

## Curriculum Vita

### Prof. Abbas Piryaei (Ph.D.)

Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences

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**Scopus H-index:** 23 (Nov. 2022)



WOS Researcher Profile: [Piryaei, Abbas - Web of Science Core Collection](#)

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### Educational Background

- 2020-2021 Fellowship in *Assessment and Evaluation in Medical Sciences*, Smart University of Medical Sciences, Tehran, IRAN.
- 2005-2010 Ph.D. in *Anatomical Sciences*, School of Medical Sciences, Tarbiat Modares University, Tehran, IRAN.  
Title of thesis: Differentiation capability of mouse bone marrow-derived mesenchymal stem cells into hepatocyte-like cells on artificial basement membrane containing ultraweb nanofibers and their transplantation into carbon tetrachloride injured liver model.
- 1998-2000 M.Sc. in *Anatomical Sciences*, School of Medical Sciences, Tarbiat Modares University, Tehran, IRAN.  
Title of thesis: An electron microscopic study of the effect of Morris water maze spatial learning on plasticity in the dentate gyrus and CA1 area of rat hippocampal formation.
- 1993-1997 B.Sc. in *Biology*, Islamic Azad University, Borujerd, IRAN.

### Employment

- 2000-2004 Guest lecturer of “*Islamic Azad University*”, Borujerd, IRAN.
- Since 2001 Academic staff at the “*Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences*”, Tehran, IRAN.
- 2004-2006 Guest lecturer of “*Pasteur Institute of Iran*”, Tehran, IRAN.
- Since 2004 Principle investigator of “*Liver and Gastrointestinal Research Group*”. Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Since 2014 Second affiliated academic staff at the “*Department of Tissue Engineering and Applied Cell Sciences, School of Advances Technologies in Medicine, Shahid Beheshti University of Medical Sciences*”, Tehran, IRAN.

### Honors and Awards

- 2005 The first rank in the “*Entrance Exam for the Ph.D. Candidates in Anatomical Sciences*”. Tarbiat Modares University, Tehran, IRAN.
- 2009 The top rank in the “*16<sup>th</sup> Iranian Student Year Book Award*”. The Academic Center for Education, Culture and Research, Tehran, IRAN.

- 2009 The “*Best Assistant Professor of the University*”. Educational Festival of Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2010 The national winner of the “*11<sup>th</sup> Royan International Award*”. Royan International Hybrid Twine Congress, Royan Institute for Stem Cell Biology and Technology, Tehran, IRAN.
- 2011 The “*Best Associate Professor of the University*”. Educational Festival of Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2016 The “*Best Professor of the University*”. Educational Festival of Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2019 The first rank of the “*Basic Science Research in the 32<sup>nd</sup> Khwarizmi International Festival*”. Iranian Research Organization for Science and Technology, Tehran, IRAN.

### **Funding**

- Research Grant Tissue engineering approach for diabetic wound healing. A series of grants was provided by “*Shahid Beheshti University of Medical Sciences*” and “*Iran National Science Foundation*”, Tehran, IRAN.
- Research Grant Hepatocyte-like cells differentiation from mesenchymal stem cells. A series of grants was provided by “*Royan Institute for Stem Cells Biology and Technology*”, and the “*Council for Development of Stem Cell Sciences and Technologies*”, Tehran, IRAN.
- Research Grant Regenerative medicine approach for treatment of end-stage liver diseases in animal models. A series of grants was provided by “*Royan Institute for Stem Cells Biology and Technology*”, and the “*Council for Development of Stem Cell Sciences and Technologies*”, Tehran, IRAN.
- Research Grant Liver organoid and liver-on-a-chip for pharmacological and medical applications. A series of grants was provided by “*Royan Institute for Stem Cells Biology and Technology*”, and “*National Institute for Medical Research Development*”, Tehran, IRAN.

### **Research Interests**

- Regenerative medicine approach in diabetic wound healing
- Liver regeneration and liver tissue engineering
- Liver organoid and liver microtissue
- Liver organoid on-a-chip

### **Professional Training and Qualifications**

- Aug. 2002 A workshop on “*Cloning, Labeling, and DNA Hybridization*”, National Biotechnology Network, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Jul. 2011 A workshop on “*How to present the anatomical sciences lectures for medical students in integrated disciplines education system*”, Iranian Anatomical Sciences Association, Iran University of Medical Sciences, Tehran, IRAN.
- Sep. 2011 A workshop on “*Semen analysis*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Sept. 2011 A workshop on “*Enucleating and nuclear transfer of mouse oocytes by piezo*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.

- Sept. 2011 A workshop on “*Sperm functional tests in the diagnosis and treatment of infertility*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Jun. 2012 A workshop on “*How to design MCQ questions for the comprehensive examination of basic medical sciences*”, The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Aug. 2014 A workshop on “*Experimental research design*”, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Nov. 2014 A workshop on “*Getting the knowledge of the technology foresight*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Jul. 2016 A workshop on “*How to present problem-based learning (PBL) for general practitioner students*”, Education Development Office, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.

### **Professional Skills and Experiences**

- Histology and Histotechniques
- Embryology and Developmental Biology
- Stem Cell Biology and Technology
- Regenerative Medicine
- Transmission Electron Microscopy
- Scanning Electron Microscopy
- Immunohistochemistry
- Animal Cells and Stem Cells Culture
- Stem Cell Isolation, Characterization, and Differentiation
- Tissue Engineering
- Organoid Technology
- Organoid-on-a-Chip

### **Design and Setting up Laboratories**

- 2004 “*Light microscopic and transmission electron microscopic laboratories*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- 2010 “*Histotechniques laboratory*”, Department of Biology and Anatomical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2011 “*Cells and stem cells culture laboratory*”, Department of Biology and Anatomical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2017 “*Animal house*”, Department of Biology and Anatomical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.

### **Professional Affiliations, Memberships, and Distinctions**

- Since 2002 Member of the “*Iranian Anatomical Sciences Association*”.
- Since 2002 Member of the “*Cellular and Molecular Research Center*”, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2002-2006 Deputy of the “*Electron Microscopy Center*”, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2004 Director of the “*Histology Core Facility*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- 2007-2020 Manager of the editorial board for “*Publication and annual revision of the respiratory system textbook*” for general practitioner students in

- integrated disciplines education system. School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2009 Member of the review board of the “*Journal of Iranian Anatomical Sciences*”. Iranian Association of Anatomical Sciences, Tehran, IRAN.
- 2009 Member of the scientific board of the “*First Scientific Olympiad for Students*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2010 Member of the examination board of the “*Comprehensive Exam of Basic Medical Sciences for Dentistry Students*”. The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Since 2010 Member of the examination board of the “*Comprehensive Exam of Basic Medical Sciences for General Practitioner Students*”. The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Since 2010 Member of the review board of the “*Cell Journal*”. Royan Institute, Tehran, IRAN.
- Since 2011 Member of the review board of the “*Journal of Research in Medical Sciences*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2011 Member of the scientific and review board of the “*Congress on Stem Cell Biology and Technology*”. Royan International Hybrid Twine Congress, Royan Institute, Tehran, IRAN.
- 2011-2018 Member of the scientific and review board of the “*Council for Development of Stem Cell Sciences and Technologies*”. Tehran, IRAN.
- 2012-2016 Research deputy of the “*Department of Biology and Anatomical Sciences*”, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2012-2018 Director of the “*Academic progress planning for post-graduate students*”, Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2013 Member of the scientific and review board of the “*Deputy of Research*”. School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2013-2018 Member of the scientific board for “*Revision of Anatomical Sciences Syllabus for General Practitioner Curriculum*”. The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Since 2013 Member of the founder and scientific board of the “*Urogenital Stem Cells Research Center*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2015 Member of the scientific and review board of the “*Deputy of Research*”. School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2015 Member of the strategic council for the “*Regenerative Medicine and Stem Cell Research Network*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2015 Member of the founder board of the “*Royan Scientific Network*”. Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.

