

## Curriculum Vitae

### **Zahra Faghih**

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#### Education

- ✓ Ph.D. in Immunology, Shiraz University of Medical Sciences, Shiraz – Iran (2008-2014)
- ✓ M.Sc. in Immunology, Shiraz University of Medical Sciences, Shiraz – Iran (2003-2006)
- ✓ B.Sc. in Cellular and Molecular Biology, Faculty of Sciences, Shiraz University, Shiraz – Iran, (1998-2002)

#### Fellowships/Observership

- ✓ Visiting Professor at BC Children Hospital, University of British Colombia (UBC), Dr Reid Lab, Vancouver, Canada, 2022
- ✓ Leadership course, Shiraz University of Medical Sciences, Shiraz, Iran, June 2021
- ✓ Electronic learning in medical sciences, Shiraz University of Medical Sciences, Shiraz, Iran, February 2021
- ✓ Medical education fellowship, Shiraz University of Medical Sciences, Shiraz, Iran, November-December 2017
- ✓ Research fellowship, Shiraz University of Medical Sciences, Shiraz, Iran, 2015

## Honors

- ✓ Honor PhD student of Shiraz University of Medical Sciences, 2011
- ✓ Member of "Gifted Talent Office"; Shiraz University of Medical Sciences during MSc and PhD studies
- ✓ 1st Rank in PhD Written Entrance Examination in Iran, Iran's Ministry of health and medical education, 2008
- ✓ Honor MSc. student of Immunology Department, Shiraz University of Medical Sciences, 2006
- ✓ 4th Rank in MSc Written Entrance Examination in Iran, 2003
- ✓ Honor student of Biology Department, Shiraz University, 2002

## Teaching Experiences

- ✓ Flow cytometry: basics and practical points for PhD students, 2019 till now.
- ✓ FlowJo software and data analysis for PhD students, 2019 till now.
- ✓ Immunology course for PhD students, 2018 till now.
- ✓ Immunology and immunochemistry laboratory techniques for MSc students, 2024.
- ✓ Advance Immunology course for PhD-by-Research students, Shiraz Medical School, 2014-2020.
- ✓ Tumor Biology course for PhD-by-Research. Shiraz Medical School, 2014-2020.
- ✓ Immunological techniques for PhD-by-Research. Shiraz Medical School, 2014-2020.
- ✓ Immunology course for PhD students of Pharmaceutical Biotechnology. Shiraz Medical School, 2014.
- ✓ Cellular and molecular biology for MSc students of Immunology department, Medical School, 2013.
- ✓ Immunological techniques for MSc students of Immunology, Shiraz Medical School, 2013.
- ✓ Immunology for MSc students of Microbiology, Shiraz Medical School, 2013.
- ✓ Immunology for BSc students of Nursing and Midwifery. Shiraz Nursing and Midwifery School. 2013.

### Teaching at the workshops for post graduate students/technicians

- ✓ Flow cytometry: principles and applications
- ✓ FlowJo software (Immunophenotyping, compensation)
- ✓ Visualizing high dimensional flow data using t-SNE
- ✓ Immunohistochemistry (practical and theoretical)
- ✓ Cell culture (practical and theoretical)
- ✓ Cell cytotoxic assay (MTT) (practical and theoretical)
- ✓ Flow cytometric assessment of cell cycle (practical and theoretical)
- ✓ Flow cytometric assessment of apoptosis (practical and theoretical)
- ✓ PCR: principles and applications
- ✓ PCR-RFLP: design an assay

### Techniques

Expert in: several immunological and molecular based techniques, including: Flow cytometry, Animal/human cell culture, Immunohistochemistry, Sequencing, GeneScan analysis, ELISA, DNA and RNA extraction from blood and tissues, Real Time (RT) PCR, Primer designing, PCR, PCR-RFLP designing, Cytotoxic assay (MTT), Apoptosis assay, Cell cycle assay, Comet assay, ROS assay

Familiar with: Gene cloning

### Research area

Currently, I am working in Shiraz Institute for Cancer Research (ICR) at Tumor Microenvironment (TME) lab, Medical School, Shiraz, Iran, since 2014. I have worked on several projects; the main goals of these projects are:

- ✓ Memory response in cancer with especial focus on memory stem cells ( $T_{SCM}$ ).
- ✓ T cells' profile (helper and regulatory) as well as the expression of the cognate functional genes in blood, tissue and lymph node of cancer patients.
- ✓ Immune checkpoint expression in cancer.
- ✓ NET effect in cancer.
- ✓ Clonality of T lymphocytes subsets (based on TCR V $\beta$ ), including CD4+ Th cells, CD8+

CTLs and regulatory T cells in tumor-free lymph nodes from patients with breast cancer (my PhD thesis).

