

Curriculum Vitae



Zahra Khodabandeh

PhD, Assistant Professor of Anatomical Sciences

Stem cell technology Research center, Shiraz University of Medical Sciences, Shiraz, Iran

Postal address: Mollasadra avenue, Khalili street, Shiraz University of Medical Sciences, College of Medicine, Shiraz, Iran 15875-6171

E-mail: jahromi@sums.ac.ir, zahrabandeh@gmail.com

OCID id: <https://orcid.org/0000-0003-2276-2674>

Scopus iD

<http://www.scopus.com/inward/authorDetails.url?authorID=56703489200&partnerID=MN8TOARS>

PERSONAL INFORMATION

Date of Birth: 19.9.1984

Place of Birth: Jahrom, Fars province

Marriage status: married

Citizenship: Iranian

Languages known: Persian, English

REREARCH INTEREST

During my graduate studies and later, I worked on reproductive medicine and stem cell technologies. I did my research in Shiraz university of medical sciences in the field of stem cell and tissue engineering under the supervision of Prof. Tahereh Talaei Khozani. During the last 4 years I did my research on stem cells biology and on isolation, culture and characterization of mesenchymal stem cells (derived from bone marrow, adipose tissue, endometrial tissue, dental pulp, Wharton 's jelly, amniotic membrane, placenta, and etc.) in human and laboratory animals and their role in regenerative medicine. I am also expert in microinjection of sperms into oocytes. I have successfully developed protocols for IVF, IVM, gametes freezing, and transfer of oocyte and embryo in rodents. I am well versed with most of the desired techniques. I also have some publication on evaluation of azoospermia in male mice and treatment by antioxidant.

EDUCATIONAL QUALIFICATION

Degree: PhD in Anatomical sciences

Year: 2014

Institute: School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Thesis title: Reconstruction of the Liver Tissue Using Hepatocyte-like cell Derived from Wharton 's jelly and Co-Culture with Endothelial Cell in the presence of Fetal Liver Extract in a 3D Culture system

Degree: MSc in Anatomical sciences

Year: 2010

Institute: School Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Thesis title: Expression of heat shock protein (HSP A1A) and MnSOD genes following vitrification of mouse MII oocytes with cryotop method

RESEARCH EXPERIENCES

MSc thesis in the field of human reproduction medicine entitled "Expression of heat shock protein (HSP A1A) and MnSOD genes following vitrification of mouse MII oocytes with cryotop method" under the supervision of **Dr. Fardin Amidi** from Department of Anatomical Sciences, School of Medicine, Tehran University of Medical Sciences, Tehran. The product was 2 paper (2 in English).

PhD thesis in the field of stem cells technology entitled "Reconstruction of the Liver Tissue Using Hepatocyte-like cell Derived from Wharton 's jelly and Co-Culture with Endothelial Cell in the presence of Fetal Liver Extract in a 3D Culture system" under the supervision of **Dr.**

Tahereh Talaei Khozani from Department of Anatomical Sciences, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran. The product was 5 papers.

From 2014 till now, I was working as an assistant professor in stem cells Technology research center, Shiraz University of Medical Sciences (Shiraz, Iran). During this time, I was the supervisor of 4 MSc student theses and I did some research projects in reproductive biology and regenerative medicine. I work on azoospermia and now I have 2 project as a thesis of PhD student on treatment of azoospermia by condition medium and exosome.

TECHNICAL EXPERTISE

Histological techniques

- H&E
- Immunohistochemistry
- Immunocytochemistry
- Sperm analysis
- Cardiac perfusion
- Frozen sectioning
- Flowcytometry
- Cell proliferation tests

Molecular techniques

- PCR
- RT-PCR
- Real time PCR
- Gel electrophoresis

Cell culture

- Mesenchymal stem cell culture
- Embryonic stem cell culture

- Embryonic fibroblast culture
- Keratinocyte culture
- Somatic cells culture

Embryological techniques

- ICSI, IVF, IVM and embryo transfer
- Microinjection into seminiferous tubule
- Ovary transplantation
- Culture, Vitrification and Manipulation of Embryo
 - Statistical analysis
 - Graph pad prism

SPSS

TEACHING EXPERIENCE

Anatomy, Histology, Embryology, Stem Cells Biology, Cell Culture Techniques, ART Techniques

