

Curriculum Vitae

Reza Elahi

Prepared August 25th, 2024

1- Personal information:

Name: Reza Elahi

Date of Birth: February 17, 1996

Place of Birth: Zanjan, Iran

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- 590 residence, 30 Metri Ferdos street, Manzarie, Zanjan, Iran, P.C: 4515943337,
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Current Appointment: Research Assistant, Quantitative MR Imaging and Spectroscopy Group (QMISG), Tehran University of Medical Sciences, Tehran, Iran, Supervisor: Prof. Hamidreza Saligheh Rad, Ph.D.

2- Education

High school:.....

2010 Sep_2014 Feb Shahid Beheshti High School, Zanjan (Affiliated with the National Organization for Development of Exceptional Talents)

Medical School, Doctorate of Medicine Degree(M.D):.....

2014 Sep_2022 Feb Zanjan University of Medical Sciences, School of Medicine
Thesis: "Determining the level of health literacy and nutrition literacy and their association in mothers with children under seven years old referred to Mousavi Hospital in Zanjan city in 2022."
_ Supervisor: Dr. Farzaneh Ahmadi

3- Professional interests

I have dedicated six years, from 2017 to 2023, to researching cancer immunotherapy, particularly focusing on CAR T cell therapy projects, during my tenure at the Department of Immunology at Zanzan University of Medical Sciences. Since 2023, I have found a new passion for working with machine and deep learning-based quantitative MRI radiomics techniques in oncology and neuroradiology. I have been working on applying quantitative MRI techniques for diagnosis and disease progression monitoring in neurologic disorders. I want to be one of the pioneers in improving patient care as a radiologist in the future. I aspire to pursue a career in diagnostic/interventional radiology to become a physician-scientist and implement the knowledge gained in top-tier medical institutions in my home country and community.

4- Research Activities

4.1. Publications (in peer-reviewed journals):

1-Kalantari S, Soltani M, Maghbooli M, Mehr FK, Kalantari Z, Borji S, Memari B, Heydari AH, **Elahi R**, Bayat M, Salighehrad H. Alteraciones del flujo sanguíneo cerebral medidas con RM-ASL como predictor de demencia vascular en la enfermedad isquémica de pequeño vaso. Radiología. 2024 Aug 1.

2.Ebrahimi F, Jabbari M, Mohammadi V, Karami P, Esmailzadeh K, **Elahi R**, Esmailzadeh A. Nanobody-based chimeric antigen receptor (NbCAR) T cells for in-vivo cancer immunotherapy: A systematic review, 2024-researchsquare.com

3-**Elahi R**, Nazari M. An updated overview of radiomics-based artificial intelligence (AI) methods in breast cancer screening and diagnosis. arXiv preprint arXiv:2406.14735. 2024 Jun 20.

4-Karami P., **Elahi R.**, "Radiomics-based artificial intelligence (AI) models in colorectal cancer (CRC) diagnosis, metastasis detection, prognosis, and treatment response." (2024). arXiv: <https://doi.org/10.48550/arXiv.2406.12467>.

5-**Elahi R**, Nazari M, Mohammadi V, Esmailzadeh K, Esmailzadeh A. IL-17 in type II diabetes mellitus (T2DM) immunopathogenesis and complications; molecular approaches. Molecular Immunology. 2024 July 1;171:66-76.

6- Ghanaati H, Rahmatian A, Amiri-Nikpour MR, Altafi D, Taheri M, Siroos SB, Shakib M, **Elahi R**, Alborzi M. Outcome after Neuro-interventional Treatment of Intracranial Aneurysm (as a First Treatment Modality). Prague Medical Report. 2024 Feb 21;125(1):15-33.

7-Mohammadi V, Maleki AJ, Nazari M, Siahmansouri A, Moradi A, **Elahi R**, Esmailzadeh A, Chimeric Antigen Receptor (CAR)-Based Cell Therapy for Type 1 Diabetes Mellitus (T1DM); Current Progress and Future Approaches. Stem Cell Rev and Rep (2023). <https://doi.org/10.1007/s12015-023-10668-1>