- Since 2015 Member of the strategic council for the “*Central Core Facility of School of Medicine*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2016 Member of the review and supervision board of the “*Iran National Science Foundation*”. Tehran, IRAN.
- Since 2016 Member of the review and supervision board of the “*National Institute for Medical Research Development*”. Tehran, IRAN.
- 2016-2018 Chief deputy of the “*Department of Biology and Anatomical Sciences*”, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Since 2016 Director of the educational committee of the “*Regenerative Medicine and Stem Cell Research Network*”. Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- 2018-2020 Member of the scientific committee for “*Standardization and Assessments of Anatomical Sciences Courses for General Practitioner Curriculum*”. The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Since 2018 Member of the editorial board of the “*Modern Medical Laboratory Journal*”. Farname Incorporation, ON, CANADA.
- Since 2019 Member of the scientific board for “*Examinations, Assessments and Strategic Planning of Anatomical Sciences Educational Courses*”. The Secretariat of Education Council of Basic Sciences, Health, and Medical Specialties, Tehran, IRAN.
- Since 2020 Member of the editorial board of the “*School of Medicine Students' Journal*”, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.

### **Academic Teaching Experience**

#### **Undergraduate Courses (Since 2000)**

Basic and Medical Histology  
 Animal and Medical Embryology  
 Medical Anatomy  
 An Introduction to Stem Cells and Regenerative Medicine

#### **Postgraduate Courses (Since 2009)**

Advanced Medical Histology  
 Advanced Medical Embryology and Developmental Biology  
 Oral Histology and Embryology  
 Advanced Neurohistology and Neuroembryology  
 Stem Cells and Regenerative Medicine  
 Advanced Tissue Engineering  
 Advanced Techniques in Microanatomy  
 Animal Cell and Stem Cell Culture Techniques  
 Transmission and Scanning Electron Microscopy  
 Techniques  
 Advanced Histotechniques

### **Presentation and Teaching in Academic Workshops and Symposiums**

- Dec. 2003 A workshop on “*Theory and practice on transmission and scanning electron microscopy techniques*”, Cell and Molecular Biology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.



- Jan. 2004 A workshop on “*Theory and practice on advanced techniques for transmission electron microscope*”, Cell and Molecular Biology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Feb. 2004 A workshop on “*Theory and practice on advanced techniques for scanning electron microscope*”, Cell and Molecular Biology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Jul. 2012 A workshop on “*Theory and practice on histological and immunostaining techniques*”, International Summer School, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Sep. 2016 The first academic summer school on “*Stem cells and regenerative medicine*”, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- Feb. 2017 A workshop on “*Theory and practice on histology, immunohistochemistry and Immunofluorescence techniques*”, Royan Institute for Stem Cells Biology and Technology, Tehran, IRAN.
- Jun. 2017 The first symposium on “*Stem cells and regenerative medicine*”, Shahrood University of Medical Sciences, Shahrood, IRAN.
- Aug. 2017 The second academic summer school on “*Stem cells and regenerative medicine*”, Shahid Beheshti University of Medical Sciences, Tehran, IRAN.
- May. 2019 The first national symposium on “*Organoids*”, Ferdowsi University of Mashhad, Mashhad, IRAN.

#### **Paper Presented in Conferences**

- 1- **Piryaei A**, Fathollahi Y, AL-Tiraihi T, Naghdi N. *An ultrastructural study of the impact of Morris water maze spatial learning on synaptic plasticity of rat hippocampal CA1 area*. Poster Presented, Seminar of Anatomical and Clinical Aspects of Cerebral Cortex, Iran UMSHS, Feb 2003.
- 2- Heidari MH, **Piryaei A**, Hekmat H, Ghasemi M, Almasiyeh MA, Kianersi F. *An ultrastructural study of laser pointer beam on rabbit's retina by TEM*. Oral Presented, 13<sup>th</sup> Iranian Congress of Ophthalmology, Tehran, Iran, Dec 2003.
- 3- Almasi S. Rouzbehi A, Sadeghi Y, **Piryaei A**. *Ultrastructural effects of cadmium on mice embryo's retina*. Oral Presented, 6<sup>th</sup> Iranian Congress of Anatomical Sciences, Shiraz, Iran, May 2004.
- 4- Baharvand H, Rohani R, **Piryaei A**, Taei A. *Developmental ultrastructure of mouse embryonic stem cell-derived cardiomyocytes in vitro*. Poster Presented, 14<sup>th</sup> Congress of Iranian Heart Association in Collaboration with British Cardiac Society, Tehran, Iran, Nov 2004.
- 5- Almasiyeh MA, Heidari MH, **Piryaei A**, Hosseini A, Rakhshan M, Zohrabi A. *Study of human gastric epithelium infected by helicobacter pylori with scanning and transmission electron microscopes*. Oral Presented, Congress of Iranian Society of Pathology, Tehran, Dec 2004.
- 6- **Piryaei A**, Fathollahi Y, Tiraihi TA, Naghdi N. *Impact of spatial learning on synaptic plasticity in dentate gyrus of rat hippocampal formation*. Poster Presented, 4<sup>th</sup> Asian-Pacific International Congress of Anatomists, Kusadasi, Turkey, Sep 2005.

- 7- Soleimani M, **Piryaei A**, Shahjahani M, Kaviani S, Atashi A, Hosseini A, Heidari MH. *Ultrastructural study of differentiation process of bone marrow mesenchymal stem cells into cardiomyocyte in vitro*. Poster Presented, 4<sup>th</sup> ISSCR Annual Meeting, Toronto, Ontario, Canada, Jun-Jul 2006.
- 8- Ebrahimi M, Baharvand H, Javadi MA, Massumi M, **Piryaei A**. *Characteristics of human limbal epithelial stem cells during the expansion on denuded amniotic membrane*. Poster Presented, 4<sup>th</sup> ISSCR Annual Meeting, Toronto, Ontario, Canada, June-Jul 2006.
- 9- **Piryaei A**, Soleimani M, Hesseini A, Heidari MH, Kaviani S, Almasiyeh MA, Rohani R. *Ultrastructural study of differentiating cardiomyocyte from bone marrow mesenchymal stem cells in vitro*. 2<sup>nd</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Sep 2006.
- 10- Taghiyar L, Baghaban Eslaminejad MR, **Piryaei A**. *Mature chondrocyte promotes cartilage differentiation of mMSCs in co-culture system*. Poster Presented, 3<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Sept, 2007.
- 11- **Piryaei A**, Heidari MH, Almasiyeh MA, Kianersi F, Ghasemi BM. *Retinal and chroidal damages from long-term exposure to laser pointer beam*. Poster Presented, 105<sup>th</sup> DOG-Congress, Berlin, Germany, Sep 2007.
- 12- Mirzaei M, Bayat M, Mosafa N, Mohsenifar Z, **Piryaei A**, Farokhi B, Rezaei F, Sadeghi Y, Rakhshan M. *Effect of LLLT on skin fibroblasts of streptozotocin-diabetic rats*. Oral Presented, 12<sup>th</sup> International Congress of European Medical Laser Association in Conjugation with WALT, ELA and CSULM-CLS, Prague, Czech Republic, Sep 2007.
- 13- Jazayeri M, Alameh A, Soleiman M, **Piryaei A**, Kaviani S. *The study of gene expression and ultrastructural characteristics in the differentiated endothelial cells from human bone marrow mesenchymal stem cells*. Oral Presented, The 9<sup>th</sup> Iranian Congress of Biochemistry, Shiraz, Iran, Oct-Nov 2007.
- 14- Rabani V, Shahsavani M, Gharavi M, Ajdari Z, **Piryaei A**, Baharvand H. *Therapeutic potential of bone marrow-derived mesenchymal stem cells on CCl<sub>4</sub>-induced mouse hepatic injury possibly through matrix metalloproteases and differentiation into hepatocyte-like cells*. Poster Presented, 5<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Sep 2009.
- 15- **Piryaei A**, Rezazadeh Valojerdi M, Baharvand H. *Differentiation capability of mouse bone marrow-derived mesenchymal stem cells into hepatocyte-like cells on artificial basement membrane containing ultraweb nanofibers and their transplantation into carbon tetrachloride injured liver model*. Oral Presented, 6<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Sep 2010. (Selected Presentation as National Winner of the Royan International Award)
- 16- Haghpanah T, **Piryaei A**, Ghaffari-novin M, Afarinesh-khaki M. *Stem cell trafficking between mother and fetus*. Oral Presented, 3<sup>rd</sup> International and 18<sup>th</sup> National Congress of Iranian Society for Reproductive Medicine, Yazd, Iran, Apr 2012.

