Uğur Cem Yıldız

MOLECULAR BIOLOGY & GENETICS

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PROFILE

Final-year Molecular Biology and Genetics student with hands-on wet-lab experience from an international research internship at LMU Klinikum, Munich, where I carried out protein- and RNA-level analyses within a cardiovascular research group. Comfortable across core molecular biology techniques (protein extraction, Western blot, RNA extraction, qPCR, immunofluorescence), complemented by computational research experience in structure-based drug design and cancer bioinformatics through two completed bachelor's theses. Seeking a laboratory internship or research assistant position to deepen experimental skills in a molecular biology or biomedical research setting.

EDUCATION

B.Sc. in Molecular Biology and Genetics Sep 2021 – 2027 (expected)

İnönü University, Faculty of Arts and Sciences, Malatya, Türkiye • GPA: 3.33 / 4.00

- Completed two bachelor's graduation theses in computational structural biology and cancer bioinformatics.

Associate Degree in Computer Programming 2025 – 2027 (expected)

Anadolu University, Open Education Faculty, Eskişehir, Türkiye • GPA: 3.26 / 4.00

- Pursued concurrently with the B.Sc. to strengthen programming and computational foundations; first year completed.

RESEARCH EXPERIENCE

Erasmus+ Research Intern Jul 2025 – Sep 2025

LMU Klinikum, Institute for Cardiovascular Prevention (IPEK), Munich, Germany

shRNA-mediated knockdown of CXCR4:

- Performed protein extraction, BCA protein assays, and Western blotting for protein-level analyses.
- Carried out RNA extraction, reverse transcription, and quantitative PCR (qPCR), alongside immunofluorescence (IF) staining.
- Analyzed gene expression data, including next-generation sequencing (NGS) datasets.

RESEARCH PROJECTS

Bachelor's Thesis I — Structure-Based Computational Drug Design

İnönü University • Supervisor: Dr. Seçil Demiral

- Rationally designed five novel amentoflavone derivatives as CXCR4 antagonists using a structure-based drug design workflow against the CXCR4 crystal structure (PDB ID: 3ODU).
- Performed molecular docking with AutoDock Vina and identified Fluoro-Deoxy-Amentoflavone as the lead candidate (−11.9 kcal/mol), outperforming the FDA-approved antagonist Plerixafor (−9.4 kcal/mol).
- Predicted ADME / drug-likeness (SwissADME) and computational toxicity (ProTox-II), and analyzed protein–ligand interactions with BIOVIA Discovery Studio.
- Established selective deoxygenation as the key driver of receptor complementarity via a directed hydrogen bond with the pharmacophore-critical residue Tyr55.

Bachelor's Thesis II — Cancer Bioinformatics

İnönü University • Supervisor: Dr. Samet Kocabay

- Investigated CXCR4 expression, genomic alterations, prognosis, and immune infiltration across breast (BRCA), lung (LUAD), and colorectal (COAD/READ) cancers using TCGA data.
- Analyzed differential expression (GEPIA2), genomic alterations (cBioPortal), survival outcomes (Kaplan–Meier Plotter), immune infiltration (TIMER2.0), and protein–protein interaction networks (STRING).
- Demonstrated a context-dependent prognostic role: high CXCR4 expression correlated with improved survival in LUAD ($p = 0.007$), associated with increased CD8+ T-cell infiltration.

LABORATORY & TECHNICAL SKILLS

Molecular & Wet Lab: DNA/RNA isolation (manual and kit-based), PCR, qPCR / Real-Time PCR, cDNA synthesis, Western blot, BCA assay, immunofluorescence, agarose gel electrophoresis, spectrophotometry and standard curves, cell counting (hemocytometer), culture media preparation, mitochondria isolation.

Computational Drug Design: AutoDock Vina, AutoDock Tools, BIOVIA Discovery Studio, SwissADME, ProTox-II, OpenBabel; molecular docking, structure-based drug design, ADME and toxicity prediction.

Cancer Bioinformatics: GEPIA2, cBioPortal, Kaplan–Meier Plotter, TIMER2.0, STRING; TCGA/GTEx data analysis, differential expression, survival and immune-infiltration analysis.

Programming & Data: Python, R, Linux (foundational, for bioinformatics data analysis); Java (foundational).

CERTIFICATIONS & COURSES

- Bioinformatics Data Analysis: Python, Linux & R
- Cancer Biology 101 (May 2024)
- Introduction to Programming with Java (Aug 2020)
- Introduction to Information Technologies (Jul 2020)

LANGUAGES

Turkish (Native) • English (Professional working proficiency, B2)

INTERESTS

Coding, reading, cooking, cycling, music, travel.