

Curriculum Vitae

Address: Departments of Genetics and Stem Cells,
Royan Institute, P.O. Box: 16635-148, Tehran, IRAN.

Tel: +98 (21) 23562737, **Mobile:** +98 (912) 7387805

E-mail: m.totonchi@royaninstitute.org

Website: www.royaninstitute.org



1) Personal Information:

First name: **MEHDI**

Surname: **TOTONCHI**

Gender: **Male**

Marital Status: **Married**

Nationality: **Iranian**

Date of birth: **23 August, 1979**

Place of Birth: **Badroud**

2) Educational Background:

Degree	Major	University	Date
BSc	Biology	Bu-Ali sina Uni. (Hamedan-IRAN)	1997-2002
MSc	Molecular Genetics	Azad Uni. (Tehran-IRAN)	2002-2005
PhD	Cellular & Developmental Biology	Science & Culture Uni. (Tehran-IRAN)	2008-2013

3) Teaching experiences:

Course	Location	Level	Date
Real-time PCR workshop	Royan Institute	M.Sc. of Molecular Biology	2007 and 2009
Epigenetics workshop	Royan Institute	M.Sc. of Biology & GP	2009
Bioinformatic & Molecular Biology workshop	ACECR	M.Sc. of Biology & GP	2008-Now (28 times)
Gene cloning workshop	ACECR	M.Sc. of Biology & GP	2008-Now (21 times)
Molecular Biology	Royan Institute	M.Sc. of Developmental Biology	2012-Now
Cell Biology	Royan Institute	M.Sc. of Biology	2012-Now

4) Employment: Academic Staff of Genetics & Stem Cell Departments, Royan Institute. (2005 up to now)

5) Training Experiences:

DNA Methylation Technique at the Clinical Genetic Laboratory in Department of CMM, Karolinska Institute, Stockholm, Sweden. (Three months Oct-Dec. 2004)

Professor Annika Lindblom _Tel: +46 (8)517 752 48 - Fax: +46 (8)517 736 20

E.mail: Annika.Lindblom@ki.se

Viral Vectors and Induced Pluripotent Stem Cell Generation Technique at the Max Planck Institute for Molecular Biomedicine Department Cell and Developmental Biology Röntgenstraße 20 48149 Münster, GERMANY. (Three weeks in March-April 2008)

Professor Dr. Hans R. Schöler _Tel: +49 251 70 365 300 Telefax: +49 251 70 365 399

E.mail: schoeler@mpi-muenster.mpg.de

ICM-ES cell transition and Microarray analysis at the Max Planck Institute for Molecular Biomedicine Department Cell and Developmental Biology Röntgenstraße 20 48149 Münster, GERMANY. (15 months, 2011-2013)

Professor Dr. Hans R. Schöler _Tel: +49 251 70 365 300 Telefax: +49 251 70 365 399

E.mail: schoeler@mpi-muenster.mpg.de

6) Research Experiences:

1. Cell fate conversion and disease modeling
2. Cellular Reprogramming and Pluripotency
3. Epigenetics in Embryonic Stem Cells
4. Genetic Engineering
5. Personalized Medicine
6. Genetic of Male Infertility

7) Honor and Achievements:

1. Chairperson in 10th Royan International Congress on Stem Cell Biology and Technology, September 2014.
2. A complete grant to participate in Stem Cell Niche congress, Denmark, 2014.
3. Generation of first iPS cell in Iran, 2008.
4. Travel grant for participating in ISSCR 5th in Australia, 2007.

