Hani Sabaie, M.Sc.

General Information:

Emails: sabaie.hani@gmail.com, sabaieh@tbzmed.ac.ir

Website: https://hani-sabaie.github.io

Profiles: Google Scholar | ORCID | GitHub | LinkedIn | ResearchGate | Web of Science

Education

Master of Science in Human Genetics | **Tabriz University of Medical Sciences** | Tabriz, Iran   **2018 - 2021**
GPA: 4/4
Tuition-Free Master's Degree Program
Thesis: Analysis of BCAS4/hsa-miR-185-5p/SHISA7 Competing Endogenous RNA Axis in Late-onset Alzheimer's Disease.
Supervisor: Dr. Maryam Rezazadeh

Bachelor of Science in Biology-Animal Sciences | **University of Guilan** | Rasht, Iran   **2012 – 2017**
GPA: 3.37/4
Tuition-Free Bachelor's Degree Program
Project: Genome Evolution
Mentor: Dr. Shohreh Siyam

Research Interests

- Human Genetics and Computational Genomics
- Single-Cell Multi-Omics Analysis
- Neurogenetics and Regulatory RNA Networks

- Structural Variation in Human Disease
- Mendelian Randomization and Causal Inference
- Evolutionary Perspectives on Human Disease

Peer-Reviewed Publications

1. **Sabaie H**, Taghavi Rad A, Shabestari M, Habibi D, Saadattalab T, Seddiq S, Saeidian AH, Zahedi AS, Sanoie M, Vahidnezhad H, Zarkesh M, Foroutani L, Hakonarson H, Azizi F, Hedayati M, Daneshpour MS, Akbarzadeh M. Mitochondrial DNA Copy Number as a Hidden Player in the Progression of Multiple Sclerosis: A Bidirectional Two-Sample Mendelian Randomization Study. **Molecular Neurobiology**. 2025;62(9):11643-53. https://doi.org/10.1016/j.msard.2025.106277

2. **Sabaie H**, Taghavi Rad A, Shabestari M, Seddiq S, Saadattalab T, Habibi D, Saeidian AH, Abbasi M, Mirtavoos-Mahyari H. Deciphering the bidirectional impact of leukocyte telomere length on multiple sclerosis progression: A Mendelian randomization study. **Multiple Sclerosis and Related Disorders**. 2025;94:106277. https://doi.org/10.1016/j.msard.2025.106277

3. Shoaran M, **Sabaie H**, Mostafavi M, Rezazadeh M. A comprehensive review of the applications of RNA sequencing in celiac disease research. **Gene**. 2024;927:148681. https://doi.org/10.1016/j.gene.2024.148681

4. Asadi MR, Gharesouran J, **Sabaie H**, Zaboli Mahdiabadi M, Mazhari SA, Sharifi-Bonab M, Shirvani-Farsani Z, Taheri M, Sayad A, Rezazadeh M. Neurotrophin growth factors and their receptors as promising blood biomarkers for Alzheimer's Disease: a gene expression analysis study. **Molecular Biology Reports**. 2024;51(1). http://dx.doi.org/10.1007/s11033-023-08959-4

5. **Sabaie H**, Tamimi P, Gharesouran J, Salkhordeh Z, Asadi MR, Sharifi-Bonab M, Shirvani-Farsani Z, Taheri M, Sayad A, Rezazadeh M. Expression analysis of inhibitory B7 family members in Alzheimer's disease. **Metabolic Brain Disease**. 2023;38(8):2563-72. http://dx.doi.org/10.1007/s11011-023-01274-8

6. Moghadam YJ, Asadi MR, Abbaszadeh V, Gharesouran J, Dehghani H, **Sabaie H**, Hussen BM, Taheri M, Dilmaghnai NA, Rezazadeh M. Analysis of NFKB1 and NFKB2 gene expression in the blood of patients with sudden sensorineural hearing loss. **International Journal of Pediatric Otorhinolaryngology**. 2023;166:111470. https://doi.org/10.1016%2Fj.ijporl.2023.111470