- 17- Pouriran R, Bayat M, **Piryaei A**. *The effect of combined pulsed wave low-level Laser therapy and human bone marrow mesenchymal stem cell-conditioned medium on open skin wound healing in diabetic rats*. Poster Presented, Sigma Xi Annual Meeting & Student Research Conference, Kansas City, Missouri, USA, Oct 2015.
- 18- Daei-Farshbaf N, **Piryaei A**, Ardeshiryajimi A, Norouzian M. *Reconstruction of calvarial defects in hypothyroid rat models using Bio-Oss®-Collagen gel scaffold*. Poster Presented, 12<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Aug-Sep 2016.
- 19- Pouriran R, **Piryaei A**, Bayat M. *The synergic effect of low-level laser therapy and human bone marrow mesenchymal stem cell-conditioned medium on the contraction of healed open skin wound in diabetic rats*. Poster Presented, 12<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Aug-Sep 2016.
- 20- Mirabzadeh E, Saberi S, Karimi T, **Piryaei A**, Esmaeili M, Najjar Asl M, Sodeifi N, Baharvand H, Mohammadi M. *Expression of stem cell markers (LGR5, TROY) in agastric cancer-mouse model*. Poster Presented, 30<sup>th</sup> International Workshop on Helicobacter & Microbiota in Inflammation & Cancer, Bordeaux, France, Sep 2017.
- 21- Saberi S, **Piryaei A**, Esmaeili M, Najjar Asl M, Abdirad A, Mohagheghi M, Baharvand H, Mohammadi M. *Troy and LGR5 as diagnostic and/or prognostic markers of gastric cancer*. Poster Presented, 30<sup>th</sup> International Workshop on Helicobacter & Microbiota in Inflammation & Cancer, Bordeaux, France, Sep 2017.
- 22- **Piryaei A**, Baharvand H. *Stem cells and their future clinical applications*. Oral Presented, 13<sup>th</sup> Congress of Iranian Pain Society (IASP Chapter), Tehran, Iran, Nov 2017.
- 23- Baghalishahi M, Eftekhari-vaghefi S, **Piryaei A**, Nematolahimahani SN, Mollaei MR, Sadeghi S. *Cardiac extracellular matrix hydrogel together with or without inducer cocktail improves human adipose tissue-derived stem cells differentiation into cardiomyocyte like cells*. Poster Presented, 13<sup>th</sup> Iranian Anatomical Sciences Congress, Hamadan, Oct 2018.
- 24- Saheli M, Sepantafar M, Pournasr B, Farzaneh Z, Vosough M, **Piryaei A**, Baharvand H. *Induction of hepatic functions in hepatic cell line by liver extracellular matrix hydrogel*. Poster Presented, 13<sup>th</sup> Iranian Anatomical Sciences Congress, Hamadan, Oct 2018.
- 25- Kouhkeheil R, Fridoni M, **Piryaei A**, Taheri S, Chirani AS, Anarkooli IJ, Nejatbakhsh R, Shafikhani S, Schuger LA, Reddy VB, Ghoreishi SK, Jalalifirouzkouhi R, Chien S, Bayat M. *The effect of combined pulsed wave low-level laser therapy and mesenchymal stem cell-conditioned medium on the healing of an infected wound with methicillin-resistant staphylococcal aureus in diabetic rats*. Poster Presented, 13<sup>th</sup> Iranian Anatomical Sciences Congress, Hamadan, Iran, Oct 2018.
- 26- Miri Lavasani Z, Zahmatkesh E, Farzaneh Z, Haeri A, **Piryaei A**, Vosough M. *Evaluation of invasion and migration ability of hcc model (Huh-7, SK-Hep-1, Hep-3B) after treatment with a natural ligand of HNF4a*. Poster Presented, 15<sup>th</sup> Royan



International Congress on Stem Cells Biology and Technology, Tehran, Iran, Aug 2019.

- 27- Baghalishahi M, Eftekhari-Vaghef SH, **Piryaei A**, Nematollahi-Mahani SN, Mollaei HR, Sadeghi Y. *Cardiac ECM hydrogel coating with a compound cocktail induce hADSCs to cardiomyocyte like cells*. Poster Presented, 15<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Aug 2019.
- 28- Saheli M, Sepantafar MM, Pournasr B, Farzaneh Z, Vosough M, **Piryaei A**, Baharvand H. *Self-organization of liver organoids in 3d liver extracellular matrix-derived hydrogel*. Poster Presented, 15<sup>th</sup> Royan International Congress on Stem Cells Biology and Technology, Tehran, Iran, Aug 2019.

### Published Articles

For updated published articles please refer to one of the following links:

Online CV: [https://isid.research.ac.ir/Abbas\\_Piryaei](https://isid.research.ac.ir/Abbas_Piryaei)

ORCID: [orcid.org/0000-0002-3182-6214](https://orcid.org/0000-0002-3182-6214)

1. Heidari MH, **Piryaei A**, Almasiyeh MA, Kianersi F, Ghasemi Broumand M, Rohani R. *Retinal and choroidal damage from long-term exposure to a laser pointer beam*. *Yakhteh Med J*, 2004;5(20):146-52.
2. Bayat M, Chelcheraghi F, **Piryaei A**, Rakhshan M, Mohseni Z, Rezaie F, Bayat M, Shemshadi H, Sadeghi Y. *The effect of 30-days pretreatment with pentoxifylline on the survival of a random skin flap in the rat: An ultrastructural and biomechanical evaluation*. *Med Sci Mon*, 2006;12(6):Br201-7.
3. Baharvand H, **Piryaei A**, Rohani R, Taei A, Heidari MH, Hosseini A. *Ultrastructural comparison of developing mouse embryonic stem cell- and in vivo-derived cardiomyocytes*. *Cell Biol Int*, 2006;30:800-7.
4. Baghaban Eslaminejad M, Nikmahzar A, Eftekhari Yazdi P, **Piryaei A**. *The structure of human mesenchymal stem cells differentiated into cartilage in micromass culture system*. *Yakhteh Med J*, 2006;8(3):162-71.
5. Roozbehi A, Almasi-Tork S, **Piryaei A**, Sadeghi Y. *Effects of cadmium on photoreceptors and ganglionic cells of retinal layer in mice embryo – an ultrastructure study*. *Indian J Exp Biol*, 2007;45:469-74.
6. Mirzaei M, Bayat M, Mosafa N, Mohsenifar Z, **Piryaei A**, Farokhi B, Rezaei F, Sadeghi Y, Rakhshan M. *Effect of low-level laser therapy on skin fibroblasts of streptozotocin-diabetic rats*. *Photomed Laser Surg*, 2007, 25(6):519-25.
7. Bahram Kazemi, Mohammad Hassan Heidari, Mehdi Naderi, **Abbas Piryaei**, Mohammad Reza Nazari Pouya. *Study on ultrastructure of Leishmania major and Lizard leishmania*. *J Cell Anim Biol*, 2008, 2 (6): 129-133.
8. Maryam Jazayeri, Abdolamir Allameh, Masoud Soleimani, Seyed Hamid Jazayeri, **Abbas Piryaei**, Somaieh Kazemnejad. *Molecular and ultrastructural*

*characterization of endothelial cells differentiated from human bone marrow mesenchymal stem cells.* Cell Biol Int, 2008, 32: 1183-1192.

