ORHAN BELLUR

Computational Biologist | Multi-Omics Modeling for Disease Biology

Computational biologist focused on systems-level and multi-omics modeling of disease biology. Experienced in analyzing and integrating large-scale transcriptomic and proteomic data with network-based and mechanistic models, developing reproducible computational workflows, and translating biological complexity into quantitative representations. Actively building expertise in machine learning methods for high-dimensional biological data, with a strong interest in predictive modeling of cell and tissue states.

EDUCATION

present | 2022

Ph.D., Computational Biology

Technical University of Munich — Munich, Germany

- Thesis: A systems multi-omics approach to in silico drug repositioning in Alzheimer's disease
- Advisor(s): Collaborating groups at Helmholtz Munich and TUM

2021 | 2019

M.Sc., Bioinformatics and Systems Biology

Gebze Technical University — Kocaeli, Turkey

- GPA: 3.79/4.00
- Thesis: Reconstruction and transcriptome-based analysis of rat brain-specific genome-scale metabolic network model for Parkinson's disease

2015 | 2011

B.Sc., Molecular Biology and Genetics

Bilecik Şeyh Edebali University — Bilecik, Turkey

- GPA: 3.44/4.00
- Thesis: Transcriptomic analysis of abiotic stress pathways in A. thaliana

RESEARCH EXPERIENCE

present | 2022

Ph.D. Researcher

Helmholtz Munich @ Institute of Computational Biology — Munich, Germany

- Developed signature- and network-based drug repurposing pipelines for Alzheimer's disease
- Built R packages & Shiny apps for drug-target and network visualization
- Integrated multi-omics for biomarker discovery in neurodegeneration

2022 | 2019

Graduate Researcher

Gebze Technical University — Kocaeli, Turkey

- Mapped Parkinson's transcriptomes onto genome-scale metabolic networks
- Performed FBA/pFBA/LseiFBA, differential expression, pathway enrichment
- Identified metabolic biomarkers and repurposing candidates

CONTACT

orhanbellur1117.ob@gmail.com
github.com/orhanbellur
(49) 179-492-4830
linkedin.com/in/orhan-bellur-88a5775b/

KEY EXPERTISE

- Computational Modeling of Disease Biology: In silico drug repurposing, target prioritization, and mechanistic modeling.
- Multi-Omics Data Analysis & Integration: Bulk & single-cell transcriptomics and proteomics
- Reproducible Analytics & Tools: Scalable, reproducible R / Python pipelines. Interactive Shiny applications for large datasets.
- Systems & Network Biology: Disease networks and genome-scale metabolic modeling.

PROGRAMMING SKILLS

- R
- Python
- MATLAB
- Bash
- Neo4j
- Javascript (d3.js)

2019 | 2018

Computational Chemistry Researcher
Acıbadem Mehmet Ali Aydınlar University — Istanbul, Turkey

- Performed molecular dynamics simulations (NAMD)
- Designed antimicrobial polymer mimetics computationally

2017 | 2016

Research Intern – Computational Evolutionary Biology
Middle East Technical University — Ankara, Turkey

- Analyzed transcription factor binding sites functioning in testis evolution

2014

Genomics Lab Intern
Sabancı University — Istanbul, Turkey

- Benchmarked genome-assembly methods
- Performed comparative genomics analyses

TEACHING EXPERIENCE

2021 | 2020

Undergraduate Mentor / Lab Assistant
Gebze Technical University — Kocaeli, Turkey

- Assisted students with computational biology workflows

PEER-REVIEWED PUBLICATIONS

2025 — **A cognitive resilience gene expression signature in excitatory intratelencephalic cortical neurons**
LA Fish ... O. Bellur, Alzheimer's & Dementia

2025 — **Interrogating conserved transcriptomic signatures of cognitive resilience in the frontal cortex**
LA Fish ... O. Bellur, Alzheimer's & Dementia

2023 — **In silico prioritization of drug repositioning candidates for Alzheimer's disease using signature search meta-analysis**
O. Bellur et al., Alzheimer's & Dementia

2023 — **Brain-wide transcriptome-based metabolic alterations in Parkinson's disease: human inter-region and human-experimental model correlations**
R. Odongo, O. Bellur et al., Molecular Omics

2022 — **Conserved cell-type specific signature of resilience to Alzheimer's disease nominates role for excitatory intratelencephalic cortical neurons**
M.A. Telpoukhovskaia ... O. Bellur, bioRxiv

POSTERS AND PRESENTATIONS

2025 — **Signature- and Network-Based In Silico Discovery of Disease-Modifying Drugs for Alzheimer's Disease.**
Oral presentation, 11th Grainau Workshop of Genetic Epidemiology — Grainau, Germany

2023 **In silico prioritization of drug repositioning candidates for Alzheimer's disease using signature search meta-analysis.**

Poster presentation, Alzheimer's Association International Conference — Amsterdam, Netherlands

2021 **Reconstruction and transcriptome-based analysis of rat brain metabolic network for Parkinson's disease.**

Poster presentation, 14th International Symposium on Health Informatics and Bioinformatics (HIBIT) — Ankara, Turkey

2021 **Molecular characterization of in vivo and in vitro models of Parkinson's disease by mapping transcriptome data on genome scale metabolic networks.**

Poster presentation, Gebze Technical University Graduate Research Symposium — Kocaeli, Turkey