

Curriculum Vitae

Mohsen Basiri

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Royan Institute for Stem Cell Biology and Technology
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Education and Work Experience

Since 2017	Assistant Professor at Royan Institute, Tehran, Iran (on leave between 2018-2020) <i>Principal investigator of the Immune Cell Gene Therapy research group</i> <i>Supervisor of Gene Therapy Medicinal Products (GTMPs) at Royan ATMP-TDC</i>
2018-2020	Postdoc Scientist at Center for Cell and Gene Therapy, Baylor College of Medicine, Houston, TX, USA <i>Development of a novel TGFβ-responsive genetically engineered T cell for immunotherapy of solid tumors (patent and manuscript are under preparation)</i>
2015-2017	Postdoc Researcher at Royan Institute, Tehran, Iran <i>Genome editing and genetic manipulation of mouse and zebrafish models</i> <i>Genetic manipulation of stem cells for regenerative biology studies</i>
2010-2015	PhD in Molecular Genetics, Tarbiat Modares University, Tehran, Iran Title of PhD dissertation: "Forced Expression of Pancreatic Transcription Factors for Differentiation of Mouse Embryonic Stem Cells"
2009-2010	Research Assistant at Hamedan University of Medical Sciences, Hamedan, Iran <i>Evaluation of immunological effects of herbal extracts</i>
2006-2009	Research Assistant at Shahed University, Tehran, Iran <i>Generation and evaluation of candidate recombinant vaccines for Botulinum neurotoxin and Helicobacter pillory</i>
2001-2005	BSc in Biology, Shahid Beheshti University, Tehran, Iran

Research Interests

- Genetic modification of CAR T cells to improve their function against immune-resistant cancers
- Discovery of T cell resistance mechanisms in cancer using bioinformatics and CRISPR screening
- Generation of off-the-shelf cell-based immunotherapies

Publications

Yekehfallah V, Pahlavanneshan S, Sayadmanesh A, Momtahan Z, Ma B, **Basiri M**. Generation and Functional Characterization of PLAP CAR-T Cells against Cervical Cancer Cells. *Biomolecules*. 2022;12(9):1296.