9. Rabani V, Shahsavani M, Gharavi M, **Piryaei A**, Azhdari Z, Baharvand H. *Mesenchymal stem cell infusion therapy in carbon tetrachloride-induced liver fibrosis model affects matrix metalloproteinase expression.* Cell Biol Int, 2010, 34 (6): 601-605.
10. **Piryaei A**, Valojerdi MR, Shahsavani M, Baharvand H. *Differentiation of Bone Marrow-derived Mesenchymal Stem Cells into Hepatocyte-like Cells on Nanofibers and Their Transplantation into a Carbon Tetrachloride-Induced Liver Fibrosis Model.* Stem Cell Rev, 2011, 7: 103-118. DOI: 10.1007/s12015-010-9126-5
11. Hosseini SM, Asgari V, Ostadhosseini S, Hajian M, **Piryaei A**, Najarasl M, Nasr-Esfahani MH. *Potential applications of sheep oocytes as affected by vitrification and in vitro aging.* Theriogenology, 2012, 77(9): 1741-1753.
12. Koruji M, Shahverdi A, Janan A, **Piryaei A**, Lakpour MR, Gilani Sedighi MA. *Proliferation of small number of human spermatogonial stem cells obtained from azoospermic patients.* J Assist Reprod Genet, 2012, 29: 957–967.
13. Jangravi Z, Alikhani M, Arefnezhad B, Sharifi Tabar M, Taleahmad S, Karamzadeh R, Jadalihha M, Mousavi SA, Ahmadi Rastegar D, Parsamatin P, Vakilian H, Mirshahvaladi S, Sabbaghian M, Mohseni Meybodi A, Mirzaei M, Shahhoseini M, Ebrahimi M, **Piryaei A**, Moosavi-Movahedi AA, Haynes PA, Goodchild AK, Nasr-Esfahani MH, Jabbari E, Baharvand H, Sedighi Gilani MA, Gourabi H, Salekdeh GH. *A Fresh Look at the Male-specific Region of the Human Y Chromosome.* J Proteome Res, 2013, 12: 6–22.
14. Shahedi A, Hosseini A, Khalili MA, Norouzian M, Salehi M, **Piriaci A**, Nottola SA. *The effect of vitrification on ultrastructure of human in vitro matured germinal vesicle oocytes.* Eur J Obstet Gynecol Reprod Biol, 2013, 167: 69-75.
15. Miryounesi M, **Piryaei A**, Pournasr B, Aghdami N, Baharvand H. *Repeated versus single transplantation of mesenchymal stem cells in carbon tetrachloride-induced liver injury in mice.* Cell Biol Int, 2013, 37:340–347.
16. Zaminy A, Shokrgozar MA, Sadeghi Y, Noroozian M, Heidari MH, **Piryaei A**. *Mesenchymal stem cells as an alternative for schwann cells in rat spinal cord injury.* Iran Biomed J, 2013, 17(3):113-122.
17. Heidari MH, **Piryaei A**, Ali H, Khoshideh M, Ali S, Heidari R, Bahrami Z. *Antiatherosclerotic effect of licorice extract on hypercholestrolemic male rabbit by electron microscopy.* J Basi Appl Sci Res, 2013, 3(7):807-812.
18. Zaminy a, Shokrgozar MA, Sadeghi Y, Noroozian M, Heidari MH. **Piryaei A**. *Transplantation of Schwann Cells Differentiated from Adipose Stem Cells Improves Functional Recovery in Rat Spinal Cord Injury.* Arch Iran Med, 2013; 16(9): 533-541.

19. Tehrani FR, Noroozzadeh M, Zahediasl S, Ghasemi A, **Piryaei A**, Azizi F. *Prenatal testosterone exposure worsen the reproductive performance of male rat at adulthood*. PLOS ONE, 2013, 8(8), e71705. doi: 10.1371/journal.pone.0071705.
20. Rohani R, **Piryaei A**, Jahanshahi A, Sadeghi Y, Mirnajafi-Zadeh J. *Effect of low-frequency stimulation on kindling induced changes in rat dentate gyrus: an ultrastructural study*. Acta Neurol Belg. 2014, 114(1):47-53.
21. Daei-Farshbaf N, Ardeshirylajimi A, Seyedjafari E, **Piryaei A**, Fadaei Fathabady F, Hedayati M, Salehi M, Soleimani M, Nazarian H, Moradi SL, Norouzian M. *Bioceramic-collagen scaffolds loaded with human adipose-tissue derived stem cells for bone tissue engineering*. Mol Biol Rep. 2014, 41(2):741-749. PMID:24363224
22. Ramezani Tehrani F, Noroozzadeh M, Zahediasl S, **Piryaei A**, Azizi F. *Introducing a rat model of prenatally androgen-induced polycystic ovary syndrome in adulthood*. Exp Physiol. 2014, 99(5): 792-801.
23. Fath Bayati L, Ghaffari Novin M, Fadaei Fathabadi F, **Piryaei A**, Heidari MH, Bandehpour M, Norouzian M, Alizadeh Parhizgar M, Shakooriyan Fard M. *Association between increased expression of endothelial isoform of nitric oxide synthase in the human fallopian tube and tubal ectopic pregnancy*. Iran J Reprod Med. 2014, 12: 19-28.
24. Ghodsizadeh A, Hosseinkhani H, **Piryaei A**, Pournasr B, Najarasl M, Hiraoka Y, Baharvand H. *Galactosylated collagen matrix enhanced in vitro maturation of human embryonic stem cell-derived hepatocyte-like cells*. Biotechnol Lett. 2014, 35: 1095-106. PMID:24563289
25. Amini A, Nasr-Esfahani MH, Norozian M, Mastery Farahani R, Fadaei F, Heidari MH, **Piryaei A**, Larijani L, Rezaei Tavirani, Rajabi Bazle M, Azargashb E, Bandehpour M, Bahrami Z. *Detection of Proteomic Biomarker in Fibroblast Cell Derived Nuclear Transfer Fertilization Compared to Natural Fertilization*. J Appl Environ Biol Sc. 2014, 4: 77-85.
26. Tehrani FR, Noroozzadeh M, Zahediasl S, **Piryaei A**, Hashemi S, Azizi F. *The Time of Prenatal Androgen Exposure Affects Development of Polycystic Ovary Syndrome-Like Phenotype in Adulthood in Female Rats*. Int J Endocrinol Metab. 2014, 12 (2):e16502.
27. Ali Delbari, Fatemeh Fadaei, Mohammad Salehi, Reza Mastery Farahani, **Abbas Piryaei**, Mohammad Hassan Heidari, Mohsen Nourozian, Vahid Mansouri. *A simple method for generating small calcium-alginate beads by syringe*. J Histotech 2014, 37(4): 132-7.
28. Talebpour Amiri F, Fadaei Fathabadi F, Mahmoudi Rad M, **Piryaei A**, Ghasemi A, Khalilian A, Yeganeh F, Misaffa N. *The effect of insulin-like growth factor-1 gene therapy and cell transplantation on rat acute wound model*. Iran Red Crescent Med J, 2014, 16(10):e16323. DOI:10.5812/ircmj.16323
29. **Piryaei A\***, Soleimani M, Heidari MH, Saheli M, Rohani R, Almasieh M. *Ultrastructural Maturation of Human Bone Marrow Mesenchymal Stem Cells-*

*derived Cardiomyocytes under Alternative Induction of 5-Azacytidine*. Cell Biol Int 2015, 39(5):519-30. doi: 10.1002/cbin.10421.

30. Zare Z, Masteri Farahani R, Salehi M, **Piryaei A**, Ghaffari Novin M, Fadaei Fathabadi F, Mohammadi M, Dehghani-Mohammadabadi M. *Effect of L-carnitine supplementation on maturation and early embryo development of immature mouse oocytes selected by brilliant cresyle blue staining*. J Assist Reprod Genet, 2015, 32(4): 635-93.
31. Mansouri V, Salehi M, Nourozian M, Fadaei F, Mastery Farahani R, **Piryaei A**, Delbari A. *The ability of mouse nuclear transfer embryonic stem cells to differentiate into primordial germ cells*. Gene Mol Biol, 2015, 38(2): 220-6.
32. **Piryaei A**, Najar A, Bayat M. *Effects of pentoxifylline administration on histomorphological parameters of streptozotocin-induced diabetic rat testes*. Lab Anim Res, 2015, 31(3): 111-6.
33. Ahmadi Rastegar D, Sharifi Tabar M, Alikhani M, Parsamatin P, Sahraneshin Samani F, Sabbaghian M, Sedighi Gilani MA, Ahadi AM, Mohseni Meybodi A, **Piryaei A**, Ansari-Pour N, Gourabi H, Baharvand H, Hosseini Salekdeh G. *Isoform Level Gene Expression Profile of Human Y Chromosome*. J. Proteome Res, 2015, 14(9):3595–3605. DOI:10.1021/acs.jproteome.5b00520).
34. Goudarzvand M, Choopani S, Shams A, Javan M, Khodaii Z, Ghamsari F, Naghdi N, **Piryaei A**, Haghparast A. *Focal Injection of Ethidium Bromide as a Simple Model to Study Cognitive Deficit and Its Improvement*. Basic Clin Neurosci, 2016, 7 (1):63-72.
35. Hendudari F, **Piryaei A\***, Hassani SN, Darbandi H, Bayat M\*. *Combined effects of low-level laser therapy and human bone marrow mesenchymal stem cell conditioned medium on viability of human dermal fibroblasts cultured in a high-glucose medium*. Laser Med Sci, 2016, 31: 749-757.
36. Pouriran R, **Piryaei A\***, Mostafavinia A, Zandpazandi S, Hendudari F, Amini A, Bayat M\*. *The Effect of Combined Pulsed Wave Low-Level Laser Therapy and Human Bone Marrow Mesenchymal Stem Cell-Conditioned Medium on Open Skin Wound Healing in Diabetic Rats*. Photomed Laser Surg, 2016, Aug;34(8):345-54. doi: 10.1089/pho.2015.4020.
37. Fallahnezhad S, **Piryaei A**, Tabeie F, Nazarian H, Darbandi H, Amini A, Mostafavinia A, Ghorishi SK, Jalalifirouzkouhi A, Bayat M. *Low-level laser therapy with helium-neon laser improved viability of osteoporotic bone marrow-derived mesenchymal stem cells from ovariectomy-induced osteoporotic rats*. J Biomed Opt, 2016;21(9):98002. doi: 10.1117/1.JBO.21.9.098002.
38. Lotfinia M, Kadivar M, **Piryaei A**, Pournasr B, Sardari S, Sodeifi N, Sayahpour FA, Baharvand H. *Effect of Secreted Molecules of Human Embryonic Stem Cell-Derived Mesenchymal Stem Cells on Acute Hepatic Failure Model*. Stem Cells Dev, 2016;25(24):1898-1908. PMID: 27676103. DOI:10.1089/scd.2016.0244

