THE ELEVENTH ROYAN INTERNATIONAL RESEARCH AWARD

Reproductive Biomedicine & Stem Cell.....

SEPTEMBER 2010

TEHRAN - IRAN

THE TWELFTH

ROYAN

INTERNATIONAL RESEARCH AWARD
REPRODUCTIVE BIOMEDICINE & STEM CELL

SEPTEMBER, 2011

Deadline for Application: April, 2011

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&

Kazemi Prize, 2011

In commemoration of Dr. Kazemi, the late founder of Royan Institute

SEPTEMBER, 2011
TEHRAN - IRAN

In the Name of
GOD

I.R.IRAN
TEHRAN

The Eleventh
ROYAN
INTERNATIONAL RESEARCH AWARD

Dr. Saeid Kazemi Ashtiani
The Late Founder of ROYAN Institute

Cover Legend: Human Induced Pluripotent Stem Cell-derived Neural Progenitors.
Photographer: Maryam Hatami

Sponsors

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Foreword

Although this year is the first year of my presidency of ACECR, as a university professor, I am familiar with this remarkable event which is established eleven years ago by the late Dr. Saeid Kazemi Ashtiani. This award seems to be credible in the field of Reproductive Biomedicine and Stem cell Biology and Technology both in Iran and all over the world. Moreover, according to the reports of Dr. Gourabi, award chairman, valuable scientific cooperation has been established among Iranian and international scientists which is worthier than the award itself.

In the first year of my presidency of ACECR, it is my pleasure to witness the first year of presenting Kazemi Prize in the field of biology. This prize which is presented for the memorial of Dr. Saeid Kazemi Ashtiani (an outstanding scientist in the field of biology) with the spiritual leader of Islamic Republic of Iran's order, can be a starting point throughout the world to get acquaintance with the Iranian and international scientific luminaries. It also helps having international scientific cooperation with the purpose of improving human knowledge and science.

Finally I would like to thank award chairman; his collogues in Royan institute, and all the professors from the universities and scientific centers in the country who did their best for a year to hold a successful award. Also, congratulating the 11th award winners, I would like to thank all the participants in this event. At last, I hope this award will be the messenger of Islamic Republic of Iran's peace and friendship to the world.

Yadegari M.H., PhD
President of Academic Center for Education, Culture and Research (ACECR)

Introduction

After a decade of holding Royan International Research Award, I am so pleased that award secretariat has received more research articles than ever in the 11th one. 358 research articles from 43 countries is pleasing news which makes the responsibility of executive committee demanding. Furthermore, when the quality of these articles is high, applying proper and fair methods of evaluation requires meticulousness. Definitely, if the majority of participants in the award do not perceive the nominated research articles to be worthy of nomination in comparison to theirs, the participants and their colleagues will not desire to participate in the next awards.
The competition among the top nominated articles in each group was so close this year that according to the local jury board suggestion; the participants in the second and third place in each group have been invited as invited speakers to the 11th congress on reproductive biomedicine and 6th congress on stem cells to present their outstanding researches.

The presence of Iranian scientists among international winners made this award so pleasant for us. This year, also, for the first time the nomination committee decided to present the Kazemi Prize to one of the world outstanding scientists, Prof. Rudolf Jaenisch, who has enormous scientific contribution to the world's scientific society. This event adds to the quality of award, as well.

As emphasized in previous awards, the goal of holding the award is not a mere scientific competition. Award is a movement toward establishing proper relationships and scientific cooperation with the purpose of reaching to high humanitarian goals among Iranian scientists and the international ones. Fortunately, in previous award we could reach our goals and this year, we will hope to have such relationships and cooperation again.

Here, I would like to express my thanks to all the scientists who submit their valuable research papers to the award and made the executive committee pleased and delighted. Also, I would like to give my sincere appreciation to the executive committee and the prominent national and international professors who made an endless effort in the jury board.

As annual report of the institute is published in the award book, I would like to present my thanks also to the staffs- the executive managers and members, researchers, scientists, and physicians-and whoever adds to the spiritual joyous of the institute through their encouragement.
I am sure that although Dr. Saeid Kazemi Ashtiani, the late founder of Royan institute and award that made an endless effort to reach his goals, is not among us, his soul is in pleasure.
May God bless his soul, Insha'Allah!

Gourabi H., PhD
Award Chairman and Royan Institute President

ROYAN Awards

Royan International Research Award was founded by the late director of Royan Institute, Dr Saeid Kazemi Ashtiyani with the aim of encouraging the researchers, appreciating of their efforts and preparing a friendly scientific atmosphere for the researchers to exchange their knowledge and experience. Kazemi had wonderful ideas to bring researchers together and motivate them to increase their efforts and perform high level researches via this research award. Royan's staff lost their beloved director in January 2006 by heart attack, may he rest in peace.

This annual award is continuing its duty every year and become better and better. Increasing the scientific level and number of the submitted papers is a good evidence for that. The research papers are put in a hairsplitting jury system which relies on Award's international scientific board with special thanks to its honorable members. Each year prominent researches with outstanding help in solving problems in reproduction and stem cell fields, are announced, appreciated and rewarded.

As comparing the researches in different fields is very difficult and finding best researches among them with variations in methods, implements and results is almost impossible, from the eight award the same prizes are distributed among winners in different fields of reproductive biomedicine and stem cell such as: female infertility, epidemiology, andrology, embryology, genetics, stem cell biology and technology, and regenerative medicine.

Nomination and Selection Procedure of Award

The submitted research articles are categorized according to seven scientific groups: female infertility, reproductive genetics, reproductive health (epidemiology and ethics), embryology, andrology, reproductive imaging, and stem cell biology and technology. Each article is ranked according to its relevancy, impact factor, and an innovation score.

After the articles are sorted, each scientific group selects their nominees and sends them to national and international referees for evaluation.

Each referee evaluates at most 5 research articles, related to his/her field of interest, qualitatively in Likert scale according to these norms:

- Relevancy to the award subjects
- Creativity and innovation
- Methodology and research design
- Problem solving
- Applicability on human

Evaluation of the articles by the juries has been discussed in the board of juries and their decisions have been approved by scientific board of the institute. Finally, international and national winners are selected and invited to present their researches in Royan twin congress on Reproductive Biomedicine and Stem Cell Biology and Technology which is held almost in September every year and will receive their prizes in a special ceremony in the second night of congress.

Note: It is obligatory for the winners to attend the ceremony and present their research articles in the congress.

The **First** Royan International Research Award | September 2000

Received Papers: **72**

International Winners:

- First Place: *Mohamed Mitwally,* Canada
  Cmparison of an Aromatase Inhibitor with Clomiphene Citrate for Induction of Ovulation

- Second Place: *Ali Ahmady,* Canada
  Cell and Molecular Investigation of the Fertilizing Ability of Dead Sperm

- Third Place: *Weihau Wang,* USA
  Spindle Observation in Living Human Eggs with Pollaries Microscope and Its Use in Assisted Human Reproduction

- Fourth Place: *Simon Marina Avendano,* Spain
  HIV-Seropositive Can Be Fathers without Infecting the Women or Child

- Fifth Place: *Jaffar Ali,* Qatar
  Formulation of a Protein-Free Medium for Human Assisted Reproduction

Iranian Winners:

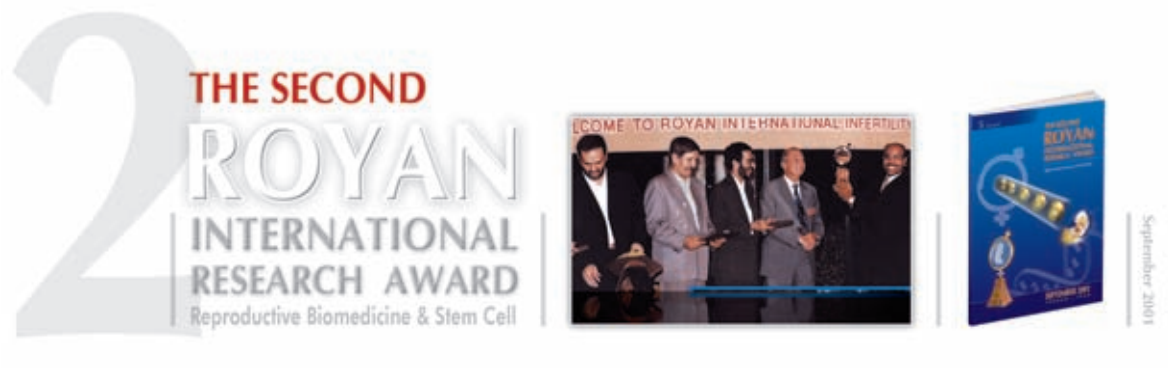
- *Mohammad Hossein Nasr-Esfahani*
  Sperm Chromatin Status and Male Infertility

- *Mahnaz Ashrafi*
  Effect of Metformin on Ovulation and Pregnancy RateinWomen with Clomiphen Resistant PCOs

- *Mohammad Ebrahim Parsanezhad*
  Section of the Cervical Septum Doesn't Impair Reproductive Outcome

The **Second** Royan International Research Award | September 2001

Received Papers: **78**



International Winners:

- First Place: *Ri-Cheng Chian*, Canada
  A New Treatment for Women with Infertility Due to Polycystic Ovarian Syndrome: Immature Oocyte Retrieval Followed In-Vitro Maturation

- Second Place: *Ma'asouma Makhseed*, Kuwait
  The Possible Immunological Basis of Repeated Pregnancy Loss

- Third Place: *Esmail Behboodi*, USA
  Production of Goats by Somatic Cell Nuclear Transfer

