

FATEMEH AKBARIAN

Assistant professor, Genetics Group,
Department of Basic Sciences, Ale- Taha
Institute of Higher Education



EDUCATION

2013- 2020	National Institute of Genetic Engineering and Biotechnology <i>Doctoral of Molecular Genetics. GPA: 18.91 /20 & Comprehensive Examination: 19.40 /20.</i> Dissertation title: Evaluation of dopamine receptor family (D1-D5) gene expression changes in blood and tissue, and treatment with agonist and antagonist in LNCaP and PC3 prostate cancer cell lines. Defense date: 2020-01-26. Supervisor: Professor Ghasem Ahangari	Tehran, Iran
2011 - 2013	Guilan University <i>Masters of Cellular and Molecular biology. GPA: 19.25 /20.</i> Thesis title: Investigation of TBX21 -1514 T>C Polymorphism in Iranian Patients with Multiple Sclerosis. Defense date: 2013-08-28. Supervisor: Professor Mohammad H. Sanati	Rasht, Iran
2008-2011	Shahid Beheshti University <i>Bachelors of Cellular and Molecular Biology Minor in Microbiology. GPA: 17.16 /20.</i>	Tehran, Iran

ACADEMIC DISTINCTIONS

2020	Ranked 1st among 8 candidates in PhD program, National Institute of Genetic Engineering and Biotechnology.	Tehran, Iran
2013	Ranked 1st Among 21 students in Cellular and Molecular biology MSc program. Guilan University.	Rasht, Iran
2003	Certificate of award from Presidential Education Award Program in recognition of Outstanding Academic Excellence, Julius West School.	Maryland, USA

PROFESSIONAL EXPERIENCE

ACADEMIC POSITIONS

2023- Present	Presidency Ale-Taha Institute of Higher Education	Tehran, Iran
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2020- Present	Assistant Professor Ale-Taha Institute of Higher Education	Tehran, Iran
2016- Present	Director of Research and Technology Ale-Taha Institute of Higher Education	Tehran, Iran
2015- Present	Founder and Director of Biology Sciences Group Minors of Genetics, Microbiology, Biotechnology, Cellular and molecular biology Ale-Taha Institute of Higher Education	Tehran, Iran
2014- 2016	Associate Director of Research and Technology Ale-Taha Institute of Higher Education	Tehran, Iran
2012– 2013	National Institute of Genetic Engineering and Biotechnology (NIGEB) Research Assistant in Medical Biotechnology Laboratory	Tehran, Iran

COMMITTEE WORK

Sep. 2022	9th National Congress of Biology and Natural Resources President and Scientific Secretary ISC code: 00220-69388	Tehran, Iran
Jan. 2022	Workshop on “An Introduction to CRISPR Technology and Applications” Coordinator and Director Ale-Taha Institute of Higher Education	Tehran, Iran
Sep. 2021	National Symposium of “From Knowledge to Technology with an Insight to Startups” Executive chair	Tehran, Iran
August 2021	8th National Congress of Biology and Natural Resources Technical program committee member ISC code: 00201-93413	Tehran, Iran
August 2021	Introductory and advanced Molecular Techniques Summer School Founder and organizer Ale-Taha Institute of Higher Education	Tehran, Iran
June 2021	Workshop on “Scientific Writing” Organizer and Lecturer Ale-Taha Institute of Higher Education	Tehran, Iran
Apr. 2019	Workshop on “Gene expression data analysis and visualization” Organizer and Lecturer National Institute of Genetic Engineering and Biotechnology	Tehran, Iran
Apr. 2017	The “1st Symposium of Lipidomics and the effects of Hyperlipidemia” Technical program chair National Institute of Genetic Engineering and Biotechnology	Tehran, Iran
2014- 2015	PLOS ONE Journal reviewer Peer- reviewer of 3 articles	Cambridge, UK
2009-2010	Shahid Beheshti University Writer and Editor in Synapse Journal Technical Quarterly of the Scientific Community of Biology Students	Tehran, Iran

