

CURRICULUM VITAE

Sara Simorgh

Department address:

Assistant professor

Department of Tissue Engineering and Regenerative Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Hemmat Highway, Tehran 144961-4535, Iran;

Tel: (+98 21) 8862 4614; Fax: (+98 21) 8862 2533

Mobile: +98(912)8080727

E-mail: srsimorgh@gmail.com; sara.simorgh@iums.ac.ir



Personal Details:

Gender: Female

Date of Birth: 4 August 1992

Gender: Female

Nationality: Iranian

Marital Status: single

Languages:

Farsi — fluent

English — fluent

Education:

- 2019- PhD in Iran University of Medical Sciences
- 2015-2018. MSc in Anatomical Science, Iran University of Medical Sciences
- 2010-2014. BSc in anesthesiology, Iran University of Medical Sciences

Editor and Reviewer for the Journals:

- Journal of Cellular Physiology (Impact factor: 6.3)

- Frontiers in Pharmacology (Impact Factor: 4.4)
- Material Science and Engineering C (Impact factor: 7.3)
- Frontiers in Bioengineering and Biotechnology (Impact factor: 5.8)
- Journal of Biomaterials Science Polymer (Impact factor: 3.5)

Title of MSc Thesis

Olfactory mucosa stem cells: an available candidate for the treatment of the Parkinson's disease

Supervisor: Dr. Fatemeh Moradi

Title of PhD Thesis

Human Olfactory Mucosa Stem Cells Delivery Using a Collagen Hydrogel: As a Potential Candidate for Bone Tissue Engineering

Supervisors: Dr. Peiman Brouki Milan

Research Papers:

Simorgh S, Alizadeh R, Eftekhazadeh M, Haramshahi SM, Milan PB, Doshmanziari M, Ramezanzpour F, Gholipourmalekabadi M, Seifi M, Moradi F. Olfactory mucosa stem cells: an available candidate for the treatment of the Parkinson's disease. *Journal of cellular physiology*. 2019 Dec;234(12):23763-73

Simorgh S, Alizadeh R, Shabani R, Karimzadeh F, Seidkhani E, Majidpoor J, Moradi F, Kasbiyan H. Olfactory mucosa stem cells delivery via nasal route: a simple way for the treatment of Parkinson disease. *Neurotoxicity Research*. 2021 Jun;39(3):598-608.

Simorgh S, Bagher Z, Farhadi M, Kamrava SK, Boroujeni ME, Namjoo Z, Hour FQ, Moradi S, Alizadeh R. Magnetic targeting of human olfactory mucosa stem cells following intranasal administration: a novel approach to Parkinson's disease treatment. *Molecular Neurobiology*. 2021 Aug;58(8):3835-47

Simorgh S, Milan PB, Saadatmand M, Bagher Z, Gholipourmalekabadi M, Alizadeh R, Hivechi A, Arabpour Z, Hamidi M, Delattre C. Human olfactory mucosa stem cells delivery using a collagen hydrogel: As a potential candidate for bone tissue engineering. *Materials*. 2021 Jul 13;14(14):3909.

