

Curriculum Vitae

1. Personal Information:



Surname: Mirzaei
First name: Esmail
Date of birth: 25/11/1984
Place of birth: Shiraz, Iran
Nationality: Iranian

Degree: PhD in Medical Nanotechnology

Current Appointments:

Assistant Professor, Department of Medical Nanotechnology, School of Advanced Medical Sciences and Technologies, Shiraz Univ. of Medical Sciences, Shiraz, Iran

Head of Medical Nanotechnology Department, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences.

Head of IP office, Shiraz University of Medical Sciences.

President of the of Iran Society of Nanomedicine, Fars Branch (since 2018)

Section Editor Nanotechnology Section, Journal of Advanced Medical Sciences and Applied Technologies (JAMSAT), ISSN: 2423-5903.

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2. Professional Education and Qualifications

High School Diploma, Experimental Sciences, Tohid High School, Shiraz, Iran, 2004.

B.S. in Nutrition: Shiraz University of Medical Sciences, Shiraz, Iran, 2008

M.S. in Medical Nanotechnology: Tehran University of Medical Sciences, Tehran, Iran, 2010

Ph.D. in Medical Nanotechnology: Tehran University of Medical Sciences, Tehran, Iran, 2015

3. Professional experience

Intellectual Property Counsel at Idea Eng Co (2010-2015)

Head of commercialization department at Idea Eng Co (2010-2015)

Editor of nano comprehensive education site (edu.nano.ir)

Section Editor Nanotechnology Section, Journal of Advanced Medical Sciences and Applied Technologies (JAMSAT), ISSN: 2423-5903.

Assistant Professor, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences (since 2015).

Head of Medical Nanotechnology Department, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences (Since 2015).

Head of IP office, Shiraz University of Medical Sciences (Since 2015).

4. Honors and Award

First rank in M.Sc. entrance exam held by Ministry of Health and Medical Education. 2007

First rank in Ph.D. entrance exam held by Ministry of Health and Medical Education. 2010

First rank in 1th National nanotechnology competition held by Iran Nanotechnology Initiative Council

5. Membership:

Iran Society of Nanomedicine (since 2010).

Member of the board of directors of Iran Society of Nanomedicine (since 2018).

President of the of Iran Society of Nanomedicine, Fars Branch (since 2018)

Member of the technology committee, vice chancellery for research affairs, Shiraz, University of Medical Sciences (since 2016).

Advanced Medical Sciences and Technologies Association (AMST), Tehran University of Medical Sciences. Tehran. 2010- 2015.

6. Thesis supervisor

MSc thesis

1. Fabrication and characterization of PCL/chitosan double layer electrospun nanofibrous mesh for abdominal wall repair, Zahra Asvar, 2015.
2. Design and Fabrication of Chitosan nanofibril/ Polycaprolactone Composite Nanofibrous Scaffold and In-Vitro Study of It's Biological Properties, Milad Fadaie, 2015.
3. Synthesis and characterization of rode shape gold nanoshell as a new gold nanostructure, Omid AmiriZadeh, 2016.
4. Preparation of plastic compressed nanostructured collagen hydrogel scaffold enriched with culture medium containing skin fibroblasts and hair follicle as a construct for skin repair. Ayob Karimizadeh, 2016.
5. Fabrication of collagen/ hydroxyapatite/ strontium bioactive glass hydrogel nanocomposite with In-situ mineralization of hydroxyapatite in collagen hydrogel in physiological conditions, Sara Takalu, 2017.
6. Fabrication and characterization of chitosan-gelatin/hyaluronic acid hybrid scaffold and investigating its healing effect in rat model, Abas Zakeri, 2017.
7. Fabrication and characterization of collagen- graphene oxide hydrogel scaffold and evaluation of the behavior of mouse embryonic neural stem cells on it, Anita Rezaei, 2017.
8. Fabricating oral film of zolmitriptan using gelatin base nanofibres, Roya Zafari, 2017.
9. Fabrication and in-vivo study of PLGA-nanofibrillated chitosan nanocomposite scaffold for hernia repair, Saeed Ahmadi, 2018.
10. 7-Synthesis of drug loaded spherical nucleic acid nanostructure with 5-fluorouracil (5-FU) as a targeted drug delivery system and evaluation of its anti-cancer effect in vitro, Fatemeh Mohamadi, in progress.
11. Fabrication and structural/mechanical characterization of comperssed collagen-nanocellulose hydrogel and chondrogenic differentiation of mesenchymal stem cell on it, Farid Torabizadeh, In progress.