- (2009-Present), Anatomy, Histology for B.S student and practical anatomy and histology for medical student *Shiraz University of Medical Sciences*, Shiraz, Iran.
- (2009-2014) Embryology for medical student, *Jahrom University of Medical Sciences*, Jahrom, Iran
- (2012-2013), Upper & Lower Limb Anatomy for medical student, *Jahrom University of Medical Sciences*, Jahrom, Iran.
- (2009-2014) Histology for medical student, *Jahrom University of Medical Sciences*, Jahrom, Iran
- (2007-2009), practical anatomy and histology for medical student *Tehran University of Medical Sciences*, Tehran, Iran

BIBLIOGRAPHY

❖ Book

- Moore anatomy (upper and lower limb) published, 2011
- Moore anatomy (thorax and abdomen) published, 2011
- Churasia anatomy published , 2015
- Atlas of histolog published , 2017
- Histology of Junqueira published , 2019

Publications in Journals

1. **Zahra khodabandeh**, Fardin Amidi, Mohammad hossein noori , Afrooz Habbib Expression of heat shock protein (HSP70) and MnSOD genes following vitrification of mouse MII oocytes with cryotop method, **(2009)** Yakhteh medical journal,
2. Zahra Vojdani, **Zahra Khodabandeh**, Tahereh Talaei-Khozani, In Vitro Study of the Protective Effects of Hydroalcoholic Extract of Soybean against Impact of Oxidative Damage on Osteogenesis and Chondrogenesis of Mouse Limb Bud ,(2014) Anatomical sciences journal

3. Zahra Vojdani, **Zahra Khodabandeh**, Mansoureh Jaberipour, Ahmah Hosseini, Soghra Bahmanpour, Tahereh Talaei-khozani, The influence of fibroblast growth factor-4 on hepatogenic capacity of Wharton's jelly mesenchymal stromal cells, (2015), Romanian Journal of Morphology and Embryology, RJME
4. Davood Mehrabani, Mohammad Amin Hassanshahi , Amin Tamadon , Shahrokh Zare , Saeideh Keshavarz , Farhad Rahmanifar , Mehdi Dianatpour, **Zahra Khodabandeh** , ImanRazeghian Jahromi , Nader Tanideh , Mani Ramzi , Heydar Aqababa, Omid Kuhi-Hoseinabadi, Adipose tissue-derived mesenchymal stem cells repair germinal cells of seminiferous tubules of busulfan-induced azoospermic rats, Journal of human reproductive sciences, 2015, 8 (2), 103
5. **Zahra Khodabandeh**, Zahra Vojdani, Tahereh Talaei-Khozani, Mansoureh Jaberipour, Ahmadhosseini, Soghra Bahmanpour, comparison of the expression of hepatic genes by human Wharton 's Jelly Mesenchymal stem cells cultured in 2D and 3D collagen culture systems ,2015, IJMS.
6. Amin Tamadon , Davood Mehrabani , Farhad Rahmanifar , Alireza Raayat Jahromi , Mohadeseh Panahi , Shahrokh Zare , **Zahra Khodabandeh** , Iman Razeghian Jahromi , Nader Tanideh^{1,5}, Mehdi Dianatpour^{1,6}, Mani Ramzi⁷, Omid Koohi-Hoseinabadi: Induction of Spermatogenesis by Bone Marrow-derived Mesenchymal Stem Cells in Busulfan-induced Azoospermia in Hamster International Journal of Stem Cells 8, 134-145
7. Iman Razeghian Jahromi, Davood Mehrabani, Ali Mohammadi, Mehdi Dianatpour, Amin Tamadon, Shahrokh Zare, Mehdi Ghahremani Seno, **Zahra Khodabandeh**, The effect of fetal rat brain extract on morphology of bone marrow-derived mesenchymal stem cells: Comparative Clinical Pathology, 25 (2), 343-349
8. **Zahra Khodabandeh** , Zahra Vojdani Z, mahbobeh Jaberipour M, Ahmad Hosseini , Soghra Bahmanpour, Tahereh Talaei-Khozani Improved Differentiation of Mesenchymal Stem Cells into Hepatocyte-like Cells using FGF4 and IGF-1 in 3D Culture: Int J Stem Cell Res Transplant 3 (3), 109-117
9. Seyed Mojtaba Hosseini, Mohammad Farahmandnia, and **Zahra Khodabande**. A Novel Cell Therapy Method for Recovering after Brain Stroke in Rats International Journal of Stem Cells Vol. 8, No. 2, NOV 2015
10. Tahereh Talaei-Khozani, **Zahra Khodabandeh**, Mansoureh Jaberipour, Ahmad Hosseini, Soghra Bahmanpour, Zahra Vojdani, Comparison of hepatic nuclear factor-4 expression in two and three-dimensional culture of Wharton's jelly-derived cells exposed to hepatogenic medium, Rom J Morphol Embryol, December 22, 2015