SUPERVISING EXPERIENCE

2022- 2024	Supervisor of MSc. Thesis “Comprehensive bioinformatics analysis to identify tumor microenvironment- related prognostic biomarkers in therapeutic resistant triple- negative breast cancer” Reyhaneh Tavanayi Ale-Taha Institute of Higher Education	Tehran, Iran
2022- 2024	Advisor of MSc. Thesis “Investigating the expression level of SORT 1 gene in ovarian cancer cell line A2780 by treatment with the alcoholic extract of Galium verum” Sara Shakeri Ale-Taha Institute of Higher Education and Azad University	Tehran, Iran
2022- 2023	Supervisor of MSc. Thesis “Identification of novel biomarkers by investigating transcriptomics data through differentially expressed genes in low and high-grade glioma patients” Fatemeh Abdi Ale-Taha Institute of Higher Education and Royan Institute	Tehran, Iran
2022- 2023	Supervisor of MSc. Thesis “Whole exome sequencing to identify pathogenic mutation(s) in Cardiomyopathy” Fatemeh Dina Mokhtari Ale-Taha Institute of Higher Education and Iran University Hospital	Tehran, Iran
2022- 2023	Advisor of MSc. Thesis “Investigating the expression level of Bim1 gene in ovarian cancer cell line A2780 by treatment with the alcoholic extract of Galium verum” Fatemeh Keshvari Ale-Taha Institute of Higher Education and Azad University	Tehran, Iran
2021- 2023	Supervisor of MSc. Thesis “Molecular design of sgRNA based on CRISPR-Cas13a for diagnosis of SARS-CoV-2 genome spike region in Iranian patients” Maryam Ahmadzadeh Ale-Taha Institute of Higher Education and NIGEB	Tehran, Iran
2022- 2023	Advisor of MSc. Thesis “Evaluation of N-acetylcysteine effect on the expression level of apoptosis genes in granulosa cells in infertile women with endometriosis” Zahra Heshmati ROYAN Institute and Ale-Taha Institute of Higher Education	Tehran, Iran
2022- 2023	2nd Supervisor of MSc. Thesis “Evaluation of the relationship between the level of semen exosomes and quality of sperm parameters and sperm DNA damage in oligoasthnoteratozoospermia” Neda Rabooki Ghom Medical University and Ale-Taha Institute of Higher Education	Tehran, Iran
2021- 2023	Supervisor of MSc. Thesis “Molecular design of sgRNA based on CRISPR-Cas13a for specific detection of ORF1ab region in SARS-COV-2 genome infecting Iranian patients” Fatemeh Farrokhi Ale-Taha Institute of Higher Education and NIGEB	Tehran, Iran

TEACHING EXPERIENCE

2019- Present	Ale-Taha Institute of Higher Education Advanced Molecular Genetics, Molecular Genetics, English for the Students of Biology	Tehran, Iran
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2017- 2018	Ale-Taha Institute of Higher Education English for the Students of Biology	Tehran, Iran
2016- 2017	Ale-Taha Institute of Higher Education Genetics 2, Molecular Genetics, English for the Students of Biology	Tehran, Iran

WORKSHOP ATTENDANCE

Jul. 2010	Iran University of Medical Sciences Educational Workshop on Molecular Techniques in the Laboratory	Tehran, Iran
Aug. 2010	Pasteur Summer School Real-time PCR Course Eukaryotic Cell Culture Course Real-time PCR Primer and Probe Design Course Gene Cloning and Recombinant DNA Technology Course	Tehran, Iran
Aug. 2010	Pasteur Institute Endnote Training Workshop	Tehran, Iran

PUBLICATIONS

BOOKS

1. The Applications of CRISPR-Cas Technology [In progress]
2. Quantitative Real- time PCR, 2024.
3. Molecular and Cell Biology of Cancer, 2022, Publication Code: 978-622-94463-4-8.
4. The applications of bioinformatics in medical genetics, 2013, Publication Code: 9786003220430.

