Artin Mehrabani

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RESEARCH INTERESTS

- **Computational Genomics and AI in Diagnostics.**
- **Non-Invasive Prenatal Diagnostics and Therapy.**
- **Predictive Health and Personalized Medicine.**
- **Translational Biotechnology.**

RESEARCH EXPERIENCE

ARTICLE TITLE	STATUS	JOURNAL	IMPACT FACTOR	DATE	SUPERVISOR NAMES
Identifying Differentially Methylate Sites for Methylation-Sensitive qPCR-Based NIPT of Trisomies 13 and 18	Accepted for publication	*Journal of Advanced Biomedical Research*	1	2025	Prof. Mohammad Hossein Modarressi
Association Between First Trimester of Pregnancy Medication Use and Fetal DNA Fraction in Maternal Plasma: Clinical Implications for Non-Invasive Prenatal Screening Reliability	Under first-stage peer review	*Journal of Ultrasound in Obstetrics and Gynecology*	6.3	Jul 2025	Prof. Mohammad Hossein Modarressi & Prof. Mehran Habibi-Rezaei
Optimizing NIPT Scheduling and Cell-Free Fetal DNA Prediction via Machine Learning Models Based on Feto-Maternal Data	In Progress				Assoc. Prof. Kaveh Kavousi

- *Identifying Differentially Methylated Sites for Methylation-Sensitive qPCR-Based NIPT of Trisomies 13 and 18:*
  - **Role:** Data Curation (equal contribution), Investigation (supporting), Writing – Review & Editing (supporting).
  - **Details:** Gained experience in literature review and collaborative primer design.

- *Association Between First Trimester of Pregnancy Medication Use and Fetal DNA Fraction in Maternal Plasma: Clinical Implications for Non-Invasive Prenatal Screening Reliability*:
  - **Role:** Investigation (lead), Conceptualisation (equal contribution), Data Curation (equal contribution), Writing – Original Draft (equal contribution), Formal Analysis (supporting), Writing – Review & Editing (supporting).
  - **Details:** Developed skills in data collection from Genome-Nilou laboratory, conceptualizing research ideas based on extensive literature review, data analysis in Excel, and statistical analysis with SPSS.

- *Optimizing NIPT Scheduling and Cell-Free Fetal DNA Prediction via Machine Learning Models Based on Feto-Maternal Data*:
  - **Role:** Investigation (lead), Data Curation (lead), Conceptualisation (equal contribution), Writing – Original Draft (equal contribution).
  - **Details:** Acquired expertise in data gathering from Genome-Nilou and Pars Genome laboratories and researching the relationship between machine learning and NIPT improvement.

Research Assistant:

Specialized PhD Project in Modarressi Lab, Department of Medical Genetics, School of Medicine, TUMS:

- *Differential Methylation Signatures in Maternal-Fetal Cell-Free DNA: A Novel Epigenetic Framework for Non-Invasive Prenatal Screening of Trisomy 13 and 18* – **Supervisor: Prof. Mohammad Hossein Modarressi** – Feb 2024 – Present.
  - **Role:** Assistant to a PhD candidate in Medical Genetics, contributing to laboratory procedures and experimental work, specifically focusing on DNA extraction and analysis for epigenetic marker identification.
  - **Details:** Hands-on experience in DNA extraction and epigenetic marker identification techniques.

INTERNSHIPS & PRACTICAL EXPERIENCE

- **Internship: Research and Development (R&D) Department, Gene Dorpham Pars Company** – Specializing in advanced medical products for diagnostics and therapeutics, affiliated with Genome-Nilou laboratory.
  - Currently engaged in optimization of cfDNA extraction kit protocols – Mar 2025 – Present.
- **Technology Assistant: National Technology Assistant Program, University of Tehran Science & Technology Park.**
  - Collaborated with biotechnology startups to transform academic research into commercially viable products – **Supervisor: Dr. Masoumeh Malek** – Jul 2025 – Present.