11. Farhad Rahmanifar, Amin Tamadon, Davood Mehrabani, Shahrokh Zare, Soroush Abasi, Saeideh Keshavarz, Mehdi Dianatpour, **Zahra Khodabandeh**, Omid Koochi-Hoseinabadi, Histomorphometric evaluation of treatment of rat azoospermic seminiferous tubules by allotransplantation of bone marrow-derived mesenchymal stem cells, Iranian Journal of Basic Medical Sciences, 2016
12. Davood Mehrabani, Mina Rabiee, Amin Tamadon, Shahrokh Zare, Iman Razeghian Jahromi, Mehdi Dianatpour, **Zahra Khodabandeh**: The growth kinetic, differentiation properties, karyotyping, and characterization of adipose tissue-derived stem cells in hamster, Comparative Clinical Pathology, 1-6.
13. Noushin Gashmardi, Davood Mehrabani, **Zahra Khodabandeh** and Seyed Mojtaba Hosseini. Effect of Bone Marrow-derived Mesenchymal Stem Cells on Changes of Serum Levels of TNF- α and Locomotor Function after Spinal Cord Injury in Mice. J. Med. Sci., 2016 DOI: 10.3923/jms.2016.
14. Maryam Karami Kheirabad, **Zahra Khodabandeh**², Farhad Rahmanifar³, Amin Tamadon^{2,1}, Bahya Namavar Jahromi^{4,1}, Maryam Owjifard², Omid Koochi-Hosseini⁵. Testicular germ cells apoptosis following exposure to chronic stress in rats. Asian Pacific Journal of Reproduction. 2016.
15. N Gashmardi, D Mehrabani, SE Hosseini, MA Edalatmanesh, **Z Khodabandeh**. The Healing of Bone Marrow-Derived Stem Cells on Motor Functions in Acute Spinal Cord Injury of Mice; Armaghane danesh 21 (7), 669-681.
16. Iman Jamhiri, Seyed Younes Hosseini, Davood Mehrabani, **Zahra Khodabandeh**, Ramin Yaghoobi, Razieh Dowran, Saber Zahri. The pattern of IL-24/mda-7 and its cognate receptors expression following activation of human hepatic stellate cells. Biomedical reports 7 (2), 173-178.
17. Noushin Gashmardi, Seyed Ebrahim Hosseini, Davood Mehrabani, Mohammad Amin Edalatmanesh, **Zahra Khodabandeh**. Impacts of Bone Marrow Stem Cells on Caspase-3 Levels after Spinal Cord Injury in Mice. Iranian journal of medical sciences 42 (6), 593.
18. **Zahra Khodabandeh**, Zahra Vojdani, Tahereh Talaei-Khozani, Soghra Bahmanpour. Hepatogenic Differentiation Capacity of Human Wharton's Jelly Mesenchymal Stem Cell in a Co-culturing System with Endothelial Cells in Matrigel/collagen Scaffold. International journal of stem cells 10 (2), 2108
19. I Jamhiri, K Shahin, **Z Khodabandeh**, K Kalantar, J Sarvari, A Atapour, Recombinant NS3 Protein Induced Expression of Immune Modulatory Elements in Hepatic Stellate Cells During Its Fibrotic Activity Viral immunology 2018