ARTICLES

1. Farzaneh Khani, **Fatemeh Akbarian**, Simin Nafian, Sepideh Mollamohammadi, Shiva Nemati, Hamid Reza Soleimanpour-lichaei, Seyedeh Nafiseh Hassani, Hossein Baharvand, Ghasem Hosseini Salekdeh. Influence of SRY gain-of-function on the survival of rosette neural stem cells derived from human embryonic stem cells [In progress]
2. **Fatemeh Akbarian**, Maryam Abolhassani, Farid Dadkhah, Farrokh Asadi, and Ghasem Ahangari. *Evaluation of TMPRSS2-ERG expression in benign prostatic hyperplasia and prostate cancer patients and its association with dopamine receptors, COMT and IL6 in tumor tissues.* [In Progress]
3. Fatemeh Keshvari, Somayeh Arabzadeh, Masoomeh Hasanbarani, **Fatemeh Akbarian**, Shadi Hajirasouliha, 2024. Induction of apoptosis in ovarian cancer cell lines by plant extract Galium verum, Journal of Animal Biology, Accepted to be published.
4. Dinazahra Mokhtari; **Fatemeh Akbarian**; Parisa Alidoost Salimi; Samira Kalayinia.2024. The Use of Exome Sequencing in Identifying Genetic Mutations of Hypertrophic Cardiomyopathy and Dilated Cardiomyopathy, Journal of Isfahan Medical School; Vol.42, issue.774, 2nd week.
5. **Fatemeh Akbarian***, Marziye Poornabi, Sanam Rezazadeh, Fatemeh Hosseini, Solmaz Abolhasanzadeh, 2023. Evaluation of Dipeptidyl peptidase-4 Potential Role for the Management of Inflammation in COVID-19 Patients. Current Respiratory Medicine Reviews;19(3), pp.180-189.

6. **Fatemeh Akbarian***, Fatemeh Abdi, 2022. CRISPR-Based Diagnosis and Treatment of Human Cytomegalovirus (HCMV) Infection. *Journal of Biology: Principles to Concepts*; Vol.1, issu.1.
7. Maryam Ahmadzadeh, **Fatemeh Akbarian**, Mohammad Hossein Sanati, 2022. Applications of the novel CRISPR/Cas technology in diagnosis of COVID-19 strains. *IACLD Journal*; 54: 69-75.
8. **Fatemeh Akbarian**, Farid Dadkhah, Arezoo Campbell, Farrokh Asadi, and Ghasem Ahangari, 2021. *Characterization of dopamine receptor associated drugs on the proliferation and apoptosis of prostate cancer cell lines: Establishing a basis for drug repurposing*. *Anticancer Agents Med Chem*; 21(9):1160-1171.
9. **Fatemeh Akbarian**, Maryam Abolhassani, Farid Dadkhah, Farrokh Asadi, and Ghasem Ahangari, 2019. *Novel insight into differential gene expression and clinical significance of dopamine receptors, COMT, and IL6 in BPH and prostate cancer*. *Current Molecular Medicine*. 19(8).
10. Naghmeh Gholipour, **Fatemeh Akbarian**, Hamideh Khajeh, Sajjad Ghahhari, Nader Mansour Mousavi, 2018. *Mutational Screening of the negative Regulatory Region of Astrocyte Elevated Gene-1 Promoter in Hepatocellular Carcinoma Patients*. *Journal of Scientific Research and Reports*. 20 (6): 1-7.
11. **Fatemeh Akbarian**, M Ataei, Z Salehi, M Nabavi, MH Sanati, 2018. *The protective role of TBX21-1514T>C polymorphism in susceptibility to multiple sclerosis*. *IJNL*. 17(3):111-6.
12. Mitra Ataei, **Fatemeh Akbarian**, Mahba Ataei Talebi, Peyman Dolati, Maryam Mobaraki, Abolfazl Faraji, Masoud Houshmand, 2018. *Analysis of partial AZFc (gr/gr, b1/b3, and b2/b3) deletions in Iranian oligozoospermia candidates for intracytoplasmic sperm injection (ICSI)*. *Turk J Med Sci*; 48: 251-256.
13. **Fatemeh Akbarian**, Amir Mousavi, Mohammad H. Sanati, Farzaneh Khani, Naghmeh Gholipour, Simin Nafian, 2014. *Novel gene delivery systems considering biosafety*. *Journal of Biosafety*, Volume: 7 Issue: 2, PP 79 -94.
14. Bahram Golestani Eimani, Mohammad Hossein Sanati, Seyyed Masoud Houshmand, Mitra Ataei, **Fatemeh Akbarian**, Naser Shakhssalim, 2014, *Expression and Prognostic Significance of Bcl-2 and Bax in the Progression and Clinical Outcome of Transitional Bladder Cell Carcinoma*. *Cell Journal*, 15(4): 274-383.
15. **Fatemeh Akbarian**, Mohammad Hossein Sanati, 2012. *The Role of Mitochondria in Multiple Sclerosis Disease*. *Genetic-Novin Journal*, No.139112.

