Selcan Aydın
Curriculum Vitae

The Jackson Laboratory
600 Main Street
Bar Harbor, ME 04609
selcan.aydin@jax.org
Tel: +1 919 627 4902

EDUCATION

PhD Biology, Duke University, USA, 2017
Advisor: Dr. Nicolas E. Buchler
MSc Systems Biology, University of Heidelberg, Germany, 2011
BSc Biological Sciences and Bioengineering, Sabanci University, Turkey, 2009

PROFESSIONAL APPOINTMENTS

Associate Computational Scientist, Munger Lab, The Jackson Laboratory, USA, 2023 -
Postdoctoral Fellow Munger Lab, The Jackson Laboratory, USA, 2018- 2023
Advisor: Dr. Steven C. Munger

PUBLICATIONS

1. **Aydin S**, Skelly DA, Dewey H, Mahoney JM, Choi T, Reinholdt LG, Baker CL, Munger SC. Systems genetics reveals the influence of eQTLs in mouse embryonic stem cells on transcriptional variation later in differentiated neural progenitor cells. G3 (Bethesda). 2025 May 6;jkaf099. PMID: 40327589.
2. **Aydin S**, Skelly DA, Dewey H, Mahoney JM, Choi T, Reinholdt LG, Baker CL, Munger SC. Cross cell-type systems genetics reveals the influence of eQTL at multiple points in the developmental trajectory of mouse neural progenitor cells. bioRxiv; 2025.
3. Stanton A, **Aydin S,** Skelly DA, Stavish D, Leonhard K, Taapken S, McIntire E, Pankratz M, Czechanski A, Ludwig T, Choi T, Gygi SP, Barbaric I, Munger SC, Reinholdt LG, Pera MF. Chromosome X Dosage Modulates Development of Aneuploidy in Genetically Diverse Mouse Embryonic Stem Cells. bioRxiv; 2024.
4. Cortes DE, Escudero M, Korgan AC, Mitra A, Edwards A, **Aydin S**, Munger SC, Charland K, Zhang ZW, O'Connell KMS, Reinholdt LG, Pera MF. An in vitro neurogenetics platform for precision disease modeling in the mouse. Sci Adv. 2024 Apr 5;10(14):eadj9305. doi: 10.1126/sciadv.adj9305. Epub 2024 Apr 3. PubMed PMID: 38569042; PubMed Central PMCID: PMC10990289.
5. Cortes DE, Escudero M, Mitra A, Korgan AC, Edwards A, **Aydin S**, Munger SC, Zhang ZW, O'Connell KMS, Reinholdt LG, Pera MF. An in vitro neurogenetics platform for precision disease modeling in the mouse. bioRxiv; 2023.
6. **Aydin S**, Pham DT, Zhang T, Keele GR, Skelly DA, Paulo JA, Pankratz M, Choi T, Gygi SP, Reinholdt LG, Baker CL, Churchill GA, Munger SC. Genetic dissection of the pluripotent proteome through multi-omics data integration. Cell Genom. 2023 Apr 12;3(4):100283. doi: 10.1016/j.xgen.2023.100283. eCollection 2023 Apr 12. PubMed PMID: 37082146; PubMed Central PMCID: PMC10112288.

