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Personal information:

Name: Ayat Kaeidi

Academic position: Associate professor of physiology

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Place of birth: Poldokhtar, Lorestan, Iran

Education:

M.Sc. (2007-2010): Physiology, Biology Department, Shaheed Bahonar University of Kerman, Kerman, Iran.

Ph.D. (2011-2015): Medical Physiology. Physiology Department, Tarbiat Modares University, Tehran, Iran.

Ph.D. research project:

Preparing rat brain slices containing the Locus coeruleus (LC) and Paragigantocellularis (PGi) nuclei; electrophysiological and molecular study of the LC neuronal response in morphine dependence and withdrawal condition in this slice

Research Interests:

- Study of the neurodegeneration and neuroprotection mechanisms in neurological disorders using behavioral, cellular and molecular approaches.
- Study of drug addiction and their mechanism.
- Clinical trial and cohort study in non-communicable diseases fields.

- Study of the cancer mechanisms.

Research Experience

1- Electrophysiology: whole cell patch clamp and single unit recording.

2- Proteomics: SDS-PAGE, western blotting, immunohistofluorescence, ELIZA.

3- Molecular biology: Isolation and electrophoretic analysis of genomic DNA and RNA, Reverse Transcriptase-PCR.

4- Cellular studies: Primary and transformed cell culture and cell death analysis methods.

Other techniques:

A. Animal surgeries like stereotaxic brain and spinal cord canulation.

B. Learning and memory studies; Morris Water Maze, Shuttle box, Novel Object Recognition Test (NORT), Y-Maze, elevated plus Maze.

C. Animal models of nociception: Tail-flick test, hot plate test, von frey test, formalin test.

Teaching experiences:

- Teaching medical physiology for students of medicine, dentistry and Ms Students of physiology and anatomy. Rafsanjan University of Medical Sciences (2015 to present).

- Teaching medical physiology for students of paramedical students (nursing,

Radiology, laboratory sciences...). Rafsanjan University of Medical Sciences (2015 to present)

Full Text Publications:

1. Esmaeili-Mahani S, Rezaeezadeh-Roukerd M, Esmailpour K, Abbasnejad M, Rasoulilian B, Sheibani V, et al. Olive (*Olea europaea* L.) leaf extract elicits antinociceptive activity, potentiates morphine analgesia and suppresses morphine hyperalgesia in rats. *J Ethnopharmacol.* 2010;132(1):200-5.
2. Hajializadeh Z, Esmaeili-Mahani S, Sheibani V, Kaeidi A, Atapour M, Abbasnejad M. Changes in the gene expression of specific G-protein subunits correlate with morphine insensitivity in streptozotocin-induced diabetic rats. *Neuropeptides.* 2010;44(4):299-304.
3. Kaeidi A, Esmaeili-Mahani S, Sheibani V, Abbasnejad M, Rasoulilian B, Hajializadeh Z, et al. Olive (*Olea europaea* L.) leaf extract attenuates early diabetic neuropathic pain through prevention of high glucose-induced apoptosis: in vitro and in vivo studies. *J Ethnopharmacol.* 2011;136(1):188-96.
4. Zare L, Esmaeili-Mahani S, Abbasnejad M, Rasoulilian B, Sheibani V, Sahraei H, et al. Oleuropein, chief constituent of olive leaf extract, prevents the development of morphine antinociceptive tolerance through inhibition of morphine-induced L-type calcium channel overexpression. *Phytother Res.* 2012;26(11):1731-7.
5. Kaeidi A, Esmaeili-Mahani S, Abbasnejad M, Sheibani V, Rasoulilian B, Hajializadeh Z, et al. *Satureja khuzestanica* attenuates apoptosis in hyperglycemic PC12 cells and spinal cord of diabetic rats. *J Nat Med.* 2013;67(1):61-9.
6. Kaeidi A, Rasoulilian B, Hajializadeh Z, Pourkhodadad S, Rezaei M. Cisplatin toxicity reduced in human cultured renal tubular cells by oxygen pretreatment. *Ren Fail.* 2013;35(10):1382-6.
7. Hajializadeh Z, Nasri S, Kaeidi A, Sheibani V, Rasoulilian B, Esmaeili-Mahani S. Inhibitory effect of *Thymus caramanicus* Jalas on hyperglycemia-induced apoptosis in in vitro and in vivo models of diabetic neuropathic pain. *J Ethnopharmacol.* 2014;153(3):596-603.
8. Rasoulilian B, Kaeidi A, Pourkhodadad S, Dezfoulilian O, Rezaei M, Wahhabaghai H, et al. Effects of pretreatment with single-dose or

intermittent oxygen on Cisplatin-induced nephrotoxicity in rats. *Nephrourol Mon.* 2014;6(5):e19680.