- Fourth Place: *Sayeed Unisa*, India
  Reproductive, Demographic and Behavioral Causes of Infertility in India

- Fifth Place: *Ahmed Mohammed Saleh*, Saudi Arabia
  Effect of Laparoscopic Ovarian Drilling on Serum Vascular Endothelial Growth Factor (VEGF), and on Insulin Response to Oral Glucose Tolerance Test in Women with PCOs

Iranian Winners:

- *Hossein Baharvand*
  Improvement of Blastocyst Development In-Vitro and Overcoming the Blastocyst Collapse and Its Effective Factor(s) in Sequential Culture Media

- *Marzieh Nojomi*
  Epidemiology of Infertility in the West of Tehran 2000-2001

- *Gholamreza Pourmand*
  Effect of Renal Transplantation on Sperm Quality and Sex Hormones Level

The **Third** Royan International Research Award | September 2002

Received Papers:**212**

International Winners:

- First Place: *Marco Filicori*, Italy
  Novel Approaches to Ovulation Induction: The Critical Role of Luteinizing Hormone Activity in Regulating Folliculogenesis

- Second Place: *Klaus G. Steger*, Canada
  Influence of Histone-Protmine-Exchange on Male Infertility

- Third Place: *Franck Pellestor*, France
  Chromosomal Investigations in Human Gametes: Study of the Interchromosomal Effect in Sperm of Chromosomal Rearrangement Carriers and Mechanisms of Non Disjunction in Oocytes

- Fourth Place: *Ghazala S. Basir*, Hong Kong
  The Effect of High Estradiol Levels on Endometrial Development in Assisted Reproduction Technology: Evaluation of Sonographic Doppler Haemodynamic and Morphometric Parameters

- Fifth Place: *Mohamed Ali Bedaiwy*, USA
  Transplantation of Intact Frozen-Thawed Mammalian Ovary with Vascular Anastomosis: A Novel Approach

Iranian Winners:

- *Saeed Alborzi*
  Laparoscopic Salpingoovolysis. Is There Any Place for Second Look Laparoscopy

- *Saeed Rahbar*
  Laser Assisted Hatching in Young Women Significantly Increases Pregnancy and Implantation Rates

- *Shir Ahmad Sarani*
  Morphological Evidence for the Implantation Window in Human Luminal Endometrium
  Special Winner in Reproductive Health

- *V. I. Sodestrom- Anttila*, Finland
  Embryo Donation-Outcome & Attitude Among Embryo Donors & Recipient

The **Fourth** Royan International Research Award | September 2003

Received Papers:**222**

International Winners:

- First Place: *Yong-Mahn Han*, South Korea
  Abnormal Structural Integrity and Reprogramming in the Cloned Embryos

- Second Place: *Lucille E. Voullaire*, Australia
  Chromosome Abnormality In Human Embryos Diagnosed Using Comparative Genomic Hybridization: Its Relationship to Infertility

- Third Place: *Mauro Maccarrone*, Italy
  Low Fatty Acid Amide Hyrolase and Anandamide Levels Are Associated with Failure to Achieve an Ongoing Pregnancy after IVF and Embryo Transfer

- Fourth Place: *Ali Honaramooz*, USA
  Sperm From Neonatal Mammalian Testes Grafted In Mice

- Fifth Place: *Jan M.R.* Gerris, Belgium
  Elective Single Embryo Transfer Halves the Twinning Rate without Decrease in the Total Ongoing Pregnancy Rate of an AVF/ICSI Program

Iranian Winners:

- *Mohammad Ebrahim Parsanezhad*
  Ovarian Stromal Blood Flow Changes After Laparoscopic Ovarian Cauterization in Women with Polycystic Ovary Syndrome

- *Mojdeh Salehnia*
  Vitrification of Ovarian Tissue

- *Jaleh Zolghadri*
  Successful Pregnancy Outcome With IUI in Patients with Unexplained Recurrent Miscarriage, Whose Male Partners Have Low Score Hypo-Osmotic Swelling Test

The **Fifth** Royan International Research Award | September 2004

Received Papers: **199**

International Winners:

- Second Place: *Alfonso Guiterrez-Adan*, Spain
  Long Term Effect of In Vitro Culture of Mouse Embryos with Serum on mRNA Expression of Imprinting Genes, Development and Behavior

- Second Place: *Maciej K. Kurpisz*, Poland
  Reactive Oxygen Species and "Male Factor" of Infertility

- Third Place: *Michel von Wolf*, Germany
  Glucose Transporter Proteins (GLUT) in Human Endometrial-Expression, Regulation and Function Through out the Menstrual Cycle and in Early Pregnancy

- Fourth Place: *Sophie Lambard*, France
  Human Male Gamete Quality: Place of Aromatase and Estrogens

- Fifth Place: *Naojiro Minami*, Japan
  A Novel Maternal Effect Gene, Oogenesin: Involvement in Zygotic Gene Activation and Early Embryonic Development in the Mouse

Iranian Winners:

- *Seyed Javad Mowla*
  Catsper Gene Expression in Postnatal Development of Mouse Testis and in Subfertile Men with Deficient Sperm Motility

- *Mohammad A. Khalili*
  Restoration of Spermatogenesis by Adenoviral Gene Transfer into Injured Spinal Cords of Rats

- *Mojdeh Salehnia*
  Ultrastructural, Histochemical and Morphometric Studies of Mouse Reproductive Tract after Ovarian Induction

The **Sixth** Royan International Research Award | September 2005

Received Papers: **198**

International Winners:

- First Place: *Kathyjo Ann Jackson,* USA
  Therapeutic potential of stem cells

- Second Place: *Carmen Belen Martinez-Madrid,* Belgium
  Ficoll Density Gradient Method for Recovery of Isolated Human Ovarian Primordial Follicles

- Third Place: *Federico Alejandra Calegari,* Germany
  Tissue-Specific Manipulating of Gene Expression of Mouse Embryos Using in Utero Electroporation

- Fourth Place: *Maryam Kabir-salmani,* Japan
  Different Roles of $\alpha_5\beta_1$ and $\alpha_v\beta_3$ Integrins in the IGF-I-Induced Migration of the Human Extravillous Trophoblast Cells

- Fifth Place: *Zhenmin Lei,* USA
  Testicular Phenotype in Luteinizing Hormone Knockout Animals and the Effect of Testostrone Replacement Therapy

Iranian Winners:

- *Seyed Javad Mowla*
  The Profile of Gene Expression Changes During the Neural Differentiation of Bone Marrow Stormal Cells (BMSCs)

- *Jaleh Zolghadr*
  Pregnancy Outcome Following Laparoscopic Tubal Ligation of Hydrosalpinx Tube in Patients with Early Recurrent Abortion

Finally, this year we got more papers and the jury procedure was more difficult. The papers were very close together in scientific level, so a hairsplitting jury procedure was needed to find out the best of them.

The **Seventh** Royan International Research Award | September 2006

Received Papers:**221**

International Winners:

- First Place: *James Affram Adjaye*, Germany
  A) Whole-Genome Approaches for Large-Scale Gene Identification and Expression Analysis in Mammalian Preimplantation Embryos & B) Primary Differentiation in the Human Blastocyst: Comparative Molecular Portraits of Inner Cell Mass and Trophectoderm Cells

- Second Place: *Tian-hua Huang*, China
  Detection and Expression of Hepatitis B Virus X Gene in One and Two-Cell Embryos from Golden Hamster Oocytes In-Vitro Fertilized with Human Spermatozoa Carrying HBV DNA

- Third Place: *Adrian Richard Eley*, UK
  Opoptosis of Ejaculated Human Sperm Is Induced by Co-Incubation with Chlamydia Trachomatis Lipopolysaccaride

- Fourth Place: *Lone Schmidt*, Denmark
  Does Infertility Cause Marital Benefit? An Epidemiological Study of 2250 Women and Men in Fertility Treatment

- Fifth Place: *Louis Chukwuemeka Ajonuma*, Hong Kong
  Molecular and Cellular Mechanisms Underlying Abnormal Fluid Formation in the Female Reproductive Tract: The Critical Role of Cystic Fibrosis Transmembrane Conductance Regulators

Iranian Winners:

- *Mohammadreza Baghban Eslaminejad*
  Polarized Culture Systems and Their Effects on Embryo Development

- *Mansoureh Movahedin*
  New Approaches to Assess the Success and Enhance the Efficiency of Male Germ Cell Transplantation in the Mouse

- *Ashraf Alleyassin*
  Comparison of Unilateral and Bilateral Transfer of Injected Oocytes into Fallopian Tubes: A Prospective Randomized Clinical Trial

The **Eighth** Royan International Research Award | September 2007

Received Papers:**248**

International Winners:

Best research project in stem cell field

- *Chiba Shigeru,* Japan
  Role of Notch Signaling in Normal and Neoplastic Hematopoietic Stem Cells and Clinical Application of Notch Signal Modifiers

Best research project in reproductive genetics field

- *Françoise Dantzer,* France
  Poly (ADP-Ribose) Polymerase-2 Contributes to the Fidelity of Male Meiosis I and Spermiogenesis

Best research project in female infertility field

- *Seyed Mohammad Moazzeni,* Iran
  Dendritic Cells and Pregnancy: A Bidirectional Relationship to Protect the Semiallogenic Fetus

Best research project in embryology field

- *Bjorn Johannes Oback,* New Zealand
  Nuclear Donor Choice, Sperm Mediated Activation and Embryo Aggregation: A Multi-Pronged Approach to Sequentially Improve Cattle Cloning Efficacy

