

# Curriculum Vitae: Dr. Farzaneh Mohamadi Farsani

## Personal Information

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- **Full name:** Farzaneh Mohamadi Farsani
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## Summary Statement

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I am an assistant professor at Naghshejahan Higher Education Institute (Isfahan, Iran). I received my PhD in Jan 2017 from Isfahan University, where I focused on cancer chemotherapy through topoisomerase II alpha inhibition and discovered the possible mechanisms by which variations of Top2- $\alpha$  could cause resistance to the inhibitors of this enzyme. After my PhD, I studied the large-scale biological data associated with Top2- $\alpha$  drug resistance in AML patients and achieved some experience in whole exome sequencing and transcriptomics data analysis. I joined to Naghshejahan Higher Education Institute in Sep 2019 as assistant professor. In Oct 2019, I founded my own company (DNARayaZist, Isfahan, Iran), working on computational analyses of large-scale biological data obtained from clinical exome sequencing and RNA-seq. Analyzes high-throughput datasets derived from next-generation sequencing and expression array technologies are my favorite research topics and all my recent research is connected to this area.

## Education

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### Ph.D. in Molecular Genetics: Sep 2012-Jan 2017

GPA: 17.96/20 with a total of 20 passed credits

School of Science, University of Isfahan, Isfahan, Iran

#### PhD thesis

Analysis of single nucleotide polymorphisms in topoisomerase II $\alpha$  and prediction of its role in drug resistance (Sep 2013 – Jan 2017), Supervisor: Prof. S. Vallian, Advisor: Dr. M.R. Ganjalikhany

### M.Sc. in Genetics: Sep 2010-Sep 2012

GPA: 18.41/20 with a total of 23 passed credits

School of Basic Science, University of Shahrekord, Shahrekord, Iran

#### M.Sc. thesis

Gene sequencing and study of expression of chlorotoxin-like peptide from Iranian *Mesobuthus eupeus* (MeICT) in prokaryotic system with western-blot (Sep 2011 – Jul 2012), Supervisors: Dr. H. Ayat, Dr. A.M. Ahadi

### B.Sc. in cellular and molecular biology-genetics: Sep 2006-Jul 2010

GPA: 18.11/20 with a total of 138 passed credits

School of Basic Science, University of Shahrekord, Iran

#### Undergraduate Research Project

Production and optimization of alkaline proteinase (Dec 2008 – Sep 2009), Supervisor: Dr. M. Mobini-Dehkordi

## Honors & Awards

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- Selected researcher of the year in research week, Department of Biology, University of Isfahan, Isfahan, Iran (2016)
- Ranked 12 in Molecular Biology among up to 4000 participants in the National Exam for Entering Nationwide PhD Programs in Biological Sciences, Iran (2012)
- Ranked 16 in the Iranian Biology Olympiad among 40 participants held at Shahid Beheshti University, Iran (2010)
- Dux out of 51 B.Sc. students of Genetics, Department of Biology, College of Science, University of Shahrekord, Iran (2010)

## Employment History and Professional Memberships/Activities

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### Employment

- **Teaching experience**  
Assistant Professor, Naghshejahan Higher Education Institute, Iran (Sep 2019 – Present)  
Instructor, Ashrafi Esfahani University, Isfahan, Iran (Sep 2019 – Present)  
Instructor, Tehran University of Medical Sciences, Iran (Sep 2018 – Dec 2018)  
Instructor, Payame Noor University of Isfahan, Iran (Oct 2016 – Jan 2018)  
Instructor, Islamic Azad University-Shahrekord Unit, Iran (Jan 2013 – Oct 2016)
- **Co-founder and CEO**  
Co-founder and CEO at DNARayaZist company, Isfahan, Iran (Oct 2019 – Present)  
Bioinformatic NGS Analyst at DNARayaZist Company, Isfahan, Iran (Oct 2019 – present)
- **Lab Assistant**  
Bioinformatic NGS Analyst at Isfahan Genetic Center, Isfahan, Iran (March 2017 – Present)  
Bioinformatic NGS Analyst at Nilou Lab, Tehran, Iran (Apr 2018 – Sep 2018)

### Inter-Institute Projects

Standardization of Next generation sequencing (NGS), Pasteour Institute of Iran, Tehran, Iran.  
Supervisor: Prof. H. Rahimi, 2018-2019

