

FATEMEH ELAHIAN

Curriculum Vitae

Profession: Associate Professor, Dept. of Medical Biotechnology, School of Advanced Technologies, SKUMS, Chaharmahal and Bakhtiari, 8813833435, Iran

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-----RESEARCH INTERESTS-----

I am very interested in cancer research. My Ph.D. thesis project mainly focused on multi-drug resistance modulation as a principal molecular mechanism of drug resistance in cancer. One area where I would like to extend my researches is cancer gene therapy as new clinical methods for cancer treatment. I have also acquired good experience in cancer gene therapy through my one-year post-doctoral work.

I am remarkably interested in translational cancer research. These kinds of studies that transform new discoveries in the laboratory into innovative diagnosis and treatments for cancer patients can be the principal basis of personalized medicine that is the goal of the modern medicine.

I am also very interested in cell therapy and tissue engineering that rely on the implantation of cells or tissue construct using cells and biomaterial scaffolds to copy the native tissue environment and produce viable grafts for tissue regeneration.

I would extraordinarily like to continue my research in the pharmacogenomics area defined as the study of genetic variation that affects the way drugs or other xenobiotic substances act on the body, and for the way, the body functions on drugs. Of course, these studies will conduct me to personalized medicine aims at a tailored drug treatment accounting for inter-individual variations in drug pharmacology to treat individuals effectively and safely.

-----EDUCATION-----

1996-2002	Pharm.D. from Tehran University of Medical Sciences, Iran.
2005-2010	Ph.D. of Pharmaceutical Biotechnology, Mashhad University of Medical Sciences, Iran.
2009-2009	Visiting Scholar, University Medicine Berlin, Deutschland.

-----**PROFESSIONAL EXPERIENCE**-----

Post Ph.D.

2010-2014	Assistant Professor of biotechnology and laboratory head, Zanjan University of Medical Sciences (ZUMS)
2014-2019	Assistant Professor of biotechnology, Shahrekord University of Medical Sciences (SKUMS)
2014-Present	Associate Professor of biotechnology, Shahrekord University of Medical Sciences (SKUMS)
2018-Present	Vice Chancellor for Education, School of Advanced technologies, SKUMS

Teaching Experiences

2010-Present	Instructor, Various topics for M.Sc., Ph.D., and Pharm.D students including: <ul style="list-style-type: none"> • Cellular and Molecular Biology • Biotechnology • Human Cell Culture • Biopharmaceutical Agents • Cell Signaling • Advanced Molecular Techniques
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Projects Supervision

2017- Present	Ph.D student thesis Design and construction of MSN nanocarrier for specific and efficient delivery of MDR1 siRNA delivery in chemotherapy-resistant cancer cell lines
2015- Current	Ph.D student thesis Design and construction of liposomal nanocarrier for specific and targeted MDR1 siRNA delivery into chemotherapy-resistant cancer cell line MDA-MB-231
2013- 2016	M.Sc student theses Purification of prodigiosin, undecylprodigiosin, and butylcycloheptylprodigiosin from Streptomyces Coelicolor and evaluation of the effects on the transcription levels and function of drug resistance pumps MDR1 and BCRP in chemotherapy-resistant cancer cell lines
2013- 2016	M.Sc student Theses Green synthesis of silver, selenium, palladium, and gold nanoparticles using transformed Pichia pastoris containing fungi's cytochrome b5 reductase

- 2013- 2015 Pharm.D and M.Sc student Theses
Purification of Ferula shikonins and their effects on the transcription levels, protein expression and function of drug resistance pumps, MDR1, BCRP, MRP1, and MRP2 in different cancer cell lines
- 2012- 2015 Pharm.D and M.Sc student Theses
Evaluation of furanocoumarins' effects on the transcription level, protein expression, and function of drug resistance pumps MDR1, BCRP, and MRP1 in different cancer cell lines
- 2011- 2013 Pharm.D student theses
Antigenotoxicity, antioxidant, antibacterial and antifungal activities of Thymus kotschyanus and Thymus daenensis aerial part essential oil from different ecotypes
- 2011- 2013 Pharm.D student Thesis
Study of anti-cancerous effects of nitrogenous bisphosphonates, zoledronate, risedronate and pamidronate on the expression of the DBF4 protein in different Breast Cancer cell lines and following the metastasis effects

Technical Skills

- Human cell culture techniques including cytotoxicity, cell signaling, cell viability, cell migration, and invasion assays
- Genomics and transcriptomics studies, DNA/RNA extraction and quantification, electrophoresis, PCR, Real-time PCR
- Proteomics study including protein extraction and quantification, SDS-PAGE, western blotting, ICC, and IHC
- Flow cytometry analyses including uptake of fluorochrome or a fluorochrome-labeled substance, apoptosis assay, cell cycle analysis, protein quantifications, protein functional analyses
- Fluorescence microscopy
- Genotoxicity and antioxidant assay
- Targeted gene therapy and gene silencing
- Nanobiotechnology, biotransformation, and bioremediation