7. **Aydin S**, Pham DT, Zhang T, Keele GR, Skelly DA, Pankratz M, Choi T, Gygi SP, Reinholdt LG, Baker CL, Churchill GA, Munger SC. Genetic dissection of the pluripotent proteome through multi-omics data integration. bioRxiv; 2022.
8. Ortmann D, Brown S, Czechanski A, **Aydin S**, Muraro D, Huang Y, Tomaz RA, Osnato A, Canu G, Wesley BT, Skelly DA, Stegle O, Choi T, Churchill GA, Baker CL, Rugg-Gunn PJ, Munger SC, Reinholdt LG, Vallier L. Naive Pluripotent Stem Cells Exhibit Phenotypic Variability that Is Driven by Genetic Variation. Cell Stem Cell. 2020 Sep 3;27(3):470-481.e6. doi: 10.1016/j.stem.2020.07.019. Epub 2020 Aug 13. PubMed PMID: 32795399; PubMed Central PMCID: PMC7487768.
9. Skelly DA, Czechanski A, Byers C, **Aydin S**, Spruce C, Olivier C, Choi K, Gatti DM, Raghupathy N, Keele GR, Stanton A, Vincent M, Dion S, Greenstein I, Pankratz M, Porter DK, Martin W, O'Connor C, Qin W, Harrill AH, Choi T, Churchill GA, Munger SC, Baker CL, Reinholdt LG. Mapping the Effects of Genetic Variation on Chromatin State and Gene Expression Reveals Loci That Control Ground State Pluripotency. Cell Stem Cell. 2020 Sep 3;27(3):459-469.e8. doi: 10.1016/j.stem.2020.07.005. Epub 2020 Aug 13. PubMed PMID: 32795400; PubMed Central PMCID: PMC7484384.
10. Skelly DA, Czechanski A, Byers C, **Aydin S**, Spruce C, Olivier C, Choi K, Gatti DM, Raghupathy N, Stanton A, Vincent M, Dion S, Greenstein I, Pankratz M, Porter DK, Martin W, Qin W, Harrill AH, Choi T, Churchill GA, Munger SC, Baker CL, Reinholdt LG. Genetic variation influences pluripotent ground state stability in mouse embryonic stem cells through a hierarchy of molecular phenotypes. bioRxiv; 2019.
11. **Aydin S.** Understanding the Effects of Genetic Variation on Osmo-adaptation Dynamics Across S. cerevisiae Using Bulk Segregant Analysis and Whole Genome Sequencing [Dissertation]. Duke University; 2017.
12. Rienzo A, Poveda-Huertes D, **Aydin S**, Buchler NE, Pascual-Ahuir A, Proft M. Different Mechanisms Confer Gradual Control and Memory at Nutrient- and Stress-Regulated Genes in Yeast. Mol Cell Biol. 2015 Nov;35(21):3669-83. doi: 10.1128/MCB.00729-15. Epub 2015 Aug 17. PubMed PMID: 26283730; PubMed Central PMCID: PMC4589597.
13. Pinna F, Sahle S, Beuke K, Bissinger M, **Tuncay S**, D'Alessandro LA, Gauges R, Raue A, Timmer J, Klingmüller U, Schirmacher P, Kummer U, Breuhahn K. A Systems Biology Study on NFκB Signaling in Primary Mouse Hepatocytes. Front Physiol. 2012;3:466. doi: 10.3389/fphys.2012.00466. eCollection 2012. PubMed PMID: 23293603; PubMed Central PMCID: PMC3533138.

RESEARCH EXPERIENCE

2023 - Present, Associate Computational Scientist
Applying systems genetics approaches to investigate the impacts of genetic variation on cell fate commitment and developmental progression using various model systems including embryonic stem cells, neural progenitor cells, and palate tissue obtained from genetically diverse mice.

2018 - 2023, Postdoctoral Fellow
Studying the influence of genetic variation on cell fate decisions, focusing on pluripotency maintenance in mouse embryonic stem cells under the supervision of Dr. Steven Munger, The Jackson Laboratory

2010 - 2017, Dissertation Project
Investigated the effects of genetic variation on signaling dynamics using osmo-adaptation in budding yeast as a model phenotype under the supervision of Dr. Nicolas E. Buchler and Dr. Paul M. Magwene in the Department of Biology, Duke University.

2010 - 2011, Master's Thesis Project
Modeled the Tumor necrosis factor (TNF) α induced Nuclear Factor Kappa-light-chain-enhancer of activated B cells (NFκB) signaling using quantitative experimental data from primary murine hepatocytes. Mathematical modeling and parameter estimation under the supervision of Prof. Dr. Ursula Kummer in in Bioquant Research Institute at University of Heidelberg.

AWARDS & HONORS

2024, TAGC 2024 Childcare and Dependent Grant Award, Genetics Society of America
2022, Postdoc Travel Award, The Jackson Laboratory
2021, rstudio::global(2021) Diversity Scholar, RStudio
2019, International Mammalian Genome Society Scholarship (IMGS) for Trainees, IMGS
2018, Pyewacket Award, The Jackson Laboratory
2016, Biology Grant in Aid, Biology Department, Duke University
2016, Conference Travel Award, The Graduate School, Duke University
2016, Graduate Student Training Enhancement Grant, Duke University
2016, Summer Research Fellowship, The Graduate School, Duke University
2015, 28th Fungal Genetics Conference travel award, Genetics Society of America
2010, Fulbright Student Program PhD Grant, The Turkish Fulbright Commission

TEACHING EXPERIENCE

2022, Data Carpentry (Ecology with Python), June 5 at Colby College
2021, Many faces of Rmarkdown (Invited talk), R-ladies Dammam, April 21
https://many-faces.netlify.app/
2021, Data Organization, Cleaning, Analysis and Visualization in R, March 22 – 25 at Genentech

The Jackson Laboratory

2024, Data Carpentry Genomics, September 18-19
2021, Journal Club for Postbaccalaureate Researchers, September 2021 - January 2022
2020, R for Data Science: Explore, July
2020, R for Data Science: Wrangle, August
2020, Introductory R, June
2019, Teaching Assistant, Genetics 1
2019, Instructor, R for Data Science, March 25 & April 1
2019, Instructor, R for Reproducible Scientific Analysis, February 4 & 11
2018, Teaching Assistant, Human and Mammalian Genetics and Genomics: The 59th McKusick Short Course, July 16-27