Study of the production of serine proteases in bacteria, School of Basic Science, University of Shahrekord, Iran. Supervisor: Dr. M. Mobini-Dehkordi, 2008-2009

### Students Supervised/Co-supervised

- **PhD students co-supervised**  
Identification of genes involved in wound healing using Omix data and its study in Iranian ethnic groups, Iran University of Medical Sciences, Tehran, 2021  
Identification of genes involved in drug resistance of Daunorubicin as inhibitor of Topoisomerase II alpha and Cytarabine in leukemia, University of Isfahan, Iran, 2021
- **M.Sc. students supervised**  
Design and screening of topoisomerase II alpha inhibitors to optimize leukemia treatment, Naghshejahan Higher Education Institute, Iran, 2022  
Identification of genes and signaling pathways involved in response to treatment drugs in Covid-19 patients, Ashrafi Esfahani University, Isfahan, Iran, 2022

Identification and evaluation of genes effective in the success or failure of assisted reproductive techniques, IVF and ICSI, by studying the expression of genes in oocyte cumulus cells, University of Shahrekord, Iran, 2022

Screening and Identification of SGLT2 Inhibitor Herbal Metabolites for the Optimization of Type 2 Diabetes Treatment, Noordanesh Institute of Higher Education, Iran, 2020

▪ **M.Sc. students co-supervised**

Inhibitory peptide design for Mpro protein from SARS-CoV-2 using uni- and bi-directional incremental construction method, University of Isfahan, Iran, 2023

Performance evaluation of docking method for the study of peptide interactions to protein targets, University of Isfahan, Iran, 2022

Development of peptide inhibitors for protein targets involved in cancer using incremental construction method, University of Isfahan, Iran, 2022

Drawing and analysis of wound healing gene network using transcriptomics data from RNA-seq technology, Iran University of Medical Sciences, Tehran, 2021

Identification of key genes and signaling pathways associated with AML chemo-resistance via weighted gene correlation network analysis method (WGCNA), University of Shahrekord, Iran, 2021

Identification of differentially expressed genes and signaling pathways associated with Ovarian cancer chemo-resistance to Topoisomerase inhibitor drugs via weighted gene correlation network analysis method (WGCNA), University of Shahrekord, Iran, 2021

Extraction and virtual screening of bioactive peptide from milk with the aim of development of anticancer peptide, University of Isfahan, Iran, 2019

Extraction and virtual screening of bioactive peptides from soy proteins with the aim of development of anticancer peptides, University of Isfahan, Iran, 2019

Investigation of structure-function in cyclic peptides and their molecular mechanism, University of Isfahan, Iran, 2017

Study and evaluation of ERK inhibitors with the purpose of designing novel inhibitor, University of Isfahan, Iran, 2016

The relationship between MTHFR gene polymorphism and homocysteine of pregnant women in Isfahan, Islamic Azad University-Shahrekord Unit, Iran, 2016

Identification of polymorphisms involved in drug-resistant of androgen receptor gene in treatment of human prostate cancer in Iranian population, Islamic Azad University-Shahrekord Unit, Iran, 2015

Cloning and sequencing of the disintegrin gene from Iranian Vipera in pET22b (+) vector, Islamic Azad University-Shahrekord Unit, Iran, 2015

Identification of Single Nucleotide Polymorphisms involved in drug-resistance of estrogen receptor in chemotherapy, Islamic Azad University-Shahrekord Unit, Iran, 2015

Evaluation the effects of rs137852599 and rs137852274 polymorphisms on the response of androgen receptor gene to the enzalutamide drug and study of their frequency in Iranian population, Islamic Azad University-Shahrekord Unit, Iran, 2015

Study of the frequency of rs1609812 and rs10768683 polymorphisms related to beta thalassemia in Iranian population, Azad University-Shahrekord Unit, Iran, 2015

**Workshops organized**

Organizing online workshop entitled “RUV-III-PRPS normalisation for the TCGA READ RNA-seq data” Held at DNARayaZist company, Isfahan, Iran. Sponsored by: DNARayaZist company, 2023

Instructor of the workshop entitled “Introduction to DNA databases and mutation analysis”, Research Week Congress, Naghshejahan Higher Education Institute, Isfahan, I.R of Iran (Dec 2023).