7. Published Articles

1. Sanie-Jahromi F, Eghtedari M, **Mirzaei E**, Jalalpour MH, Asvar Z, Nejabat M, et al. Propagation of limbal stem cells on polycaprolactone and polycaprolactone/gelatin fibrous scaffolds and transplantation in animal model. *BioImpacts: BI*. 2020;10(1):45.
2. Lohrasbi S, **Mirzaei E***, Karimizade A, Takallu S, Rezaei A. Collagen/cellulose nanofiber hydrogel scaffold: physical, mechanical and cell biocompatibility properties. *Cellulose*. 2020;27(2):927-40.
3. Jahromi Z, **Mirzaei E***, Savardashtaki A, Afzali M, Afzali Z. A rapid and selective electrochemical sensor based on electrospun carbon nanofibers for tramadol detection. *Microchemical Journal*. 2020:104942.
4. Bazmandeh AZ, **Mirzaei E***, Fadaie M, Shirian S, Ghasemi Y. Dual spinneret electrospun nanofibrous/gel structure of chitosan-gelatin/chitosan-hyaluronic acid as a wound dressing: In-vitro and in-vivo studies. *International Journal of Biological Macromolecules*. 2020.
5. Bakhtari A, Nazari S, Alaei S, Kargar-Abarghouei E, Mesbah F, **Mirzaei E**, et al. Toxic Effects of Dextran-Coated Superparamagnetic Iron Oxide Nanoparticles on Mouse Embryo Development, Genes Expression of Antioxidant Enzymes and Apoptosis, and Ultrastructure of Sperm, Oocytes and Granulosa Cells. *Int J Fertil Steril*. 2020;14(3).
6. Takallu S, **Mirzaei E***, Azadi A, Karimizade A, Tavakol S. Plate-shape carbonated hydroxyapatite/collagen nanocomposite hydrogel via in situ mineralization of hydroxyapatite concurrent with gelation of collagen at pH= 7.4 and 37° C. *Journal of Biomedical Materials Research Part B: Applied Biomaterials*. 2019;107(6):1920-9.
7. Hasanzadeh E, Ebrahimi-Barough S, **Mirzaei E**, Azami M, Tavangar SM, Mahmoodi N, et al. Preparation of fibrin gel scaffolds containing MWCNT/PU nanofibers for neural tissue engineering. *Journal of Biomedical Materials Research Part A*. 2019;107(4):802-14.
8. Fadaie M, **Mirzaei E***, Asvar Z, Azarpira N. Stabilization of chitosan based electrospun nanofibers through a simple and safe method. *Materials Science and Engineering: C*. 2019;98:369-80.
9. Bentolhoda Amanzadi, **Mirzaei E**, Gholamreza Hassanzadeh, Parvin Mahdaviani, Safieh Boroumand, Mohammad Abdollahi, Amir Hossein Abdolghaffari, Reza Faridi Majidi. Chitosan-based layered nanofibers loaded with herbal extract as wound-dressing materials on wound model studies. *Biointerface Research in Applied Chemistry*. 2019;9(4):3979 - 86.
10. Bazmandeh AZ, **Mirzaei E***, Ghasemi Y, Kouhbanani MAJ. Hyaluronic acid coated electrospun chitosan-based nanofibers prepared by simultaneous stabilizing and coating. *International journal of biological macromolecules*. 2019;138:403-11.