Best research project in andrology field

- *Reddanna Pallu,* India
  Role of Cyclooxygenases in Male Reproduction

Iranian Winners:

- *Ramin Radpour*
  Novel Mutations and (TG)M(T)N Polymorphism in Iranian Males with Congenital Bilateral Absence of the Vas Deferens

- *Mohammad Ebrahim Parsanezhad*
  Hysteroscopic Metroplasty of the Complete Uterine Septum, Duplicate Cervix, and Vaginal Septum

- *Mehri Azadbakht*
  Apoptosis in Mouse Embryos Co-Cultured with Polarized or Non-Polarized Uterine Epithelial Cells Using Sequential Culture Media

The **Ninth** Royan International Research Award | August 2008

Received Papers:**202**

International Winners:

Best research project in stem cell field

- *Su-Chun Zhang*, USA
  Human Embryonic Stem Cells as a Tool of Discovery

Best research project in reproductive genetics field

- *Smita Mahale*, India
  Structural, Functional and Molecular Aspects of Follicle Stimulating Hormone Receptor: Applications in Designing Receptor Targets and Management of Female Infertility

Best research project in female infertility field

- *Federico Prefumo*, Italy
  Uterine Doppler Investigations and Trophoblast Biology in Early Pregnancy

Best research project in female infertility field

- *Saeed Alborzi*, Iran
  Laparoscopic Metroplasty in Bicornuate and Didelphic Uterus

Best research project in embryology field

- *Leen.Vanhoutte*, Belgium
  Nuclear and Cytoplasmic Maturation of in Vitro Matured Human Oocytes After Temporary Nuclear Arrest By Phosphodiesterase 3-Inhibitor

Best research project in andrology field

- *T.O.Ogata*, Japan
  Haplotype Analysis of the Estrogen Receptor Alpha Gene in Male Genital and Reproductive Abnormalities

Iranian Winners:

- *Ali Fathi*
  The Molecular Mechanisms Controlling Embryonic Stem Cells (Escs) Proliferation and Differentiation

- *Fardin Fathi*
  Characterizing Endothelial Cells Derived From the Murine Embryonic Stem Cell Line CCE

The **Tenth** Royan International Research Award | September 2009

Received Papers:**253**

International Winners:

Best research project in stem cell field

- *Yi Liu, China*
  Dental Stem Cells-based Tissue Regeneration In A Large Animal Model

Best research project in reproductive genetics field

- *Wai-sum OO, China*
  Adrenomedullin in Male and Female Reproduction

Best research project in female infertility field (share)

- *Sherman Silber, USA*
  A Series of Monozygotic Twins Discordant for Ovarian Failure: Ovary Transplantation (Cortical versus Microvascular) and Cryopreservation

Best research project in female infertility field (share)

- *Melinda Halasz , Hungary*
  What Harbours The Cradle of Life? The Progesterone-Dependent Immunomodulation

Best research project in embryology field

- *Geetanjali Sachdeva, India*
  Molecular Assessment of the Uterine Milieu during Implantation Window in Humans and Non-human Primates

Best research project in andrology field

- *Paolo Chieffi, Italy*
  PATZ1 Gene Has A Critical Role In The Spermatogenesis And Testicular Tumours

Iranian Winners:

- *Hossein Mozdarani*
  Reduction of induced transgenerational genomic instability in gametes using vitamins E and C, observed as chromosomal aneuploidy and micronuclei in preimplantation embryos

- *Seyed javad Mowla*
  OCT4 Spliced Variants Are Differentially Expressed in Human Pluripotent and Nonpluripotent Cells

- *Mohammad Reza Safarinejad*
  Evidence based medicine on the pharmacologic management of premature ejaculation

Table of Titles Sorted by Name

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001	**Abedelahi,** Ali	Iran	Sodium selenite improves the in vitro follicular development by reducing the reactive oxygen species level and increasing the total antioxidant capacity and glutathione peroxide activity
002	**Abrams,** Mathew	Sweden	Multipotent mesenchymal stromal cells attenuate chronic inflammation and injury-induced sensitivity to mechanical stimuli in experimental spinal cord injury
003	**Absalan,** Forouzan	Iran	Expression of apoptotic genes & proteins after treatment of cryptorchidism in mouse
004	**Absalan,** Forouzan	Iran	Evaluation the expression of Bax, Bcl-2, p53 & Survivine after transplantation of spermatogonial stem cells to cryptorchid mouse model
005	**Abu marar,** Ehab	Germany	Single and dual embryo transfer, how far we are?
006	**Advani,** Anjali	USA	Umbilical cord blood transplantation for acute myeloid leukemia
007	**Afolayan,** Anthony	South Africa	Effect of aqueous extract of Bulbine natalensis (Baker) stem on the sexual behaviour of male rats
008	**Ajonuma Chukwuemeka,** Louis	Nigeria	New insights into the mechanisms underlying Chlamydia trachomatis infection induced female infertility
009	**Al-akour,** Nemeh	Jordan	Sex preference and interest in preconception sex selection: a survey among pregnant women in the north of Jordan
010	**Alborzi,** Saeed	Iran	A comparison of combined laparoscopic uterine artery ligation and myomectomy versus laparoscopic myomectomy in treatment of symptomatic myoma
011	**Alborzi,** Saeed	Iran	A comparison of histopathologic findings of ovarian tissue inadvertently excised with endometrioma and other kinds of benign ovarian cyst in patients undergoing laparoscopy versus laparotomy
012	**Alborzi,** Saeed	Iran	Determination of antiovarian antibodies after laparoscopic ovarian electrocauterization in patients with polycystic ovary syndrome
013	**Al-inany,** Hesham	Egypt	The effectiveness of Clomiphene Citrate in LH surge suppression in women undergoing IUI: A randomized controlled trial
014	**Alison,** Malcolm	UK	Cell line age tracing in human epithelial tissues
015	**Allameh,** Abdolamir	Iran	Susceptibility of Hepatocyte-Like Cells and their Progenitor Mesenchymal Stem Cells and CD34+ Stem Cells Isolated from Umbilical Cord Blood to Aflatoxin B1-Induced Cytotoxicity and DNA Damage
016	**Almahbobi,** Ghanim	Australia	Ovarian follicle development in Booroola sheep exhibiting impaired bone morphogenetic protein signalling pathway
017	**Al-tonbary,** Youssef	Egypt	Prognostic significance of foetal-like tyrosine kinase 3 mutation in Egyptian children with acute leukaemia
018	**Annabi,** Borhane	Canada	Evidence for Transcriptional Regulation of the Glucose-6-Phosphate Transporter by HIF-1alpha: Targeting G6PT with Mumbaistatin Analogs in Hypoxic Mesenchymal Stromal Cells
019	**Armstrong,** Alicia	USA	Impact of Obesity on Women›s Health
020	**Armstrong,** Alicia	USA	Keeping clinicians in clinical research: The Clinical Research/Reproductive Scientist Training Program
021	**Baerwald,** Angela	Canada	Growth rates of ovarian follicles during natural menstrual cycles, oral contraception cycles and ovarian stimulation cycles
022	**Balasinor,** Nafisa	India	Embryo loss due to epigenetic anomalies in the male germ line: Role of estrogen

No	Last name, First name	Country	Title
023	**Balbin villaverde,** Ana izabel	Brazil	Comparison of efficiency between two artificial insemination methods using frozen–thawed semen in domestic cat (Felis catus)
024	**Baltz,** Jay	Canada	Amino acid transport mechanisms in mouse oocytes during growth and meiotic maturation
025	**Bapat,** Sharmila	India	CD133-Expressing Stem Cells Associated with Ovarian Metastases Establish an Endothelial Hierarchy and Contribute to Tumor Vasculature
026	**Baptista,** Leandra	Brazil	The role of mesenchymal cells on establishment and progression of obesity scenario
027	**Bartlewski,** Pawel	Canada	A study of morphological and haemodynamic determinants of testicular echotexture characteristics in the ram
028	**Bartlewski,** Pawel	Canada	Relationships of changes in ultrasonographic image attributes to ovulatory and steroidogenic capacity of large antral follicles in sheep
029	**Bashamboo,** Anu	France	Mutations in NR5A1 associated with ovarian insufficiency
030	**Bazot,** Marc	France	Diagnostic accuracy of physical examination, transvaginal sonography, rectal endoscopic sonography, and magnetic resonance imaging to diagnose deep infiltrating endometriosis
031	**Bechoua,** Shaliha	France	How to demonstrate that eSET does not compromise the likelihood of having a baby?
032	**Berbic,** Marina	Australia	Macrophage expression in endometrium of women with and without endometriosis
033	**Bhansali,** Anil	India	Efficacy of autologous bone marrow–derived Stem Cell transplantation in patients with Type 2 Diabetes mellitus
034	**Bhonde,** Ramesh	India	Generation of islets from non pancreatic and pancreatic stem cells to determine their suitability for stem cell therapy in diabetes
035	**Bhonde,** Ramesh	India	Generation of insulin-producing islet like cell aggregates from adipose tissue and pancreatic stem /progenitor cells for the treatment of diabetes.
036	**Blockeel,** Christophe	Belgium	Can 200 IU of hCG replace recombinant FSH in the late follicular phase in a GnRH-antagonist cycle? A pilot study
037	**Booth,** Brian		Amphiregulin mediates self-renewal in an immortal mammary epithelial cell line with stem cell characteristics
038	**Borges jr.,** Edson	Brazil	A comparison of post-thaw results between embryos arising from icsi treatment using surgically retrieved or ejaculated spermatozoa
039	**Borges jr.,** Edson	Brazil	Artificial oocyte activation with calcium ionophore A23187 in intracytoplasmic sperm injection cycles using surgically retrieved spermatozoa
040	**Bosser giralt,** Roser	Spain	Status of human ART in Spain: Results from the new registry of Catalonia
041	**Botha,** Danie	South Africa	Semen profiles of male partners in females presenting with endometriosis-associated subfertility
042	**Brand,** Henk	The Netherlands	Xerostomia and chronic oral complications among patients treated with hematopoietic stem cell transplantation
043	**Brun,** Jean-luc	France	Menstrual activity of matrix metalloproteinases is decreased in endometrium regenerating after thermal ablation
044	**Bulavin,** Dmitry	Singapore	Control of adult stem cells by Wip1 phosphatase
045	**Buzanska,** Leonora	Poland	Human neural stem cell line as an alternative model for in vitro developmental neurotoxicity testing
046	**Caballero,** Ignacio	Spain	PSP-I/PSP-II spermadhesin exert a decapacitation effect on highly extended boar spermatozoa
047	**Calegari,** Federico	Germany	Cdk4/CyclinD1 overexpression in neural stem Cells shortens G1, delays neurogenesis, and promotes the generation and expansion of basal progenitors
048	**Cameron,** Sharon	UK	Novel interventions to reduce re-infection in women with chlamydia : a randomised controlled trial
049	**Carmina,** Enrico	Italy	Milder forms of atherogenic dyslipidemia in ovulatory versus anovulatory polycystic ovary syndrome phenotype
050	**Cavestany,** Daniel	Uruguay	Effect of prepartum diet on postpartum ovarian activity in Holstein cows in a pasture-based dairy system
051	**Cha,** Hyukjin	Korea	Stem cells senescence is caused by intrinsic stress signaling
052	**Chang,** Jong wook	Korea	Overexpression of CXC chemokine receptors is required for the superior glioma-tracking property of umbilical cord blood-derived mesenchymal stem cells