PRESENTATIONS

Sep, 2024	sgRNA design for CRISPR-based COVID-19 detection in Iranian patients , COVID Lesson Learned & Achievement Congress, Tehran, Iran.
Sep, 2024	Molecular design of sgRNA based on CRISPR-Cas13a for diagnosis of SARS-CoV-2 genome spike region in Iranian patients . COVID Lesson Learned & Achievement Congress, Tehran, Iran.
June, 2023	The Effect of N-acetylcysteine on the expression of apoptotic genes in granulosa cells of infertile women with endometriosis . <u>Accepted to be presented at</u> ESHRE 2023 Annual Meeting, Copenhagen, Denmark.
April, 2023	Evaluation of N-acetylcysteine effect on the expression of apoptotic genes in granulosa cells in infertile women with endometriosis . <u>Accepted to be presented at</u> 10th YAZD International Congress and Student Award on Reproductive Medicine Reproductive Medicine and 5th Congress of Reproductive Genetics, Yazd, Iran.
March, 2023	Molecular design of sgRNA based on CRISPR-Cas13a for specific detection of ORF1ab region in SARS-COV-2 genome infecting Iranian patients . 2nd International & 11th Iranian Conference on Bioinformatics, Tehran, Iran.
Nov., 2022	The effect of seminal plasma exosomes on sperm function in oligoasthenoteratoospermia patients . 7th International Conference of Obstetrics: Infertility and Mental Health, Tehran, Iran.
Sep., 2022	CRISPR-based diagnosis of COVID-19 by RdRp gene targeting . The 9th National Conference of Modern Studies in Biology and Natural Sciences, Tehran, Iran.
Sep., 2022	Y chromosome gene profiling in the spontaneous differentiation of human embryonic stem cells into embryoid bodies . The 9th National Conference of Modern Studies in Biology and Natural Sciences, Tehran, Iran.
Sep., 2022	Applications of the isothermal amplification process as a tool for acid nucleic detection in medical sciences and Industry . The 9th National Conference of Modern Studies in Biology and Natural Sciences, Tehran, Iran.
Aug., 2022	An investigation of the SRY expression pattern in embryoid bodies and the effects of SRY overexpression on rosette neural stem cells . 17th National Congress of Biochemistry and 8th International Congress of Biochemistry and Molecular Biology, Tehran, Iran.
Nov., 2021	Personalized treatment of COVID-19 disease as a major breakthrough in the quest for a cure . The 5 th International Congress on Biomedicine, Tehran, Iran.
August, 2021	Glutathione and selenium, key players in the activity of unbridled cytokine storms in Covid-19 disease . The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Cell Free Synthetic Biology: Definitions, Types and Applications . The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.