39. Ghanbari M, Bagheripuor F, **Piryaei A**, Zahediasl S, Noroozadeh M, Ghasemi A. *Hemodynamic properties and arterial structure in male rat offspring with fetal hypothyroidism*. *Gen Physiol Biophys*, 2016, **35**:397-405. doi: 110.4149/gpb\_2016018
40. Hashemi E, Sadeghi Y, Aliaghaei A, Seddighi A, **Piryaei A**, Eskandarian Broujeni M, Shaerzadeh F, Amini A, Pouriran R. *Neural differentiation of choroid plexus epithelial cells: role of human traumatic cerebrospinal fluid*. *Neural Regen Res*, 2017;12(1):84-89. DOI:10.4103/1673-5374.198989
41. Fallahnezhad S, **Piryaei A**, Darbandi H, Amini A, Ghorishi SK, Jalalifirouzkouhi R, Bayat N. *Effect of low-level laser therapy and oxytocin on osteoporotic bone marrow-derived mesenchymal stem cells*. *J Cell Biochem*, 2018;119:983-997. DOI: 10.1002/jcb.26265.
42. Eini F, Novin MG, Joharchi K, Hosseini A, Nazarian H, **Piryaei A**, Bidadkosh A. *Intracytoplasmic oxidative stress reverses epigenetic modifications in polycystic ovary syndrome*. *Reprod Fertil Dev*, 2017;29(12):2313-2323. doi: 10.1071/RD16428.
43. Sanchooli T, Norouzian N, Ardeshirylajimi A, Ghoreishi SK, Abdollahifar MA, Nazarian H, **Piryaei A\***. *Adipose Derived Stem Cells Conditioned Media in Combination with Bioceramic-Collagen Scaffolds Improved Calvarial Bone Healing in Hypothyroid Rats*. *Iran Red Crescent Med J*, Published online 2017; 19(5):e45516. doi: 10.5812/ircmj.45516.
44. Ghadimi F, Shakeri M, Zhandi M, Zaghari M, **Piryaei A**, Moslehifar P, Rajabinejad A. *Different approaches to establish infertile rooster*. *Anim Rep Sci*, 2017; 186:31-36. doi: 10.1016/j.anireprosci.2017.08.019.
45. Azad N, Nazarian H, Ghaffari Novin M, Masteri Farahani R, **Piryaei A**, Heidari MH. *Phospholipase C zeta parameters in sperm from polymorphic teratozoospermic men*. *Ann Anat*. 2018; 215:63–70. Doi: 10.1016/j.aanat.2017.09.007. PMID: 28954206.
46. Azad N, Nazarian H, Ghaffari Novin M, Masteri Farahani R, **Piryaei A**, Heidari MH, Abdollahpour Alitappeh M. *Oligoasthenoteratozoospermic (OAT) men display altered phospholipase C  $\zeta$  (PLC $\zeta$ ) localization and a lower percentage of sperm cells expressing PLC $\zeta$  and post-acrosomal sheath WW domain-binding protein (PAWP)*. *Bosn J Basic Med Sci*. 2017;18(2):178-184. Doi: 10.17305/bjbms.2017.2208.
47. Banihosseini SZ, Ghaffari Novin M, Nazarian H, **Piryaei A**, Parvardeh S, Eini F. *Quercetin improves developmental competence of mice oocytes by reducing oxidative stress during in vitro maturation*. *Ann Anim Sci*, 2018; 18(1) 87–98. DOI: 10.1515/aoas-2017-0029
48. Saheli M, Sepantafar M, Pournasr B, Farzaneh Z, Vosough M, **Piryaei A\***, Baharvand H\*. *Three-Dimensional Liver-derived Extracellular Matrix Hydrogel Promotes Liver Organoids Function*. *J Cell Biochem*, 2018;119(6):4320-4333. doi: 10.1002/jcb.26622.



49. Heidariyan Z, Ghanian MH, Ashjari M, Farzaneh Z, Najarasl M, Rezaei Larijani M, **Piryaei A**, Vosough M, Baharvand H\*. *Efficient and cost-effective generation of hepatocyte-like cells through microparticle-mediated delivery of growth factors in a 3D culture of human pluripotent stem cells*. *Biomaterials*, 2018;159:174-188. doi: 10.1016/j.biomaterials.2018.01.005.
50. Azad N, Nazarian H, Nazari L, Ghaffari Novin M, **Piryaei A**, Heidari MH, Masteri Farahani R, Sadjadpour SS. *Evaluation of PAWP and PLC $\gamma$  Expression in Infertile Men with Previous ICSI Fertilization Failure*. *Urol J*. 2018;15(3):116-121. doi: 10.22037/uj.v0i0.3966.
51. Azhdari Tafti Z, Mahmoodi M, Hajizadeh MR, Ezzatizadeh V, Baharvand H, Vosough M, **Piryaei A**\*. *Conditioned media derived from human adipose tissue mesenchymal stromal cells improves primary hepatocyte maintenance*. *Cell J*. 2018; 20(3): 377-387. doi:10.22074/cellj.2018.5288.
52. Bagheripuor F, Ghanbari M, **Piryaei A**, Ghasemi A. *Effects of fetal hypothyroidism on uterine smooth muscle contraction and structure of offspring rats*. *Exp Physiol*. 2018;103(5):683-692. doi: 10.1113/EP086564.
53. Kouhkheil R, Fridoni M, **Piryaei A**, Taheri S, Chirani AS, Anarkooli IJ, Nejatbakhsh R, Shafikhani S, Schuger LA, Reddy VB, Ghoreishi SK, Jalalifirouz Kouhi R, Chien S, Bayat M. *The effect of combined pulsed wave low-level laser therapy and mesenchymal stem cell-conditioned medium on the healing of an infected wound with methicillin-resistant Staphylococcal aureus in diabetic rats*. *J Cell Biochem*. 2018;119(7):5788-5797. doi: 10.1002/jcb.26759.
54. Zare H, Jamshidi S, Dehghan MM, Saheli M, **Piryaei A**\*. *Bone marrow or adipose tissue mesenchymal stem cells: Comparison of the therapeutic potentials in mice model of acute liver failure*. *J Cell Biochem*. 2018;119(7):5834-5842. doi: 10.1002/jcb.26772.
55. Varzandi T, Abdollahifar MA, Rohani SAH, **Piryaei A**, Zadeh-Vakili A, Jeddi S, Ghasemi A. *Effect of long-term nitrite administration on browning of white adipose tissue in type 2 diabetic rats: A stereological study*. *Life Sci*. 2018;207:219-226. doi: 10.1016/j.lfs.2018.06.012.
56. Baghalishahi M, Eftekhari-Vaghefi SH, **Piryaei A**, Nematolahi-Mahani SN, Mollaei HR, Sadeghi Y. *Cardiac extracellular matrix hydrogel together with or without inducer cocktail improves human adipose tissue-derived stem cells differentiation into cardiomyocyte-like cells*. *BBRC*. 2018;502(2):215-225. doi: 10.1016/j.bbrc.2018.05.147.
57. Bagheri M, Amini A, Abdollahifar MA, Ghoreishi SK, **Piryaei A**, Pouriran R, Chien S, Dadras S, Rezaei F, Bayat M. *Effects of Photobiomodulation on Degranulation and Number of Mast Cells and Wound Strength in Skin Wound Healing of Streptozotocin-Induced Diabetic Rats*. *Photomed Laser Surg*. 2018;36(8):415-423. doi: 10.1089/pho.2018.4453.
58. Namjoo Z, Moradi F, Aryanpour R, **Piryaei A**, Joghataei MT, Abbasi Y, Hosseini A, Hassanzadeh S, Taklimie FR, Beyer C, Zendedel A. *Combined effects of rat*

*Schwann cells and 17 $\beta$ -estradiol in a spinal cord injury model.* Metab Brain Dis. 2018;33(4):1229-1242. doi: 10.1007/s11011-018-0220-8.