7. Asadi MR, Abed S, Kouchakali G, Fattahi F, **Sabaie H**, Moslehian MS, Sharifi-Bonab M, Hussen BM, Taheri M, Ghafouri-Fard S, Rezazadeh M. Competing endogenous RNA (ceRNA) networks in Parkinson's disease: A systematic review. **Frontiers in Cellular Neuroscience**. 2023;17. https://doi.org/10.3389%2Ffncel.2023.1044634

8. **Sabaie H**, Talebi M, Gharesouarn J, Asadi MR, Jalaiei A, Arsang-Jang S, Hussen BM, Taheri M, Khoshnoud RJ, Rezazadeh M. Identification and Analysis of BCAS4/hsa-miR-185-5p/SHISA7 Competing Endogenous RNA Axis in Late-Onset Alzheimer's Disease Using Bioinformatic and Experimental Approaches. **Frontiers in Aging Neuroscience**. 2022;14. https://doi.org/10.3389%2Ffnagi.2022.812169

9. **Sabaie H**, Rouz SK, Kouchakali G, Heydarzadeh S, Asadi MR, Sharifi-Bonab M, Hussen BM, Taheri M, Ayatollahi SA, Rezazadeh M. Identification of potential regulatory long non-coding RNA-associated competing endogenous RNA axes in periplaque regions in multiple sclerosis. **Frontiers in Genetics**. 2022;13. https://doi.org/10.3389%2Ffgene.2022.1011350

10. **Sabaie H**, Gholipour M, Asadi MR, Abed S, Sharifi-Bonab M, Taheri M, Hussen BM, Brand S, Neishabouri SM, Rezazadeh M. Identification of key long non-coding RNA-associated competing endogenous RNA axes in Brodmann Area 10 brain region of schizophrenia patients. **Frontiers in Psychiatry**. 2022;13. https://doi.org/10.3389%2Ffpsyt.2022.1010977

11. **Sabaie H**, Gharesouran J, Asadi MR, Farhang S, Ahangar NK, Brand S, Arsang-Jang S, Dastar S, Taheri M, Rezazadeh M. Downregulation of miR-185 is a common pathogenic event in 22q11.2 deletion syndrome-related and idiopathic schizophrenia. **Metabolic Brain Disease**. 2022;37(4):1175-84. https://doi.org/10.1007%2Fs11011-022-00918-5

12. Mohammadisoleimani E, Firoozi Z, Naghizadeh MM, Asad AG, Jafari A, Pourjafarian MH, Ariafar A, Mansoori H, Dastsooz H, **Sabaie H**, Zeighami S, Mansoori Y. Expression analysis of hsa_circ_0020397, hsa_circ_0005986, hsa_circ_0003028, and hsa_circ_0006990 in renal cell carcinoma. **Experimental and Molecular Pathology**. 2022;129:104848. https://doi.org/10.1016%2Fj.yexmp.2022.104848

13. Hakimi P, Lotfalizad N, Pabarja L, Asadi MR, Gharesouran J, Dehghani H, **Sabaie H**, Danaie S, Hussen BM, Taheri M, Rezazadeh M. Association of seven fundamental genetic polymorphisms in long noncoding RNA MALAT1, SOX2OT and H19 with recurrent miscarriage in Turkish-Azeri Iranian population. **Human Gene**. 2022;33:201063. https://doi.org/10.1016%2Fj.humgen.2022.201063

14. Asadi MR, Talebi M, Gharesouran J, **Sabaie H**, Jalaiei A, Arsang-Jang S, Taheri M, Sayad A, Rezazadeh M. Analysis of ROQUIN, Tristetraprolin (TTP), and BDNF/miR-16/TTP regulatory axis in late onset Alzheimer's disease. **Frontiers in Aging Neuroscience**. 2022;14. https://doi.org/10.3389%2Ffnagi.2022.933019

15. Asadi MR, Moslehian MS, **Sabaie H**, Sharifi-Bonab M, Hakimi P, Hussen BM, Taheri M, Rakhshan A, Rezazadeh M. CircRNA-Associated CeRNAs Regulatory Axes in Retinoblastoma: A Systematic Scoping Review. **Frontiers in Oncology**. 2022;12. https://doi.org/10.3389%2Ffonc.2022.910470