Language Proficiency

- Persian: mother tongue
- English: fluent

Others

2002-2005 Clinical Pharmacy Manager at Shafabakhsh pharmacy, Borujen, Iran

2002-2005 Pharmacy technician instructor, Shahrekord University of Medical Sciences

-----HONORS & AWARDS-----

- 1999 Academic excellence award in 6th national Pharmaceutical Student Seminar
 2005 Academic excellence award for 16th Ph.D. entrance exam
 2007 Academic excellence award for 2rd "National Board Exam" at Mashhad University of Medical Sciences
 2008 Academic excellence award in the first national congress of pharmaceutical biotechnology Ph.D. students
 2016 Academic excellence award for "elite Young Assistant Professor" from the Ministry of Health and Medical Education, Iran.
 2010- 2018 Multiple grant awards by Vice chancellor for research and development of ZUMS and SKUMS

-----PUBLICATIONS-----

- 1- M. Shekarchi, **F. Elahian**, T. Akbarzadeh, A. Shafiee*; Syntheses of [1,2,3] selenadiazolo [4,5-e] benzofuran or Benzothiophene, [1,2,3] Thiadiazolo [4,5-e] benzofuran or Benzothiophene & 2-Benzofuranoyl-1,3,4-oxodiazol derivatives, *Journal of Heterocyclic Chemistry*, 40(3): 427-433, 2003. IF: 0.9.
- 2- **F. Elahian**, F. Kalalinia, J. Behravan*; Dexamethasone Downregulates BCRP mRNA and Protein Expression in Breast Cancer Cell Lines, *Oncology Research*, 18(1): 9-15, 2009. IF: 1.5.
- 3- **F. Elahian**, F. Kalalinia, J. Behravan*; Evaluation of indomethacin and dexamethasone effects on BCRP-mediated drug resistance in MCF-7 parental and resistant cell lines, *Drug and Chemical Toxicology*, 33(2): 113-119, 2010. IF: 1.7
- 4- F. Kalalinia, **F. Elahian**, J. Behravan*; Potential role of cyclooxygenase- 2 on the regulation of the drug efflux transporter ABCG2 in breast cancer cell lines, *Journal of Cancer Research and Clinical Oncology*, 137(2):321-30, 2011. IF: 2.91.
- 5- F. Kalalinia, **F. Elahian**, M. Hassani, J. Kasaeian, J. Behravan*; Phorbol Ester TPA Modulates Chemoresistance in the Drug Sensitive Breast Cancer Cell Line MCF-7 by Inducing Expression of Drug Efflux Transporter ABCG2, *Asian Pacific Journal of Cancer Prevention*, 13(6):2979-84, 2012, IF: 1.46.
- 6- **F. Elahian**, B. Moghimi, F. Dinmohammadi, M. Ghamghami, M. Hamidi, and S.A. Mirzaei*; The anticancer agent prodigiosin is not a multidrug resistance protein substrate. *DNA and Cell Biology*, 32(3): 90-97, 2013, IF: 2.35.
- 7- **F. Elahian**, B. Moghimi, S.A. Mirzaei*; Human cytochrome b5 reductase: structure, function, and potential applications. *Critical reviews in Biotechnology*, 34(2):134-43, 2014, IF: 6.55.
- 8- M. Mansuri, S.A. Mirzaei, H. Lage, S.S. Mousavi, and **F. Elahian***, The cell cycle arrest and the anti-invasive effects of nitrogen-containing bisphosphonates are not mediated by DBF4 in breast cancer cells. *Biochimie*, 99: 71-76, 2014, IF: 3.55.