- Hamidabadi HG, Simorgh S, Kamrava SK, Namjoo Z, Bagher Z, Bojnordi MN, Niapour A, Mojaverrostami S, Saeb MR, Zarrintaj P, Olya A. Promoting motor functions in a spinal cord injury model of rats using transplantation of differentiated human olfactory stem cells: A step towards future therapy. *Behavioural Brain Research*. 2021 May 7;405:113205
- Rashtchian M, Hivechi A, Bahrami SH, Milan PB, Simorgh S. Fabricating alginate/poly (caprolactone) nanofibers with enhanced bio-mechanical properties via cellulose nanocrystal incorporation. *Carbohydrate polymers*. 2020 Apr 1;233:115873.
- Karimi S, Bagher Z, Najmoddin N, Simorgh S, Pezeshki-Modaress M. Alginate-magnetic short nanofibers 3D composite hydrogel enhances the encapsulated human olfactory mucosa stem cells bioactivity for potential nerve regeneration application. *International journal of biological macromolecules*. 2021 Jan 15;167:796-806.
- Ghaderinejad P, Najmoddin N, Bagher Z, Saeed M, Karimi S, Simorgh S, Pezeshki-Modaress M. An injectable anisotropic alginate hydrogel containing oriented fibers for nerve tissue engineering. *Chemical Engineering Journal*. 2021 Sep 15;420:130465.
- Bagheri S, Bagher Z, Hassanzadeh S, Simorgh S, Kamrava SK, Nooshabadi VT, Shabani R, Jalessi M, Khanmohammadi M. Control of cellular adhesiveness in hyaluronic acid-based hydrogel through varying degrees of phenol moiety cross-linking. *Journal of Biomedical Materials Research Part A*. 2021 May;109(5):649-58
- Zare P, Pezeshki-Modaress M, Davachi SM, Zare P, Yazdian F, Simorgh S, Ghanbari H, Rashedi H, Bagher Z. Alginate sulfate-based hydrogel/nanofiber composite scaffold with controlled Kartogenin delivery for tissue engineering. *Carbohydrate Polymers*. 2021 Aug 15;266:118123.
- Najafloo R, Majidi J, Asghari A, Aleemardani M, Kamrava SK, Simorgh S, Seifalian A, Bagher Z, Seifalian AM. Mechanism of anosmia caused by symptoms of COVID-19 and emerging treatments. *ACS chemical neuroscience*. 2021 Oct 5;12(20):3795-805
- Alizadeh R, Ramezanpour F, Mohammadi A, Eftekhazadeh M, Simorgh S, Kazemiha M, Moradi F. Differentiation of human olfactory system-derived stem cells into dopaminergic neuron-like cells: A comparison between olfactory bulb and mucosa as two sources of stem cells. *Journal of cellular biochemistry*. 2019 Dec;120(12):19712-20
- Hivechi A, Bahrami SH, Siegel RA, Siehr A, Sahoo A, Milan PB, Joghataei MT, Amoupour M, Simorgh S. Cellulose nanocrystal effect on crystallization kinetics and biological properties of electrospun polycaprolactone. *Materials Science and Engineering: C*. 2021 Feb 1;121:111855
- Haramshahi SM, Bonakdar S, Moghtadaei M, Kamguyan K, Thormann E, Tanbakooei S, Simorgh S, Brouki-Milan P, Amini N, Latifi N, Joghataei MT. Tenocyte-imprinted substrate: A topography-based inducer for tenogenic differentiation in adipose tissue-derived mesenchymal stem cells. *Biomedical Materials*. 2020 Apr 16;15(3):035014

- Ramhormozi P, Mohajer Ansari J, Simorgh S, Nobakht M. Bone Marrow-Derived Mesenchymal Stem Cells Combined With Simvastatin Accelerates Burn Wound Healing by Activation of the Akt/mTOR Pathway. *Journal of Burn Care & Research*. 2020 Sep;41(5):1069-78
- Eftekharzadeh M, Simorgh S, Doshmanziari M, Hassanzadeh L, Shariatpanahi M. Human adipose-derived stem cells reduce receptor-interacting protein 1, receptor-interacting protein 3, and mixed lineage kinase domain-like pseudokinase as necroptotic markers in rat model of Alzheimer's disease. *Indian Journal of Pharmacology*. 2020 Sep;52(5):392.
- Ramhormozi P, Ansari JM, Simorgh S, Asgari HR, Najafi M, Barati M, Babakhani A, Nobakht M. Simvastatin accelerates the healing process of burn wound in Wistar rats through Akt/mTOR signaling pathway. *Annals of Anatomy-Anatomischer Anzeiger*. 2021 Jul 1;236:151652.
- Doshmanziari M, Sarveazad A, Moradi F, Shariatpanahi M, Doshmanziari E, Simorgh S, Eftekharzadeh M. Evaluation of A β Deposits in the Hippocampus of a Rat Model of Alzheimer's Disease After Intravenous Injection of Human Adipose Derived Stem Cells by Immuno-and Thioflavin S-Costaining. *Thrita*. 2018 Dec 31;7(2).
- Zare P, Pezeshki-Modaress M, Davachi SM, Chahsetareh H, Simorgh S, Asgari N, Haramshahi MA, Alizadeh R, Bagher Z, Farhadi M. An additive manufacturing-based 3D printed poly ϵ -caprolactone/alginate sulfate/extracellular matrix construct for nasal cartilage regeneration. *Journal of Biomedical Materials Research Part A*. 2022 Jun;110(6):1199-209.
- Moradi S, Alizadeh R, Yazdian F, Farhadi M, Kamrava SK, Simorgh S. A TGF- α and TGF- β 1 Poloxamer-based micelle/hydrogel composite: A promising novel candidate for the treatment of anosmia. *Biotechnology Progress*.:e3294.