59. Namjoo Z, Mortezaee K, Joghataei MT, Moradi F, **Piryaei A**, Abbasi Y, Hosseini A, Majidpoor J. *Targeting axonal degeneration and demyelination using combination administration of 17 $\beta$ -estradiol and Schwann cells in the rat model of spinal cord injury.* J Cell Biochem. 2018;119(12):10195-10203. doi: 10.1002/jcb.27361.
60. Jafarzadeh H, Nazarian H, Ghaffari Novin M, Shams Mofarahe Z, Eini F, **Piryaei A\***. *Improvement of oocyte in vitro maturation from mice with polycystic ovary syndrome by human mesenchymal stromal cell-conditioned media.* J Cell Biochem. 2018; 119(12):10365-10375. <https://doi.org/10.1002/jcb.27380>.
61. Saberi S, **Piryaei A**, Mirabzadeh E, Esmaeili M, Karimi T, Momtaz S, Abdirad A, Sodeifi N, Mohagheghi MA, Baharvand H, Mohammadi M. *Immunohistochemical Analysis of LGR5 and TROY Expression in Gastric Carcinogenesis Demonstrates an Inverse Trend.* Iran Biomed J. 2019; 23 (2):107-120. DOI: 10.29252/.23.2.107
62. Ebrahimi V, Alighaei A, **Piryaei A**, Haghiri H, Abdollahifar MA, Sadeghi Y. *Nigral injection of 6-hydroxydopamine induces changes in spatial arrangement of striatal neuron and glial cells.* Front Biosci (Schol Ed). 2019;11:1-8.PMID: 30468632
63. Nazarian H, Azad N, Nazari L, **Piryaei A**, Heidari MH, Masteri-Farahani R, Karimi M, Ghaffari Novin M. *Effect of Artificial Oocyte Activation on Intra-Cytoplasmic Sperm Injection Outcomes in Patients with Lower Percentage of Sperm Containing Phospholipase C $\zeta$ : A Randomized Clinical Trial.* J Reprod Infertil. 2019;20(1):3-9.
64. Raofi A, Abdollahifar MA, Alighaei A, **Piryaei A**, Hejazi F, Sajadi E, Rashidiani-Rashidabadi A, Sadeghi Y. *Peripheral axotomy-induced changes of motor function and histological structure of spinal anterior horn.* Eur J Transl Myol. 2019; 29 (1): 33-40. doi:10.4081/ejtm.2019.7945.
65. Feizi Z, Zahmatkesh E, Farzaneh Z, **Piryaei A**, Gramignoli R, Nussler AK, Baharvand H, Vosough M. *Prenatal liver stromal cells: Favorable feeder cells for Long-term culture of hepatic progenitor ls.* J Cell Biochem. 2019;1-10. DOI: 10.1002/jcb.28921.
66. Morshedi M, Bakhshandeh M, **Piryaei A**, Emami A, Zangeneh M, Razzaghdoust A, Ghadiri H, Zayeri F. *Biological Effect of Modern Fetal Ultrasound Techniques on Human Dermal Fibroblast Cells.* J Biomed Phys Eng. 2019:1-10. DOI: 10.31661/jbpe.v0i0.1085.
67. Mohammadzadeh E, Mirzapour T, Nowroozi MR, Nazarian H, **Piryaei A**, Alipour F, Modarres Mousavi SM, Ghaffari Novin M. *Differentiation of spermatogonial stem cells by soft agar three-dimensional culture system.* Artif Cells Nanomed Biotechnol; 2019, 47(1):1772-1781. doi: 10.1080/21691401.2019.1575230.
68. Eini F, Bidadkosh A, Nazarian H, **Piryaei A**, Ghaffari Novin M, Joharchi K. *Thymoquinone reduces intracytoplasmic oxidative stress and improves epigenetic*

*modification in polycystic ovary syndrome mice oocytes, during in-vitro maturation.* Mol Reprod Dev. 2019. doi: 10.1002/mrd.23222.

69. Aryan A, Bayat M, Bonakdar S, Taheri S, Haghparast N, Bagheri M, **Piryaei A\***, Abdollahifar MA. *Human Bone Marrow Mesenchymal Stem Cell Conditioned Medium Promotes Wound Healing in Deep Second-Degree Burns in Male Rats.* Cells Tissues Organs. 2019;1-13. doi: 10.1159/000501651.
70. Zare F, Bayat M, Aliaghaei A, **Piryaei A\***. *Photobiomodulation therapy compensate the impairments of diabetic bone marrow mesenchymal stem cells.* Lasers Med Sci. 2019. doi: 10.1007/s10103-019-02844-y.
71. Ziaeipour S, Rezaei F, **Piryaei A**, Abdi S, Moradi A, Ghasemi A, Azad N, Abdollahifar MA. *Hyperthermia versus busulfan: Finding the effective method in animal model of azoospermia induction.* Andrologia 2019:e13438. doi: 10.1111/and.13438. [Epub ahead of print]
72. Rostami Dovom M, Noroozadeh M, Mosaffa N, Zadeh-Vakili A, **Piryaei A**, Ramezani Tehrani F. *Induced premature ovarian insufficiency by using D galactose and its effects on reproductive profiles in small laboratory animals: a systematic review.* J Ovarian Res. 2019;12(1):96. doi: 10.1186/s13048-019-0565-6.
73. Ebrahimi V, Eskandarian Boroujeni M, Aliaghaei A, Abdollahifar MA, **Piryaei A**, Haghiri H, Sadeghi Y. *Functional dopaminergic neurons derived from human chorionic mesenchymal stem cells ameliorate striatal atrophy and improve behavioral deficits in Parkinsonian rat model.* Anat Rec. 2019. doi: 10.1002/ar.24301.
74. Saheli M, Bayat M, Ganji R, Hendudari F, Kheirjou R, Pakzad M, Najari B, **Piryaei A\***. *Human mesenchymal stem cells-conditioned medium improves diabetic wound healing mainly through modulating fibroblast behaviors.* Arch Dermatol Res. 2020;315:325-36. doi: 10.1007/s00403-019-02016-6.
75. Nobakht Lahrood F, Saheli M, Farzaneh Z, Teheri P, Dorraj M, Baharvand H, Vosough M, **Piryaei A\***. *Generation of Transplantable Three-Dimensional Hepatic-Patch to Improve the Functionality of Hepatic Cells in vitro and in vivo.* Stem Cells Dev. 2019 Dec 19. doi: 10.1089/scd.2019.0130.
76. Zahra Heydari, Mustapha Najimi, Hamed Mirzaei, Anastasia Shpichka, Marc Ruoss, Zahra Farzaneh, Leila Montazeri, **Abbas Piryaei**, Peter Timashev, Roberto Gramignoli, Andreas Nussler, Hossein Baharvand, Massoud Vosough. *Tissue Engineering in Liver Regenerative Medicine: Insights into Novel Translational Technologies.* Cells. 2020, 9, 304; doi:10.3390/cells9020304
77. Marzieh Hosseini, Saghar Salehpour, Marefat Ghaffari Novin, Zahra Shams Mofarahe, Mohammad-Amin Abdollahifar, **Abbas Piryaei\***. *Improvement of in situ Follicular Activation and Early Development in Cryopreserved Human Ovarian Cortical Tissue by Co-Culturing with Mesenchymal Stem Cells.* Cells Tissues Organs, 2020 Mar 24; <https://doi.org/10.1159/000506303>