20. Negar Karimaghai, Amin Tamadon, Farhad Rahmanifar, Davood Mehrabani, Alireza Raayat Jahromi, Shahrokh Zare, **Zahra Khodabandeh**, Iman Razeghian Jahromi, Omid Koochi-Hosseiniabadi, Mehdi Dianatpour. Spermatogenesis after transplantation of adipose tissue-derived mesenchymal stem cells in busulfan-induced azoospermic hamster. *Iranian Journal of Basic Medical Sciences*, 2018
21. I Jamhiri, S Zahri, D Mehrabani, **Z Khodabandeh**, M Dianatpour, Enhancing the apoptotic effect of IL-24/mda-7 on the human hepatic stellate cell through RGD peptide modification. *Immunological investigations* 47 (4), 335-350, 2018
22. F Amidi, **Z Khodabandeh**, MHN Mogahi, Comparison of the effects of vitrification on gene expression of mature mouse oocytes using cryotop and open pulled straw. *International journal of fertility & sterility* 12 (1), 61, 2018.
23. L Rezaeian, SE Hosseini, M Dianatpour, MA Edalatmanesh, **Z Khodabandeh** Production of Human Liver by Intrauterine Xenotransplantation of Human Wharton's Jelly-Derived Mesenchymal Stem Cells to Animal Fetus: A Review *Journal of Research in Medical and Dental Science* 6 (2), 134-139, 2018.
24. M Ilani, S Alaei, **Z Khodabandeh**, I Jamhiri, M Owjifard Effect of titanium dioxide nanoparticles on the expression of apoptotic markers in mouse blastocysts. *Toxicological & Environmental Chemistry* 100 (2), 228-234. 2018.
25. I Jamhiri, S Zahri, D Mehrabani, **Z Khodabandeh**, R Yaghoobi, SY Hosseini The Modulatory Role of Endogenous IL-24/mda-7 in Inflammatory Response of Human Hepatic Stellate Cell (HSC), LX2. *Majallah-i dānishgāh-i 'ulūm-i pizishkī-i Arāk* 20 (11), 13-21, 2018
26. N Varaa, S Azandeh, **Z Khodabandeh**, AM Gharravi. Wharton's Jelly Mesenchymal Stem Cell: Various Protocols for Isolation and Differentiation of Hepatocyte-Like Cells; Narrative Review. *Iranian Journal of Medical Sciences* 2019
27. N Dehghani, M Dianatpour, SE Hosseini, **Z Khodabandeh**, Overexpression of Mitochondrial Genes (Mitochondrial Transcription Factor A and Cytochrome c Oxidase Subunit 1) in Mouse Metaphase II Oocytes following Vitrification via Cryotop. *Iranian Journal of Medical Sciences*, 2019
28. MS Salehi, S Pandamooz, A Safari, B Jurek, A Tamadon, MR Namavar **Z Khodabandeh** . Epidermal neural crest stem cell transplantation as a promising therapeutic strategy for ischemic stroke, *CNS Neuroscience & Therapeutics* 2020
29. P Dolati, **Z Khodabandeh** *, MJ Zamiri, I Jamhiri, D Mehrabani. The Effect of Lead Acetate and Quercetin on the Tight and Gap Junctions in the Mouse Testis 2020, *Biological Trace Element Research*, 1-9 (*Corresponding Author)
30. S Bazoobandi, N Tanideh, F Rahmanifar, Sh Zare, O Koochi-Hosseiniabadi, I Razeghian-Jahromi, M Dianatpour, M Ahmadi, A Khoradmehr, I Nabipour, **Z Khodabandeh***, A Tamadon, Preventive effects of intrauterine injection of bone marrow-derived mesenchymal

stem cell-conditioned media on uterine fibrosis immediately after endometrial curettage in rabbit. *Stem cell international*, 2020 (***Corresponding Author**)