Organizing online seminar entitled “Emerging research in transcriptomics technologies: from 1D to 3D” Held at DNARayaZist company, Isfahan, Iran. Sponsored by: DNARayaZist company, 2022

Member of the organizing committee and one of the instructors of the workshop entitled “Clinical analysis of Whole Exome Sequencing Data”, Held at Pasteour Institute of Iran, Tehran, Iran. Sponsored by: Prof. S. Zeinali, 2021

Member of the organizing committee and one of the instructors of the workshop entitled “Microarray Data Analysis with R”, Held at Pasteour Institute of Iran, Tehran, Iran. Sponsored by: Prof. S. Zeinali, 2021

Instructor of the workshop entitled “Introduction to Biological Databases”, Held at Ashrafi Esfahani University, Isfahan, Iran. Sponsored by: Ashrafi Esfahani University, 2021

Instructor of several workshops on “Clinical analysis of Whole Exome Sequencing Data”, Held at GenomeFan Company, Tehran, Iran, Sponsored by: GenomeFan Company, 2018-2019

### Professional memberships

- Member of Iranian Genetics Society (Feb 2012- Feb 2013)
- Member of Iranian Biology Society (Sep 2011- Sep 2012)
- Member of Iranian Bioinformatics Society (Sep 2011- Sep 2012)
- Secretary of the scientific student genetics society at University of Shahrekord (Oct 2007- Sep 2010)

### Publications

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#### International Journals

- Farhangniya M, Samadikuchaksaraei A, **Mohamadi Farsani F**. Exploring Co-Expression Modules-Traits Correlation through Weighted Gene Co-Expression Network Analysis: A Promising Approach in Wound Healing Research. *Medical Journal of the Islamic Republic of Iran*, 2024; 17: 82.
- Samadikuchaksaraei A, Farhangniya M, **Mohamadi Farsani F**, Salehi N. Integrated bioinformatic analysis of differentially expressed genes associated with wound healing. *Cell Journal (Yakhteh)*, 2023; 25(12):874.
- Zohrabi T, Azimi-Resketi M, Talaei F, Yaghoubi M, Ganjalikhany MR, **Mohamadi Farsani F**, Eskandarian A. Knocking down the expression of the molecular motors, myosin A, C and F genes in *Toxoplasma gondii* to decrease the parasite virulence. *Experimental Parasitology*. 2023 Jun 16:108565.
- Modarres P, **Mohamadi Farsani F**, Nekouie A, Vallian S. Meta-Analysis of Gene Signatures and Key Pathways Indicates Suppression of JNK Pathway as a Regulator of Chemo-Resistance in AML. *Scientific Reports*, 2021; 11(1): 1-6.
- Jafari S, **Mohamadi Farsani F**, Ganji M, Ganjalikhany MR. The functional regulatory details of ERK2 in complex with RSK1: an in silico insight, *RSC Advances*, 2021; 11(19): 11048-11056.

- **Mohamadi Farsani F**, Vallian S, Ganjalikhany MR, Pourmoshir N. Characterization of novel non-synonymous genomic variants altering drug response of DNA topoisomerase II alpha, *International Journal of Cancer Management*, 2019; 12(4): e66993.
- Hadian N, **Mohamadi Farsani F**, Ganjalikhany MR, Sazegar H, Sadeqi M. Molecular basis of Bicalutamide response alteration of androgen receptor caused by single nucleotide polymorphisms: an in silico investigation. *Critical Reviews™ in Eukaryotic Gene Expression*, 2019; 29(2):177–187.
- **Mohamadi Farsani F**, Vallian S. Variations related to resistance of cancer cells to Topoisomerase II alpha inhibitory drugs. *Bioinformatics & Proteomics Open Access Journal*, 2018; 2(1): 1-4.
- **Mohamadi Farsani F**, Ganjalikhany MR, Vallian S. Studies on non-synonymous polymorphisms altering human DNA Topoisomerase II-alpha interaction with Amsacrine and Mitoxantrone: An in silico approach. *Current Cancer Drug Targets*, 2017; 17(7): 657-668.
- Sonbolestan E, Sazegar H, Zia N, **Mohamadi Farsani F**. Investigation the association between MTHFR gene polymorphism and homocysteine in Iranian pregnant women. *Asian Journal of Pharmaceutical and Clinical Research*, 2017; 10(12):411-414.
- **Mohamadi Farsani F**, Ganjalikhany MR, Dehbashi M, Mojtabavi Naeini M, Vallian S. Structural basis of DNA Topoisomerase II- $\alpha$  (Top2- $\alpha$ ) inhibition: A computational analysis of interactions between Top2- $\alpha$  and its inhibitors. *Medicinal Chemistry Research*, 2016; 25(6):1250–1259.