78. Sara Darakhshan, Ali Bidmeshki Pour, Reza Kowsari-Esfahan, Massoud Vosough, Leila Montazeri, Mohammad Hossein Ghanian, Hossein Baharvand, **Abbas Piryaei\***. *Generation of scalable hepatic micro-tissues as a platform for toxicological studies*. Tissue Eng Regen Med, 2020 May 7; DOI: 10.1007/s13770-020-00272-6
79. Heidar Heidari-Khoei, Fereshteh Esfandiari, Mohammad Amin Hajari, Zeynab Ghorbaninejad, **Abbas Piryaei\***, Hossein Baharvand\*. *Organoid technology in female reproductive biomedicine*. Reprod Biol Endocrinol. 2020 Jun 18;18(1):64. doi: 10.1186/s12958-020-00621-z.
80. Tayebeh Sanchooli, Mohsen Norouzian, Mahtab Teimouri, Abdolreza Ardehshirylajimi, **Abbas Piryaei\***. *Adipose-Derived Stem Cells Conditioned Media Promote In Vitro Osteogenic Differentiation of Hypothyroid Mesenchymal Stem Cells*. Gene Cell Tissue. 2020; 7(3):e102267. doi: 10.5812/gct.10226
81. Rahbar Layegh E, Fadaei Fathabadi F, Lotfinia M, Zare F, Mohammadi Tofigh A, Abrishami S, **Piryaei A\***. *Photobiomodulation therapy improves the growth factor and cytokine secretory profile in human type 2 diabetic fibroblasts*. J Photobiol, 2020 September, 210:111962. Doi: 10.1016/j.jphotobiol.2020.111962
82. Nasiry D, Khalatbary AR, Abdollahifar MA, Amini A, Bayat M, Noori A, **Piryaei A\***. *Engraftment of bioengineered three-dimensional scaffold from human amniotic membrane-derived extracellular matrix accelerates ischemic diabetic wound healing*. Arch Dermatol Res. 2020 Sep 17. doi: 10.1007/s00403-020-02137-3.
83. Fereshteh Esfandiari, Raha Favaedi, Heidar Heidari Khoei, Fereshteh Chitsazian, Simin Yari, **Abbas Piryaei**, Firouzeh Ghafari, Hossein Baharvand, Maryam Shahhoseini. *Insight into epigenetics of human endometriosis organoids: DNA methylation analysis of HOX genes and their cofactors*. Fertility and Sterility, 2020 Oct 14. doi: 10.1016/j.fertnstert.2020.08.1398
84. Neda Eskandari, Mahdi Eskandarian Boroujeni, Mohammad Amin Abdollahifar, **Abbas Piryaei**, Fariba Khodaghali, Seyed Hamidreza Mirbehbahani, Shokoofeh Siroosi, Meysam Hassani Moghaddam, Abbas Aliaghaei, Yousef Sadeghi. *Transplantation of human dental pulp stem cells compensates for striatal atrophy and modulates neuro-inflammation in 3-nitropropionic acid rat model of Huntington's disease*. Neurosci Res. <https://doi.org/10.1016/j.neures.2020.12.002>
85. Fatemeh Hejazi1, Vahid Ebrahimi, Mehrdad Asgary, **Abbas Piryaei**, Mohammad Javad Fridoni, Ali Asghar Kermani, Fatemeh Zare, Mohammad-Amin Abdollahifar. *Improved healing of critical-size femoral defect in osteoporosis rat models using 3D elastin/polycaprolactone/nHA scaffold in combination with mesenchymal stem cells*. J Mater Sci Mater Med; 2021, 32:27, DOI: 10.1007/s10856-021-06495-w
86. Sanaz Ziaepour, **Abbas Piryaei**, Abbas Aliaghaei, Hamid Nazarian, Parvaneh Naserzadeh, Vahid Ebrahimi, Shabnam Abdi, Farshad Shahi, Hosein Ahmadi, Fatemeh Fadaei Fathabadi, Mohammad-Amin Abdollahifar. *Chronic scrotal hyperthermia induces azoospermia and severe damage to testicular tissue in mice*. Acta Histochemica 123 (2021) 151712. <https://doi.org/10.1016/j.acthis.2021.151712>

87. Fereshteh Esfandiari, Heidar Heidari Khoei, Maryam Saber, Raha Favaedi, **Abbas Piryaei**, Ashraf Moini, Maryam Shahhoseini, Fariba Ramezanaali, Firouzeh Ghafari, Hossein Baharvand. *Disturbed progesterone signalling in an advanced preclinical model of endometriosis*. Reproductive BioMedicine Online; 13 March 2021. <https://doi.org/10.1016/j.rbmo.2020.12.011>
88. Mahsa Kazemi, Vahid Jajarmi, Hamid Nazarian, Mafat Ghaffari Novin, Saghar Salehpour, **Abbas Piryaei**, Heidar Heidari Khoei, Hamid Choobineh, Mohammad Amin Abdollahifar, Mostafa Haji Molla Hoseini, Mohammad Hasan Heidari. *Culture strategy as a modulator of target assessments: Functionality of suspension versus hanging drop-derived choriocarcinoma spheroids as in vitro model of embryo implantation*. J Cell Biochem, 2021; 1–15. <https://doi.org/10.1002/jcb.29940>
89. Amirreza Khosravi, Amirhosein Hasani, Paria Behnam, **Abbas Piryaei**, Maryam Pirani, Abbas Aliaghaei, Pourya Raei, Shabnam Abdi, Fatemeh Fadaei Fathabadi, Mohammad-Amin Abdollahifar. *An effective method for establishing animal models of azoospermia and oligospermia*. Andrologia, 2021;00:e14095. <https://doi.org/10.1111/and.14095>
90. Ensieh Zahmatkesh, Mohammad Hossein Ghanian, Ibrahim Zarkesh, Zahra Farzaneh, Majid Halvaei, Zahra Heydari, Farideh Moienvaziri, Amnah Othman, Marc Ruoß, **Abbas Piryaei**, Roberto Gramignoli, Saeed Yakhkeshi, Andreas Nüssler, Mustapha Najimi, Hossein Baharvand, Massoud Vosough. *Tissue-Specific Microparticles Improve Organoid Microenvironment for Efficient Maturation of Pluripotent Stem-Cell-Derived Hepatocytes*. Cells 2021, 10, 1274. <https://doi.org/10.3390/cells10061274>
91. Fereshteh Esfandiari, Heidar Heidari Khoei, Maryam Saber, Raha Favaedi, **Abbas Piryaei**, Ashraf Moini, Maryam Shahhoseini, Fariba Ramezanali, Firouzeh Ghaffari, Hossein Baharvand. *Disturbed progesterone signalling in an advanced preclinical model of endometriosis*. Reproductive BioMedicine Online, 2021 March 13. DOI: 10.1016/j.rbmo.2020.12.011
92. Negin Moghimi, Bahram Eslami Farsani, Masoud Ghadipasha, Gholam-Reza Mahmoudiasl, **Abbas Piryaei**, Abbas Aliaghaei, Shabnam Abdi, Hojjat-Allah Abbaszadeh, Mohammad-Amin Abdollahifar, Mehdi Forozesh. *COVID-19 disrupts spermatogenesis through the oxidative stress pathway following induction of apoptosis*. Apoptosis, 2 Jun 2021. <https://doi.org/10.1007/s10495-021-01680-2>
93. Zahra Heydari, Ibrahim Zarkesh, Mohammad-Hossein Ghanian, Mahdokht H Aghdaei, Svetlana Kotova, Ensieh Zahmatkesh, Zahra Farzaneh, **Abbas Piryaei**, Iman Akbarzadeh, Anastasia Shpichka, Roberto Gramignoli, Peter Timashev, Hossein Baharvand, Massoud Vosough. *Biofabrication of size-controlled liver microtissues incorporated with ECM-derived microparticles to prolong hepatocyte function*. Bio-Design and Manufacturing. 2021 May 17. DOI: 10.1007/s42242-021-00137-4
94. Maryam Pirani, Mafat Ghaffari Novin, Mohammad-Amin Abdollahifar, **Abbas Piryaei**, Zahra Kuroshli, Zahra Shams Mofarahe. *Protective Effects of Fisetin in the*



*Mice Induced by Long-Term Scrotal Hyperthermia*. *Reprod Sci*, 2021 Jul 6. DOI: 10.1007/s43032-021-00615-1. Online ahead of print.

