

Curriculum Vitae

Personal Information

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Education

- **2019 – 2020:** Postdoctoral researcher in Neuroscience at Multiple Sclerosis Research Center (Sina Hospital), Tehran, Iran.

Postdoctoral Research Project: *Comparison of the brain microstructure of MS patients with their first-degree relatives using DTI imaging*

Supervisor: Professor Mohammad Ali Sahraian

- **2013 - 2019:** PhD. in Neuroscience Tehran University of Medical Sciences, Tehran, Iran.
Average: 18.35/20

PhD thesis: *Association study of NKCC1 and KCC2 expression and microstructure with interictal spikes and before and after bumetanide treatment in patients with epilepsy*

Supervisor: Professor Mahmoud Reza Hadjighassem and Professor Mohammad Ali Oghabian

- **2007 - 2010:** M.Sc. in Physiology at Tarbiat Modares University, Tehran, Iran.
Average: 17.34/20

MSc thesis: *Investigating the effect of pentylenetetrazole injection in the hippocampal CA1 region on memory reconsolidation in the Morris water maze behavior model*

Supervisor: Professor Yaghoub Fathollahi

Work experience

Researcher, Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Imam Khomeini Complex, Tehran University Medical Sciences, Tehran, Iran. Since 2024.

Researcher, Shefa Neuroscience Research Center, Khatamolanbia hospital, Tehran, Iran. 2020-2024.

Research Interests

- Neuroimaging analysis and brain network analysis
- Clinical neuroscience
- Pharmacological interventions in neurological disorders
- Signal processing in neuroscience

Publications

❖ Journal

- **Gharaylou Z**, Shahbodaghy F, Kolivand P, Kolivand M, Azizzadeh F, Rostampour M. Reduced White Matter Fiber Density in Patients with Multiple Sclerosis. Brain Connect. 2024 Feb 3. doi: 10.1089/brain.2023.0068. Epub ahead of print. PMID: 38308478.
- **Gharaylou Z**, Shahbodaghy F, Kolivand P, Kolivand M, Azizzadeh F, Rostampour M. Reduced White Matter Fiber Density in Patients with Multiple Sclerosis. Brain Connect. 2024 Feb 3. doi: 10.1089/brain.2023.0068. Epub ahead of print. PMID: 38308478.
- Rostampour M, **Gharaylou Z**, Rostampour A, Shahbodaghy F, Zarei M, Fadaei R, Khazaie H. Study of structural network connectivity using DTI tractography in insomnia disorder. Psychiatry Research: Neuroimaging. 2023 Dec 1;336:111730.
- Kolivand P, Hosseindoost S, Kolivand Z, **Gharaylou Z**. Psychosocial impact of COVID-19 2 years after outbreak on mental health of medical workers in Iran.
- Hashemizadeh S, **Gharaylou Z**, Hosseindoost S, Sardari M, Omidi A, Hadjighassem M. Long-term administration of bumetanide improve functional recovery after spinal cord injury in rats. Frontiers in Pharmacology. 2022;13.