16. Asadi MR, Gharesouran J, **Sabaie H**, Moslehian MS, Dehghani H, Arsang-Jang S, Taheri M, Mortazavi D, Hussen BM, Sayad A, Rezazadeh M. Assessing the expression of two post-transcriptional BDNF regulators, TTP and miR-16 in the peripheral blood of patients with Schizophrenia. **BMC Psychiatry**. 2022;22(1). https://doi.org/10.1186%2Fs12888-022-04442-9

17. Shiva S, Gharesouran J, **Sabaie H**, Asadi MR, Arsang-Jang S, Taheri M, Rezazadeh M. Expression Analysis of Ermin and Listerin E3 Ubiquitin Protein Ligase 1 Genes in Autistic Patients. **Frontiers in Molecular Neuroscience**. 2021;14. https://doi.org/10.3389%2Ffnmol.2021.701977

18. **Sabaie H**, Salkhordeh Z, Asadi MR, Ghafouri-Fard S, Amirinejad N, Behzadi MA, Hussen BM, Taheri M, Rezazadeh M. Long Non-Coding RNA- Associated Competing Endogenous RNA Axes in T-Cells in Multiple Sclerosis. **Frontiers**

in Immunology. 2021;12. https://doi.org/10.3389%2Ffimmu.2021.770679

19. **Sabaie H**, Moghaddam MM, Moghaddam MM, Amirinejad N, Asadi MR, Daneshmandpour Y, Hussen BM, Taheri M, Rezazadeh M. Long non-coding RNA-associated competing endogenous RNA axes in the olfactory epithelium in schizophrenia: a bioinformatics analysis. **Scientific Reports**. 2021;11(1). https://doi.org/10.1038%2Fs41598-021-04326-0

20. **Sabaie H**, Moghaddam MM, Moghaddam MM, Ahangar NK, Asadi MR, Hussen BM, Taheri M, Rezazadeh M. Bioinformatics analysis of long non-coding RNA-associated competing endogenous RNA network in schizophrenia. **Scientific Reports**. 2021;11(1). https://doi.org/10.1038%2Fs41598-021-03993-3

21. **Sabaie H**, Dehghani H, Shiva S, Asadi MR, Rezaei O, Taheri M, Rezazadeh M. Mechanistic Insight Into the Regulation of Immune-Related Genes Expression in Autism Spectrum Disorder. **Frontiers in Molecular Biosciences**. 2021;8. https://doi.org/10.3389%2Ffmolb.2021.754296

22. **Sabaie H**, Amirinejad N, Asadi MR, Jalaiei A, Daneshmandpour Y, Rezaei O, Taheri M, Rezazadeh M. Molecular Insight Into the Therapeutic Potential of Long Non-coding RNA-Associated Competing Endogenous RNA Axes in Alzheimer's Disease: A Systematic Scoping Review. **Frontiers in Aging Neuroscience**. 2021;13. https://doi.org/10.3389%2Ffnagi.2021.742242

23. Jalaiei A, Asadi MR, **Sabaie H**, Dehghani H, Gharesouran J, Hussen BM, Taheri M, Ghafouri-Fard S, Rezazadeh M. Long Non-Coding RNAs, Novel Offenders or Guardians in Multiple Sclerosis: A Scoping Review. **Frontiers in Immunology**. 2021;12. https://doi.org/10.3389%2Ffimmu.2021.774002

24. Farhang S, **Sabaie H**, Gharesouran J, Asadi MR, Arsang-Jang S, Ghafouri-Fard S, Taheri M, Rezazadeh M. Expression Analysis of Ermin and Listerin E3 Ubiquitin Protein Ligase 1 Genes in the Periphery of Patients with Schizophrenia. **Journal of Molecular Neuroscience**. 2021. https://doi.org/10.1007%2Fs12031-021-01928-1

25. Asadi MR, Rahmanpour D, Moslehian MS, **Sabaie H**, Hassani M, Ghafouri-Fard S, Taheri M, Rezazadeh M. Stress Granules Involved in Formation, Progression and Metastasis of Cancer: A Scoping Review. **Frontiers in Cell and Developmental Biology**. 2021;9. https://doi.org/10.3389%2Ffcell.2021.745394