8) Publications:

1. Sharifi-Zarchi A, ***Totonchi M***, Khaloughi K, Karamzadeh R, Baharvand H, Arauzo-Bravo M, Tusserkani R, Pezeshk H, Sadeghi M. **Increased Stability of the Early Embryogenesis through Collective Decision-Making by Key Transcription Factors.** (Accepted, BMC systems Biology).
2. Hosseinifar H, Yazdanikhah S, Modarresi T, ***Totonchi M***, Sadighi Gilani MA, Sabbaghian M. **Correlation between sperm DNA fragmentation index and CMA3 positive spermatozoa in globozoospermic patients.** *Andrology*. 2015 Apr 10.
3. Dorri F, Mahini H, Sharifi-Zarchi A, ***Totonchi M***, Tusserkani R, Pezeshk H, Sadeghi M. **Natural biased coin encoded in the genome determines cell strategy.** *PLoS One*. 2014 Aug 4;9(8).
4. Sarkardeh H, ***Totonchi M***, Asadpour O, Sadighi Gilani MA, Zamani Esteki M, Almadani N, Borjian Boroujeni P, Gourabi H. **Association of MOV10L1 gene polymorphisms and male infertility in azoospermic men with complete maturation arrest.** *J Assist Reprod Genet*. 2014 Jul;31(7):865-71.
5. Rajabpour-Niknam M, ***Totonchi M***, Farrokhi A, Alipour H, Eftekhari-Yazdi P. **Quantitative expression of developmental genes, Pou5f1 (Oct4) and Mest (Peg1), in vitrified mouse embryos.** *Iran J Reprod Med*. 2013 Sep;11(9):733-40.
6. Kalantari H, Asia S, ***Totonchi M***, Vazirinasab H, Mansouri Z, Zarei Moradi S, Gourabi H, Mohseni Meybodi A. **Delineating the association between isodicentric chromosome Y and infertility: a retrospective study.** *Fertil Steril*. 2014 Apr;101(4):1091-6.
7. Hassani SN, ***Totonchi M***, Gourabi H, Schöler HR, Baharvand H. **Signaling Roadmap Modulating Naive and Primed Pluripotency.** *Stem Cells Dev*. 2013 Nov 27.
8. Hassani SN, ***Totonchi M***, Sharifi-Zarchi A, Mollamohammadi S, Pakzad M, Moradi S, Samadian A, Masoudi N, Mirshahvaladi S, Farrokhi A, Greber B, Arauzo-Bravo MJ, Sabour D, Sadeghi M, Salekdeh GH, Gourabi H, Schöler HR, Baharvand H. **Inhibition of TGFβ Signaling Promotes Ground State Pluripotency.** *Stem Cell Rev*. 2013 Sep 15.
9. Asadpor U, ***Totonchi M***, Sabbaghian M, Hoseinifar H, Akhound MR, Zari Moradi Sh, Haratian K, Sadighi Gilani MA, Gourabi H, Mohseni Meybodi A. **Ubiquitin-specific protease (USP26) gene alterations associated with male infertility and recurrent pregnancy loss (RPL) in Iranian infertile patients.** *Assist Reprod Genet*. 2013 Jul;30(7):923-31.
10. Fattahi F, Asgari S, Pournasr B, Seifinejad A, ***Totonchi M***, Taei A, Aghdami N, Baharvand H. **Disease-corrected hepatocyte-like cells from familial hypercholesterolemia induced pluripotent stem cells.** *Mol Biotechnol*. 2013 Jul;54(3):863-7318.