- Rostampoura,M, **Gharaylou Z**, Rostampour N, Kavehc D, Nooria K, Fadaeia R, Tahmasiand M, Khazaiea H, Zare M, Asymmetric Alterations of White Matter Integrity in Patients with Insomnia Disorder, Brain Imaging and Behavior. 2021 Jun.
- **Gharaylou Z**, Sahraian,M.A,Hadjighassem M, Kohanpour M,Doosti R, Nahardani S,MoghadasiA.N , Widespread Disruptions of White Matter in Familial Multiple Sclerosis: DTI and NODDI Study. Frontiers in neurology. 2021 Jun.
- **Gharaylou Z**, Shafaghi L, Pestehei S.K, Mahmoudreza Hadjighassem. Long-term Bumetanide Administration Altered Neurocognitive Dysfunction in Down Syndrome: A Case Report" Applied Neuropsychology: Child, 2021.
- Hosseindoost S, Hashemizadeh S, **Gharaylou Z**, Dehpour AR, Javadi SA, Arjmand B, Hadjighassem M. β 2-Adrenergic Receptor Stimulation Upregulates Cx43 Expression on Glioblastoma Multiforme and Olfactory Ensheathing Cells. Journal of Molecular Neuroscience. 2020 Oct; 70:1451-60.
- Zarepour L, **Gharaylou Z**, Hadjighassem M, Shafaghi L, Majedi H, Behzad E, Hosseindoost S, Ramezani F, Nasirinezhad F. Preliminary study of analgesic effect of bumetanide on neuropathic pain in patients with spinal cord injury. Journal of Clinical Neuroscience. 2020 Nov 1; 81:477-84.
- **Gharaylou Z**, Tafakhori A, Agah E, Aghamollai V, Kebriaeezadeh A, Hadjighassem M. A preliminary study evaluating the safety and efficacy of bumetanide, an NKCC1 inhibitor, in patients with drug-resistant epilepsy. CNS drugs. 2019 Mar; 33(3):283-91.
- **Gharaylou Z**, Shafaghi L, Oghabian MA, Yoonessi A, Tafakhori A, Shahsavand Ananloo E, Hadjighassem M. Longitudinal effects of bumetanide on neuro-cognitive 12 3 functioning in drug-resistant epilepsy. Frontiers in neurology. 2019 May 8; 10:483.
- **Gharaylou Z**, Oghabian MA, Azizi Z, Hadjighassem M. Brain microstructural abnormalities correlate with KCC2 downregulation in refractory epilepsy. Neuroreport. 2019 Apr 10; 30(6):409-14.
- Hashemi M, **Gharaylou Z**, Sepand MR, Hamed SS, Raminfard S, Alimohamadi M, Sherkatkhamene N, Zarepour L, Hadjighassem M. Apoptosis induced by Viola odorata extract in human glioblastoma multiforme. Archives of Neuroscience. 2019 Jan 31; .(1)6.

- **Gharaylou Z**, Tafakhori A, Rostampour M, Hadjighassem M. Follow-up Case Report: Bumetanide Can Control Seizural Activity in Temporal Lobe Epilepsy Patient. Archives of Neuroscience. 2017 Oct .31; 4.
- Esnaashari SS, Raminfard S, **Gharaylou Z**, Proposal Hosseinzadeh S. More Precise Mapping of Glioblastoma Based on a Nanoprobe-Decorated Drug Molecule. Journal of Advanced Medical Sciences and Applied Technologies. 2016 Mar 1; 2(1):176-80.
- Moradpour F, Naghdi N, Fathollahi Y, Javan M, Choopani S, **Gharaylou Z**. Pre-pubertal castration improves spatial learning during mid-adolescence in rats. Progress in Neuro-Psychopharmacology and Biological Psychiatry. 2013 Oct 1; 46:105-12.

❖ Conference

- Gharaylou Z, Shahbodaghy F, Rostampour M. "Symmetry Differences of Structural Connectivity in Multiple Sclerosis and Healthy State." 12th Iranian Basic and Clinical Neuroscience Congress, Iran University of Medical Sciences, December 2024.
- Hashemi M, Raminfard S, Gharaylou Z, Hosseindoost S. "Viola odorata arrests the proliferation of U87 cell line by mimicking as a potent inducer of apoptosis." 4th Iranian Basic and Clinical Neuroscience Congress, Iran University of Medical Sciences, December 2015.
- Gharaylou Z, Fathollahi Y, Naghdi N. "Effect of pentylenetetrazole (PTZ) on acquisition process and memory reconsolidation." 20th Iranian Congress of Physiology and Pharmacology, Hamadan University of Medical Sciences, October 2011.

❖ Chapter Book

- Hashemi M, Hadjighassem MR, **Gharaylou Z**. Add life to years Rehabilitation overview, chapter: Clinical evidence and research in management of Alzheimer's disease. OMICS Group Incorporation.

Skills

- **Programming:** Python (Numpy, Matplotlib, Scipy), Matlab , Linux
- **Neuroimaging processing tools:** CONN, SPM, NBS, Connectivity Brain Toolbox(CBT), NODDI, FSL, MRtrix3, ANTS, AFNI, Free surfer
- **Common programs:** MS Word, Excel, PowerPoint, EndNote, SPSS, GraphPad Prism
- **Molecular genetics laboratory techniques:** PCR, QPCR, Western blotting