Book chapter:

Polymer-protein conjugates as therapeutic

Deepa Hada, Sara Simorgh, Bharatraj Singh Rathore, Girdhar Pal Singh, Narendra Singh Chundawat, Mahmood Barani, and Narendra Pal Singh Chauhan (In press)

Awards and certificates:

2021: Technical supervisor for Clean Room and GMP, certificated from Iran FDA

Congress:

Scientific Presenter in the 4th Iranian Congress on Progress in Tissue Engineering and Regenerative Medicine, 2018.

Main Collaborators

Prof. Alexander M Seifalian, UCL, Royal Free London NHS Foundation Trust Hospital London, UK.

Prof. Cedric Delattre, UCA/IUF, Institute Pascal UMR CNRS 6602, Polytech Clermont

Dr. Ahmad Hivechi, Martin-Luther-University Halle-Wittenberg

Dr. Seyed Mohammad Davachi, Researcher at Cornell University

Research Interests:

Stem cells and tissue engineering

Microfluidics

Organ on chip

Bioprinting

3Dprinting

Bone tissue engineering

Cartilage tissue engineering

Nerve tissue engineering

Bioactive glass and nanocomposite scaffolds

Technical Skills

Software and Web Based Knowledge including

1. All standard of Microsoft office software
2. SPSS
3. Origin Pro
4. Prism
5. Scientific and General Database Search
6. Operating systems: Microsoft windows & Linux
7. Endnote software
8. AutoCAD software
9. COMSOL software

Laboratory Knowledge including

1. Cell Cultures (Monolayer and Spheroid)
2. 3D Cell Cultures
3. Tissue Culture
4. Cell encapsulation
5. Bioprinting
6. 3D printing
7. Organ on chip
8. PCR
 - Conventional PCR
 - RT-PCR
 - Real Time PCR
9. Extraction of mesenchymal stem cells
10. Flow Cytometry
11. Working experience with common laboratory animals
12. Creation of Animal models

13. Scanning electron microscopy (sample preparation)
14. Mechanical test for scaffolds
15. electrospinning
16. Decellularisation of soft tissues
17. MTT and Cell viability test
18. Live/dead assay
19. Tissue Samples Fixation and H&E Staining
20. Fabrication of bioactive glasses
21. Fabrication of hydrogels
22. Immunocytochemistry
23. Immunohistochemistry
24. Osteogenic differentiation analysis
25. Chondrogenic differentiation analysis
26. Collagen detecting
27. Angiogenic tests
28. Hemocompatibility assays
29. Western Blotting
30. Antibacterial tests: Halo test, colony count, MIC, etc
31. Conventional medical laboratory tests
32. GLP, GMP and manufacturing in clean room

Applied Bioinformatics and Computational Biology Software's

- Biological database search
- Pairwise and Multiple sequence alignment
- Sequence based database search (BLAST and FASTA)
- Protein structure prediction
- RNA secondary structure prediction

- Primer and probe designing and analysis tools e.g. primer3, primerblast and oligo 6
- Other software's including NCBI utilities and some other sequence assembly and analysis software's applicable for gene manipulation

References:

Professor Mohammad Taghi Joghataei, Ph.D.

Professor of Neuroanatomical science, Department of Anatomy and Neuroscience, Cellular and Molecular Research Center, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Peiman Brouki. Milan Ph.D.

Associate Professor, Department of Tissue Engineering and Regenerative Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran

Email: peiman.brouki@gmail.com

Zohreh Bagher Ph.D.

Assistant Professor, ENT and Head & Neck Research Center and Department, The Five Senses Institute, Hazrat Rasoul Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

Email: Baharebagher@gmail.com