#### Persian Journals

- Habibzade F, Hosseini-Koupaei M, **Mohamadi Farsani F**, Sanei-Ataabadi F. Review of CRISPR Cas9 in the treatment of diseases by analytical method. *Journal of new researches in Medical Sciences, Hygiene and Health*. 2025; 4: 78-105.
- Chitsazzadeh E, **Mohamadi Farsani F**, Ganjalikhany MR. *In silico* extraction and screening of apoptosis-activating peptides from milk with the aim of optimizing cancer treatment. *Journal of Molecular and Cellular Research*. 2025; 38: 239-257.
- Banihashemi-Emam-Qeisi O, **Mohamadi Farsani F**. A review of drugs and vaccines used in the treatment and prevention of Covid-19 disease. *Biotechnology in Life*, 2021; 1-12.
- Rabiee M, **Mohamadi Farsani F**. Study of amino acid composition, structure and evolutionary relationships of Disintegrin toxins from Vipera species. *Journal of Cellular and Molecular Researches*, 2018; 32(3): 342-351.
- **Mohamadi Farsani F**, Vallian S, Ganjalikhany MR. Prediction of drug sensitivity in AML subtypes in response to Mitoxantrone from global gene expression, an impact on personalized cancer chemotherapy. *Personalized Medicine Journal*, 2018; 8: 15-22.
- Alizadeh M, Sazegar H, Zia N, **Mohamadi Farsani F**. Study of the effects of rs137852595 single-nucleotide polymorphism on drug resistance of androgen receptor against Enzalutamide treatments in patients with prostate. *New Cellular and Molecular Biotechnology Journal*, 2018; 9(33): 71-78.
- Sonbolestan E, Sazegar H, Zia N, **Mohamadi Farsani F**. Investigating the relationship between C677T polymorphism of the Methylenetetrahydrofolate Reductase Gene and the levels of homocysteine in primary and secondary infertile women in Isfahan. *Journal of Fasa University of Medical Science*, 2018; 8(1): 1-10.
- Kaviani B, Sazegar H, Zia N, **Mohamadi Farsani F**. Investigation of drug resistance against treatment with Enzalutamide medicine in individuals diagnosed with prostate cancer and studying the effect of rs137852574 single-nucleotide polymorphism in drug resistance in the human

population of Isfahan province. *New Cellular and Molecular Biotechnology Journal*, 2018; 8(29): 69-78.

- Kaviani B, Sazegar H, Zia N, **Mohamadi Farsani F**. Investigation of the effects of rs137852599 single-nucleotide polymorphism existence in drug resistance against treatment with Enzalutamide in individuals diagnosed with prostate cancer in Isfahan province. *Arak Medical University Journal*, 2018; 20(128):76-86.
- Vallian S, **Mohamadi Farsani F**. CRISPR/Cas9 technology and its application in treatment of genetic diseases. *Journal of Laboratory and Diagnosis*, 2017; 9(37): 7-13.
- Pourmoshir N, **Mohamadi Farsani F**, Vallian S. Next generation sequencing and its application in diagnosis of genetic diseases. *Journal of Laboratory and Diagnosis*, 2017; 8(34): 56-66.
- Rabiee M, Sazegar H, **Mohamadi Farsani F**. Bioinformatics analysis of structure and function of Lebestatine isolated from *Macrovipera* venom. *Journal of Fasa University of Medical Science*, 2017; 7(2):1-9.
- Hadian N, Sazegar H, **Mohamadi Farsani F**, Zia N. Computational analysis of interactions between Androgen receptor and Bicalutamide. *Journal of Health and Biomedical Informatics*, 2017; 3(4):310-318.
- **Mohamadi Farsani F**, Ayat H, Ahadi AM. Molecular modeling and docking studies on the first Chlorotoxin-like peptide from Iranian scorpion *Mesobuthus eupeus* (Meict) and SNP variants of Matrix Metalloproteinase-2 (MMP-2). *Iranian Journal of Toxicology*, 2015; 9(30): 1368-1376.