31. M Ostovan , M H Anbardar , H Khazraei, S M bagher Fazljou , **Z Khodabandeh** , S A Shamsdin, M A Khodaei, The Short-Term Effects of Pistacia Lentiscus Oil and Sesame Oil on Liver and Kidney Pathology of Rats and Human Cancer Cell Lines, *Galen medical*, 2020
32. M Kasraeian, E Ghasemi, M Dianatpour, N Tanideh, IJ Razeghian, **Z Khodabandeh**, M R Dorvash, Sh Zare, O Koochi Hosseinabadi, A Tamadon. In utero xenotransplantation of mice bone marrow-derived stromal/stem cells into fetal rat liver: An experimental study, *International Journal of Reproductive BioMedicine*, 2020, 18 (9), 701
33. M R Izadi, A Habibi, **Z Khodabandeh** Synergistic effect of high-intensity interval training and stem cell transplantation with amniotic membrane scaffold on repair and rehabilitation after volumetric muscle loss ... , *Cell and Tissue Research*, 2020.
34. N Deghani, M Dianatpour, S E Hosseini, **Z Khodabandeh**, H Daneshpazhouh. Evaluation of the effect of docetaxel on cryotop-vitrification of mouse oocytes. *Experimental animal Biology*. 2020, 9 (2), 73-81
35. **Z Khodabandeh***, P Dolati, MJ Zamiri, D Mehrabani, H Bordbar, S Alaei, Protective Effect of Quercetin on Testis Structure and Apoptosis Against Lead Acetate Toxicity: an Stereological Study. *Biological Trace Element Research*, 2020, 1-11 (***Corresponding Author**)
36. A Safari, **Z Khodabandeh**, A Borhani-Haghighi. Dimethyl Fumarate Can Enhance the Potential Therapeutic Effects of Epidermal Neural Crest Stem Cells in COVID-19 Patients. 2021. *Stem cell reviews and reports*, 1-2.
37. MR Izadi, A Habibi, **Z Khodabandeh**, M Nikbakht. Simultaneous Effect of High Intensity Interval Training and Human Amniotic Membrane Scaffold on Rat Tibialis Anterior Vascularization and Innervation after Volumetric Muscle. 2021, *Int J Organ Transplant Med (IJOTM)* 12 (1).
38. **Z Khodabandeh**, I Jamhiri , M Dianatpour, N deghani, H Daneshpazhouh, Bahia Namavar Jahromi, The Effect of Docetaxel on Survival, Fertilization Rate and Apoptosis-Related Genes in Mouse Metaphase II Oocytes following Vitrification, *The Iranian Journal of Veterinary Research (IJVR)*, 2021, sh
39. F Sanie-Jahromi, M. H Nowroozzadeh, **Z Khodabandeh**, Z-S Soheili, Z Khajehahmadi, Z Emadi, Effects of the Secretome of Human Wharton's Jelly Mesenchymal Stem Cells on the Proliferation and Apoptosis Gene Expression of the Retinal Pigmented Epithelium. *Experimental Eye Research*. 2021 108528
40. **Z Khodabandeh**, I Jamhiri, N Deghani, H Daneshpazhouh, B Namavar Jahromi, M Dianatpour, S Alaei. The effect of docetaxel on survival, fertilization rate and apoptosis-

related genes mRNA expression in mouse metaphase II oocytes following vitrification, Iranian Journal of Veterinary Research, 2021

41. **Z Khodabandeh** . S Haghghat . N Tanideh . Sh Zare . F Farrokhi . M Karandish . A Iraj. Comparing the effects of *Elaeagnus Angustifolia*, *Hypericum Perforatum* and *Psidium Guajava* extracts on metabolic activity of dental pulp-derived mesenchymal stem cells, Cell and tissue banking, 2021
42. P Dolati, MJ Zamiri, A Akhlaghi, **Z Khodabandeh**, D Mehrabani, H Atashi, ... Reproductive and embryological toxicity of lead acetate in male mice and their offspring and mitigation effects of quercetin, Journal of Trace Elements in Medicine and Biology, 2021
43. **Z Khodabandeh**, D Mehrabani, F Deghani, N Gashmardi, M Erfanizadeh, ... ,Spinal cord injury repair using mesenchymal stem cells derived from bone marrow in mice: A stereological study; Acta histochemical, 2021
44. R Fozooni, MRJ Shirazi, S Saedi, BN Jahromi, A Khoradmehr, M Anvari, .F., Male subfertility effects of sub-chronic ethanol exposure during stress in a rat model, Alcohol, 2021

GIVEN SEMINARS AND WORKSHOPS

IVF workshop, 13-14 September, 2012, Shiraz University of Medical Sciences

IVF workshop, 2013, Shiraz University of Medical Sciences

IVF workshop, 11 June, 2014, Shiraz University of Medical Sciences

EXPERIENCES

Certificate of "workshop of How to Read a Paper", 2008, Tehran, Iran

Certificate of "workshop of Scientific Writing", 2008, Tehran, Iran

Certificate of "workshop of Systematic Review", 2008, Tehran, Iran

Certificate of "workshop of End Note Software", 2008, Tehran, Iran

Honors:

- 2006 : Second rank in master entrance exam
- 2008: Top (First) student in M.Sc, Tehran University of Medical Sciences, Tehran, Iran
- 2015: Top poster in international conference of infertility

Name and address of References

1. Dr Fardin Amidi, Associate professor of Tehran University of medical sciences, Tehran, Iran

Email:

amidifardin@gmail.com

2- Dr Tahereh Talaei, Full professor of Shiraz university of medical sciences, Shiraz, Iran

Email: talaeitkh@gmail.com

3- Dr. Mehdi Dianatpour, Stem cell Technology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.

Email: dianatpour@sums.ac.ir