9. Kaeidi A, Azizi H, Javan M, Ahmadi Soleimani SM, Fathollahi Y, Semnanian S. Direct Facilitatory Role of Paragigantocellularis Neurons in Opiate Withdrawal-Induced Hyperactivity of Rat Locus Coeruleus Neurons: An In Vitro Study. *PLoS One.* 2015;10(7):e0134873.

10. Kaeidi A, Taati M, Hajializadeh Z, Jahandari F, Rashidipour M. Aqueous extract of *Zizyphus jujuba* fruit attenuates glucose induced neurotoxicity in an in vitro model of diabetic neuropathy. *Iran J Basic Med Sci.* 2015;18(3):301-6.

11. Hadadianpour Z, Fatehi F, Ayoobi F, Kaeidi A, Shamsizadeh A, Fatemi I. The effect of orexin-A on motor and cognitive functions in a rat model of Parkinson's disease. *Neurol Res.* 2017;39(9):845-51.

12. Kaviani E, Rahmani M, Kaeidi A, Shamsizadeh A, Allahtavakoli M, Mozafari N, et al. Protective effect of atorvastatin on d-galactose-induced aging model in mice. *Behav Brain Res.* 2017;334:55-60.

13. Rasoulia B, Kaeidi A, Rezaei M, Hajializadeh Z. Cellular Preoxygenation Partially Attenuates the Antitumoral Effect of Cisplatin despite Highly Protective Effects on Renal Epithelial Cells. *Oxid Med Cell Longev.* 2017;2017:7203758.

14. Zamanian M, Shamsizadeh A, Esmaeili Nadimi A, Hajizadeh M, Allahtavakoli F, Rahmani M, et al. Short-term effects of troxerutin (vitamin P4) on muscle fatigue and gene expression of Bcl-2 and Bax in the hepatic tissue of rats. *Can J Physiol Pharmacol.* 2017;95(6):708-13.

15. Fatemi I, Amirteimoury M, Shamsizadeh A, Kaeidi A. The effect of metformin on morphine analgesic tolerance and dependence in rats. *Res Pharm Sci.* 2018;13(4):316-23.

16. Fatemi I, Heydari S, Kaeidi A, Shamsizadeh A, Hakimizadeh E, Khaluoi A, et al. Metformin ameliorates the age-related changes of d-galactose administration in ovariectomized mice. *Fundam Clin Pharmacol.* 2018;32(4):392-9.

17. Fatemi I, Khaluoi A, Kaeidi A, Shamsizadeh A, Heydari S, Allahtavakoli MA. Protective effect of metformin on D-galactose-induced aging model in mice. *Iran J Basic Med Sci.* 2018;21(1):19-25.

18. Mozafari N, Shamsizadeh A, Fatemi I, Allahtavakoli M, Moghadam-Ahmadi A, Kaviani E, et al. CX691, as an AMPA receptor positive modulator, improves the learning and memory in a rat model of Alzheimer's disease. *Iran J Basic Med Sci.* 2018;21(7):724-30.
19. Rahmani MR, Shamsizadeh A, Moghadam-Ahmadi A, Kaeidi A, Allahtavakoli M. Monoacylglycerol lipase inhibitor, JZL-184, confers neuroprotection in the mice middle cerebral artery occlusion model of stroke. *Life Sci.* 2018;198:143-8.
20. Bazmandegan G, Amirteimoury M, Kaeidi A, Shamsizadeh A, Khademalhosseini M, Nematollahi MH, et al. Sumatriptan ameliorates renal injury induced by cisplatin in mice. *Iran J Basic Med Sci.* 2019;22(5):563-7.
21. Dehnamaki F, Karimi A, Pilevarian AA, Fatemi I, Hakimizadeh E, Kaeidi A, et al. Treatment with troxerutin protects against cisplatin-induced kidney injury in mice. *Acta Chir Belg.* 2019;119(1):31-7.
22. Fatemi I, Hadadianpour Z, Fatehi F, Shamsizadeh A, Hasanshahi J, Abbasifard M, et al. The role of locus coeruleus nucleus TRPV1 receptors in the development and expression of morphine dependence. *Iran J Basic Med Sci.* 2019;22(10):1186-91.
23. Heidari Barchi Nezhad R, Asadi F, Abtahi Froushani SM, Hassanshahi G, Kaeidi A, Khanamani Falahati-Pour S, et al. The effects of transplanted mesenchymal stem cells treated with 17- β estradiol on experimental autoimmune encephalomyelitis. *Mol Biol Rep.* 2019;46(6):6135-46.
24. Javidi MA, Kaeidi A, Mortazavi Farsani SS, Babashah S, Sadeghizadeh M. Investigating curcumin potential for diabetes cell therapy, in vitro and in vivo study. *Life Sci.* 2019;239:116908.
25. Kaeidi A, Hajializadeh Z, Jahandari F, Fatemi I. Leptin attenuates oxidative stress and neuronal apoptosis in hyperglycemic condition. *Fundam Clin Pharmacol.* 2019;33(1):75-83.
26. Niknia S, Kaeidi A, Hajizadeh MR, Mirzaei MR, Khoshdel A, Hajializadeh Z, et al. Neuroprotective and antihyperalgesic effects of orexin-A in rats with painful diabetic neuropathy. *Neuropeptides.* 2019;73:34-40.
27. Rasoulzadeh B, Hajializadeh Z, Esmaeili-Mahani S, Rashidipour M, Fatemi I, Kaeidi A. Neuroprotective and antinociceptive effects of rosemary (*Rosmarinus officinalis* L.) extract in rats with painful diabetic neuropathy. *J Physiol Sci.* 2019;69(1):57-64.