#### Submitted manuscripts.

- Talebian MA, **Mohamadi Farsani F**, Heidaryan Naeini F, Miroliaei M, Asadzadeh A. Epigallocatechin-3-gallate (EGCG) as a promising SGLT2 inhibitor for enhanced type 2 diabetes treatment: an *in-silico* study. *Diabetes Therapy*.

#### Oral & Poster Presentation

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##### Oral Presentation

- Sattari N, **Mohamadi Farsani F**, Hosseini M. Comparison of two Anti-Microbials peptides Lactoferrin-B and Pleurocidin with the Raloxifene and effects on alpha-estrogen receptor. 18<sup>th</sup> National Congress of Biochemistry and 9<sup>th</sup> International Congress of Biochemistry and Molecular Biology. (Oct 2024)
- Bavafa Shandiz Y, Khatoonabadi J, **Mohamadi Farsani F**. Bioinformatics-Driven Approaches for Precision Oncology: Revolutionizing Cancer Treatment. 1<sup>th</sup> International Conference on Biology and Laboratory Science, Hamedan, I.R of Iran (July 2023).
- Farhangniya M, Kouchaksaraei AS, **Mohamadi Farsani F**. Use of transcriptomic data from non-wound healing patients to purpose identified genes involved in the disease. 6<sup>th</sup> TERMIS World Congress, Maastricht, Netherlands (Nov 2021).
- **Mohamadi Farsani F**. Introduction to Bioinformatics and its application in biology and biomedicine. Research Week Congress, Naghshejahan Higher Education Institute, Isfahan, I.R of Iran (Dec 2020).
- **Mohamadi Farsani F**. Introduction to NGS technology and its application in the treatment of genetic disorders. Research Week Congress, Naghshejahan Higher Education Institute, Isfahan, I.R of Iran (Dec 2019).
- **Mohamadi Farsani F**, Ganjalikhany MR, Vallian S. Prediction of drug sensitivity in AML subtypes in response to Mitoxantrone from global gene expression, an impact on personalized

cancer chemotherapy. The 2nd International Personalized Medicine Congress, Tehran, I.R of Iran (Jan 2018).

- **Mohamadi Farsani F**, Ganjalikhany MR, Vallian S. Study of variations affect human DNA Topoisomerase II-alpha interaction with Amsacrine and Mitoxantrone. Research Week Congress, University of Isfahan, Isfahan, I.R of Iran (Dec 2016).
- Mobini Dehkordi M, **Mohamadi Farsani F**. Production and optimization of alkaline proteinase from native and standard strain of *Bacillus*. The 1<sup>th</sup> International Biology Conference, Islamic Azad University, Falavarjan Branch, Falavarjan, I.R of Iran (Feb 2012).