- 9- F. Kalalinia, **F. Elahian**, J. Behravan*; Celecoxib upregulate drug efflux transporter ABCG2 in breast cancer cell lines. Iranian journal of pharmaceutical research, 13 (4): 1393-1401, 2014, IF: 1.35.
- 10- **F. Elahian**, M. Akbari, M. Ghasemi, N. Behtooee, M. Taheri and M. Amini*; Synthesis and Anticancer Activity of 2, 4, 5-triaryl Imidazole Derivatives. Letters in Drug Design & Discovery, 11(7): 840-843, 2014, IF: 0.7.
- 11- V. Afshari, **F. Elahian**, Y. Ayari, A. Yazdinezhad and , S.A. Mirzaei*; Diversity and ecotypic variation in the antioxidant and antigenotoxic effects of *Thymus kotschyanus* Boiss & Hohen. Flavour and Fragrance, 31 (6): 429-437, 2016, IF: 1.97.
- 12- **F. Elahian**, S. Reisi, A. Shahidi, S.A. Mirzaei*. High-throughput bioaccumulation, biotransformation, and production of silver and selenium nanoparticles using genetically engineered *Pichia pastoris*. Nanomedicine: Nanotechnology, Biology, and Medicine, 13 (3): 853-861, 2017, IF: 6.16.
- 13- S.A. Mirzaei, N. Gholamian Dehkordi, M. Ghamghami, A.H. Amiri, E. Dalir Abdolahinia, **F. Elahian***. ABC-transporter blockage mediated by xanthotoxin and bergapten is the major pathway for chemosensitization of multidrug-resistant cancer cells. Toxicol App Pharmacol, 337: 22-29, 2017, IF: 3.79.
- 14- S.A. Mirzaei, S. Reisi, P. Ghiasi Tabari, A. Shekari, F. Aliakbari, E. Azadfallah, and **F. Elahian***. Broad blocking of MDR efflux pumps by acetylshikonin and acetoxylisovalerylshikonin to generate hypersensitive phenotype of malignant carcinoma cells. Scientific reports 8 (1): 3446, 2018, IF: 4.25.
- 15- S.A. Mirzaei, M Safari, J. Keshavarz, **F. Elahian***. Unlike butylcycloheptylprodigiosin, isolated undecylprodigiosin from *Streptomyces parvulus* is not a MDR1 and BCRP substrate in multidrug resistant cancers. DNA Cell Biology, 37 (6): 535-542, 2018, IF: 2.65.
- 16- Gholamian Dehkordi N, Elahian F, Khosravian P, Mirzaei S.A. Intelligent TAT-coupled anti-HER2 immunoliposomes knock down MDR1 to produce chemosensitize phenotype of multidrug resistant carcinoma. J Cell Physiol. 2019, IF: 3.92.
- 17- S.A. Mirzaei, F. Dinmohammadi, **F. Elahian***. Inflammatory pathways and cancer multidrug resistance. Cancer Lett; Under Review, IF: 4.2.
- 18- **F. Elahian**, M. Garshasbi, Z. Mehri, N. Moein, A.R. Yazdinejad, and S.A. Mirzaei*; Analysis and bioactivity comparison of *Thymus daenensis* essential oil from 8 different ecotypes from Iran. Food Chemistry; Under Review, IF: 4.5.

-----NATIONAL PATENTS-----

- 1- S.A. Mirzaei, **F. Elahian**, and V. Afshari. A new model for genotoxicity and antigenotoxicity assessment. Iran 82258, Issued March 2014.
- 2- S.A. Mirzaei, **F. Elahian**, Z. Nouri, and V. Afshari. A new method for beta-carotene antioxidation assessment. Iran 83192, Issued July 2014.
- 3- S.M.S. Mirzaei, S.A. Mirzaei, and **F. Elahian**. Green synthesis of selenium nanoparticles using genetically modified yeasts. Iran 83194, Issued July 2014.
- 4- S.A. Mirzaei, **F. Elahian**, N. Moein, and Y. Ayari. A new method for DPPH antioxidation assessment. Iran 83288, Issued August 2014.

-----**ABSTRACTS AND SEMINARS**-----

- 1- **F. Elahian**, J. Behravan (2008); Evaluation of indomethacin and dexamethasone effects on mitoxantrone cytotoxicity in breast cancer cell lines, (International Breast Cancer Congress), Iranian Journal of Cancer Prevention.
- 2- **F. Elahian**, S.A Mirzaei, J. Behravan (2009); Evaluation of NSAID effects on BCRP-mediated drug resistance. (34th FEBS Congress), FEBS Journal.
- 3- **F. Elahian**, J. Behravan (2010). Evaluation of NSAIDs and novobiocin effects on BCRP mediated breast cancer cells, (First National Congress of Ph.D. students of pharmaceutical biotechnology, Iran).
- 4- Kalalinia F., **Elahian F.**, Behravan J. Induction of Cyclooxygenase-2 by Phorbol Ester TPA Modulate Chemoresistance by Induction Expression and Activity of Drug Efflux Transporter ABCG2 in Breast Cancer Cell Lines, Cell Journal (Yakhteh) Winter 2011; 12 (Supplement 1 (The first International Student Congress on Cell and Molecular Medicine)):49-50.

-----**BOOK PUBLICATIONS**-----

- 1- G. Zarrini, S. A. Mirzaei, **F. Elahian**; **PCR, The basics**, Ayeeze publication company; 2010, ISBN: 978-964-970-054-0.
- 2- S.A. Mirzaei, **F. Elahian**, Y. Ayari, M. Hashemi, and V. Afshari; **Gene therapy**, Teimurzadeh-Nowin publication company; 2013, ISBN: 978-600-6273-84-6.

-----**REFERENCES**-----

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