26. Asadi MR, Moslehian MS, **Sabaie H**, Poornabi M, Ghasemi E, Hassani M, Hussen BM, Taheri M, Rezazadeh M. Stress Granules in the Anti-Cancer Medications Mechanism of Action: A Systematic Scoping Review. **Frontiers in Oncology**. 2021;11. https://doi.org/10.3389%2Ffonc.2021.797549

27. Asadi MR, Moslehian MS, **Sabaie H**, Jalaiei A, Ghafouri-Fard S, Taheri M, Rezazadeh M. Stress Granules and Neurodegenerative Disorders: A Scoping Review. **Frontiers in Aging Neuroscience**. 2021;13. https://doi.org/10.3389%2Ffnagi.2021.650740

28. Asadi MR, Hassani M, Kiani S, **Sabaie H**, Moslehian MS, Kazemi M, Ghafouri-Fard S, Taheri M, Rezazadeh M. The Perspective of Dysregulated LncRNAs in Alzheimer's Disease: A Systematic Scoping Review. **Frontiers in Aging Neuroscience**. 2021;13. https://doi.org/10.3389%2Ffnagi.2021.709568

29. Ahangar NK, Hemmat N, Khalaj-Kondori M, Shadbad MA, **Sabaie H**, Mokhtarzadeh A, Alizadeh N, Derakhshani A, Baghbanzadeh A, Dolatkhah K, Silvestris N, Baradaran B. The Regulatory Cross-Talk between microRNAs and Novel Members of the B7 Family in Human Diseases: A Scoping Review. **International Journal of Molecular Sciences**. 2021;22(5):2652. https://doi.org/10.3390%2Fijms22052652

30. **Sabaie H**, Ahangar NK, Ghafouri-Fard S, Taheri M, Rezazadeh M. Clinical and genetic features of PEHO and PEHO-Like syndromes: A scoping review. **Biomedicine & Pharmacotherapy**. 2020;131:110793. http://dx.doi.org/10.1016/j.biopha.2020.110793

Research Experience

Graduate Research Assistant | Cellular and Molecular Endocrine Research Center | Tehran, Iran   **2025 - Now**
Principal Investigator: Dr. Mahdi Akbarzadeh
Primary duties:
- Performed single-nucleus multi-omics analyses to investigate cell-type-specific regulatory mechanisms in complex human diseases.

- Applied high-dimensional weighted gene co-expression network analysis (hdWGCNA) on single-cell transcriptomic data to identify disease-relevant gene modules and hub genes.
- Conducted Mendelian randomization, colocalization, and fine-mapping analyses to infer causal relationships between genetically regulated gene expression and disease susceptibility.
- Authored a narrative review on computational strategies for CNV detection and disease association, bridging methodological development and genomic medicine.

Graduate Research Assistant | **Tabriz University of Medical Sciences** | Tabriz, Iran   **2024**
Principal Investigator: Dr. Maryam Rezazadeh
Primary duties:
- Utilizing systems biology to explore the gene modules, hub genes, and regulatory networks linked with neurological conditions through RNA-sequencing transcriptome analysis and weighted gene co-expression network analysis (WGCNA).
- Variant detection and interpretation from whole-exome sequencing data with validation through Sanger sequencing.
- Assisting the principal investigator in writing and preparing manuscripts and grant proposals.
- Supervising medical, master's, and Ph.D. students.

Elite Draftee – Researcher | **Directorate of Health, Rescue and Treatment, Police Headquarter** | **2022 - 2023**
Tehran, Iran
Project:
- Conducted a research project under the Iranian National Elite Foundation program as part of an alternative to mandatory military service.
- Focused on interdisciplinary bioinformatic and experimental approaches to identify peripheral blood-based biomarkers for major depressive disorder.

Student Research Assistant | **Tabriz University of Medical Sciences** | Tabriz, Iran   **2019 - 2021**
Principal Investigator: Dr. Maryam Rezazadeh
Main Projects:
- Identification and examination of ceRNA regulatory axes in neurogenetic disorders through the reanalysis of publicly accessible microarray datasets and supplementary molecular methods.
- Assessing the expression of key genes in neurogenetic conditions using PCR, RT-PCR, and Agarose gel electrophoresis.
- Conducting systematic reviews and scoping reviews on the genetic aspects of human diseases, with an emphasis on neurogenetic conditions.