### Poster presentation

- Bavafa Shandiz Y, **Mohamadi Farsani F**. Bioinformatics-Driven Approaches for Precision Oncology: Revolutionizing Cancer Treatment. 7th International Biomedicine Congress, Tehran, I.R of Iran (Nov 2023).
- Khosravi P, Kamyabi N, **Mohammadi Farsani F**, Identification of Genes Involved in Drug Resistance in Breast Cancer in Response to Treatment with Tamoxifen. 9th National Seminar in Medical Genetics (Diagnostics and Research). (Nov 2023).
- Roshanaei Sh, **Mohammadi Farsani F**, Saffar B. Activation of Wnt pathway in cumulus cells treated by IVF. 3<sup>th</sup> National Conference on New Biological Findings. (May 2023).
- Moradi Najjar L, **Mohammadi Farsani F**. Investigation of circRNA\_miRN and RBP interaction networks in AML. 22<sup>th</sup> National Congress and 10<sup>th</sup> International Congress of Biology of Iran. (Sep 2022).
- Roshanaei Sh, **Mohammadi Farsani F**, Saffar B. Analysis of gene expression in treated cumulus cells. 22<sup>th</sup> National Congress and 10<sup>th</sup> International Congress of Biology of Iran. (Sep 2022).
- Modarres P, **Mohammadi Farsani F**, Nekouie A, Vallian S. Integrative meta-analysis identifies the involvement of neurotrophin signaling pathway in AML chemo-resistance. International conference on Human Genetics and Genomics. (Dec 2021).
- Golchin E, **Mohammadi Farsani F**, Saffar B. Identification of lncRNAs associated with genes involved in response to azacitidine treatment in AML patients. The 12<sup>nd</sup> National and 4<sup>th</sup> International Biotechnology Congress of the Islamic Republic of Iran (Agu 2021).
- Sonbolestan E, Sazegar H, Zia N, **Mohamadi Farsani F**. The relationship between MTHFR gene polymorphism and homocysteine in Isfahan pregnant women. 9<sup>th</sup> IRHRC Annual Meeting. Sh. Beheshti University, Tehran, I.R of Iran (Nov 2016).
- **Mohamadi Farsani F**, Ganjalikhany MR, Vallian S. R487K variant of Topoisomerase II alpha mediates possible Doxorubicin resistance. The 3th Congress Molecular Medicine. Medical University of Isfahan, Isfahan, I.R of Iran (Dec 2016).
- **Mohamadi Farsani F**, Ganjalikhany MR, Vallian S. Study of variations affect human DNA Topoisomerase II-alpha interaction with its inhibitors in the Iranian population. Research Week Congress, University of Isfahan, Isfahan, I.R of Iran (Dec 2016).
- Dehbashi M, Ganjalikhani Hakemi M, Hojati Z, Ganjalikhany MR, **Mohamadi Farsani F**, Shimosaka A. Molecular docking and molecular dynamic analysis of anti-CD25 chimeric antigen receptor. The 7th meeting of Asian Cellular Therapy Organization, At Beijing, China (Dec 2016).
- Mohamadi Farsani M, **Mohamadi Farsani F**. Properties of selection markers used in chloroplast engineering and methods for removed them from transformed cells. The 2<sup>nd</sup> Iranian Conference on Biology and Horticultural Sciences. Community of Development and promotion of fundamental science and technology, Tehran, I.R of Iran (Feb 2016).
- Mokhtari Farsani A, **Mohamadi Farsani F**, Mortazavi Farsani S, Hadidi H, Talebian MA, Yousefi MH, Abbasi A, Doosti A. Long non-coding RNA H19 in bladder cancer and its

association with p53 expression. The 2<sup>nd</sup> International and 14<sup>th</sup> Iranian Genetics Congress. Sh. Beheshti University, Tehran, I.R of Iran (May 2016).

- **Mohamadi Farsani F**, Ayat H, Ahadi AM. Comparison of sequence and amino acid composition of the first chlorotoxin-like peptide from Iranian Scorpion *Mesobuthus eupeus* (MeICT) with chlorotoxin and other like peptides. The 17<sup>th</sup> National & 5<sup>th</sup> International Iranian Biology Conference. Sh. Bahonar University, Kerman, I.R of Iran (Sep 2012).
- **Mohamadi Farsani F**, Mortazavi Farsani SS, Ahadi AM, Ayat H. Study of structural differences of estrogen response elements in some expressed genes in the ovary. The 17<sup>th</sup> National & 5<sup>th</sup> International Iranian Biology Conference. ShBahonar University, Kerman, I.R of Iran (Sep 2012).
- **Mohamadi Farsani F**, Ayat H, Ahadi AM. Prediction of the first chlorotoxin-like peptide's structure from Iranian Scorpion *Mesobuthus eupeus* (MeICT) and study of its interaction with matrix methaloproteinase-2 (MMP-2). The 12<sup>th</sup> Iranian Genetic Congress, ShBeheshti University, Tehran, I.R of Iran (May 2012).
- **Mohamadi Farsani F**, Emadi Bygi M. Genetic and epigenetic changes in prostate cancer. The 1<sup>th</sup> International Biology Conference, Islamic Azad University, Falavarjan Branch, Falavarjan, I.R of Iran (Feb 2012).