No	Last name, First name	Country	Title
053	**Chang,** Grace	USA	Mental Status Changes after Hematopoietic Stem Cell Transplant
054	**Chaudhry,** Ghulam	USA	Fate of ESC-derivatives Implanted into the vitreous of a slow retinal degenerative mouse model
055	**Chen,** Bin	China	Method of culturing human spermatogonial stem cells
056	**Cheng,** Yu fan	Taiwan	Prophylactic intraoperative uterine artery embolization to control hemorrhage in abnormal placentation during late gestation
057	**Chieffi,** Paolo	Italy	Aurora B expression in post-puberal testicular germ cell tumours
058	**Chien,** Eileen	Taiwan	The Non-Genomic Effects on Na+/H+-Exchange 1 by Progesterone and 20a-Hydroxyprogesterone in Human T Cells
059	**Chien,** Eileen	Taiwan	Mifepristone acts as progesterone antagonist of non-genomic responses but inhibits phytohemagglutininduced proliferation in human T cells
060	**Ciavarella,** Sabino	Italy	Umbilical cord mesenchymal stem cells: Role of regulatory genes in their differentiation to osteoblasts
061	**Ciccolini,** Francesca	Germany	Analysis of neural stem cell lineage progression in the postnatal Subventricular zone
062	**Cinti,** Saverio	Italy	In vivo physiologic transdifferentiation of adult adipose cells
063	**Cioffi,** Michele	Italy	CYP17 and CYP19 gene polymorphisms in women affected with endometriosis
064	**Clegg,** Dennis	USA	Functional retinal pigment epithelial cells from induced pluripotent stem cells
065	**Cogulu,** Ozgur	Turkey	Cytogenetic abnormalities in 179 cases with male infertility in western region of Turkey: report and review
066	**Conner,** Peter	Sweden	Ovarian epithelial neoplasia after hormonal infertility treatment: long-term follow-up of a historical cohort in Sweden
067	**Cornelison,** Dawn	USA	3D Timelapse analysis of muscle satellite cell motility
068	**Coto montes,** Ana	Spain	Sexual autophagic differences in the androgen-dependent flank organ of syrian hamsters
069	**Cova,** Lidia	Italy	Activation of endogenous neurogenesis and neurorescue mechanisms by human Mesenchymal Stem Cells transplantation in an experimental model of Parkinson's Disease
070	**Coy,** Pilar	Spain	Regulation of the sperm-oocyte interaction by oviductal fluid
071	**Curchoe,** Carol	USA	Allelic switching of the imprinted IGF2R gene in cloned bovine fetuses and calves
072	**Das,** Goutam	India	Effect of exogenous administration of buffalo follicular fluid on follicular development, estrus response and luteal function in anoestrous goats (Capra hircus)
073	**Das,** Hiranmoy	USA	Genetically-modified stem cell therapy for ischemic diseases
074	**Datta,** Uttam	India	In-situ preservation of caprine cauda epididymal spermatozoa at -10 degree centigrade
075	**De miguel,** Maria	Spain	Cornea and ocular surface treatment
076	**Desai,** Nisarg	USA	Effects of radiofrequency electromagnetic waves (RF-EMW) from cellular phones on human ejaculated semen: an in vitro pilot study
077	**Dhali,** Arindam	USA	Development of growth factor supplemented complete serum free systems for in vitro bovine embryo production
078	**Di girolamo,** Nick	Australia	Stem cell activity in the developing human cornea
079	**Dickenson,** Donna	UK	Good science and good ethics@ why we should discourage payment for eggs in stem cell research
080	**Dipersio,** John	USA	Phase III prospective randomized double-blind placebo-controlled trial of plerixafor plus granulocyte colony-stimulating factor compared with placebo plus granulocyte colony-stimulating factor for autologous stem-cell mobilization and transplantation for patients with non-Hodgkin›s lymphoma
081	**Duque,** Gustavo	Australia	Autocrine regulation of interferon in mesenchymal stem cells PLAYS A role in early osteoblastogenesis
082	**Dzierzak,** Elaine	The Netherlands	Human placenta is a potent hematopoietic niche containing hematopoietic stem and progenitor cells throughout development
083	**Ebbesen,** Signe	Denmark	Stressful life events are associated with a poor In Vitro Fertilization (IVF) -outcome - a prospective study
084	**Ebrahimi,** Mahbod	Iran	the effect of luteal phase support on pregnancy rates of stimulated IUIcycles in patients with unexplained infertility

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085	**Engin,** Gulgun	Turkey	Comparison of transrectal ultrasonography and transrectal ultrasonography-guided seminal vesicle aspiration in the diagnosis of the ejaculatory duct obstruction
086	**Ergün,** Mehmet	Turkey	Supernumerary marker chromosome 15 in a male with azoospermia and open bite deformity
087	**Esfandiari,** Navid	Canada	Towards automated robotic human ICSI
088	**Faridi,** Rehan	India	Influence of activating and inhibitory killer immunoglobulin-like receptors on predisposition to recurrent miscarriages
089	**Fathi,** Ali	Iran	Comparative proteome and transcriptome analyses of embryonic stem cells during Embryoid Body-based Differentiation
090	**Fathi,** Ali	Iran	Identification of mouse embryonic stem cell-Associated proteins
091	**Feki,** Anis	Switzerland	Immortalized human skin fibroblast feeder cells support growth and maintenance of both human embryonic and induced pluripotent stem cells
092	**Feki,** Nozha	Tunisia	Semen quality decline among men in infertile relationships: experience over 12 years in the south of tunisia
093	**Ferreira,** Claudia	Brazil	Quinacrine sterilization for human immunodeficiency virus–positive women
094	**Figliuzzi,** Marina	Italy	Mesenchymal stem cells improve islet graft function in diabetic rats
095	**Fiorina,** Paolo	USA	Immunomodulatory function of bone marrow-derived mesenchymal stem cells in experimental autoimmune type 1 diabetes
096	**Flaws,** Jodi	USA	Premature ovarian failure among hairdressers
097	**Flora,** Swaran	India	Monoisoamyl dimercaptosuccinic acid abrogate arsenic-induced developmental toxicity in human embryonic stem cell-derived embryoid bodies: Comparison with in vivo studies
098	**Fouladi-nashta,** Ali	UK	The effect of linolenic acid on bovine oocyte maturation and development
099	**Franco jr,** Jose	Brazil	Significance of extruded nuclear chromatin mass (regional nuclear shape malformation) in human spermatozoa: implications for ICSI
100	**Franco jr,** Jose	Brazil	Motile sperm organelle morphology examination is stricter than Tygerberg criteria
101	**Franco jr,** Jose	Brazil	Relationship between visualization of meiotic spindle in human oocytes and ICSI outcomes: a meta-analysis
102	**Fujikawa-yamamoto,** Kohzaburo	Japan	Cell cycle, morphology and pluripotency of 8-ploid H1 (ES) cells in comparison with those of 4- and 2-ploid cells
103	**Fujimoto,** Nariaki	Japan	Prostatic secreted proteins in mice and rats: Identification using MS analysis and androgen dependent expression
104	**Galat,** Vasil	USA	Developmental Potential of Rat Extraembryonic Stem Cells
105	**Gallati kraemer,** Sabina	Switzerland	Cystic fibrosis transmembrane conductance regulator mutations in azoospermic and oligospermic men and their partners
106	**Gallego,** Miguel	Austria	Opioid and progesterone signaling is obligatory for early human embryogenesis
107	**Gamboa,** Sandra	Portugal	Seminal traits, suitability for semen preservation and fertility in the native Portuguese horse breeds Puro Sangue Lusitano and Sorraia: Implications for stallion classification and assisted reproduction
108	**Gan,** Li	USA	Imbalance between GABAergic and Glutamatergic Transmission Impairs Adult Neurogenesis in an Animal Model of Alzheimer's Disease
109	**Garcia-garcia,** Rosa	Spain	Influence of different reproductive rhythms on serum estradiol and testosterone levels, features of follicular population and atresia rate, and oocyte maturation in controlled suckling rabbits
110	**Ghi,** Tullio	Italy	Accuracy of 3D ultrasound in diagnosis and classification of congenital uterine anomalies
111	**Ghobadi,** Cyrus	UK	Evaluation of the relationship between plasma concentrations of en- and zuclomiphene and induction of ovulation in anovulatory women being treated with clomiphene citrate
112	**Gobena,** Edessa	Ethiopia	Outbreak of cutaneous leishmaniasis in Silti woreda, Ethiopia: risk factor assessment and causative agent identification
113	**Goto,** Sakae	Japan	Stimulation of endometrium embryo transfer can improve implantation and pregnancy rates for patients undergoing assisted reproductive technology for the first time with a high-grade blastocyst