Duke University, Teaching Assistant

2017 Spring, BIO212L: General Microbiology

2016 Fall, BIO212L: General Microbiology
2016 Spring, BIO212L: General Microbiology
2015 Fall, BIO212L: General Microbiology
2015 Spring, BIO201L: Gateway to Biology: Molecular Biology

PRESENTATIONS

Talks

2025, Harnessing genetic diversity to uncover gene networks shaping cellular states in response to external signals, Duke Computational Biology and Bioinformatics Seminar Series, January 13
2024, Characterizing the influence of genetic variation on cell states, The Allied Genetics Conference, March 9
2023, Characterizing the influence of genetic variation on cell states, Diversity in a Dish Symposium, May 24
2022, Characterizing the influence of genetic variation on cell states, JAX Scientific Symposium, May 10
2021, Genetic dissection of the pluripotent proteome, Complex Traits Consortium Meeting, September 1
2020, Proteomics reveals the role of translational regulation in ES cells, Virtual TAGC and Trainee Symposium, April 16
2019, Genetic dissection of the embryonic stem cell proteome, Complex Traits Consortium / Rat Genomics 17th Annual Meeting, June 11
2019, Genetic dissection of the embryonic stem cell proteome, JAX Scientific Symposium, May 7

Posters

2024, Characterizing the influence of genetic variation on cell states, Diversity in a Dish: Pluripotent Stem Cells in Genetic Analysis and Modeling, October 22
2022, Genetic dissection of the pluripotent proteome through multi-omics data integration, Population, Evolutionary and Quantitative Genetics Conference, June 7 - 10
2020, Genetic dissection of the pluripotent proteome, The International Symposium on Health Informatics and Bioinformatics, October 22-23
2019, Genetic modifiers of protein abundance in embryonic stem cells, New York Stem Cell Foundation Conference, October 22
2016, Quantifying the effects of genetic variation on osmoadaptation dynamics, 10th Annual q-bio Conference, July 27-30
2015, Characterizing the effects of genetic variation on signaling dynamics, 28th Fungal Genetics Conference, March 17-22
2011, Generation of an ODE-based model for TNFα/NF-κB signaling in murine hepatocytes, International Congress of Systems Biology, Aug 28 – Sept 1

OUTREACH & LEADERSHIP

2025, Co-supervision of Academic Year Intern Jared Noel with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2025, Co-supervised JAX Summer Student Jared Noel with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME

2024, Program Committee Member, IEEE Women in Bioinformatics Workshop (WIBI 2025), Southern Connecticut State University, CT
2024, Co-supervision of Academic Year Intern Madeline Rea with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2024, Co-supervised JAX Summer Student Madeline Rea with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2023, Co-supervision of Tufts Graduate Student Hannah Dewey with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2023, Panelist, JAX Data Science: Opportunities and Challenges, Computational Community Retreat at The Jackson Laboratory, October 3
2022, Co-organizer of 'How to make teaching accessible?" workshop held by Accessibility Committee at the Early Career Leadership Program run by Genetics Society of America, October 17
2022, Co-supervised JAX Summer Student Bryant Luna Ramos with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2022, Co-supervised JAX Post-baccalaureate Research Student Samantha Ardery with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2022, Member of Accessibility Committee at the Early Career Leadership Program run by Genetics Society of America
2021, Co-supervision of Tufts Graduate Student Jaycee Choi with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2021, Reviewer at the Peer Review Training Program run by Genetics Society of America
2021, Co-supervised JAX Summer Student Samantha Ardery with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2021, Treasurer and Secretary, Women in Science and Engineering, The Jackson Laboratory, Bar Harbor, ME
2021, Skype-a Scientist, Jan 15, 27
2021, Co-supervision of Tufts Graduate Student Sherrea Brown with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2020, Obtained Certification as RStudio Instructor, https://education.rstudio.com/trainers/people/aydin+selcan
2020, Fark Yaratan Kadınlar (webinar), Nov 30
2020, Skype-a Scientist, Jan 9, Feb 18, Nov 9, 19
2020, Co-supervision of Tufts Graduate Student Luke Parsley with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2019, Co-supervised JAX Summer Student Stephanie Hoyt with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2018 - 2019, Treasurer, JAX Postdoc Association, The Jackson Laboratory, Bar Harbor, ME
2018, Obtained Software Carpentry Instructor Certification
2018, Co-supervised JAX Summer Student Benjamin Allan-Rahill with Dr. Steven Munger, The Jackson Laboratory, Bar Harbor, ME
2018, DNA Day Volunteer at Conners-Emerson School, Bar Harbor, ME
2015 - 2017, Treasurer, Women In Science and Engineering, Duke University, NC
2015, NC DNA Day Volunteer at Ridgecroft School, Ahoskie, NC
2014 - 2015, Mentored two undergraduate students at Duke University, NC

2011 - 2012, BOOST Science coach for 7th grade students at Duke University, NC

LANGUAGES

English (fluent)
Turkish (native)

REFERENCES

Available upon request.