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- Karami F, Asgari Abibeiglou B, Pahlavanneshan S, Farrokhi A, Tamadon A, **Basiri M**, Khalooghi K, Fallahi M, Tahamtani Y. Enhanced characterization of beta cell mass in a Tg(*Pdx1-GFP*) mouse model. *BiolImpacts*. 2022;12(5):463-70.
- Azadbakht M, Sayadmanesh A, Nazer N, Ahmadi A, Hemmati S, Mohammadzade H, Ebrahimi M, Baharvand H, Khalaj B, Aghamaali MR, **Basiri M**. CRISPRi-mediated knock-down of PRDM1/BLIMP1 programs central memory differentiation in *ex vivo*-expanded human T cells. *Bioimpacts*. 2022; 12(4), 337–347 DOI: 10.34172/bi.2021.23522
- Pourgholaminejad A, Pahlavanneshan S, **Basiri M**. COVID-19 Immunopathology with emphasis on Th17 response and Cell-based Immunomodulation Therapy: Potential Targets and Challenges. *Scand J Immunol*. 2021; e13131. DOI: 10.1111/sji.13131.
- Hakakzadeh Z, Yekefallah V, Ebrahimiyan H, Sayadmanesh A, **Basiri M**. Application of Genome-Editing Technologies for Off-the-Shelf T Cell-based Cancer Immunotherapy. *Precis Med Clin Omics*. 2021; 1(1):e116796. DOI: 10.5812/pmco.116796
- Pahlavanneshan S, Sayadmanesh A, Ebrahimiyan H, **Basiri M**. Toll-Like Receptor-Based Strategies for Cancer Immunotherapy. *Journal of Immunology Research*. 2021; 2021: 9912188. DOI: 10.1155/2021/9912188
- Basiri M**, Pahlavanneshan S. Evaluation of Placental Alkaline Phosphatase Expression as a Potential Target of Solid Tumors Immunotherapy by Using Gene and Protein Expression Repositories. *Cell Journal*. 2021; 23 (6): 717-721.
- Pahlavanneshan S, Behmanesh M, Tahamtani Y, Hajizadeh-Saffar E, **Basiri M**, Baharvand H. Induction of β Cell Replication by Small Molecule Mediated Menin Inhibition and Combined PKC Activation and TGF- β Inhibition as Revealed by a Refined Primary Culture Screening. *Cell Journal*. 2021; 23(6): 633-639. DOI: 10.22074/cellj.2022.7437.
- Afshar L, Aghayan HR, Sadighi J, Arjmand B, Hashemi SM, **Basiri M**, Samani RO, Ashtiani MK, Azin SA, Hajizadeh-Saffar E, Gooshki ES. Ethics of research on stem cells and regenerative medicine: ethical guidelines in the Islamic Republic of Iran. *Stem Cell Research & Therapy*. 2020;11(1):1-5.
- Haddadi MH, Negahdari B, Hajizadeh-Saffar E, Khosravi-Maharlooei M, **Basiri M**, Dabiri H, Baharvand H. Directed differentiation of regulatory T cells from naive T cells and prevention of their inflammation-mediated instability using small molecules. *Clinical & Experimental Immunology*. 2020;201(2):205-21.
- Pahlavanneshan S, Behmanesh M, Oropeza D, Furuyama K, Tahamtani Y, **Basiri M**, Herrera PL, Baharvand H. Combined Inhibition of Menin-MLL Interaction and TGF- β Signaling Induces Replication of Human Pancreatic Beta Cells. *European Journal of Cell Biology*. 2020:151094.
- Haddadi MH, Hajizadeh-Saffar E, Khosravi-Maharlooei M, **Basiri M**, Negahdari B, Baharvand H. Autoimmunity as a target for chimeric immune receptor therapy: A new vision to therapeutic potential. *Blood Reviews*. 2019:100645
- Mokhber MD, Sadeghian SC, Moradmand A, **Basiri M**, Baharvand H, Tahamtani Y. Hydrocortisone Promotes Differentiation of Mouse Embryonic Stem Cell-Derived Definitive Endoderm toward Lung Alveolar Epithelial Cells. *Cell Journal*. 2019;20(4):469-76.
- Saberzadeh-Ardestani B, Karamzadeh R, **Basiri M**, Hajizadeh-Saffar E, Farhadi A, Shapiro AJ, Tahamtani Y, Baharvand H. Type 1 Diabetes Mellitus: Cellular and Molecular Pathophysiology at A Glance. *Cell Journal*. 2018;20(3):294-301.
- Nami F, **Basiri M**, Satarian L, Curtiss C, Baharvand H, Verfaillie C. Strategies for In Vivo Genome Editing in Nondividing Cells. *Trends in Biotechnology*. 2018;36(8):770-86.
- Basiri M**, Behmanesh M, Tahamtani Y, Khalooghi K, Moradmand A, Baharvand H. The Convenience of Single Homology Arm Donor DNA and CRISPR/Cas9-Nickase for Targeted Insertion of Long DNA Fragment. *Cell Journal*. 2017;18(4):532.

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- Shahbazi E, Moradi S, Nemati S, Satarian L, **Basiri M**, Gourabi H, Mehrjardi NZ, Günther P, Lampert A, Händler K, Hatay FF. Conversion of human fibroblasts to stably self-renewing neural stem cells with a single zinc-finger transcription factor. *Stem Cell Reports*. 2016;6(4):539-51.
- Khosravi-Maharlooei M, Hajizadeh-Saffar E, Tahamtani Y, **Basiri M**, Montazeri L, Khalooghi K, Kazemi AM, Farrokhi A, Aghdami N, Sadr HN, Larijani MB. Islet transplantation for type 1 diabetes: so close and yet so far away. *European Journal of Endocrinology*. 2015;173(5):R165.
- Gargari SL, Rasooli I, Valipour E, **Basiri M**, Nazarian S, Amani J, Farhadi N. Immunogenic and protective potentials of recombinant receptor binding domain and a C-terminal fragment of Clostridium botulinum neurotoxin type E. *Iranian Journal of Biotechnology*. 2011;9(3):181-7.
- Masoudipour E, Mousavi SL, **Basiri M**. Specific detection of Shigella sonnei by enzyme-linked aptamer sedimentation assay. *Progress in Biological Sciences*. 2011;1(1):11-25.
- Javid SA, Mousavi SL, Salmanian AH, **Basiri M**. Production of chicken egg yolk immunoglobulin against Helicobacter pylori UreC protein by DNA vaccination. *Trauma Monthly*. 2011;15(4):197-202.
- Basiri M**, Mousavi SL, Basiri H, Rasooli I. An epitopic approach to designing and characterization of a multiple antigenic polypeptide against Botulinum neurotoxins A and E. *World Journal of Microbiology and Biotechnology*. 2010;26(9):1659-66.
- Basiri H, Mousavi SL, Rasooli I, **Basiri M**, Yadegarynia D. Elicitation of IgY in chicken egg yolk by recombinant fragments of UreC and its efficacy against Helicobacter pylori. *Iranian Journal of Clinical Infectious Diseases*. 2010;5(2):89-95.