11. **Mirzaei E**. Evaluating the effect of pH on mechanical strength and cell compatibility of nanostructured collagen hydrogel by the plastic compression method. *Nanomedicine Journal*. 2018;5(3):180-5.
12. Fadaie M, **Mirzaei E***, Geramizadeh B, Asvar Z. Incorporation of nanofibrillated chitosan into electrospun PCL nanofibers makes scaffolds with enhanced mechanical and biological properties. *Carbohydrate polymers*. 2018;199:628-40.
13. Fadaie M, **Mirzaei E***. Nanofibrillated chitosan/polycaprolactone bionanocomposite scaffold with improved tensile strength and cellular behavior. *Nanomedicine Journal*. 2018;5(2):77-89.
14. Bohlouli N, **Mirzaei E**, Ghanbari H, Rezayat Sorkhabadi SM, Faridi-Majid R, editors. Reinforcing mechanical strength of electrospun chitosan nanofibrous scaffold using cellulose nanofibers. *Journal of Nano Research*; 2018: Trans Tech Publications Ltd.
15. Behbood L, Karimi S, **Mirzaei E**, Mohammadi G, Azami M, Arkan E. Mucoadhesive chitosan electrospun nanofibers containing tetracycline and triamcinolone as a drug delivery system. *Fibers and Polymers*. 2018;19(7):1454-62.
16. Asadi-Golshan R, Razban V, **Mirzaei E**, Rahmanian A, Khajeh S, Mostafavi-Pour Z, et al. Sensory and motor behavior evidences supporting the usefulness of conditioned medium from dental pulp-derived stem cells in spinal cord injury in rats. *Asian spine journal*. 2018;12(5):785.
17. Asvar Z, **Mirzaei E***, Azarpira N, Geramizadeh B, Fadaie M. Evaluation of electrospinning parameters on the tensile strength and suture retention strength of polycaprolactone nanofibrous scaffolds through surface response methodology. *Journal of the mechanical behavior of biomedical materials*. 2017;75:369-78.
18. **Mirzaei E**, Sarkar S, Rezayat SM, Faridi-Majidi R. Herbal extract loaded chitosan-based nanofibers as a potential wound-dressing. *Journal of Advanced Medical Sciences and Applied Technologies*. 2016;2(1):141-50.
19. **Mirzaei E**, Ai J, Ebrahimi-Barough S, Verdi J, Ghanbari H, Faridi-Majidi R. The differentiation of human endometrial stem cells into neuron-like cells on electrospun PAN-derived carbon nanofibers with random and aligned topographies. *Molecular neurobiology*. 2016;53(7):4798-808.
20. Faghihi F, **Mirzaei E**, Ai J, Lotfi A, Sayahpour FA, Barough SE, et al. Differentiation potential of human chorion-derived mesenchymal stem cells into motor neuron-like cells in two-and three-dimensional culture systems. *Molecular neurobiology*. 2016;53(3):1862-72.