28. Shibani F, Sahamsizadeh A, Fatemi I, Allahtavakoli M, Hasanshahi J, Rahmani M, et al. Effect of oleuropein on morphine-induced hippocampus neurotoxicity and memory impairments in rats. *Naunyn Schmiedeberg's Arch Pharmacol.* 2019;392(11):1383-91.
29. Sistani S, Fatemi I, Shafeie SA, Kaeidi A, Azin M, Shamsizadeh A. The effect of Wi-Fi electromagnetic waves on neuronal response properties in rat barrel cortex. *Somatosens Mot Res.* 2019;36(4):292-7.
30. Zakeri M, Fatemi I, Kaeidi A, Zakeri MA, Hakimizadeh E, Hassanipour M, et al. Pro-neurocognitive and anti-sarcopenic benefits of one-year metformin therapy in ovariectomized aged mice. *Clin Exp Pharmacol Physiol.* 2019;46(12):1133-40.
31. Fatemi I, Saeed-Askari P, Hakimizadeh E, Kaeidi A, Esmaeil-Moghaddam S, Pak-Hashemi M, et al. Long-term metformin therapy improves neurobehavioral functions and antioxidative activity after cerebral ischemia/reperfusion injury in rats. *Brain Res Bull.* 2020;163:65-71.
32. Hakimizadeh E, Hassanshahi J, Kaeidi A, Nematollahi MH, Taghipour Z, Rahmani M, et al. Ceftriaxone improves hepatorenal damages in mice subjected to D-galactose-induced aging. *Life Sci.* 2020;258:118119.
33. Hakimizadeh E, Kaeidi A, Taghipour Z, Mehrzadi S, Allahtavakoli M, Shamsizadeh A, et al. Ceftriaxone improves senile neurocognition damages induced by D-galactose in mice. *Iran J Basic Med Sci.* 2020;23(3):368-75.
34. Hassanshahi J, Mirzahosseini-Pourranjbar A, Hajjalizadeh Z, Kaeidi A. Anticancer and cytotoxic effects of troxerutin on HeLa cell line: an in-vitro model of cervical cancer. *Mol Biol Rep.* 2020;47(8):6135-42.
35. Jebali A, Noroozi Karimabad M, Ahmadi Z, Khorramdel H, Kaeidi A, Mirzaei M, et al. Attenuation of inflammatory response in the EAE model by PEGlated nanoliposome of pistachio oils. *J Neuroimmunol.* 2020;347:577352.
36. Kaeidi A, Maleki M, Shamsizadeh A, Fatemi I, Hakimizadeh E, Hassanshahi J. The therapeutic approaches of renal recovery after relief of the unilateral ureteral obstruction: A comprehensive review. *Iran J Basic Med Sci.* 2020;23(11):1367-73.
37. Kaeidi A, Sahamsizadeh A, Allahtavakoli M, Fatemi I, Rahmani M, Hakimizadeh E, et al. The effect of oleuropein on unilateral ureteral

obstruction induced-kidney injury in rats: the role of oxidative stress, inflammation and apoptosis. *Mol Biol Rep.* 2020;47(2):1371-9.