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114	**Gritti,** Angela	Italy	Effects of developmental age, brain region, and time in culture on long-term proliferation and multipotency of neural stem cell populations
115	**Gruhn,** Bernd	Germany	Polymorphism of interleukin-23 receptor gene but not of NOD2/CARD15 is associated with graft-versus-Host disease after hematopoietic stem cell transplantation in children
116	**Gruhn,** Bernd	Germany	Prenatal origin of childhood acute lymphoblastic leukemia, association with birth weight and hyperdiploidy
117	**Gupta,** Neelam	India	Study of expression of developmental genes in SCNT cloned embryos
118	**Haapsamo,** Mervi	Finland	Low-dose aspirin and uterine haemodynamics on the day of embryo transfer in women undergoing IVF/ICSI – a randomized, placebo-controlled double-blind study
119	**Haitao,** Zeng	China	In vitro–matured rat oocytes have low mitochondrial deoxyribonucleic acid and adenosine triphosphate contents and have abnormal mitochondrial redistribution
120	**Hartshorne,** Geraldine	UK	Prenatal oogenesis: Selecting the quality and quantity of oocytes in the ovarian reserve
121	**Herrid,** Muren	Australia	A comparison of methods for preparing enriched populations of bovine spermatogonia
122	**Herrid,** Muren	Australia	Irradiation enhances the efficiency of testicular germ cell transplantation in sheep
123	**Hescheler,** Juergen	Germany	Role of natural-killer group 2 member D ligands and intercellular adhesion molecule 1 in natural killer cell-mediated lysis of murine embryonic stem cells and embryonic stem cell-derived cardiomyocytes
124	**Hofer,** Michal	Czech Republic	Activation of adenosine A3 receptors potentiates stimulatory effects of IL-3, SCF, and GM-CSF on mouse granulocyte-macrophage hematopoietic progenitor cells
125	**Horng,** Shang-gwo	Taiwan	Relationship of progesterone/estradiol ratio on hCG day to pregnancy outcomes in high responders undergoing in-vitro fertilization
126	**Hou,** Mi	Sweden	Immunomagnetic separation of normal rat testicular cells from Roser's T-cell leukaemia cells is ineffective
127	**Hough,** Margaret	Canada	Derivation and characterization of canine embryonic stem cell lines with in vitro and in vivo differentiation potential
128	**Hsieh,** Tze-chen	USA	Uptake of resveratrol and role of resveratrol-targeting protein, quinone reductase 2, in normally cultured human prostate cells
129	**Hsu,** Ming-I	Taiwan	Clinical and biochemical presentations of polycystic ovary syndrome among obese and non-obese women
130	**Hsu,** Chao-yu	Belgium	Correlations between age, Charlson score and outcome in clinical unilateral T3a prostate cancer
131	**Hu,** Zhenming	China	Comparison of platelet-rich plasma,bovine BMP and rhBMP-4 on bone matrix protein expression in vitro
132	**Huard,** Johnny	USA	Antioxidant levels represent a major determinant in the regenerative capacity of muscle stem cells
133	**Hudelist,** Gernot	Austria	Can transvaginal sonography predict infiltration depth in patients with deep infiltrating endometriosis of the rectum?
134	**Hwang,** Woo-suk	Korea	Birth of Beagle dogs by somatic cell nuclear transfer
135	**Hwan-jung,** Roh	Korea	Immunomodulatory effects of adipose tissue-derived stem cells in an allergic rhinitis mouse model
136	**Iacovitti,** Lorraine	USA	The role of lmx1a in the differentiation of human embryonic stem cells into midbrain dopamine neurons in culture and after transplantation into a parkinson's disease model
137	**Inhorn,** Marcia	USA	Assisting reproduction: religion and islamic bioethics in the high-tech middle east
138	**Ip,** Tony	USA	Genetics of intestinal stem cell- mediated repair in Drosophila
139	**Itoh,** Tatsuki	Japan	The novel free radical scavenger, edaravone, increases neural stem cell number around the area of damage following rat traumatic brain injury
140	**Izeta,** Ander	Spain	Age-dependent depletion of human skin-derived precursor cells
141	**Janssens,** Pim M W	The Netherlands	Approaching risk analysis and risk management in the fertility laboratory and semen bank
142	**Jensen,** Kim	UK	Lrig1 expression defines a distinct multipotent stem cell population in mammalian epidermis
143	**Jeyakumar,** Mylvaganam	UK	Neural stem cell transplantation benefits a monogenic neurometabolic disorder during the symptomatic phase of disease

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144	**Jin,** Ying	China	Ly-1 antibody reactive clone is an important nucleolar protein for control of self-renewal and differentiation in embryonic stem cells
145	**Joffe,** Michael	UK	The role of biological fertility in predicting family size
146	**Jones, jr.,** Howard	USA	Strategies for designing an efficient insurance fertility benefit: a 21st century approach
147	**Kan,** Lixin	USA	Intrinsic and extrinsic factors that regulate the tissue specific stem cells in adults and embryos
148	**Kang,** Elizabeth	USA	Retroviral gene therapy for X-linked chronic granulomatous disease can achieve stable long-term correction of oxidase activity in peripheral blood neutrophils
149	**Kanno,** Hiroshi	Japan	Efficient generation of dopamine neuron-like cells from skin-derived precursors with a synthetic peptide derived from von Hippel-Lindau protein
150	**Karen,** Aly	Egypt	Estimation of gestational age in Egyptian native goats by ultrasonographic fetometry
151	**Karmaliani,** Rozina	Pakistan	Prevalence of anxiety, depression and associated factors among pregnant women of hyderabad, pakistan
152	**Karteris,** Emmanouil	UK	Detailed mapping of mammalian target of rapamycin (mTOR)-related components in human myometrium
153	**Kaul,** Gautam	India	Ultrasound mediated transplantation of spermatogonial stem cells in goats
154	**Kavoussi,** Shahryar	USA	Peroxisome-Proliferator Activator Receptor-gamma activation decreases attachment of endometrial cells to peritoneal mesothelial cells in an in vitro model of the early endometriotic lesion
155	**Ke,** Yu	China	Modified PHBV scaffolds by in situ UV polymerization: Structural characteristic, mechanical properties and bone mesenchymal stem cell compatibility
156	**Keirse,** Marc	Belgium	Preterm birth in twins and singletons - a problem growing beyond reach
157	**Khole,** Vrinda	India	Identification of novel immunodominant epididymal sperm proteins using combinatorial approach
158	**Khole,** Vrinda	India	Significance of antiovarian antibodies in pathophysiology of premature ovarian insufficiency
159	**Kim,** Jae bum	Korea	Adiponectin stimulates osteoblast differentiation through induction of COX2 in mesenchymal progenitor cells
160	**Kitaya,** Kotaro	Japan	Genes affected by ovarian steroids in uterine microvascular endothelial cells
161	**Klitzman,** Robert	USA	Preimplantation genetic diagnosis (PGD) on in vitro fertilization (IVF) websites: presentations of risks, benefits and other information
162	**Konno,** Ryo	Japan	Smooth muscle metaplasia and innervation in interstitium of endometriotic lesions related to pain
163	**Konuma,** Noriyoshi	Japan	Induction of intestinal stem cells in mouse Embrionic stem cell
164	**Kowalewski,** Mariusz	Germany	Endocrine regulation of canine corpus luteum- and placental- function
165	**Kumar,** Neeraj	India	Derivation and characterization of two genetically unique human embryonic stem cell lines on in-house–derived human feeders
166	**Kuo,** Yur-ren	Taiwan	Mesenchymal stem cells prolong composite tissue allotransplant survival in a swine model
167	**Kupittayanant,** Sajeera	Thailand	Mechanisms of uterine contractility in laying hens
168	**Kyrou,** Dimitra	Belgium	Does the estradiol level on the day of human chorionic gonadotrophin administration have an impact on pregnancy rates in patients treated with rec-FSH/GnRH antagonist?
169	**La marca,** Antonio	Italy	Anti-Mullerian hormone (AMH) as a predictive marker in assisted reproductive technology (ART)
170	**Lai,** Yen-chein	Taiwan	Expansion of CAG repeats in the spinocerebellar ataxia type 1 (SCA1) gene in idiopathic oligozoospermia patients
171	**Lalli,** Enzo	France	Role of transcription factor Dax-1 in regulating embryonic stem cell differentiation.
172	**Le bouteiller,** Philippe	France	Soluble HLA-G in IVF/ICSI embryo culture supernatants does not always predict implantation success: a multicentre study
173	**Lee,** Ki-ho	Korea	Ontogeny of expression and localization of steroidogenic enzymes in the neonatal and prepubertal pig testes
174	**Lee,** Chan-ho	Korea	Increased expression of the nitric oxide synthase gene and protein in corpus cavernosum by repeated dosing of udenafil in a rat model of chemical diabetogenesis