11. ***Totonchi M***, Mohseni Meybodi A, Borjian Boroujeni P, Sedighi Gilani M, Almadani N, Gourabi H. **Clinical data for 185 infertile Iranian men with Y-chromosome microdeletion.** J Assist Reprod Genet. 2012 Aug;29(8):847-53.
12. Barekati Z, Golkar-Narenji A, ***Totonchi M***, Radpour R, Gourabi H. **Effects of amifostine in combination with cyclophosphamide on female reproductive system.** Reprod Sci. 2012 May;19(5):539-46.
13. Zahabi A, Shahbazi E, Ahmadi H, Hassani SN, ***Totonchi M***, Taei A, Masoudi N, Ebrahimi M, Aghdami N, Seifinejad A, Mehrnejad F, Daftarian N, Salekdeh GH, Baharvand H. **A new efficient protocol for directed differentiation of retinal pigmented epithelial cells from normal and retinal disease induced pluripotent stem cells.** Stem Cells Dev. 2012 Aug 10;21(12):2262-72.
14. Pournasr B, Khaloughi K, Salekdeh GH, ***Totonchi M***, Shahbazi E, Baharvand H. **Concise review: alchemy of biology: generating desired cell types from abundant and accessible cells.** Stem Cells. 2011 Dec;29(12):1933-41. doi: 10.1002/stem.760. Review.
15. Hassani SN, ***Totonchi M***, Farrokhi A, Taei A, Larijani MR, Gourabi H, Baharvand H. **Simultaneous Suppression of TGF- β and ERK Signaling Contributes to the Highly Efficient and Reproducible Generation of Mouse Embryonic Stem Cells from Previously Considered Refractory and Non-permissive Strains.** Stem Cell Rev. 2011 Aug 4.
16. Larijani MR, Seifinejad A, Pournasr B, Hajihoseini V, Hassani SN, ***Totonchi M***, Yousefi M, Shamsi F, Salekdeh GH, Baharvand H. **Long-Term Maintenance of Undifferentiated Human Embryonic and Induced Pluripotent Stem Cells in Suspension.** Stem Cells Dev. 2011 Feb 24.
17. Ghodsizadeh A, Taei A, ***Totonchi M***, Seifinejad A, Gourabi H, Pournasr B, Aghdami N, Malekzadeh R, Almadani N, Salekdeh GH, Baharvand H. **Generation of Liver Disease-Specific Induced Pluripotent Stem Cells along with Efficient Differentiation to Functional Hepatocyte-Like Cells.** Stem Cell Rev. 2010, 6(4):622-32.
18. Taei A, Gourabi H, Seifinejad A, ***Totonchi M***, Shahbazi E, Rezazadeh M, Eftekhari P, Karimian L, Baharvand H. **Derivation of New Human Embryonic Stem Cell Lines from Preimplantation Genetic Screening and Diagnosis-Analyzed Embryos.** In Vitro Cellular and Developmental Biology. 2010, 46(3-4):395-402.
19. Baharvand H, ***Totonchi M***, Taei A, Seifinejad A, Aghdami N, Salekdeh GH. **Human-induced pluripotent stem cells: derivation, propagation, and freezing in serum- and feeder layer-free culture conditions.** Methods Mol Biol. 2010;584:425-43.
20. Seifinejad A, Taei A, ***Totonchi A***, Vazirinasab H, Hassani SN, Aghdami N, Shahbazi E, Hosseini G, Baharvand H. **Generation of Human Induced Pluripotent Stem Cells from a Bombay Individual: Moving Towards "Universal-Donor" Red Blood Cells.** Biochemical and Biophysical Research Communications. 2010 ;391:329-34.
21. Pakzad M, ***Totonchi M***, Taei A, Seifinejad A, Hasani SN, Baharvand H. **Presence of a ROCK inhibitor in Extracellular Matrix Supports More Undifferentiated Growth of Feeder-Free Human Embryonic and Induced Pluripotent Stem Cells upon Passaging.** Stem Cell Reviews and Reports. 2010 ;6(1):96-107.
22. ***Totonchi M***, Taei A, Seifinejad A, Tabebordbar MSH, Rassouli H, Aghdami N, Gourabi H, Hosseini Salekdeh GH, Baharvand H. **Feeder- and Serum-Free Establishment and Expansion of Human Induced Pluripotent Stem Cells.** International Journal of Developmental Biology. 2010;54:877-86.
23. Mollamohammadi S, Taei A, Pakzad M, ***Totonchi M***, Seifinejad A, Masoudi N, Baharvand H*. **A Simple and Efficient Cryopreservation Method for Feeder-free**

Dissociated Human Induced Pluripotent Stem Cells and Human Embryonic Stem Cells. Hum Reprod. 2009;24(10):2468-76.