- ✓ Immune related molecules— gene polymorphisms and serum level in cancers.
- ✓ Investigating the biological activities of synthetic anti-cancer drugs.

### Fields of interest

Cancer Immunology & Immunotherapy, Immunophenotyping, Immunogenetics, Molecular Medicine and Bioinformatics, Pharmimmunology

### Publications

#### Immunology:

1. Neutrophil extracellular traps and reactive oxygen species: Predictors of prognosis in bladder cancer. 2025 **(Corresponding author)**
2. Gamma-delta T Cells in Bladder Cancer Draining Lymph Nodes. 2024 **(Corresponding author)**
3. Clinical and prognostic significance of follicular helper and regulatory T cells in bladder cancer draining lymph nodes. 2024 **(Corresponding author)**
4. Exploring heterogeneous expression of beta-actin (ACTB) in bladder cancer by producing a monoclonal antibody 6D6. BMC Urology. 2024
5. Natural Killer Cell Subsets in Tumor Draining Lymph Nodes of Patients with Bladder Cancer and Their Clinical Implications. Iranian Journal of Immunology. 2024 **(Corresponding author)**
6. Natural killer cell subsets and their functional molecules in peripheral blood of the patients with breast cancer. Immunity, Inflammation and Disease. 2024 **(Corresponding author)**
7. Evaluation of circulating CD4+CD25+CD127–/low regulatory T cells in newly diagnosed hepatitis C-infected patients. European Journal of Inflammation. 2024

8. IFN- $\gamma$ , IL-17, IL-22+ CD4+ subset in patients with hepatitis C virus and correlation with clinical factor. American Journal of Clinical and Experimental Immunology. 2024
9. Dual Functions of T Lymphocytes in Breast Carcinoma: From Immune Protection to Orchestrating Tumor Progression and Metastasis. Cancers. 2023. **(Corresponding author)**
10. Tim3 and PD-1 as a therapeutic and prognostic target in colorectal cancer: Relationship with sidedness, clinicopathological parameters, and survival. 2023
11. The Relationship between Programmed Cell Death Receptor-1 Expression in Colon Tumoral Tissue and Clinical and Pathological Characteristics of Patients with Colon Cancer. Journal of Isfahan Medical School. 2023
12. Clinicopathological significance and prognostic role of LAG3+ tumor-infiltrating lymphocytes in colorectal cancer; relationship with sidedness. Cancer Cell International. 2023
13. Correlation of serum hematopoietic growth factors with breast cancer. Journal of Clinical Images and Medical Case Reports. 2023. **(Corresponding author)**
14. A New Insight Into p53-Inhibiting Genes in Epstein–Barr Virus-Associated Gastric Adenocarcinoma. Iranian biomedical journal. 2023
15. The frequency of CD4+ and CD8+ circulating T stem cell memory in type 1 diabetes. Immunity, Inflammation and Disease. 2022
16. Association between IL-22 polymorphism (Rs1179251) and outcomes of HBV infection. Human Gene. 2022
17. Prognostic significance of immunoscore related markers in bladder cancer. BMC urology. 2022. **(Corresponding author)**
18. Lower frequency of T stem cell memory (TSCM) cells in hepatitis B vaccine nonresponders. Immunologic Research. 2022
19. The survey in the role of LAG3+ tumor-infiltrating lymphocytes in colorectal cancer prognosis; Relationship with sidedness. 2022
20. IFN $\gamma$ -IL-17-IL-22+ CD4+ subset and IL-22-producing cells in tumor draining lymph nodes of patients with breast cancer. Breast Disease. 2022

