

Nil Sahin

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Website: <https://nsahin.github.io>

Work Experience

July 2021 – present **Computational Scientist at Cyclica, Inc.**
Optimizing scientific platforms for enabling drug discovery

Education

2015 – 2021 **University of Toronto**, Toronto, Ontario, Canada
Ph.D., Department of Molecular Genetics, Faculty of Medicine
Co-supervisors: Dr. Brenda J. Andrews, Dr. Quaid Morris

2011 – 2015 **Sabanci University**, Istanbul, Turkey
BSc., Molecular Biology, Genetics and Bioengineering
Faculty of Engineering and Natural Sciences

2006 – 2011 **Robert College**, Istanbul, Turkey

Publications

Mattiazzi Ušaj, M*, Sahin, N*, Friesen, H., Pons, C., Ušaj, M., Masinas, M., Shkurin, A., Morris, Q., Boone, C., and Andrews, B.J. Systematic genetics and single cell image analysis reveals widespread pleiotropy and cell-to-cell variability. *Molecular Systems Biology* (2020). *equal contribution

Rubanova, Y., Rujan, S., Harrigan, C.F., Li, R., Wintersinger, J., Sahin, N., Deshwar, A., Morris, Q. Reconstructing evolutionary trajectories of mutation signature activities in cancer using TrackSig. *Nature Communications* (2020).

Sokolov, A., Ashenden, S., Sahin, N., Lewis, R., Erdem, N., Ozaltan, E., Bender, A., Roth, F.P. and Cokol, M. Characterizing ABC-Transporter Substrate-Likeness Using a Clean-Slate Genetic Background. *Frontiers in Pharmacology* **10**:448 (2019).

Grys, B.T., Lo, D.S., Sahin, N., Kraus, O.Z., Morris, Q., Boone, C., and Andrews, B.J. Machine learning and computer vision approaches for phenotypic profiling. *Journal of Cell Biology* **216**(1) (2017).

Chandrasekaran, S., Cokol-Cakmak, M., Sahin, N., Yilancioglu, K., Kazan, H. Collins, J.J. and Cokol, M. Chemogenomics and orthology-based design of antibiotic combination therapies. *Molecular Systems Biology* **12**(5):872 (2016).

Languages

Programming Current: Python (Advanced), Bash (Basic); Past: R , C++, MATLAB, Perl
Spoken English (Proficient), Turkish (Native)

Research Experience

- Jan. 2016 – present **Andrews Laboratory, University of Toronto**
Supervisor: Dr. Brenda J. Andrews
An Atlas of Morphological Phenotypes Associated with Gene Perturbations
Developed image analysis pipelines to identify genetic regulators of cellular morphology in the context of genome-wide single gene perturbations in yeast by applying machine learning and computer vision strategies
- Oct. – Dec. 2015 **Morris Laboratory, University of Toronto**
Supervisor: Dr. Quaid Morris
Mutational Signature Changes during Tumour Evolution
Implemented bioinformatics algorithms to quantify mutational signatures of 600 tumours from whole genome sequencing; identified significant signature differences between tumour types; created an opportunity for a new PhD thesis for a new student after this 5-week rotation project
- Mar. 2013 – May. 2015 **Cokol Laboratory, Sabanci University**
Supervisor: Dr. Murat Cokol
Large-scale Experimental *E. coli* Drug Interactions Screen
Conducted drug interaction experiments among 25 antibiotics; analyzed results to find significantly synergistic drug pairs and relate them to mechanism of action of each antibiotic
- Jun. – Aug. 2014 **Roth Laboratory, University of Toronto**
Supervisor: Dr. Frederick P. Roth
Drug Sensitivity Profiles of ABC Transporter deletion strains in *S. cerevisiae*
Conducted screen to identify relationship between ABC transporters and drug sensitivity by using 16 *S. cerevisiae* strains and measured sensitivity of strains to 28 anti-fungal compounds with various mechanisms of action.

Conference Presentations

Machine Learning and Computer Vision Approaches for Phenotypic Profiling in Yeast
Nil Sahin, Mojca Mattiazzi-Usaj, Quaid Morris, Charles Boone, Brenda J. Andrews

- Dec. 2019 **Machine Learning in Computational Biology 2019**, Vancouver, BC, Canada
Oct. 2019 **CytoData Symposium and Hackathon 2019**, Heidelberg, Germany
Oct. 2018 **International Symposium on Health Informatics and Bioinformatics 2018**, Antalya, Turkey
Aug. 2018 **Yeast Genetics Conference 2018**, Stanford, CA, USA
Dec. 2017 **Medicine by Design Symposium 2017**, Toronto, ON, Canada
Nov. 2017 **Genome Informatics 2017**, Cold Spring Harbor Laboratory, NY, USA
Sept. 2017 **Society of Biomolecular Imaging and Informatics 2017**, San Diego, CA, USA
May 2016 **Great Lakes Bioinformatics and the Canadian Computational Biology Conference**, Toronto, ON, Canada

Drug sensitivity profiles of ABC transporter deletion strains in *S. cerevisiae*
Nil Sahin, Frederick P. Roth, Murat Cokol

- Sept. 2014 **EMBL Conference: Frontiers in Fungal Systems Biology**, Heidelberg, Germany

Awards and Scholarships

- Jan. 2020 **2019-2020 Jennifer Dorrington Graduate Research Award**
- Sept. 2017 **2017-2018 University of Toronto Open Fellowship**
- Sept. 2017 **Poster Award (2nd)**
Society of Biomolecular Imaging and Informatics, High Content 2017 Conference
- Sept. 2016 **2016-2017 Cecil Yip Doctoral Research Award**
- 2011 – 2015 **Sabanci University Full Honor Scholarship**
Awarded with full tuition fee and monthly stipend for 4 years for being in the top thousand of more than a million students in the nationwide university entrance exam in 2011

Teaching Experience

- Winter 2019 **University of Toronto – Teaching Assistantship in Computational Biology and Bioinformatics Graduate Course**
Helped students at weekly office hours with their assignments and grading
- Fall 2017 **University of Toronto – Teaching Assistantship in Computer Science Course CSC120**
Helped students at weekly lab hours, holding and marking course exams
- Fall 2014 **Sabanci University – Teaching Assistantship in Cell Biology Course BIO332**
Evaluated student responses to innovative research papers from literature
- 2012 – 2015 **Sabanci University – Academic Support Program Education Coordinator & Executive Board Member**
Held weekly meetings with 11 moderators on their teaching abilities
- 2011 – 2012 **Sabanci University – Academic Support Program Teaching Assistant**
Tutored peers with Mathematics and Natural Sciences courses (Physics, Chemistry, and Biology) in weekly held study sessions after lecture hours for ten hours a week

Extracurricular Activities

- 2018 – 2019 **University of Toronto – [Coders](#) Group Treasurer**
Conducted accounting for the club
Gave tutorials on machine learning and image processing in Python
- 2017 – 2018 **The Donnelly Centre Graduate Student Association Presidency**
Established two seminar series on new technologies and trainee projects
Organized the annual scientific conference for more than 200 members of the Donnelly Centre Research Institute

References

Provided upon request, please send an email to nil_sahin@yahoo.com