

Busra Tayhan

Sabanci University. Orta Mahalle, 34956 Tuzla – Istanbul/Turkey

• +90 530 066 52 47 • busra.tayhan@sabanciuniv.edu • [linkedin/in/busratayhan](https://www.linkedin.com/in/busratayhan)

EDUCATION

Sabanci University, Istanbul, Turkey **2025 – present**

PhD, Molecular Biology, Genetics and Bioengineering

Sabanci University, Istanbul, Turkey **2023 – 2025**

MSc, Molecular Biology, Genetics and Bioengineering

Thesis Subject: Exploring the Shifts in the Energy Landscape of Calmodulin under Different Environmental Conditions

Thesis Advisors: Canan Atilgan, Ali Rana Atilgan

Yıldız Technical University, Istanbul, Turkey **2017 – 2021**

BSc, Faculty of Science and Literature, Molecular Biology and Genetics

Thesis Subject: The effect of epigenetic modifications on BECN-1 protein in tumor cells.

Thesis Advisor: Nehir Özdemir Özgentürk

• First-generation college graduate

WORK EXPERIENCE

Akdeniz University, Antalya, Turkey **2021 – 2022**

- **Postgraduate research**, Learned basic cell culture techniques in the field of cancer.

Sabanci University, Istanbul, Turkey **2023 – present**

- **Teaching Assistant**, Science of Nature II, one semester. (2025 – present)
- **Teaching Assistant**, Biochemistry I (BIO 321), one semester. (2023 – 2024)
- **Teaching Assistant**, Biochemistry II (BIO 322), one semester. (2023 – 2024)

PROJECTS

- Mutational analysis of dihydrofolate reductase using free energy perturbation simulations to explain antibiotic resistance en masse, pilot access applications for MareNostrum 5 Supercomputer (640,000 node hours approximately 80,000 EUR worth) – role: researcher **2024 – present**
- Researcher at TUBITAK 1001 project: Development of integrative computational models for the complete navigation of the dynamical landscape of functional proteins **2023 – present**

- Researcher at TUBITAK 1001 project: A generalized computational methodology for the design of genetically encoded fluorescent biosensors **2023 – 2024**
- Researcher at [EuroCC2 project](#): High throughput mutational scanning of dihydrofolate reductase via in-silico alchemy **2023 – 2024**
- Researcher at PURE project: Navigating the conformational surface of calmodulin with well-tempered metadynamics ([View on Website](#)). **2023 – 2024**

SKILLS

Languages: English (Proficient), German (A2)

Computer: Python (Advanced) – (scipy, numpy, matplotlib, Prody, pandas), Advanced knowledge of linux distributions, Bash scripting (Intermediate), Tcl (Intermediate), R (Basic), KNIME, NAMD, GROMACS

SCIENTIFIC ACTIVITY

Papers

- Guclu T.F., **Tayhan B.**, Cetin E., Atilgan A.R., Atilgan C., **High throughput mutational scanning of a protein via alchemy on a high-performance computing resource**, *Concurrency and Computation: Practice and Experience*, 2025, 37, 38371 <https://doi.org/10.1002/cpe.8371>– Research Article (Published).

Presentations

- **Tayhan B.**, Horozoglu S., Coban D., Atilgan A.R., Atilgan C., **Mapping Conformational Dynamics Across Environmental Shifts**, 14th Chemical Physics Congress, Edirne, Turkey, September 2024. – *Selected Talk*
- **Tayhan B.**, Atilgan A.R., Atilgan C., **Protean Nature of Calmodulin: Mapping Conformational Dynamics Across Environmental Shifts**, ECCB2024, Turku, Finland, September 2024. – *Poster presentation*
- Guclu T.F., **Tayhan B.**, Cetin E., Atilgan A.R., Atilgan C., **High throughput mutational scanning of a protein via alchemy on a high-performance computing resource**, Basarim 2024 8th High-Performance Computing Conference, Ankara, Turkey, May 2024. – *Selected Talk*
- **Tayhan B.**, Atilgan A.R., Atilgan C., **The Effect of Conformational Dynamics on Calmodulin-Mediated Sensor Activity**, 9th International BAU Drug Design Congress, Istanbul, Turkey, November 2023. – *Selected Talk*
- **Tayhan B.**, Atilgan A.R., Atilgan C., **Conformational Effects of Calcium Stripping from Calmodulin**, HIBIT 2023 Ankara, Turkey, October 2023. – *Selected Talk*

Training

- Koç University III. Structural Biology Workshop **2023**

RERERENCES

- Canan Atilgan – Professor, thesis advisor

Faculty of Engineering and Natural Sciences

Sabanci University, Tuzla 34956, Istanbul, Turkey

e-mail: canan@sabanciuniv.edu

telephone: +90 (216) 483 9523

- Ali Rana Atilgan – Professor, thesis co-advisor

Faculty of Engineering and Natural Sciences

Sabanci University, Tuzla 34956, Istanbul, Turkey

e-mail: atilgan@sabanciuniv.edu

telephone: +90 (216) 483 9525