CERTIFICATIONS & WORKSHOPS

- **Comprehensive Course on Regenerative Medicine – Royan Institute**, Aug 2024 – Jan 2025:
  - Cell Culture.
  - Spectrophotometry.
  - Chromatography.
- **Laboratory Techniques Workshop** – Department of Medical Genetics, Tehran University of Medical Sciences:
  - SDS-PAGE.
  - ARMS-PCR.
- **Computational Skills Workshop** – Department of Bioinformatics, University of Tehran:
  - Python Programming (Pandas, Scikit-learn for Classical ML).
  - Linux Command-Line Interface.
  - NGS Data Analysis.

EDUCATION

University of Tehran, Tehran, Iran
B.Sc. in **Biotechnology**, Sep 2022 – Jul 2026 (Expected)
GPA: 3.2/4.0

AWARDS & HONORS

- **Recipient of "Product-Oriented Artificial Intelligence Projects" Research Grant, awarded by Tehran University of Medical Science for the research proposal titled: "*Optimizing NIPT Scheduling and Cell-Free Fetal DNA Prediction via Machine Learning Models Based on Feto-Maternal Data*".**
- **Outstanding Selected to lead the Teaching Assistant teams for Structural Biochemistry, Basic Genetics, Biostatistics due to outstanding performance.**
- **Outstanding Teaching Assistant award for team leadership by faculty.**
- **Member of the Union of Iranian Biologists.**
- **Member of the Iranian Biology Society.**

PUBLICATIONS & CONFERENCES

- **Co-Translator & Project Coordinator –** *Biochemistry Laboratory: Modern Theory and Techniques* **(Persian Edition) – Head of Student Translators Committee, School of Biology, University of Tehran.**
- **Participant, 23rd National & 11th International Iranian Congress of Biology, Sep 9–11, 2024.**

SKILLS

CATEGORY	SKILLS
Laboratory & Molecular Biology Techniques	PCR (Conventional & Real-Time), DNA Extraction, Gel Electrophoresis, NanoDrop, Primer Design
Computational & Bioinformatics Skills	Bioinformatics Analysis Tools
Software & Data Analysis	SPSS, Microsoft Excel (PivotTable, Data Visualization), EndNote
Languages	Persian (Native), English (Fluent, CEFR C1)

TEACHING EXPERIENCE

School of Biology, University of Tehran

COURSE NAME	INSTRUCTOR	DATE
Mathematics	Dr. Alireza Hosseini	Sep 2023 – Jun 2024
Structural Biochemistry	Dr. Shahrokh Safarian	Sep 2024 – Jan 2025
Metabolism Biochemistry	Dr. Mehran Habibi-Rezaei	Feb 2025 – Jun 2025
Basic Genetics	Dr. Ali Farazmand	Feb 2025 – Jun 2025
Genetics Laboratory	Dr. Nazanin Andalib	Feb 2025 – Present
Molecular Genetics	Dr. Kolsoum InanlooRahatloo	Scheduled: Oct 2025 – Feb 2026
Biostatistics	Dr. Masoumeh Malek	Scheduled: Oct 2025 – Feb 2026

Roles:
- **Led problem-solving sessions.**
- **Designed and administered exam questions.**
- **Graded quizzes.**
- **Mentored students in academic projects and poster presentations.**
- **Assisted with DNA extraction and PCR training.**
- **Provided guidance on primer design.**
- **Will introduce relevant articles and topics for student presentations.**
- **Will co-organize an SPSS workshop.**
- **Will design and evaluate statistical tasks.**

REFERENCES

- **Professor Mehran Habibi-Rezaei** – Department of Biotechnology, Faculty of Science, University of Tehran, Tehran, Iran – mhabibi@ut.ac.ir.
- **Professor Mohammad Hossein Modarressi** – Department of Medical Genetics, School of Medicine, Tehran University of Medical Science – modaresi@tums.ac.ir.
- **Associate Professor Kaveh Kavousi** – Department of Bioinformatics, Institute of Biochemistry and Biophysics, University of Tehran – KKavousi@ut.ac.ir.