21. CD4+CD25-FoxP3+ T cells: a distinct subset or a heterogeneous population? International Reviews of Immunology. 2021
22. OX40 genetic variations in patients with breast cancer: a case-control study. British Journal of Biomedical Science, 78(1), pp. 44-46. 2021 **(First author)**
23. Establishment of a bladder cancer cell line expressing both mesenchymal and epithelial lineage-associated markers. Human Cell. 2021
24. CD8-positive memory T cells in tumor-draining lymph nodes of patients with breast cancer. BMC Cancer, 20(1),257. 2020 **(Corresponding author)**
25. Clinical relevance and prognostic significance of PD-1/PD-Ls in non-metastatic bladder cancer: a role for PD-L2. Molecular Immunology, 124, pp. 35-41. 2020 **(Corresponding author)**
26. Quantification of angiogenic factors and their clinicopathological associations in breast cancer. European Cytokine Network, 31(2), pp. 68-75. 2020 **(First author)**
27. Association of killer-cell immunoglobulin-like receptor genes with acute myelogenous leukaemia. International Journal of Immunogenetics, 47(6), pp. 512-521. 2020
28. Prognostic significance of CD4-positive regulatory T cells in tumor draining lymph nodes from patients with bladder cancer. Heliyon, 6(12),e05556. 2020 **(Corresponding author)**
29. The significance of cytokine-producing B cells in breast tumor-draining lymph nodes. Cellular Oncology. 2019
30. Cytokine profile of CD4+CD25–FoxP3+ T cells in tumor-draining lymph nodes from patients with breast cancer. Molecular Immunology, 116, pp. 90-97. 2019 **(First author)**
31. *PD-1* Haplotype Combinations and Susceptibility of Patients to Squamous Cell Carcinomas of Head and Neck. Immunological Investigations, 48(1), pp. 1-10. 2019
32. The importance of CD45RO+ tumor-infiltrating lymphocytes in post-operative survival of breast cancer patients. Cellular Oncology, 42(3), pp. 343-356 **(First author)**
33. NK, NKT and invariant-NKT cells in tumor draining lymph nodes of patients with breast cancer. Iranian Journal of Immunology, 16(4), pp. 291-298. 2019 **(Corresponding author)**

34. Association of OX40 gene polymorphisms with head and neck squamous cell carcinoma. Molecular Biology Reports. 2019 **(First author)**
35. Expression Analysis of MALAT1, GAS5, SRA, and NEAT1 lncRNAs in Breast Cancer Tissues from Young Women and Women over 45 Years of Age. Mol Ther Nucleic Acids. 2018
36. Memory CD4<sup>+</sup> T cell subsets in tumor draining lymph nodes of breast cancer patients: A focus on T stem cell memory cells. Cellular Oncology 2018 **(First author)**
37. Analysis of T cell receptor repertoire based on V $\beta$  chain in patients with breast cancer. Cancer Biomarkers 2018 **(First author)**
38. Cell membrane and intracellular expression of toll-like receptor 9 (TLR9) in colorectal cancer and breast cancer cell-lines. Cancer Biomarkers 2017 **(Corresponding author)**
39. CD8<sup>+</sup> T Lymphocyte Subsets in Bladder Tumor Draining Lymph Nodes. Iranian Journal of Immunology 2016 **(First author)**
40. Permissive/Protective Interplay of Microbiota with T Cell Adaptive Immune Response in Colon Cancer. Annals of Colorectal Research 2016 **(Corresponding author)**
41. Immune regulatory cells and IL17-producing lymphocytes in patients with benign and malignant salivary gland tumors. Immunology letters 2015
42. Immune profiles of CD4<sup>+</sup> lymphocyte subsets in breast cancer tumor draining lymph nodes. Immunology letters 2014 **(First author)**
43. IL-17 and IL-4 producing CD8<sup>+</sup> T cells in tumor draining lymph nodes of breast cancer patients: positive association with tumor progression. Iran J Immunol. 2013 **(First author)**
44. Scaffold-free Adipose-derived Stem Cells (ASCs) Improve Experimentally Induced Osteoarthritis in Rabbits. Arch Iran Med. 2012
45. Treatment of osteoarthritis with infrapatellar fat pad derived mesenchymal stem cells in Rabbit. Knee 2011
46. Lack of association between interleukin-13 gene polymorphisms (– 1055 C/T and+ 2044 G/A) in Iranian patients with lung cancer. Mol Biol Rep. 2009

47. Interleukin13 haplotypes and susceptibility of Iranian women to breast cancer. Mol Biol Rep. 2009 (**First author**)

### **Cancer Biology**

48. Azole-methyl-3-(4-phenoxyphenyl) quinazolin-4(3H) ones, novel quinazoline-azole hybrid scaffolds, as new potent anticancer agents: Design, synthesis, biological evaluation, molecular dynamic simulation and theoretical approach. Tetrahedron. 2023

49. Glucosamine-modified mesoporous silica-coated magnetic nanoparticles: a “Raisin-Cake”-like structure as an efficient theranostic platform for targeted methotrexate delivery. Pharmaceutics. 2023

50. Design, synthesis, computational study and cytotoxic evaluation of some new quinazoline derivatives containing pyrimidine moiety. Scientific reports. 2023

51. Synthesis, biological evaluation, and computational studies of some novel quinazoline derivatives as anticancer agents. BMC chemistry. 2022

52. Novel N-substituted isatin-ampyrone Schiff bases as a new class of antiproliferative agents: Design, synthesis, molecular modeling and in vitro cytotoxic activity. Journal of Heterocyclic Chemistry. 2022