## Skills

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### Molecular & cellular biology techniques

- DNA and RNA extraction
- PCR based methods; conventional PCR, ARMS-PCR, RT-PCR, PCR-RFLP
- Gel electrophoresis in horizontal and vertical (agarose and SDS-PAGE).
- Plasmid purification and preparation (small to large scale).
- Gene cloning; cutting & joining, design medium for clone selection
- Gene transfer; transformation in bacteria and transformation to fungi
- Bioassay; calorimetry, densitometry, spectrofluorometry
- Protein analysis method; western blot, SDS-page
- Bacterial and fungi cultures
- NGS carrier screening (Library preparation, sequencing and data analysis)

### Computer skills

- Working knowledge of Linux (Ubuntu, CentOS) and Windows (7, 8 and 10)
- Working knowledge of MS office
- Reference manager software (EndNote)

### Bioinformatics programs and databanks

- **Analysis of large-scale biological data**  
Microarray data analysis (R program)  
Transcriptomics data integration and batch effect correction (R program)  
Weighted correlation network analysis (WGCNA) (R program)  
Pathway analysis (R program and Cytoscape)  
RNAseq data analysis (Trimmomatic, hisat2, HTSeq, htseq-count, DEseq2, edgeR and etc)  
Single cell data analysis (Cell ranger, Seurat, ... and etc)  
Whole exome data analysis (BWA-MEM, Picard, GATK, SnpEff and etc)
- **3D structure prediction & computational drug design**  
Working experience with molecular graphics (Cn3D, RasMol, Deep View (Swiss-PdbViewer), VMD, UCSF Chimera) programs  
Molecular Dynamics (MD) simulations (Gromacs, Amber)

Protein – protein interaction software (Hex, RosettaDock, ZDock)

Homology modeling program (Phyre2, Modeller)

Computational drug design software (AutoDock, UCSF Dock6, HyperChem, VinaDock, PyRx)

▪ **Other Programs and databanks**

Working knowledge of all major molecular biology primary and secondary databases (Genbank, Entrez, OMIM, EMBL, UCSC, ENCODE, UniProt, SWISS-PROT, PDB, GeneCard, DrugBank, COSMIC, ClinVar, Varsome, Franklin, and etc)

Sequence alignment techniques (single and multiple) and programs (BLAST, Clustal, MEGA)

PCR and Real-time PCR primer or probe designing programs (Gene Runner, Primer1, Primer3 and etc)

Base calling and sequencing software (Chromas, CodonCode Aligner)

**Languages**

- Persian (Native)
- English (Advanced)

**Workshops Attended**

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- Whole exome data analysis. GenomeFan Company, Tehran, Iran, July 2018
- Clinical analysis of whole exome sequencing data. Pasteur Institute of Iran, Tehran, Iran, March 2018
- Methods in reducing errors in prenatal diagnosis of genetic disorders. Pasteur Institute of Iran, Tehran, Iran, February 2018
- Introduction to R/Rstudio, Microarray data analysis, RNASeq data analysis, Transcriptomics data integration and batch effect correction Workshop, R-Ladies Melbourne, Isfahan, Iran, April 2017
- Introduction to NGS data analysis Workshop, The National Institute of Genetic Engineering and Biotechnology (NIGEB) and The Iranian Bioinformatics Society, Tehran, Iran, September 2016
- Introduction to NGS based methods for diagnosis of hereditary disease seminar, Iranian Molecular Medicine Network, Tehran, Iran, August 2016
- Linux for Biologists Workshop, Laboratory of Systems Biology and Bioinformatics, Tehran University, Iran, April 2014
- Molecular Docking Workshop, Laboratory of Systems Biology and Bioinformatics, Tehran University, Iran, April 2014
- Advanced Course in Molecular Docking Workshop, Laboratory of Systems Biology and Bioinformatics, Tehran University, Iran, April 2014
- Real-time RT-PCR Workshop, Biotechnology Committee, University of Shahrekord, May 2011
- Study of the number and the structure of chromosomes by Karyotype, Biotechnology Committee, University of Shahrekord, May 2011
- Karyotyping Workshop, Biotechnology Committee, University of Shahrekord, Iran, June 2011
- Animal Cell Culture Workshop, Biotechnology Committee, University of Shahrekord, Iran, May 2010
- PCR-RFLP Workshop, Cellular and Molecular Research Center, Shahrekord University of Medical Sciences, Iran, April 2009
- Primer Designing & Bioinformatics Workshop, Biotechnology Committee, University of Shahrekord, Iran, November 2009

**REFERENCES**

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