- 8- Esmailzadeh A, Hadiloo K, Jabbari M, **Elahi R**. Current progress of chimeric antigen receptor (CAR) T versus CAR NK cell for immunotherapy of solid tumors. *Life Sciences*. 2023;122381, doi.org/10.1016/j.lfs.2023.122381
- 9- **Elahi R**, Karami P, Bazargan M, Ahmadi S, Azhideh A, Esmailzadeh A. Analysis of the Current, Past, and Future Evolution of COVID-19. Fractal Signatures in the Dynamics of an Epidemic: An Analysis of COVID-19 Transmission. 2023 December 1;2:1.
- 10-Esmailzadeh A, Mohammadi V, **Elahi R**, Rezakhani N. The role of heat shock proteins (HSPs) in type 2 diabetes mellitus pathophysiology. *Journal of Diabetes and its Complications*. 2023 Jul 23;108564.
- 11-Elahi R**, Hozhabri S, Moradi A, Siahmansouri A, Jahani Maleki A, Esmailzadeh A. Targeting the cGAS-STING pathway as an inflammatory crossroad in coronavirus disease 2019 (COVID-19). *Immunopharmacology and Immunotoxicology*. 2023 Jun 7:1-1.
- 12-Esmailzadeh A, Mohammadi V, **Elahi R**. Transforming growth factor β (TGF- β) pathway in the immunopathogenesis of multiple sclerosis (MS); molecular approaches. *Molecular Biology Reports*. 2023 May 19:1-1.
- 13-Ahmadi S, Bazargan M, **Elahi R**, Esmailzadeh A. Immune evasion of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2); molecular approaches. *Molecular Immunology*. 2023 April 1;156:10-9.
- 14-Esmailzadeh, A., Jafari, D., **Elahi, R.**, Bazargan, M., Rafie, M.Z., Mansourabadi, A.H. (2023). Chimeric Antigen Receptor (CAR) T Cell Immunotherapy for Solid Tumors. In: *Interdisciplinary Cancer Research*. Springer, Cham. https://doi.org/10.1007/16833_2023_156
- 15-Esmailzadeh, A., Jafari, D., Ghaebi, M., **Elahi, R.**, Afshari, F., Karimi, L. (2023). Immune Gene Therapy of Cancer. In: Rezaei, N. (eds) *Handbook of Cancer and Immunology*. Springer, Cham. https://doi.org/10.1007/978-3-030-80962-1_202-1
- 16-Esmailzadeh A, Maleki AJ, Moradi A, Siahmansouri A, Yavari MJ, Karami P, **Elahi R***. Major severe acute respiratory coronavirus-2 (SARS-CoV-2) vaccine-associated adverse effects; benefits outweigh the risks. *Expert Review of Vaccines*. 2022 Oct 3;21(10):1377-94.
- 17-Esmailzadeh A, **Elahi R**, Siahmansouri A, Maleki AJ, Moradi A. Endocrine and metabolic complications of COVID-19: lessons learned and future prospects. *Journal of Molecular Endocrinology*. 2022 Oct 1;69(3):R125-50.
- 18-Bazargan M, **Elahi R**, Esmailzadeh A.OMICRON: Virology, immunopathogenesis, and laboratory diagnosis. *The Journal of Gene Medicine*. 2022 Jul;24(7):e3435.
- 19-**Elahi R**, Karami P, Heidary AH, Esmailzadeh A. An updated overview of recent advances, challenges, and clinical considerations of IL-6 signaling blockade in severe coronavirus disease 2019 (COVID-19). *International immunopharmacology*. 2022 April 1;105:108536.

- 20-**Elahi R**, Heidary AH, Hadiloo K, Esmaeilzadeh A. Chimeric antigen receptor-engineered natural killer (CAR NK) cells in cancer treatment; recent advances and future prospects. *Stem Cell Reviews and Reports*. 2021 Dec;17:2081-106.
- 21-Rafie MZ, Esmaeilzadeh A, Ghoreishi A, Tahmasebi S, Faghihzadeh E, **Elahi R**. IL-38 as an early predictor of the ischemic stroke prognosis. *Cytokine*. 2021 October 1;146:155626.
- 22-Esmaeilzadeh A, Jafari D, Tahmasebi S, **Elahi R**, Khosh E. Immune-based therapy for COVID-19. In *Coronavirus Disease-COVID-19 2021* May 11 (pp. 449-468). Cham: Springer International Publishing.
- 23-Heidary A, **Elahi R**, Nazari M. Benign cerebral edema and increased intracranial pressure (ICP) as manifestations of COVID-19 reinfection; A case report. *J Clin Lab Med*. 2021;6(1):138.
- 24-Esmaeilzadeh A, **Elahi R**. Immunobiology and immunotherapy of COVID-19: a clinically updated overview. *Journal of cellular physiology*. 2021 Apr;236(4):2519-43.
- 25-Khosh E, Bahmaie N, **Elahi R**, Esmaeilzadeh A. Clinical applications of interleukin-37; as a key player in the immunopathogenesis of immune disorders. *Iranian Journal of Allergy, Asthma and Immunology*. 2020 June 29.
- 26-Tahmasebi S, **Elahi R**, Khosh E, Esmaeilzadeh A. Programmable and multi-targeted CARs: a new breakthrough in cancer CAR-T cell therapy. *Clinical and Translational Oncology*. 2021 Jun;23:1003-19.
- 27-Moradi A, Esmaeilzadeh A, **Elahi R**. Melatonin as a Novel Candidate for Gene Therapy of Atherosclerosis. *Atherosclerosis*. 2020;3(1):1027.
- 28-Tahmasebi S, **Elahi R**, Esmaeilzadeh A. Solid tumors challenges and new insights of CAR T cell engineering. *Stem cell reviews and reports*. 2019 Oct;15:619-36.
- 29-**Elahi R**, Khosh E, Tahmasebi S, Esmaeilzadeh A. Immune cell hacking: challenges and clinical approaches to create smarter generations of chimeric antigen receptor T cells. *Frontiers in immunology*. 2018 July 31;9:1717.