Teaching Experience

Assistant Teacher | **Tabriz University of Medical Sciences** | Tabriz, Iran   **2021**
- Taught weekly lectures on microarray data analysis.

Skills

Programming and Computational Skills:
- **R - Advanced:** statistical analysis, data visualization, and reproducible research.
- **Python - Familiar:** data analysis and scientific computing for genomics workflows.
- **Linux / Unix - Advanced:** command-line workflows and pipeline execution.
- **Bash - Familiar:** automation of data processing and analysis pipelines.
- **Git / GitHub - Familiar:** version control and collaborative development.
- **Markdown / R Markdown - Advanced:** reproducible documentation and reporting.
- **Machine Learning - Familiar:** foundational concepts and applications in data analysis.

Computational Genomics and Bioinformatics Analysis:

- **Single-Cell Multi-Omics and Spatial Data - Advanced:** preprocessing, normalization, multimodal integration, clustering, trajectory inference, network analysis, motif activity, and cell-cell communication analysis (Drop-seq pipeline, Seurat, decontX, scDblFinder, Signac, Monocle, hdWGCNA, chromVAR, and CellChat).
- **Bulk RNA-seq - Advanced:** end-to-end workflows including QC, alignment, quantification, and differential expression (FastQC, Trimmomatic, HISAT2, STAR, featureCounts, HTSeq, StringTie, Kallisto, Salmon, edgeR, DESeq2, Ballgown, Sleuth, Picard, and GATK).
- **Microarray Analysis - Proficient:** preprocessing, normalization, differential expression, and co-expression analysis (limma, affy, GEOquery, WGCNA, GEO2R, pheatmap, EnhancedVolcano).
- **Mendelian Randomization and Causal Inference - Advanced:** Two-sample and summary-data-based Mendelian randomization and fine-mapping (TwoSampleMR, SMR/HEIDI, MR-PRESSO, GCTA-COJO, coloc, SuSiE).
- **Network Biology - Proficient:** co-expression, interaction, and ceRNA regulatory networks analysis (Hmisc, psych, corrplot, bcdstats, LncBase, lncSNP2, miRTarBase, miRWalk, miRDB, ENCORI, HMDD, Cytoscape, MCODE, CytoHubba, STRING, MIST, GeneMANIA, Enrichr, FuncPred, g:profiler, and ImmPort, WGCNA, hdWGCNA).
- **Variant Analysis - Advanced:** variant calling, annotation, and interpretation (FastQC, Trimmomatic, BWA, GATK, HaplotypeCaller, ANNOVAR, ExAC, gnomAD, 1000 genomes, CADD, ClinVar, SIFT, PolyPhen, LRT, MutationTaster, FATHMM, PROVEAN, MutationAssessor, MCAP, MetaLR, Franklin, Varsome, CLC Genomics Workbench, ExomeDepth, ClinGen, and ACMG guideline).

Experimental and Molecular Biology Skills:
- **Molecular Genetics Techniques - Advanced:** DNA extraction, RNA isolation, NanoDrop spectrophotometry, agarose gel electrophoresis, cDNA synthesis, PCR, RT-PCR, and cell culture.
- **Primer Design and Reference Gene Validation - Advanced:** Primer3, Primer-BLAST, Oligo7, Gene Runner, NormFinder, and geNorm.
- **RT-PCR Data Analysis - Advanced:** relative expression analysis and visualization (R, GraphPad Prism, SPSS, and GenEx).

Other:
- **Systematic Literature Search and Evidence Synthesis - Proficient:** PubMed, Embase, Scopus, Web of Science, Cochrane, ProQuest, Google Scholar.
- **Reference Management - Advanced:** Zotero, EndNote, ResearchRabbit.
- **Scientific Visualization - Advanced:** BioRender, Mind the Graph, PowerPoint.
- **Meta-analysis - Familiar:** Comprehensive Meta-Analysis (CMA).