95. Amir Raoofi, Yousef Sadeghi, **Abbas Piryaei**, Ensieh Sajadi, Abbas Aliaghaei, Ali Rashidiani-Rashidabadi, Fatemeh Fadaei Fatabadi, Behnam Mahdavi, Mohammad-Amin Abdollahifar, Amin Mousavi Khaneghah. *Bone Marrow Mesenchymal Stem Cell Condition Medium Loaded on PCL Nanofibrous Scaffold Promoted Nerve Regeneration After Sciatic Nerve Transection in Male Rats*. *Neurotoxicity Research*, 26 July 2021. <https://doi.org/10.1007/s12640-021-00391-5>.
96. Nasiry D, Khalatbary AR, Abdollahifar MA, Bayat M, Amini A, Kazemi Ashtiani M, Rajabi S, Noori A, **Piryaei A\***. *SDF-1 $\alpha$  loaded bioengineered human amniotic membrane-derived scaffold transplantation in combination with hyperbaric oxygen improved diabetic wound healing*. *J Biosci Bioeng*, 2022;133(5):489-501. doi: 10.1016/j.jbiosc.2022.01.012.
97. Samieh Asadian, **Abbas Piryaei**, Nematollah Gheibi, Bagher Aziz Kalantari, Mohamad Reza Davarpanah, Mehdi Azad, Valentina Kapustina, Mehdi Alikhani, Sahar Moghbeli Nejad, Hani Keshavarz Alikhani, Morteza Mohamadi, Anastasia Shpichka, Peter Timashev, Moustapha Hassan, Massoud Vosough. *Rhenium Perrhenate (188ReO<sub>4</sub>) Induced Apoptosis and Reduced Cancerous Phenotype in Liver Cancer Cells*. *Cells*, 2022, 11, 305. <https://doi.org/10.3390/cells11020305>
98. Roya Solhi, Abbas Sahebghadam Lotfi, Majid Lotfinia, Zahra Farzaneh, **Abbas Piryaei**, Mustapha Najimi, Massoud Vosough. *Hepatic stellate cell activation by TGF $\beta$  induces hedgehog signaling and endoplasmic reticulum stress simultaneously*. *Toxicology in Vitro*, 2022, 80, 105315. <https://doi.org/10.1016/j.tiv.2022.105315>
99. Mostafa Najar-Asl, Hossein Bahadoran, Mohammad-Hossein Asadi, Mona Saheli, Mohammad-Hassan Asghari, Niloofar Sodeifi, Mohammad Kazemi Ashtiani, Massoud Vosough, Hossein Baharvand, **Abbas Piryaei**. *Transplantation of sdf-1 $\alpha$ -loaded liver extracellular matrix repopulated with autologous cells attenuated liver fibrosis in a rat model*. *EXCLI Journal*, 2022, 21:704-721.
100. Rostami Dovom M, Noroozadeh M, Mosaffa N, **Piryaei A**, Zadevakili A, Abdollahifar MA, Ramezani Tehrani F. *Induction of a rat model of premature ovarian insufficiency using D-galactose feeding during the critical periods of development: A pilot study*. *Int J Reprod BioMed*, 2022; 20: 319–330. <https://doi.org/10.18502/ijrm.v20i4.10904>
101. Heidar Heidari-Khoei, Fereshteh Esfandiari, Ashraf Moini, Simin Yari, Maryam Saber, Marefat Ghaffari Novin, **Abbas Piryaei\***, Hossein Baharvand\*. *Derivation of hormone-responsive human endometrial organoids and stromal cells from cryopreserved biopsies*. *Experimental Cell Research*, 2022;417(1):113205. <https://doi.org/10.1016/j.yexcr.2022.113205>
102. Rostami Dovom M, Noroozadeh M, Mosaffa N, **Piryaei A**, Zadeh-Vakili A, Aabdollahifar MA, Rahmati M, Farhadi-Azar M, Ramezani Tehrani F. *Maternal*

*exposure to D-galactose reduces the ovarian reserve in female rat's offspring later in life.* Int J Endocrinol Metab. 2022;20(2):e123206.

103. Asadian S, **Piryaei A**, Farzaneh Z, Aziz Kalantari B, Azad M, Moghbeli Nejad S, Davarpanah MR, Mohamadi M, Shpichka A, Gheibi N, Timashev P, Vosough M. *188 Rhenium treatment induces DACT2 expression in hepatocellular carcinoma cells.* Cell J. 2022; 24(5): 215-221. doi: 10.22074/cellj.2022.7894.
104. Saheli M, Khoramipour K, Vosough, M, **Piryaei A**, Rahmati M, Suzuki K. *Athletes' Mesenchymal Stem Cells Could Be the Best Choice for Cell Therapy in Omicron Infected Patients.* Cells 2022, 11, 1926. <https://doi.org/10.3390/cells11121926>
105. Ensieh Zahmatkesh, Amnah Othman, Bianca Braun, Romina Aspera, Marc Ruöß, **Abbas Piryaei**, Massoud Vosough, Andreas Nüssler. *In vitro modeling of liver fbrosis in 3D microtissues using scalable micropatterning system.* Archives of Toxicology. 2022;96:1799–1813. <https://doi.org/10.1007/s00204-022-03265-7>
106. Marzieh Rostami Dovom, Mahsa Noroozadeh, Nariman Mosaffa Azita Zadeh-Vakili, **Abbas Piryaei**, Maryam Rahmati, Mahbanoo Farhadi Azar, Fahimeh Ramezani Tehrani. *Continued exposure to D-galactose in postnatal period may inhibit excessive primordial follicle reduction in rats exposed prenatally to D-galactose.* Birth Defects Research. 2022;1–11. DOI: 10.1002/bdr2.2083
107. Behnaz Ahrabi, Hojjat Allah Abbaszadeh, **Abbas Piryaei**, Faezeh Shekari, Navid Ahmady Roozbahany, Mahya Rouhollahi, Forough Azam Sayahpour, Mahnaz Ahrabi, Hadi Azimi, Reza Moghadasali. *Autophagy-induced mesenchymal stem cell-derived extracellular vesicles ameliorated renal fibrosis in an in vitro model.* BioImpacts, 2022, 12(x), doi: 10.34172/bi.2022.24256
108. Zohre Miri-Lavasani, Shukoofeh Torabi, Roya Solhi, Bahareh Shokouhian, Parvaneh Afsharian, Zahra Heydari, **Abbas Piryaei**, Zahra Farzaneh, Nikoo Hossein-khannazer, Hamidreza Aboulkheyr, Ensieh Zahmatkesh, Andreas Nussler, Moustapha Hassan, Mustapha Najimi, Massoud Vosough. *Conjugated Linoleic Acid Treatment Attenuates Cancerous features in Hepatocellular Carcinoma Cells.* Stem Cells International, 2022, 1850305:1-14. <https://doi.org/10.1155/2022/1850305>
109. Shokouhian B, Negahdari , Heydari Z, Totonchi M, Aboulkheyr H, **Piryaei A**, Mostafavi E, Vosough M. *HNF4a is Possibly the Missing Link between Epithelial-Mesenchymal Transition and Warburg Effect during Hepatocarcinogenesis.* Cancer Sci, 2023;114:1337-1352. <https://doi.org/10.1111/cas.15686>
110. Minaei N, Ramezankhani R, Tamimi A, **Piryaei A**, Zarrabi A, Aref AR, Mostafavi E, Vosough M. *Immunotherapeutic Approaches in Hepatocellular Carcinoma: Building Blocks of Hope in Near Future.* Eur J Cell Biol, 2022;151284. <https://doi.org/10.1016/j.ejcb.2022.151284>
111. Ahrabi B, Moghadasali R, **Piryaei A**, Tabatabaei Mirakabad FS, Shekari F, Abbaszadeh HA. *Cell and Drug Therapy in Renal Fibrosis with Emphasis on*

*Cellular and Molecular Pathways: A Systematic Review. Res Med; 2022,46(4): 141-158.*

112. Aasadollahei N, Rezaei N, Golroo R, Agarwal T, Vosough M, **Piryaei A.** *Bioengineering liver microtissues for modeling non-alcoholic fatty liver disease. EXCLI Journal, 2023;22:367-391.*