53. 2-(Chloromethyl)-3-phenylquinazolin-4(3H)-ones as potent anticancer agents; cytotoxicity, molecular docking and in silico studies. Journal of the Iranian Chemical Society. 2021

54. 5-(2-carboxyethenyl)-isatin derivatives as anticancer agents: Qsar, molecular docking and molecular dynamic simulation analysis. Journal of Sciences, Islamic Republic of Iran, 32(2), pp. 131-141. 2021

55. Design, synthesis, molecular docking, biological evaluations and QSAR studies of novel dichloroacetate analogues as anticancer agent. Journal of Molecular Structure, 1221,128689. 2020

56. Effects of different quantities of antibody conjugated with magnetic nanoparticles on cell separation efficiency. Heliyon, 6(4),e03677. 2020 (**Corresponding author**)

57. Cu(II), Ni(II) and Co(II) complexes with homoscorpionate Bis(2-Mercaptobenzimidazolyl) and Bis(2-Mercaptobenzothiazolyl)borate ligands: Synthesis and in vitro cytotoxicity studies. *Inorganica Chimica Acta*, 512,119896. 2020
58. Design, synthesis, molecular simulation, and biological activities of novel quinazolinonepyrimidine hybrid derivatives as dipeptidyl peptidase-4 inhibitors and anticancer agents. *New Journal of Chemistry*, 44(45), pp. 19515-19531. 2020
59. Pegylated Deoxycholic Acid Coated Gold Nanoparticles as a Highly Stable CT Contrast Agent. *ChemistrySelect*, 5(29), pp. 9119-9126. 2020
60. Antibody conjugated onto surface modified magnetic nanoparticles for separation of HER2+ breast cancer cells. *Journal of Magnetism and Magnetic Materials*, 490,165479. 2020 **(Corresponding author)**
61. Palladium (II) complexes based on Schiff base ligands derived from ortho-vanillin; synthesis, characterization and cytotoxic studies. *Inorganica Chimica Acta*, 471, pp. 404412. 2018
62. Cycloplatinated(II) complexes bearing 1,1'-bis(diphenylphosphino)ferrocene ligand: biological evaluation and molecular docking studies. *New J. Chem.*, 2018
63. Cytotoxic effect of two novel platinum (II) complexes on breast cancer: an in vitro study. *Asian Pacific Journal of Cancer Biology* 2018 **(Corresponding author)**
64. Synthesis, structural characterization, biological evaluation and molecular docking studies of new platinum (ii) complexes containing isocyanides. *New J. Chem.* 2018
65. Cycloplatinated (ii) complexes bearing an O, S-heterocyclic ligand: search for anticancer drugs. *New J. Chem.*, 2018
66. (Benzyl isocyanide)gold(I) pyrimidine-2-thiolate complex: Synthesis and biological activity. *Applied Organometallic Chemistry*. 2018
67. Cytotoxic evaluation of some new and potent azole derivatives as antimicrobial agents. *Trends in Pharmaceutical Sciences* 2017

68. Cyclometalated Platinum (II) Complexes Bearing Bidentate O, O'-Di (alkyl) dithiophosphate Ligands: Photoluminescence and Cytotoxic Properties. Organometallics 2017
69. Cyclometalated Platinum(II) Complexes Comprising 2-(Diphenylphosphino)pyridine and Various Thiolate Ligands: Synthesis, Spectroscopic Characterization, and Biological Activity. European Journal of Inorganic Chemistry 2017
70. Synthesis, Biological Evaluation, and Molecular Docking Studies on the DNA Binding Interactions of Platinum(II) Rollover Complexes Containing Phosphorus Donor Ligands. ChemMedChem 2017
71. Synthesis of some novel semicarbazone and thiosemicarbazone derivatives of isatin as possible biologically active agents. British Journal of Pharmaceutical Research 2017
72. Novel Approach Synthesis, Molecular Docking and Cytotoxic Activity Evaluation of Nphenyl-2,2-dichloroacetamide Derivatives as Anticancer Agents. Journal of Sciences, Islamic Republic of Iran 2016

### Congresses

☐ More than 100 oral or poster presentations at national and international congresses ☐

Member of the Scientific committee at:

- o 12th International Congress of Immunology & Allergy of Iran, April 29- May 2, 2014, Tehran, Iran
- o 13th International Congress of Immunology & Allergy of Iran, April 2016, Tabriz, Iran
- o 14th International Congress of Immunology & Allergy of Iran, April 2018, Tehran, Iran
- o 15th International Congress of Immunology and Allergy, Ahvaz 2021
- o 16th International Congress of Immunology & Allergy of Iran, April 2023, Tehran, Iran