

Reza Khayami

Mashhad University of Medical Sciences, Mashhad, Iran

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EDUCATION

Mashhad University of Medical Sciences

Mashhad, Iran

MSc, Human Genetics

2018-2021

- Thesis: Investigating the Role of *SLC30A10* and *SLC30A3* Overexpression in Colorectal Cancer Cells
- Awards: Ranked 1st in the class; Faculty of medicine top student researcher award
- GPA: 18.67/20

Mashhad University of Medical Sciences

Mashhad, Iran

BSc, Laboratory Science

2014-2018

- GPA: 16.99/20

RESEARCH INTERESTS

Genomics

Bioinformatics

Machine learning

RESEARCH EXPERIENCE

Mashhad University of Medical Sciences

Kerachian Lab

Cancer Research Center

2022-2023

- Developed machine learning models on DNA methylation data to improve early cancer diagnosis accuracy.
- Facilitated academic support to students on their theses, ensuring successful project completion.
- Performed statistical analyses for research projects, yielding essential insights.

Mashhad University of Medical Sciences

Kerachian Lab

Department of Medical Genetics and Molecular Medicine

2019-2022

- Implemented machine learning algorithms on colorectal cancer data and developed an app for patient data analysis.
- Collaborated in a review project on vitamin D and colorectal cancer epigenetics with Professor David Goltzman.
- Performed comprehensive thesis research and supported fellow students under Dr. Kerachian's mentorship.
- Conducted statistical analyses for diverse research projects, providing key insights.
- Designed a variant detection workflow for whole exome sequencing.
- Managed animal lab work with nude mice for a research project.

Mashhad University of Medical Sciences

Pasdar Lab

Department of Medical Genetics and Molecular Medicine

2016-2018

- Assisted PhD students in advancing research projects.

Mashhad University of Medical Sciences

Hassanian Lab

Department of Medical Biochemistry

2016-2018

- Helped synthesize text and illustrate images for review articles on the role of adenosine in various cancers to enhance understanding of adenosine's role in cancer.

PUBLICATIONS

Hashemi SR, Matin MM, Avan A, Farrokhi S, Rigi F, **Khayami R**, Azghandi M, Esmacilnia M, Kerachian MA. The significant role of a functional polymorphism rs9637231 in long non-coding RNA, LINC02892 in colorectal cancer: Evidence from an Iranian cohort. *Human Gene*. 2023;38:201226.

Abavisani M#, **Khayami R**#, Hoseinzadeh M, Kodori M, Kesharwani P, Sahebkar A. CRISPR-Cas system as a promising player against bacterial infection and antibiotic resistance. *Drug Resistance Updates*. 2023;100948.

Toroghian Y#, **Khayami R**#, Hassanian SM, Nassiri M, Ferns GA, Khazaei M, Avan A. The Therapeutic Potential of Targeting the Toll-like Receptor Pathway in Breast Cancer. *Current Pharmaceutical Design*. 2022;28(27):2203-10.

Khayami R, Goltzman D, Rabbani SA, Kerachian MA. Epigenomic effects of vitamin D in colorectal cancer. *Epigenomics*. 2022;14(19):1213-28.

Abavisani M, Rahimian K, Kodori M, **Khayami R**, Sisakht MM, Mahmanzar M, Meshkat Z. In silico analysis of the substitution mutations and evolutionary trends of the SARS-CoV-2 structural proteins in Asia. *Iranian Journal of Basic Medical Sciences*. 2022;25(11):1299.

Mirinezhad MR, Khosroabadi N, Rahpeyma M, **Khayami R**, Hashemi SR, Ghazizadeh H, Ferns GA, Pasdar A, Ghayour-Mobarhan M, Hamzehloei T. Genetic determinants of premature menopause in a Mashhad population cohort. *International Journal of Fertility & Sterility*. 2021;15(1):26.

Ghorbani M, Azghandi M, **Khayami R**, Baharara J, Kerachian MA. Association of MTHFR C677T variant genotype with serum folate and Vit B12 in Iranian patients with colorectal cancer or adenomatous polyps. *BMC Medical Genomics*. 2021;14:1-8.