4.2. Current projects:

- 1- "Deep learning algorithms to predict the conversion of mild cognitive impairment (MCI) to Alzheimer's disease (AD); a systematic review," **Status: under publication-Archives of Computational Methods in Engineering**
- 2- "Quantitative MRI techniques to track metabolic alterations in Alzheimer's disease: A Review Study," **Status: Ready to Submit**
- 3- "Machine learning algorithms for differentiation of skull base tumors with MRI radiomics," **Status: under preparation**

- 4- "Quantitative performance evaluation of the CNN deep learning approach in Alzheimer's Disease utilizing structural and functional brain atlases," **Status: Ready to Submit**
- 5- "Application of machine learning (ML) algorithms for differentiation of Alzheimer's disease (AD), mild cognitive impairment (MCI), and normal aging based on pseudo-continuous arterial spin labeling (PCASL)-MRI; a pilot study **Status: ready to submit**
- 6- "The Role of Effective Modules in Improving the Performance of Deep Learning-based Brain Tumor Segmentation Algorithms on Multi-parametric MRI," **Status: ready to submit**
- 7- "Prevention of Neurogenic Heterotopic Ossification in Spinal Cord and Traumatic Brain Injury Patients: A Systematic Review," **Status: submitted- Injury**
- 8- "Neuroimaging findings of CAR T-associated neurotoxicity; a narrative review," **Status: under preparation**

4.3. Book chapters:

- 1- Abdolreza Esmailzadeh, Davood Jafari, Safa Tahmasebi, **Reza Elahi**, Elnaz Khosh, "Immune-based therapy for COVID-19", Springer Nature, August 2020, ISBN 978-3-030-63760-6 ISBN 978-3-030-63761-3 (eBook), <https://doi.org/10.1007/978-3-030-63761-3>
- 2- Abdolreza Esmailzadeh, Davood Jafari, **Reza Elahi**, Mahsa Bazargan, Maryam Zare Rafie, Amir Hossein Mansourabadi, "CAR T cell immunotherapy for solid tumors," Interdisciplinary Cancer Research bookseries, Springer, Cham. https://doi.org/10.1007/16833_2023_156
- 3- Abdolreza Esmailzadeh, Davood Jafari, Mahnaz Ghaebi, **Reza Elahi**, Farideh Afshari, Leila Karimi, "Immune gene therapy of cancer," Handbook of Cancer and Immunology, Springer nature, https://doi.org/2023, 10.1007/978-3-030-80962-1_202-1
- 4- **Reza Elahi**, Mahsa Bazargan, Parsa Karami, Shahrzad Ahmadi, Arash Azhideh, Abdolreza Esmailzadeh, "Analysis of past, present, and future evolution of COVID-19", Fractal Signatures in the Dynamics of an Epidemiology: An Analysis of COVID-19 Transmission, CRC Taylor and Francis, 2024, ISBN: 978-1-032-32769-3
- 5- "Imaging techniques for the diagnosis of COVID-19", **Book Chapter, Status: under production-springer nature**

4.4. Presentations:

- 1- Arash Azhideh, Reza Elahi, Firouzeh Shomalzadeh, Majid Chalian, "Recurrence of Neurogenic Heterotopic Ossification: A Systematic review and meta-analysis", SSR2024,