38. Kaeidi A, Taghipour Z, Allahtavakoli M, Fatemi I, Hakimizadeh E, Hassanshahi J. Ameliorating effect of troxerutin in unilateral ureteral obstruction induced renal oxidative stress, inflammation, and apoptosis in male rats. *Naunyn Schmiedebergs Arch Pharmacol.* 2020;393(5):879-88.

39. Kazemi M, Taghavi MM, Shabanizadeh A, Taghipour Z, Kaeidi A, Shariati-Kohbanani M. Investigation of grape sap on wingless/integrated and β -catenin genes expression with histological factors on the hair follicle in rat. *Res Pharm Sci.* 2020;15(4):350-7.

40. Abbasloo E, Abdollahi F, Saberi A, Esmaeili-Mahani S, Kaeidi A, Akhlaghinasab F, et al. Involvement of T-type calcium channels in the mechanism of low dose morphine-induced hyperalgesia in adult male rats. *Neuropeptides.* 2021;90:102185.

41. Bazmandegan G, Fatemi I, Kaeidi A, Khademalhosseini M, Fathinejad A, Amirteimoury M. Calcium dobesilate prevents cisplatin-induced nephrotoxicity by modulating oxidative and histopathological changes in mice. *Naunyn Schmiedebergs Arch Pharmacol.* 2021;394(3):515-21.

42. Hakimizadeh E, Zamanian M, Giménez-Llort L, Sciorati C, Nikbakhtzadeh M, Kujawska M, et al. Calcium Dobesilate Reverses Cognitive Deficits and Anxiety-Like Behaviors in the D-Galactose-Induced Aging Mouse Model through Modulation of Oxidative Stress. *Antioxidants (Basel).* 2021;10(5).

43. Kaeidi A, Amirteimoury M, Zare MS, Nazari A, Hakimizadeh E, Hassanshahi J, et al. Effects of valsartan on morphine tolerance and dependence in rats. *Res Pharm Sci.* 2021;16(3):286-93.

44. Mohammadi M, Mobini M, Mashayekhi F, Allahtavakoli M, Kaeidi A, Hassanshahi J, et al. Ischemic post-conditioning is neuroprotective even at delayed tPA administration after embolic stroke in female rats. *Iran J Basic Med Sci.* 2021;24(12):1676-82.

45. Nasiri M, Kaeidi A, Fatemi I, Azin M, Bannazadeh M, Allahtavakoli M, et al. Modulatory Effects of Memantine on Neuronal Response Properties in Rat Barrel Cortex. *Basic Clin Neurosci.* 2021;12(6):721-8.

46. Fatemi I, Saeed Askari P, Hakimizadeh E, Kaeidi A, Esmaeil Moghaddam S, Pak-Hashemi M, et al. Chronic treatment with coenzyme

- Q10 mitigates the behavioral dysfunction of global cerebral ischemia/reperfusion injury in rats. *Iran J Basic Med Sci.* 2022;25(1):39-45.
47. Hakimizadeh E, Kaeidi A, Rahmani M, Allahtavakoli M, Hassanshahi J. Calcium dobesilate ameliorates hepatorenal injury induced by carbon tetrachloride in mice. *Iran J Basic Med Sci.* 2022;25(2):148-54.
48. Hakimizadeh E, Zamanian MY, Borisov VV, Giménez-Llort L, Ehsani V, Kaeidi A, et al. Gemfibrozil, a lipid-lowering drug, reduces anxiety, enhances memory, and improves brain oxidative stress in d-galactose-induced aging mice. *Fundam Clin Pharmacol.* 2022;36(3):501-8.
49. Hakimizadeh E, Zamanian MY, Damankhorshid M, Giménez-Llort L, Sciorati C, Nikbakhtzadeh M, et al. Calcium dobesilate protects against d-galactose-induced hepatic and renal dysfunction, oxidative stress, and pathological damage. *Fundam Clin Pharmacol.* 2022;36(4):721-30.
50. Hassanshahi J, Hajjalizadeh Z, Niknia S, Mahmoodi M, Kaeidi A. Anti-tumor effects of *Thymus Caramanicus* Jalas extract in mice through oxidative stress, inflammation and apoptosis. *J Pharm Pharmacol.* 2022;74(12):1797-804.
51. Mozafari N, Hassanshahi J, Ostadebrahimi H, Shamsizadeh A, Ayoobi F, Hakimizadeh E, et al. Neuroprotective effect of *Achillea millefolium* aqueous extract against oxidative stress and apoptosis induced by chronic morphine in rat hippocampal CA1 neurons. *Acta Neurobiol Exp (Wars).* 2022;82(2):179-86.
52. Najafizadeh A, Kaeidi A, Rahmani M, Hakimizadeh E, Hassanshahi J. The protective effect of carvacrol on acetaminophen-induced renal damage in male rats. *Mol Biol Rep.* 2022;49(3):1763-71.
53. Bazmandegan G, Kamiab Z, Shafiei A, Khademalhosseini M, Kaeidi A. Calcium Dobesilate Ameliorates Cisplatin-induced Hepatotoxicity by Inhibiting Liver Oxidative Stress in Mice. *Iran J Pharm Res.* 2023;22(1):e126613.
54. Salemi S, Zamanian MY, Giménez-Llort L, Jalali Z, Mahmoodi M, Golmohammadi M, et al. Distinct signatures on d-galactose-induced aging and preventive/protective potency of two low-dose vitamin D supplementation regimens on working memory, muscular damage, cardiac and cerebral oxidative stress, and SIRT1 and calstabin2 downregulation. *Food Sci Nutr.* 2023;11(9):5050-62.