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175	**Lefèvre,** Christophe	Australia	Characterisation of monotreme caseins reveals lineage specific expansion of an ancestral casein locus in mammals
176	**Lenka,** Nibedita	India	Intrinsic control and lineage diversification from embryonic stem cells in vitro; wnt at the cross road
177	**Lewis,** Ian	Australia	Co-transplantation of placental MSCs enhances single and double cord blood engraftment in NOD/SCID mice
178	**Lewis,** Sheena	UK	Andrology, male subfertility treatment
179	**Li,** Jun		Cardiac c-kit+AT2+ cell population is increased in response to ischemic injury and supports cardiomyocyte performance
180	**Li,** Ren-ke	Canada	c-kit function is necessary for in vitro myogenic differentiation of bone marrow hematopoietic cells
181	**Li,** Chang-zhong	China	The impact of electrocoagulation on ovarian reserve after laparoscopic excision of ovarian cyst: a prospective clinical study of 191 patients
182	**Li,** Chong	Japan	Production of normal mice from spermatozoa denatured with high alkali treatment before ICSI
183	**Li,** Raymond	Hong Kong	Effect of leptin on motility, capacitation and acrosome reaction of human spermatozoa
184	**Liehr,** Thomas	Germany	Automated detection of residual cells after sex-mismatched stem-cell transplantation – evidence for presence of disease-marker negative residual cells
185	**Lin,** Ching-shwun	USA	Treatment of type 1 diabetes with adipose tissue-derived stem cells expressing pancratic duodenal homeobox 1
186	**Lin,** Yu-hung	Taiwan	Effects of growth factors and granulosa cell coculture on in-vitro maturation of oocytes
187	**Liu,** Yixun	China	Expression of nitric oxide synthase during germ cell apoptosis in testis of cynomolgus monkey after testosterone and heat treatment
188	**Livshyts,** Ganna	Ukraine	A distribution of two snps in exon 10 of the fshr gene among the women with a diminished ovarian reserve in ukraine
189	**Lohiya,** N. K.	India	Sperm characteristics and teratology in rats following vas deferens occlusion with RISUG and its reversal
190	**Lowry,** William	USA	Directed differentiation of human-induced pluripotent stem cells generates active motor neurons
191	**Luigi,** Devoto	Chile	The human corpus luteum: life cycle and function in natural cycles
192	**Luisi,** Stefano	Italy	Efficacy of vaginal danazol treatment in women with recurrent deeply infiltrating endometriosis
193	**Mabrouk,** Mohamed	Italy	Post-operative use of oral contraceptive pills for prevention of anatomical relapse or symptom recurrence after conservative surgery for endometriosis
194	**Maciaczyk,** Jaroslaw	Germany	Human fetal neural precursor cells: a putative cell source for neurorestorative strategies
195	**Ma'dani,** Tahereh	Iran	Improvement of pregnancy rate in ART cycles
196	**Magarelli,** Paul C	USA	Changes in serum cortisol and prolactin associated with acupuncture udring controlled ovarian hyperstimulation in women undergoing in vitro fertilization-embryo transfer treatment
197	**Maiorano,** Nicola	UK	Role of MIcroRna 124 during neuronogenesis in developing murine cortex
198	**Maitra,** Anurupa	India	CYP11A1 and CYP17 promoter polymorphisms associate with hyperandrogenemia in polycystic ovary syndrome
199	**Makoolati,** Zohreh	Iran	Male germ cell production from mouse embryonic stem cell following Co-culture or treatment with BMP4 in vitro and transplantation to testis of adult mouse azoospermia model
200	**Malik,** Abida	India	Chlamydia trachomatis infection in females with secondary infertility
201	**Mansour,** Nabil	Austria	Physiological and biochemical investigations on egg stickiness in common carp
202	**Marini,** Patricia	Argentina	Dynamics of the sperm surface and its relation to physiological state using boar as a model
203	**Markx,** Gerard	UK	Recreating the hematon: microfabrication of artificial haematopoietic stem cell microniches in vitro using dielectrophoresis

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204	**Martin,** Graeme	Australia	Rapid induction of cell proliferation in the adult female ungulate brain (ovis aries) associated with activation of the reproductive axis by exposure to unfamiliar males
205	**Matorras,** Roberto	Spain	Ultrasound guided artificial insemination: A randomized controlled trial
206	**Matunis,** Erika	USA	Dedifferentiating spermatogonia outcompete somatic stem cells for niche occupancy in the Drosophila testis
207	**Medeiros de araujo,** Carlos	Brazil	Supplemented tissue culture medium 199 is a better medium for in vitro maturation of oocytes from women with polycystic ovary syndrome women than human tubal fluid
208	**Mehasseb,** Mohamed	UK	The effects of tamoxifen and estradiol on myometrial differentiation and organization during early uterine development in the CD1 mouse
209	**Mellough,** Carla	UK	Genetic basis of inherited macular dystrophies and implications for stem cell therapy
210	**Menendez,** Pablo	Spain	Mesenchymal stem cells facilitate the derivation of human embryonic stem cells from cryopreserved poor-quality embryos
211	**Min,** Tian	China	Clinical Aspects of neural stem cells
212	**Miosge,** Nicolai	Germany	Migratory chondrogenic progenitor cells from repair tissue during the later stages of human osteoarthritis
213	**Misro,** Man	India	Adverse effects associated with persistent stimulation of leydig cells with hCG in vitro
214	**Mitsui,** Akinori	Japan	Improvement of embryonic development and production of offspring by transferring meiosis-II chromosomes of senescent mouse oocytes into cytoplasts of young mouse oocytes
215	**Moeini,** Mohammad	Iran	Effect of Selenium and vitamin E supplementation during the late pregnancy on reproductive indices and milk production in heifers
216	**Mohammed,** Nuruddin	Pakistan	Non-invasive prenatal determination of fetal RHD genotyping from maternal plasma: First prospective preliminary study in Pakistan
217	**Morrone,** Giovanni	Italy	Design and construction of lentiviral vectors for efficient transduction of human haematopoietic cells for
218	**Mostoslavsky,** Gustavo	USA	ips cell generation using a single lentiviral stem cell cassette
219	**Mújica,** Adela	Mexico	In guinea pig sperm, aldolase A forms a complex with actin, WAS, and Arp2/3 that plays a role in actin polymerization
220	**Mukhopadhyay,** Asok	India	Bone marrow cell therapy for treatment of hemophilia A in mice
221	**Mulayim,** Barıs	Turkey	Sublingual misoprostol after surgical management of early termination of pregnancy
222	**Nagle,** Christina	Australia	Relative weight at ages 10 and 16 years and risk of endometriosis: a case-control analysis
223	**Naina,** Harris	USA	Thrombotic microangiopathy during peripheral blood stem cell mobilization
224	**Nakashima,** Kinichi	Japan	Astrocyte differentiation of neural precursor cells is enhanced by retinoic acid through a change in epigenetic modification
225	**Nasr-Esfahani,** Mohammad	Iran	New era in sperm selection for ICSI procedure
226	**Newgreen,** Donald	Australia	Small molecule induction of neural crest-like cells derived from human neural progenitors
227	**Nezhat,** Camran	USA	Robotic-assisted laparoscopic myomectomy compared with standard laparoscopic myomectomy--a retrospective matched control study
228	**Noruzinia,** Mehrdad	Iran	MTHFR promoter hypermethylation in testicular biopsies of patients with non-obstructive azoospermia: the role of epigenetics in male infertility
229	**Nwaogu,** Innocent	Nigeria	Studies on morphological features of foetal and adult ovaries in kano brown goats
230	**Ogawa,** Rei	USA	The effect of hydrostatic pressure on 3-d chondroinduction of human adipose-derived stem cells
231	**Oh,** Seh-hoon	USA	Detection of transketolase in bone marrow-derived insulin producing cells: benfotiamine enhances insulin synthesis and glucose metabolism
232	**Okudela,** Koji	Japan	Cancer stem cells in lung cancer: distinct differences between small cell and non-small cell lung carcinomas with special reference to expression and activity of aldehyde dehydrogenase
233	**Opas,** Michal	Canada	Evidence for calreticulin attenuation of cardiac hypertrophy induced by pressure overload and soluble agonists