August, 2021	Investigation of various epigenetic changes and their role in cancer incidence. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Personalized Medicine: A review on the definitions, applications, and techniques. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Molecular insight into DNA virus infections. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Gene therapy, a hoping strategy for cancer therapy. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Review on different types of gene expression regulation in TATA-less promoter. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
August, 2021	Molecular insight into RNA virus infections. The 8 th National Congress of Biology and Natural Resources, Tehran, Iran.
Nov., 2020	Immunological communication between SARS- CoV-2 and dipeptidyl peptidase-4: a possible therapeutic strategy. The 4 th Intl. Congress on Biomedicine, Tehran, Iran.
Nov., 2020	Association of SARS- CoV-2 Infection with Lung Microbial Community. The 4 th International Congress on Biomedicine, Tehran, Iran.
Nov., 2020	COVID-19 Molecular Crosstalk with Prostate Cancer: Possible Therapeutic Applications. The 4 th International Congress on Biomedicine, Tehran, Iran.
Feb., 2019	The novel interdisciplinary design to upgrade CAR- T cell technology. The 4 th International Biotechnology Student Conference, Tehran, Iran.
Apr., 2013	Investigating the Expression of TBX21 Gene in Patients with Multiple Sclerosis: a meta-analysis review. 3 rd Iranian Medical Genetics Congress, Tehran, Iran.
May, 2013	The genetics of Urinary Bladder Cancer. 16 th Annual IUA Congress, Tehran, Iran.
May, 2013	The genetics of Prostate Cancer. 16 th Annual IUA Congress. Tehran, Iran.
Dec., 2012	Investigation of -1993 T< C and -1514 T< C polymorphisms in the TBX21 gene in Iranian patients with Multiple Sclerosis. Research and Technology Symposium of the Guilan University. Rasht, Iran.
Nov., 2012	The Role of TBX21 Gene in Multiple Sclerosis. 9 th International MS congress. Tehran, Iran.
May, 2012	The Role of Mitochondria in Multiple Sclerosis Disease. 12 th Iranian Genetic Congress. Tehran, Iran.

CERTIFICATES OF ATTENDANCE

Nov. 2017	1 st Symposium of CRISPR Technology, National Institute of Genetic Engineering and Biotechnology, Tehran, Iran.
Nov. 2012	9 th International MS Congress, Iran MS Society, Tehran, Iran.

Sep. 2012	8 th Royan International Congress on Stem cell biology and Technology, Royan Institute, Tehran, Iran.
May 2012	12 th Iranian Genetics Congress, Iranian Genetics society, Tehran, Iran.
Jan. 2012	1 st National Congress of Genetics and Biological Resources, Iranian Biological Resource Centre, Tehran, Iran.
Feb. 2010	National Scholars' Congress of Conservative Ecology, Shahid Beheshti University, Tehran, Iran.

SKILLS

LABORATORY SKILLS:

1. **General:** Laboratory and Good Laboratory Practice Techniques
2. **Molecular genetic Techniques:** cell isolation from PBMC, tissue, and cell line; DNA extraction; RNA extraction; cDNA synthesis; DNA and RNA Quality and Quantity Assays; Primer design; Gel electrophoresis; SSCP; PCR; Real- time quantitative PCR (highly experienced in trouble shooting and setup); familiar with Sanger Sequencing.
3. **Cell Techniques:** Cancer cell culture techniques; Drug treatments on cell lines and characterizations; MTT assay; double staining immune-fluorescence assay; flow cytometric evaluation of apoptosis and life cycle; cell counting.

BIOINFORMATICS SKILLS:

1. KEGG and DAVID for Gene set enrichment analysis
2. Linreg and Rest
3. National Center of Biotechnology Information Databases (Pubmed, Nucleotide, Protein, Genome, Gene, uniSTS, EST, SNP, and OMIM)
4. BLAST
5. Oligo7 primer design tool
6. Vector NTI
7. Mega 4
8. CLC main workbench

REFERENCE MANAGEMENT SKILLS:

1. EndNote X2
2. Mendeley

STATISTICAL ANALYSIS AND DATA VISUALIZATION SKILLS:

1. R studio (analysing gene expression data, visualization methods such as various plots, principle component analysis, Pearson Correlation Coefficient graph and heatmap)
2. Graphpad Prism
3. SPSS
4. Microsoft Office
5. Prezi

LANGUAGE SKILLS:

- Native English speaker, Middle school and high school in Maryland, United States of America
- Native Persian speaker

INTERPERSONAL SKILLS:

1. Attention to detail and ability to work in a team environment

2. Superior organizational skills and highly detail-oriented in carrying-out assignments
3. Willing to learn, energetic with good communication skills
4. Ability to multitask and to work either independently or as a contributing team member in a complex research institution/ clinical environment