55. Taherzadeh S, Rasoulilian B, Khaleghi M, Rashidipour M, Mogharnasi M, Kaeidi A. Anti-obesity effects of aerobic exercise along with Rosa canina seed extract supplementation in rats: The role of irisin and adipolin. *Obes Res Clin Pract.* 2023;17(3):218-25.
56. Ahmadi Somaghian S, Pajouhi N, Dezfoulilian O, Pirnia A, Kaeidi A, Rasoulilian B. The protective effects of hyperoxic pre-treatment in human-derived adipose tissue mesenchymal stem cells against in vitro oxidative stress and a rat model of renal ischaemia-reperfusion. *Arch Physiol Biochem.* 2024;130(6):606-15.
57. Bagheri-Hosseiniabadi Z, Kaeidi A, Rezvani M, Taghipour Khaje Sharifi G, Abbasifard M. Evaluation of the serum levels of CCL2, CCL3, and IL-29 after first and second administrations of the COVID-19 vaccine (Oxford-AstraZeneca). *Immunobiology.* 2024;229(2):152789.
58. Hakimizadeh E, Fatemi I, Hassanshahi J, Kaeidi A. Protective effects of pistachio hydroalcoholic extract on morphine-induced analgesic tolerance and dependence: investigating the impact of oxidative stress. *Res Pharm Sci.* 2024;19(4):366-75.
59. Moradi M, Hassanshahi J, Rahmani MR, Shamsizadeh A, Kaeidi A. Antiapoptotic and antinociceptive effects of *Achillea millefolium* L. aqueous extract in rats with experimental painful diabetic neuropathy. *Res Pharm Sci.* 2024;19(5):561-72.
60. Ghaffarinasab M, Kaeidi A, Hassanshahi J. Mitigating Remote Organ-Induced Brain Injury in Renal Ischemia-Reperfusion: The Role of Oleuropein in Inhibiting Oxidative Stress, Inflammation, Ferroptosis, and Apoptosis in Male Rats. *J Neuroimmune Pharmacol.* 2025;20(1):24.
61. Hakimizadeh E, Kaeidi A, Fatemi I, Shamsizadeh A, Hassanshahi J. Troxerutin alleviates hepatorenal toxicity induced by carbon tetrachloride in male mice. *Iran J Basic Med Sci.* 2025;28(7):955-61.
62. Jamali N, Kaeidi A, Hassanshahi J, Memarzadeh MR, Tavakoli T, Taghipour Z, et al. A Specific Herbal Mixture of Lavandula, Cloves, Rosa, Astragalus, and Cornus Mas (LCRAC) Improves Cognitive Function in a Rat Model of Streptozotocin-Induced Mild Cognitive Impairment. *Adv Biomed Res.* 2025;14:141.
63. Mahdi Pourtorabi S, Kaeidi A, Hassanshahi J. Neuroprotective role of oleuropein in post-myocardial infarction rats: targeting antioxidant, anti-

inflammatory, and anti-apoptotic mechanisms. Eur J Pharmacol. 2025;1003:177936.

64. Sedghi Z, Kaeidi A, Hassanshahi J. Oleuropein mitigates acetaminophen overdose-induced kidney injury in male rats by enhancing antioxidant defense and suppressing inflammatory and apoptotic pathways. Drug Chem Toxicol. 2025;48(6):1307-16.