Conference Participation

Poster Presentation:
- **Sabaie H**, Asadi MR, Salkhordeh Z, Rezazadeh M. Investigation of competing endogenous RNA regulation of BCAS4 and SHISA7 in tau pathology in Alzheimer's disease. **The first international conference and the tenth national bioinformatics conference of Iran**, 22-24 February 2022 in Kish Island, Iran.

Workshops and Training

Comprehensive Training Program in Statistical Data Analysis, R, Python, and Machine Learning | proDlearn | Tehran, Iran (online)	**2026**
Summary-Data-Based Mendelian Randomization | GEMIRAN | Tehran, Iran (online)	**2025**
Mendelian Randomization | GEMIRAN | Tehran, Iran (online)	**2024**
R Advanced Workshop for Data Science | GEMIRAN | Tehran, Iran (online)	**2024**
R Preliminary Workshop for Data Science | GEMIRAN | Tehran, Iran (online)	**2024**
Linux Essential | Shahid Beheshti University of Medical Sciences | Tehran, Iran (online)	**2024**
Academic Writing | Hanifa Academy | Tehran, Iran (online)	**2023**
Academic Writing | Research Development & Coordination Center | Tabriz, Iran	**2020**
Programming language in R | Research Development & Coordination Center | Tabriz, Iran	**2020**
Basic Bioinformatics | Tabriz University of Medical Sciences | Tabriz, Iran	**2020**
Biostatistics | Tabriz University of Medical Sciences | Tabriz, Iran	**2020**
Ethics in Research and Publication | Research Development & Coordination Center | Tabriz, Iran	**2020**
Principles of systematic review studies and search strategy | Research Development & Coordination Center | Tabriz, Iran	**2019**

- **Research Methodology** | Tabriz University of Medical Sciences | Tabriz, Iran **2019**
- **Proposal Writing** | Tabriz University of Medical Sciences | Tabriz, Iran **2019**

Honors and Awards

- **Selected Researcher** | Research Week, Clinical Research Development Unit, Tabriz Valiasr Hospital **2023**
- **Scientific Elite** | Iranian National Elite Foundation **2022**

Science Community Service

- **Peer Reviewer for International Journals**, including:
  Scientific Reports; *Heliyon*; *PLOS ONE*; *Medicine*; *Aging*; *Annals of Human Biology*; *BMC Neurology*; *BMC Medical Genomics*; *Molecular Neurobiology*; *Molecular Medicine*; *Molecular Therapy − Nucleic Acids*; *Biomedicine & Pharmacotherapy*; *International Immunopharmacology*; *Functional & Integrative Genomics*; *Gene*; *Cell Cycle*; *Multiple Sclerosis and Related Disorders*; *Journal of Diabetes Investigation*; *Oncology Letters*; *Discover Oncology*; *Current Eye Research*; *Bioengineered*; *Iranian Journal of Allergy, Asthma and Immunology*; *Minerva Cardiology and Angiology*.

Volunteer Academic Service

- **Academic Mentorship:** Advised medical and graduate students on research design, practical implementation, and data analysis. **2022 - Now**
- **Graduate Entrance Exam Advising:** Provided academic guidance to candidates preparing for the Iranian national entrance examination for M.Sc. programs in Human Genetics. **2018 - 2021**

Interests and Activities

- Running
- Academic Mentoring
- Travel
- Reading in Philosophy and Science

References

- **Maryam Rezazadeh, Ph.D.** (M.Sc. Supervisor)
  Associate Professor
  Department of Medical Genetics, Faculty of Medicine, University of Medical Sciences, Tabriz, Iran;
  rezazadehm@tbzmed.ac.ir, Google Scholar

- **Jalal Gharesouran, Ph.D.** (M.Sc. Co-Advisor)
  Lecturer Professor
  Department of Medical Genetics, Faculty of Medicine, University of Medical Sciences, Tabriz, Iran;
  jalal.gharesouran@gmail.com, Google Scholar

- **Mahdi Akbarzadeh, Ph.D.** (Principal Investigator)
  Assistant Professor
  Cellular and Molecular Endocrine Research Center, Research Institute for Endocrine Molecular Biology, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran;
  akbarzadehms@sbmu.ac.ir, Google Scholar