21. Amani AM, Ghasemi Y, Savardashtaki A, Zomorodian K, **Mirzaei E**, Zare B, et al. A novel eco-friendly method for the synthesis of 2, 3-dihydroquinazolin-4 (1H)-ones in aqueous media under ultrasonication using ZrOCl₂-MCM-41 as a highly efficient nanocatalyst/nanoreactor. BULGARIAN CHEMICAL COMMUNICATIONS. 2016;48(3):395-402.
22. **Mirzaei E**, Ai J, Sorouri M, Ghanbari H, Verdi J, Faridi-Majidi R. Functionalization of PAN-based electrospun carbon nanofibers by acid oxidation: study of structural, electrical and mechanical properties. Fullerenes, Nanotubes and Carbon Nanostructures. 2015;23(11):930-7.
23. Faghihi F, **Mirzaei E**, Sarveazad A, Ai J, Barough SE, Lotfi A, et al. Differentiation potential of human bone marrow mesenchymal stem cells into motorneuron-like cells on electrospun gelatin membrane. Journal of Molecular Neuroscience. 2015;55(4):845-53.
24. Ebrahimi-Barough S, Javidan AN, Saberi H, Joghataei MT, Rahbarghazi R, **Mirzaei E**, et al. Evaluation of motor neuron-like cell differentiation of hEnSCs on biodegradable PLGA nanofiber scaffolds. Molecular neurobiology. 2015;52(3):1704-13.
25. Arvand M, **Mirzaei E**, Derakhshan MA, Kharrazi S, Sadroddiny E, Babapour M, et al. Fabrication of antibacterial silver nanoparticle-modified chitosan fibers using Eucalyptus extract as a reducing agent. Journal of Applied Polymer Science. 2015;132(25).
26. Paskiabi FA, **Mirzaei E**, Amani A, Shokrgozar MA, Saber R, Faridi-Majidi R. Optimizing parameters on alignment of PCL/PGA nanofibrous scaffold: An artificial neural networks approach. International journal of biological macromolecules. 2014;81:1089–97.
27. **Mirzaei E**, Faridi-Majidi R, Shokrgozar MA, Asghari Paskiabi F. Genipin cross-linked electrospun chitosan-based nanofibrous mat as tissue engineering scaffold. Nanomedicine Journal. 2014;1(3):137-46.
28. Faezeh Faghihi. **Mirzaei E**, Arash Sarveazad, Jafar Ai, Somayeh Ebrahimi Barough, Abolfazl Lotfi, Mohammad Taghi Joghataei. Differentiation Potential of Human Bone Marrow Mesenchymal Stem Cells into Motorneuron-like Cells on Electrospun Gelatin Membrane. Journal of Molecular Neuroscience. 2014;55(4):845–53.
29. Esnaashari SS, Rezaei S, **Mirzaei E**, Afshari H, Rezayat SM, Faridi-Majidi R. Preparation and characterization of kefiran electrospun nanofibers. International journal of biological macromolecules. 2014;70:50-6.
30. Factor NG, Human BFGFI, into Cholinergic ESCD. Structural Stability and Cytotoxicity of Genipin-Crosslinked Electrospun Chitosan/PEO nanofibers. Artif Organs. 2013;37(7).

31. **Mirzaei E**, Faridi-Majidi R, editors. Preparation of chitosan based nanofibers as a potential wound dressing by electrospinning. The 4th international conference on nanostructures (ICNS4), Kish Island, IR Iran; 2012.
32. **Mirzaei E**, Amani A, Sarkar S, Saber R, Mohammadyani D, Faridi-Majidi R. Artificial neural networks modeling of electrospinning of polyethylene oxide from aqueous acid acetic solution. Journal of applied polymer science. 2012;125(3):1910-21.
33. Amanzadi B, **Mirzaei E**, Hassanzadeh G, Mahdavian P, Boroumand S, Abdollahi M, et al. Biointerface Research in Applied Chemistry.

8. Patent (US and PCT)

1. Electro spun nanofibrous wound dressing and a method of synthesizing the same **E Mirzaei**, RF Majidi, S Sarkar, SM Rezayat US Patent 9,101,508.
2. Stabilizing protonated biopolymer nanostructures, Esmaeil MIRZAEI, Milad FADAIE, Zahra ASVAR, WO2020044072A1.

9. Publication in Persian

More than 45 articles in nanotechnology comprehensive education site (edu.nano.ir)

10. Books

Central Nervous System Tissue Engineering (translated in persian), 08/2014; Sina Teb institute Publication., ISBN: 978-600-5243-43-7.

Medical Nanotechnology, 1 chapter, ISBN 978-964-10-2642-6.

11. Workshop presentations

Many workshops on Intellectual properties and patent in several universities and academic centers.

Many workshops on Nanomedicine and Tissue Engineering in several universities and academic centers.

12. Presentations:

Introduction of nanomaterial, the first seminar on nanotechnology and its medical application by AMST, AMST association, Tehran University of Medical Sciences. 2010.

Drug loaded Nanofibrous wound dressing, 14th Nanotechnology students' conference, Tehran, 2012

Application of nanotechnology in Medical Sciences Congress, Qazvin University of Medical Sciences, 2013.

Electrospun carbon nanofibers as conductive and biocompatible substrate for neuronal regeneration, 2th congress on Tissue Engineering and Regenerative Medicine, Tehran, 2015.