sriram, Kevin Moyung, Ross Corriden, Hannah Carter, Paul Insel

Detection and quantification of GPCR mRNA: An assessment and implications of data from high-content methods
ACS Omega (2019)

Krishna Sriram, Shu Z. Wiley, Kevin Moyung, Matthew W. Gorr, Cristina Salmern, Jordin Marucut, Randall P. French, Andrew M. Lowy, Paul A. Insel

ABSTRACTS

Chromatin dynamics from genetic perturbations are associated with transcription and reveal a larger gene regulatory network
Intelligent Systems for Molecular Biology (2022)

Kevin Moyung, Yulong Li, Alexander Hartemink, David MacAlpine

New insights from The Cancer Genome Atlas: Implications for GPCR expression in cell compartments in solid tumors
The FASEB Journal (2020)

Krishna Sriram, Kevin Moyung, Paul A. Insel

Solid tumors have frequent mutation, copy number variation and differential mRNA expression of GPCRs: Are such GPCRs functional oncogenes
Cancer Research (2018)

Krishna Sriram, <u>Kevin Moyung</u>, Ross Corriden, Paul Insel

HRH1: A novel GPCR drug target in pancreatic cancer
The FASEB Journal (2018)

Alyssa Rodriguez, Krishna Sriram, <u>Kevin Moyung</u>, Paul A. Insel

PRESENTATIONS AND TALKS

Biochemistry Retreat, Duke University (Poster, Oct 2022)
Intelligent Systems for Molecular Biology, RegSys (Talk and Poster, Jul 2022)
Pharmacology and Cancer Biology Retreat, Duke University (Poster, May 2022)

AWARDS AND HONORS

NSF Graduate Research Fellowship Program (Honorable Mention, 2021)
NIH T32 Training Grant (2019-2021)
UC San Diego Provost Honors (2017, 2018)

SKILLS

Programming Languages	R, Python, Bash, C++, Java, MATLAB
Bioinformatics	RNA-seq, Microarray, MNase-seq, ATAC-seq, Single Cell RNA-seq
Machine Learning	Clustering, Classification, Regression
Tools	Slurm, Git, Vim, RStudio, Jupyter, Anaconda, Word, Excel, Powerpoint
Laboratory Techniques	Polymerase Chain Reaction (PCR), Gel Electrophoresis
Spoken Languages	English, Spanish, Cantonese, Mandarin

TEACHING EXPERIENCE

Introduction to Computational Genomics (Graduate Teaching Assistant, Fall 2022)

LEADERSHIP AND EXTRACURRICULARS

Computational Biology and Bioinformatics Recruitment Committee *Durham, NC*
Chair *Nov 2020 - Apr 2022*

· Coordinated the planning and execution of recruitment events for PhD applicants to the Duke Computational Biology and Bioinformatics program.
· Planned and hosted of a virtual recruitment week for prospective PhD students during the 2021/2022 application cycle.

Computational Biology and Bioinformatics Student Committee *Durham, NC*
Member *Nov 2020 - Jan 2022*

· Worked with the graduate school administrators to allocate funding for social activities throughout the year.
· Planned and hosted events during the academic year to help PhD students engage with peers and faculty.

The Undergraduate Bioinformatics Club (UBIC) *La Jolla, CA*
Community Service Chair *Sep 2017 - Jun 2018*

· Created a Sequence a Monster activity for elementary, middle, and high school students at the San Diego Science and Engineering Festival to teach children about DNA, genotypes, and phenotypes.
· Built a Lego Sequencer using Arduino and Python.

· Led a committee of undergraduate bioinformatics students to plan and host quarterly outreach programs and events.

The Undergraduate Bioinformatics Club (UBIC) *La Jolla, CA*
Bioinformatics Expo Chair *Mar 2017 - Jun 2017*

· Led a team of committee members to plan and successfully execute an industry and academia symposium for undergraduate bioinformatics students with over 80 attendees.
· Coordinated with distinguished speakers such as Dr. Pavel Pevzner, Dr. Trey Ideker, Dr. Hannah Carter, and Dr. Terry Gaasterland.

RELEVANT COURSEWORK

Genome Tools and Technologies	Advanced Data Structures
Computational Sequence Biology	Linear Algebra
Advanced Bioinformatics Lab	Introduction to Machine Learning
Advanced Tools in Bioinformatics	Molecular Sequence Analysis
Probability and Statistics for Bioinformatics	Biological Databases
Design and Analysis of Algorithms	Introduction to Mathematical Statistics