March

2-6,

2024

Caribe Hilton - San Juan, Puerto Rico

- 2- Arash Azhideh, Reza Elahi, Firouzeh Shomalzadeh, Majid Chalina, "Pharmacotherapy, Radiotherapy, and PulsE Low-Electromagnetic Field for the Prevention of Neurogenic Heterotopic Ossification: A Systematic Review," SSR2024, March 2-6, 2024 Caribe Hilton - San Juan, Puerto Rico
- 3- Reza Elahi, Abdolreza Esmailzadeh (2021) "Natural Killer (NK) cell therapy as a promising immunotherapeutic approach for the treatment of COVID-19", 15th Virtual Congress of Immunology and Allergy, 27-29 January 2021, Ahvaz, Iran
- 4- Elnaz Khosh, Reza Elahi, Abdolreza Esmailzadeh (2019) "CAR T cell therapy; a novel cancer treatment method," 4th scientific research conference of Zanjan University of Medical Sciences, Zanjan, Iran
- 5- Reza Elahi, Elnaz Khosh, Abdolreza Esmailzadeh (2019) "Personalized medicine" 4th scientific research conference of Zanjan University of Medical Sciences, Zanjan, Iran

4.5. Peer review experiences:

- 1- Magnetic Resonance Imaging
- 2- Dose Response
- 3- Current medical science
- 4- Cancer cell international
- 5- Frontiers in immunology
- 6- Frontiers in pharmacology
- 7- Frontiers in Molecular Biosciences
- 8- Frontiers in Public Health
- 9- Discover oncology
- 10- Cytokine

4.6. Research Skills:

- 1- Experience in Scientific Writing
- 2- Experience in statistical analysis with SPSS and GraphPad Prism software
- 3- Satisfactory interpersonal communication and teamwork skills, including four years of mentoring experience at the Department of Immunology at Zanjan University of Medical Sciences
- 4- Experience with utilizing commercially available workstation software, such as MARCOPACS

- 5- Experience in working with screening tools, e.g., COVIDENCE and Rayyan
- 6- Preliminary experience in Python Scripting, OpenCV, matplotlib, and Numpy
- 7- Experience with Radiomics extraction software, including slicer3D
- 8- Experience with Segmentation software, including slicer3D, ITK SNAP

4.7. Research center affiliations:

- 1- Quantitative MR Imaging and Spectroscopy Group, Advanced Medical Technologies and Equipment Institute, Tehran University of Medical Sciences, Tehran, Iran
- 2- Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Emam-Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran
- 3- Department of Radiology, Zanjan university of medical sciences, Zanjan, Iran
- 4- School of medicine, Zanjan university of medical sciences, Zanjan, Iran

5-Volunteer experiences (non-paid):

- 1- Research coordinator in Prof. Esmaeilzadeh's research group (PERG), Zanjan University of Medical Sciences, 2019-2023
- 2- Provision of medical services to underprivileged and underrepresented members of society as a family medicine for two years (2022-2024).
- 3- Provision of screening and treatment services to patients presumed to be infected with COVID-19 in health centers affiliated with Zanjan University of Medical Sciences for residents of underprivileged counties.
- 4- Educator of research courses for Zanjan University of Medical Sciences undergraduate students.
- 5- Educator of introductory science courses for medical students at Zanjan University of Medical Sciences, participating in "Iranian Medical Olympiads."
- 6- Research assistant at Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Emam-Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran, 2022-2023.
- 7- Research assistant at quantitative MR imaging and spectroscopy group, Tehran University of Medical Sciences, Tehran, Iran, 2022-2024.

6-Honors and Awards

- 1- Graduated fifth grade of the class in the MD program (5th out of 89)
- 2- In the first 5% of basic science exams for medical students
- 3- Ranked Among the Top 0.01% in The National Entrance Exam for Universities and Colleges in Iran Among more than 450,000 Participants

- 4- Honor diploma in national medical Olympiad for basic sciences in 2019 (national rank=20)
- 5- Distinguished Medical Researcher in Zanjan University of Medical Sciences, 2021
- 6- Letter of recognition and appreciation for providing NGO medical services to COVID-19 patients during the pandemic by the Dean of Zanjan University of Medical Sciences

7-Languages:

- 1- Persian, Native
- 2- Azeri, native
- 3- English (advanced proficiency)
- 4- Turkish (elementary proficiency)

8-Hobbies and personal interests:

- 1- Spending time with family (as a husband)
- 2- Meditation
- 3- Football player
- 4- A former player in Iran's professional volleyball league
- 5- Interested in Hiking and Jungle tours
- 6- Professional videogamer (PES 2024)
- 7- Interested in reading about personal development, philosophy, and mysticism
- 8- Traveling to new and exciting places

❁ **THANK YOU FOR YOUR TIME AND PATIENCE** ❁