24. Salahshourifar I, Sedighi Gilani MA, Vosough A, Tavakolzadeh T, Tahsili M, Mansori Z, Karimi H, **Totonchi M**, Gourabi H. “*De novo complex chromosomal rearrangement of 46XY,t (3; 16; 8) (p26; q13; q21.2) in a non-obstructive azoospermic male*”. J Appl Genet. 2007;48(1):93-4.
25. Ohadi M, **Totonchi M**, Maguire P, Lindblom A, Habibi R, Alavi BA, Keyhani E, Najmabadi H. *Mutation analysis of the DBC2 gene in sporadic and familial breast cancer*. Acta Oncol. 2007;46(6):770-2.
26. **Totonchi M**, Shahosseini M, Momeni M, Baharvand H. *Epigenetics of stem cells*. Yakhteh medical journal, 2007, 9 (1) 51-66. (review, In Persian)

9) Referees:

Hamid Gourabi, PhD

President of Royan Institute.

Head of Genetics Department, Royan Institute, Tehran, IRAN

Tel: +98 (21)23562123

Email: gourabi@royaninstitute.org

Professor Dr. Hossein Baharvand,

Head of Stem Cells Department, Royan Institute, Tehran, IRAN

Tel: +98 (21)22306485 Email: baharvand@royaninstitute.org

Professor Dr. Hans R. Schöler

Department Cell and Developmental Biology Director

Tel: +49 251 70 365 300 Telefax: +49 251 70 365 399

E.mail: schoeler@mpi-muenster.mpg.de

Mahdi Sadeghi, PhD

School of Biological Science, Institute for Research in Fundamental Sciences (IPM).

National Institute of Genetic Engineering and Biotechnology (NIGEB), Tehran, IRAN

Tel: +98 (912) 2974416

Email: sadeghi@nigeb.ac.ir

Ghasem Hosseini Salekdeh, PhD

President of Iranian Proteomics Society

Asia Oceania Human Proteome Organization (AOHUPO) Council member

Head of Physiology and Proteomics Department Agricultural Biotechnology Research Institute of Iran (ABRII)

Tel: +98 (261)2703536

Email: h_salekdeh@abrii.ac.ir

Professor Dr.Mojtaba Rezazadeh Valojerdi,

Head of Embryology Department, Royan Institute, Tehran, IRAN.

Head of Anatomy Department, Tarbiat Modares University, Tehran, IRAN.

Tel: +98 (21)23562225

Email: mr_valojerdi@modares.ac.ir

A brief description:

After B.Sc. in Biology, I received M.Sc. of Molecular Genetics in Azad University, Tehran-Iran in 2005. For the next three years, I was a research assistant in the Department of Genetics and Stem Cells at Royan Institute, Tehran-Iran. There, I generated the first induced pluripotent stem cell (iPSC) in Iran in 2008, in collaboration with a team of Royan institute, when I also started Ph.D. of Cellular & Developmental Biology in a joint project between university of Science and Culture and Royan Institute.

My PhD thesis was to reveal mechanisms behind maintenance and derivation of mouse embryonic stem cells (mESC) from the inner cell mass (ICM). In a collaborative project, I performed one and half year research at the Max Planck Institute for Molecular Biomedicine (Muenster) under supervision of Prof. Dr. Hans Schöler, in collaboration with Royan Institute for Stem Cell Research supervised by Prof. Dr. Hossein Baharvand.

In this project we were able to generate high throughput transcription profiles of the mouse ICM and numerous time points during its derivation to the mESCs, from which we were able to develop and validate new mechanistic insights into the pluripotency. We also introduced a new chemically defined culture medium, called R2i that is suitable for generating mESCs with almost perfect efficiency, and also maintaining ES cell lines in the ground state pluripotency.