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234	**Opas,** Michal	Canada	Calreticulin inhibits commitment to adipocyte differentiation
235	**Opas,** Michal	Canada	Cell adhesion and spreading affect adipogenesis from ES cells: the role of calreticulin
236	**Overbeek,** Annelies	The Netherlands	Clomiphene citrate resistance in relation to follicle-stimulating hormone receptor Ser680Ser-polymorphism in polycystic ovary syndrome
237	**Page,** Raymond	USA	Induction of stem cell gene expression in adult human fibroblasts without transgenes
238	**Papaioannou,** Marilena	Switzerland	Sertoli cell Dicer is essential for spermatogenesis
239	**Pei,** Ming	USA	Histone deacetylase 4 promotes TGF-beta1-Induced synovium-derived stem cell chondrogenesis but inhibits chondrogenically differentiated Stem cell hypertrophy
240	**Pelaez,** Daniel	USA	Cyclic compression maintains viability and induces chondrogenesis of human mesenchymal stem cells in fibrin gel scaffolds
241	**Perez-martinez,** Silvina	Argentina	Participation of the endocannabinoid system in the regulation of the sperm-oviduct interaction in mammals
242	**Perletti,** Gianpaolo	Italy	Semen analysis in chronic bacterial prostatitis: diagnostic and therapeutic implications.
243	**Piña-aguilar,** Raul	Mexico	Proposal to change the popular and scientific interest in the application of nuclear transfer techniques from the revival of extinct species, to “conservation cloning” with a zoological emphasis
244	**Piryaei,** Abbas	Iran	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
245	**Pluchino,** Stefano	Italy	Human neural stem cells ameliorate autoimmune encephalomyelitis in non-human primates
246	**Poote,** Aimee	UK	British women›s attitudes to surrogacy
247	**Possover,** Marc	Germany	Laparoscopic management of neural pelvic pain in women secondary to pelvic surgery
248	**Pozzetto,** Bruno	France	Prospective evaluation of the threat related to the use of seminal fractions from hepatitis C virus-infected men in assisted reproductive techniques
249	**Prasad,** Rajendra	India	Heterogenous spectrum of CFTR gene mutations in Indian patients with congenital absence of vas deferens
250	**Prokhorova,** Tatyana	Denmark	Teratoma Formation by Human Embryonic Stem Cells Is Site Dependent and Enhanced by the Presence of Matrigel
251	**Quinn,** Gwendolyn	USA	Attitudes of high-risk women toward preimplantation genetic diagnosis
252	**Rahbar,** Tayebeh	India	Effectiveness of HIV counseling services on knowledge, attitude, behavior and practice (KABP) among pregnant women attending PPTC program
253	**Rahnavardi,** Mohammad	Iran	Chronic mustard toxicity on the testis: a historical cohort study two decades after exposure
254	**Ramió lluch,** Laura	Spain	Effects of filtration through sephadex columns improve overall quality parameters and «in vivo» fertility of subfertile refrigerated boar semen
255	**Reddy,** Sreenivasula	India	Recovery of suppressed male reproduction in mice exposed to progesterone during embryonic development by testosterone
256	**Reddy,** Sreenivasula	India	Testosterone cannot activate the suppressed male reproduction completely in adult rats exposed to hydroxyprogesterone during embryonic development
257	**Reiff,** Andreas	USA	Study of thymic size and function in children and adolescents with treatment refractory systemic sclerosis eligible for immunoablative therapy
258	**Rivolta,** Marcelo	UK	Developing the tools for a stem cell-based therapy for deafness
259	**Roca,** Montse	Spain	Psychosocial risks associated with multiple births resulting from assisted reproduction: a Spanish sample
260	**Rodrigues,** Berenice	Brazil	Cumulus cell features and nuclear chromatin configuration of in vitro matured canine COCs and the influence of in vivo serum progesterone concentrations of ovary donors
261	**Rodriguez-gil,** Joan	Spain	Improvement of «in vivo» fertility of subfertile boar ejaculates throguh Sephadex filtration
262	**Roelen,** Bernard	The Netherlands	The effect of growth factors on in vitro-cultured porcine testicular cells
263	**Ross,** Pablo	USA	PLCZ mRNA injection: a natural approach to activate bovine somatic cell nuclear transfer embryos

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264	**Rusner,** Carsten	Germany	Incidence of primary-malign testicular cancer.A analysis of population-based cancer registries in Germany
265	**Sadri-Ardekani,** Hooman	Iran	Propagation of human spermatogonial stem cells in vitro
266	**Sadvakassova,** Gulzhakhan	Canada	The acidic C-terminal residue of thrombospondin-4 binds CD44 and ROD1 and is an erythropoietin-dependent peptide involved in hematopoietic stem cell proliferation
267	**Sagsoz,** Nevin	Turkey	The effects of oral contraceptives including low-dose estrogen and drospirenone on the concentration of leptin and ghrelin in polycystic ovary syndrome
268	**Salli,** Ugur	USA	Propagation of Undifferentiated Human Embryonic Stem Cells with Nano-Liposomal Ceramide
269	**Salvetti,** Alessandra	Italy	Adult stem cell plasticity: neoblast repopulation in non-lethally irradiated planarians
270	**Saragusty,** Joseph	Germany	Successful cryopreservation of the asian elephant (elephas maximus) spermatozoa
271	**Sarkar,** Mihir	India	Strategies to optimize reproductive efficiency by regulation of ovarian function in yak (Poephagus grunniens L.)
272	**Sarkar,** Mihir	India	The expression of leptin and its receptor during different physiological stages in the bovine ovary
273	**Sarkar,** Mihir	India	Conservation of yak genetic resources
274	**Sbracia,** Marco	Italy	Use of granulocyte colony-stimulating factor for the treatment of unexplained recurrent miscarriage: a randomised controlled trial
275	**Schuetz,** Catharina	Germany	Hematopoietic stem cell transplantation from matched unrelated donors in chronic granulomatous disease
276	**Schust,** Danny	USA	Human decidual stromal cells suppress cytokine secretion by allogenic CD4+ T cells via PD-1 ligand interactions
277	**Sciorsci,** Raffaele	Italy	Valutation of vascularization in cows with follicular cysts after epidural administration of a GnRH analogue
278	**Semedo,** Patricia	Brazil	Immunosuppressive and remodeling properties of mesenchymal stem cell in chronic renal failure
279	**Seyedhassani,** Seyed Mohammad	Iran	Molecular study of internal apoptotic pathway BAX and BCL2 genes and mitochondrial genome in idiopathic repeated pregnancy loss
280	**Shahrokhi,** Somayeh	Iran	Substance P and calcitonin-gene-related neuropeptides as novel growth factors for Ex vivo expansion of cord blood CD34+ hematopoietic stem cells
281	**Sharma,** Taru	India	Survival and developmental competence of buffalo preantral follicles using three dimensional collagen gel culture system
282	**Sharma,** Taru	India	Molecular signaling and the transcription factors of buffalo pluripotent embryonic stem cells
283	**Sheikh,** Soren	Denmark	Do epicardially derived NLP+ cells possess stem cell potential for regeneration of the heart after infarction?
284	**Sheikholeslami,** Behnaz	Iran	Granulocyte Macrophage Stimulating Factor (GM-CSF) improves the development of isolated blastomeres from two cell embryos to blastocyst
285	**Shetty,** Prathibha	India	Human umbilical cord blood serum can replace fetal bovine serum in the culture of mesenchymal stem cells
286	**Simon,** Liz	USA	Direct transdifferentiation of stem/progenitor spermatogonia into reproductive and nonreproductive tissues of all germ layers
287	**Singhal,** Sumit	India	Effect of including growth factors and antioxidants in maturation medium used for in vitro culture of buffalo oocytes recovered in vivo
288	**Siniscalco,** Dario	Italy	Human mesenchymal stem cells transplanted in the sensory cortex are able to decrease pain perception in neuropathic rodents
289	**Siow,** Anthoy	Singapore	Laparoscopic management of 53 cases of cornual ectopic pregnancy
290	**Sofikitis,** Nikolaos	Japan	Post-fertilization effects of chronic renal failure in male rats
291	**Solari,** Alberto	Argentina	Focal spermatogenesis originates in euploid germ cells in classical klinefelter patients
292	**Song,** Hyuk	Korea	Interstitial tissue-specific gene expression in mouse testis by intra-tunica albuguineal injection of recombinant baculovirus
293	**Sosa,** Cecilia	Spain	Effect of undernutrition on the uterine environment during maternal recognition of pregnancy in sheep