Academic Teaching Experience

- Gene Therapy, Graduate Course (2020-2022), Faculty of Biological Sciences, Science and Culture University.
- Genetic Engineering, Graduate Course (2020-2022), Royan Institute.
- Molecular Genetics, Undergraduate Course (2020-2021), Faculty of Biological Sciences, Science and Culture University.
- Genetic Engineering, Undergraduate Course (2020-2021), Faculty of Biological Sciences, Science and Culture University.
- Genetic Engineering, Graduate Course (2016-2017), Royan Institute.
- Advanced Cellular and Molecular Techniques, Graduate Course (2015-2017), Royan Institute.
- Molecular Cell Biology, Undergraduate Course (2011-2012), Faculty of Basic Sciences, Shahed University.
- Genetics I, Undergraduate Course (2009-2010), Faculty of Basic Sciences, Azad University-Arak.
- Laboratory of Genetics I, Undergraduate Course (2009-2010), Faculty of Basic Sciences, Azad University-Arak.
- Laboratory of Genetics II, Undergraduate Course (2008-2009), Faculty of Basic Sciences, Azad University-Arak.
- Laboratory of Molecular and Cell Biology, Undergraduate Course (2008-2009), Faculty of Medical Sciences, Azad University-Arak.

Workshop Teaching Experience

- Scientific secretary and lecturer in "Workshop of Genome Editing with CRISPR technology", Royan Institute, 2017.

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- Executive secretary and lecturer in “Workshop of Mouse Transgenesis with Blastocyst Microinjection”, Royan Institute, 2015 and 2017.
 - Lecturer in “Workshop of Mouse Transgenesis with Blastocyst Microinjection”, Royan Institute, 2014.
 - Scientific secretary and lecturer in “Workshop on Application of Bioinformatics in Genetic Engineering”, Royan Institute, 2016.
 - Lecturer in “Workshop on Application of Bioinformatics in Genetic Engineering”, Royan Institute, 2015.
 - Lecturer in “Workshop of Advanced Genetic Engineering” Royan Institute 2015.
 - Lecturer in “Workshop of Genetic Engineering Methods for Therapeutic Herbs”, Shahed University, 2006.

Presentations

Invited Oral Presentation:

- Royan International Congress on Stem Cell Biology and Technology, Tehran, Iran. GMP CAR-T Cell Production: Practical Aspects and Prospect. 2022.
- Royan International Congress on Stem Cell Biology and Technology, Tehran, Iran. CRISPR Mediated Knock-in Mouse Models for In Vivo Neural Reprogramming and Lineage Tracing. 2017.

Oral Presentation:

- CAGT Conference, Galveston, TX, USA. Genetic Engineered TGF- β Responding T Cells for Trans-inhibition of TGF- β in Tumor Microenvironment. Basiri M, Tat C, Bajgain P, Leen AM, Vera JF. 2019
- CAGT Conference, Galveston, TX, USA. Soluble decoy expressing T cells for trans-inhibition of TGF- β in tumor microenvironment. Basiri M, Bajgain P, Balasubramanian K, Bajgain P, Watanabe N, Leen AM, Vera JF. 2018.

Poster:

- International Tehran Breast Cancer Congress, Tehran, Iran. Applications of the CRISPR-Cas9 System in Generation of Model Cell Lines for Cancer Biology, Arabameri H, Pahlavanneshan S, Tavallaei M, Basiri M, 2017.
- Stem Cells & Regenerative Medicine International Congress, Tehran, Iran. Effects of A549-Condition Medium on mouse Embryonic Stem Cells Differentiation into Alveolar Epithelial Type II Cells, Sadeghian SC, Mokhber MD, Moradmand A, Basiri M, Baharvand H, Tahamtani Y. 2015.
- 10th Iranian Genetic Congress, Tehran, Iran. Designing, Cloning and Expression of a Synthetic Gene, Encoding an Immunogenic Polypeptide against Botulinum Neurotoxin Types A and E. Basiri M, Mousavi SL, Rasooli I, Basiri H, 2008.

Professional Contribution and Membership

- Editorial Board, Precision Medicine and Clinical Omics. Since 2020
- Advisory Committee of Transgenic Animals, Health Technology Development Office, Ministry of Health. 2015-2017
- Advisory Board, Cell Journal (Yakhteh). Since 2014
- Iranian Genetics Society, Microorganism Genetic Branch. 2007-2010