Khayami R#, Hashemi SR#, Kerachian MA. Role of aldo-keto reductase family 1 member B1 (AKR1B1) in the cancer process and its therapeutic potential. *Journal of cellular and molecular medicine*. 2020;24(16):8890-902.

Afzaljavan F, Tehrani NC, Rivandi M, Ghasemian SZ, Vahednia E, **Khayami R**, Abavisani M, Pasdar A. The dilemma of TP53 codon 72 polymorphism (rs1042522) and breast cancer risk: a case-control study and meta-analysis in the Iranian population. *Cell Journal (Yakhteh)*. 2020;22(2):185.

Khayami R, Toroghian Y, Bahreyni A, Bahrami A, Khazaei M, Ferns GA, Ebrahimi S, Soleimani A, Fiuji H, Avan A. Role of adenosine signaling in the pathogenesis of head and neck cancer. *Journal of cellular biochemistry*. 2018;119(10):7905-12.

Bahreyni A, Samani SS, Ghorbani E, Rahmani F, **Khayami R**, Toroghian Y, Behnam-Rassouli R, Khazaei M, Ryzhikov M, Parizadeh MR. Adenosine: an endogenous mediator in the pathogenesis of gynecological cancer. *Journal of Cellular Physiology*. 2018;233(4):2715-22.

SKILLS

Programming: R, Python (familiar), Linux (bash)

Bioinformatics: RNA-seq analysis, NGS data analysis, microarray data analysis, methylation array data analysis, multi-omics data integration, bioinformatics databases, Cytoscape, FlowJo

Machine learning: supervised and unsupervised learning algorithms

Illustrations: Adobe Photoshop, Adobe Illustrator, BioRender, ImageJ, PyMOL

Wet lab: PCR, qPCR, gel electrophoresis, nucleic acid extraction, molecular cloning, general cell culture, wound healing assay, MTT assay, cell proliferation assay, Western blot (familiar)

LANGUAGES

Farsi/Persian: Native

English: Toefl Score: 112 (Reading: 27, Listening: 29, Speaking: 28, Writing: 28)

EXTRACURRICULAR COURSES AND WORKSHOPS

AI for Medical Diagnosis DeepLearning.ai via Coursera	2023
Comprehensive Gene Therapy Course The Union of Iranian Biology	2023
Principles of Working With Laboratory Animals Online Course NIMAD	2022
Learning How to Learn Deep Teaching Solutions via Coursera	2022
High Throughput Genomics Analysis Bioinformatics.ca	2022
Genetics and IVF Mashhad University of Medical Sciences	2021
Entrepreneurship and Startup Mashhad University of Medical Sciences	2021
How to Write and Publish a Scientific Paper École Polytechnique via Coursera	2021
Creative Thinking: Techniques and Tools for Success Imperial College London via Coursera	2021
Academic Writing Made Easy Technische Universität München via EDX	2021
Statistics And R Harvard University via EDX	2021
RNA-Seq Analysis Bioinformatics.ca	2021
Pathway and Network Analysis of -Omics Data Bioinformatics.ca	2021
R Statistics Essential Training LinkedIn Learning	2021
Introduction to Statistical Analysis With SPSS Mashhad University of Medical Sciences	2020
Introduction to Research Mashhad University of Medical Sciences	2015

REFERENCES

Dr. Mohammad Amin Kerachian (MD. Ph.D)

Assistant professor

amin.kerachian@torontomu.ca

- Department of Medical Genetics and Molecular Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
- Department of Chemistry and Biology, Toronto Metropolitan University, Toronto, ON, Canada.

Dr. David Goltzman (MD. Ph.D)

Professor

david.goltzman@mcgill.ca

- Department of Medicine, McGill University Health Center, Montreal, QC, H3G 1A4, Canada.

Dr. Amir Avan (Ph.D)

Associate professor

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- Department of Medical Genetics and Molecular Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Dr. Alireza Pasdar (MD. Ph.D)

Associate professor

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- Department of Medical Genetics and Molecular Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Dr. Seyed Mehdi Hassanian Mehr (Ph.D)

Associate professor

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- Metabolic Syndrome Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.