No	Last name, First name	Country	Title
294	**Souza,** Maria do Carmo	Brazil	Evaluation of two incubation environments—ISO class 8 versus ISO class 5—on intracytoplasmic sperm injection cycle outcome
295	**Stepniewska,** Anna	Italy	Laparoscopic treatment of bowel endometriosis in infertile women
296	**Stockwell,** Sally	Australia	Germ cell transplantation in livestock species
297	**Sumboonnanonda,** Achra	Thailand	Renal tubule function in beta-thalassemia after hematopoietic stem cell transplantation
298	**Sun,** Jie	China	Leydig cell transplantation restores androgen production in surgically castrated prepubertal rats
299	**Suttorp,** Meinolf	Germany	Allogeneic stem cell transplantation for pediatric and adolescent patients with CML: Results from the prospective trial CML-paed I
300	**Swenson,** Rebecca	USA	HIV knowledge, sexual risk behavior, and HIV testing among low-income african american adolescents in four US. Sities
301	**Takzare,** Nasrin	Iran	The effect of Achillea millefolium extract on spermatogenesis of male wistar rats
302	**Tan,** Seang lin	Canada	Feasibility of fertility preservation in young females with Turner syndrome
303	**Tan,** Seang lin	Canada	Live births and obstetric outcomes following vitrification of in vitro and in vivo matured human oocytes
304	**Tan,** Seang lin	Canada	Obstetric outcomes following vitrification of in vitro and in vivo matured oocytes
305	**Taylor,** Verdon	Germany	Neural progenitors of the postnatal and adult mouse forebrain retain the ability to self-replicate, form neurospheres, and undergo multipotent differentiation in vivo
306	**Thatcher,** William	USA	Use of increasing doses of a degradable Deslorelin implant to enhance uterine involution in postpartum lactating dairy cows
307	**Thompson,** Cecil	UK	Purinergic modulation of human corpus cavernosum relaxation
308	**Tiboni,** Gian mario	Italy	Impact of estrogen replacement on letrozole-induced embryopathic effects
309	**Tongming,** Liu	Singapore	Effects of ectopic nanog and oct4 overexpression on mesenchymal stem cells
310	**Toralova,** Tereza	Czech Republic	Silencing CENPF in bovine preimplantation embryo induces arrest at 8-cell stage
311	**Torkzahrani,** Shahnaz	Iran	Comparing the effects of acupressure points in SP6 and SP8 on primary dysmenorrhea
312	**Trefil,** Pavel	Czech Republic	Identification of testicular cell populations in pubertal and adult cockerels
313	**Tsao,** Chih-wei	Taiwan	a relationship between obesity and varicocele
314	**Tummaruk,** Padet	Thailand	The association between growth rate, body weight, backfat thickness and age at first observed oestrus in crossbred Landrace x Yorkshire gilts
315	**Uzan,** Albanese	France	Glycosaminoglycan mimetics–induced mobilization of hematopoietic progenitors and stem cells into mouse peripheral blood: Structure/function insights
316	**Vaamonde martin,** Diana	Spain	Response of semen parameters to three training modalities
317	**Vahidi,** Serajoddin	Iran	Prevalence of primary infertility in the Islamic Republic of Iran in 2004-2005
318	**Vahidi,** Serajoddin	Iran	Service utilization patterns for presumed infertile women in the islamic republic of iran, 2004-2005
319	**Valdez,** Ben	USA	5-Aza-2›-deoxycytidine sensitizes busulfan-resistant myeloid leukemia cells by regulating expression of genes involved in cell cycle checkpoint and apoptosis
320	**Van doorninck,** Hikke	The Netherlands	X chromosome inactivation is initiated in human preimplantation embryos
321	**Vardı,** Nigar	Turkey	Anti-apoptotic and antioxidant effects of β-carotene against methotrexate-induced testicular injury
322	**Venditti,** Jennifer	USA	alpha-L-fucosidase Is Stabilized by the Human Sperm Equatorial Segment
323	**Vendrell,** Xavier	Spain	Quality management system in PGD/PGS: now is the time
324	**Villa,** Luis	USA	Analysis of the Factors that Limit the Ability of Feeder Cells to Maintain the Undifferentiated State of Human Embryonic Stem Cells
325	**Villegas,** Juana	Chile	Mitochondrial membrane potential disruption pattern in human sperm
326	**Virant klun,** Irma	Slovenia	Parthenogenetic Embryo-Like Structures in the Human Ovarian Surface Epithelium Cell Culture in Postmenopausal Women with No Naturally Present Follicles and Oocytes
327	**Vujkovic,** Marijana	The Netherlands	Human dietary patterns and semen quality
328	**Vutyavanich,** Teraporn	Thailand	Rapid freezing versus slow programmable freezing of human spermatozoa

No	Last name, First name	Country	Title
329	**Vutyavanich,** Teraporn	Thailand	Closed-system solid surface vitrification versus slow programmable freezing of mouse 2-cell embryos
330	**Wang,** Hua	China	A novel potential marker for corneal epithelial progenitor cells
331	**Wang,** Shukui	China	ERa and IL-10 polymorphisms in endometriosis
332	**Wang,** Gensheng	USA	Androgen receptor in sertoli cells is not required for testosterone-induced suppression of spermatogenesis, but contributes to sertoli cell organization in utp14bjsd mice
333	**Wang,** Xiaoqi	UK	DNA damage mediated S and G2 checkpoints in human embryonal carcinoma cells
334	**Wang,** Zengyan	China	A modified cryoloop vitrification protocol in the cryopreservation of mature mouse oocytes
335	**Wani,** Nisar	United Arab Emirates	Production of the first cloned camel by somatic cell nuclear transfer
336	**Wani,** Nisar	United Arab Emirates	In vitro embryo production in camel (Camelus dromedarius) from in vitro matured oocytes fertilized with epididymal spermatozoa stored at 4 ◦C
337	**Ward,** Christopher	UK	Abrogation of E-cadherin mediated cell-cell contact in mouse embryonic stem cells results in reversible LIF-independent self-renewal
338	**Watson,** Paul	UK	Cryopreservation of dog semen: The effects of Equex STM paste on plasma membrane fluidity and the control of intracellular free calcium
339	**Weisberg,** Edith	Australia	A randomised controlled trial of treatment options for troublesome uterine bleeding in Implanon users
340	**Wilson-rawls,** Jeanne	USA	The role of Lunatic fringe in the development of the male reproductive tract
341	**Wischmann,** Tewes	Germany	Psychosocial characteristics of women and men attending infertility counselling
342	**Woclawek-potocka,** Izabela	Poland	Lysophosphatic acid modulates prostaglandin secretion in the bovine uterus
343	**Wu,** Yaojiong	China	CD133 as a marker for cancer stem cells: progresses and concerns
344	**Wu,** Cheng-hsuan	Taiwan	Serum anti-Müllerian hormone predicts ovarian response and cycle outcome in IVF patients
345	**Xi,** Zhang	China	Clinical observation of loupe-assisted intussusception vasoepididymostomy in the treatment of obstructive azoospermia (analysis of 49 case reports)
346	**Xing,** Yuyun	China	A whole genome scanning for quantitative trait loci on traits related to sperm quality and ejaculation in pigs
347	**Xu,** Shixia	China	Meta-analysis of HLA matching and the outcome of unrelated umbilical cord blood transplantation (CBT)
348	**Yang,** Jie	China	The ejaculatory duct ectopically invading towards the bladder with multiple congenital malformations of the homolateral urogenital system: a report of a rare case and an embryological review
349	**Yang,** Kuo-liang	Taiwan	A simple and efficient method for generating Nurr1-positive neuronal stem cells from human wisdom teeth (tNSC) and the potential of tNSC for stroke therapy
350	**Yarali,** Hakan		TESE–ICSI in patients with non-mosaic Klinefelter syndrome: a comparative study
351	**Yilmaz,** Bulent	Turkey	Metformin and atorvastatin reduce adhesion formation in a rat uterine horn model
352	**Yoon,** Young-sup	USA	Dual angiogenic and neurotrophic effects of bone marrow derived endothelial progenitor cells on diabetic neuropathy
353	**Yoshimura,** Kotaro	Japan	Fibroblast growth factor-2-induced hepatocyte growth factor secretion by adipose-derived stromal cells inhibits postinjury fibrogenesis through a c-Jun N-terminal kinase-dependent mechanism
354	**Zahir,** Tasneem	Canada	Neural stem/progenitor cells differentiate in vitro to neurons by the combined action of dibutyryl camp and interferon-γ
355	**Zeng,** Hui	USA	Lack of abcg2 expression and side population properties in human pluripotent stem cells
356	**Zhisheng,** Chen	China	Parthenogenetic babies from iva eggs and tetraploid complementation
357	**Zolghadri,** Jaleh	Iran	Relationship between abnormal glucose tolerance test and history of previous recurrent miscarriages, and beneficial effect of metformin in these patients: a prospective clinical study
358	**Zuccotti,** Maurizio	Italy	Oct-4 is a crucial player during the acquisition of the oocyte›s developmental competence

Nominees Andrology*

Afolayan, Anthony	South Africa 	Effect of aqueous extract of Bulbine natalensis (Baker) stem on the sexual behaviour of male rats
Desai, Nisarg	USA 	Effects of radiofrequency electromagnetic waves (RF-EMW) from cellular phones on human ejaculated semen: an in vitro pilot study
Engin, Gulgun	Turkey 	Comparison of transrectal ultrasonography and transrectal ultrasonography-guided seminal vesicle aspiration in the diagnosis of the ejaculatory duct obstruction
Franco jr, Jose	Brazil 	Motile sperm organelle morphology examination is stricter than Tygerberg criteria
Franco jr, Jose	Brazil 	Significance of extruded nuclear chromatin mass (regional nuclear shape malformation) in human spermatozoa: implications for ICSI
Gallati kraemer, Sabina	Switzerland 	Cystic fibrosis transmembrane conductance regulator mutations in azoospermic and oligospermic men and their partners
Lewis, Sheena	UK 	Andrology, male subfertility treatment
Lohiya, N. K.	India 	Sperm characteristics and teratology in rats following vas deferens occlusion with RISUG and its reversal
Reddy, Sreenivasula	India 	Recovery of suppressed male reproduction in mice exposed to progesterone during embryonic development by testosterone
Sofikitis, Nikolaos	Japan 	Post-fertilization effects of chronic renal failure in male rats

* *No one has been selected as winner*

Nominees Embryology

Coy, Pilar	Spain 	Regulation of the sperm-oocyte interaction by oviductal fluid
Haitao, Zeng	China 	In vitro–matured rat oocytes have low mitochondrial deoxyribonucleic acid and adenosine triphosphate contents and have abnormal mitochondrial redistribution
Le bouteiller, Philippe	France 	Soluble HLA-G in IVF/ICSI embryo culture supernatants does not always predict implantation success: a multicentre study
Nasr-Esfahani, Mohammad	Iran 	New era in sperm selection for ICSI procedure
Ross, Pablo	USA 	PLCZ mRNA injection: a natural approach to activate bovine somatic cell nuclear transfer embryos
Sharma, Taru	India 	Survival and developmental competence of buffalo preantral follicles using three dimensional collagen gel culture system
Vutyavanich, Teraporn	Thailand 	Rapid freezing versus slow programmable freezing of human spermatozoa

Nominees

Epidemiology & Ethics*

Armstrong, Alicia	USA 	Keeping clinicians in clinical research: The Clinical Research/Reproductive Scientist Training Program
Dickenson, Donna	UK 	Good science and good ethics@ why we should discourage payment for eggs in stem cell research
Inhorn, Marcia	USA 	Assisting reproduction: religion and islamic bioethics in the high-tech middle east
Jones, jr., Howard	USA 	Strategies for designing an efficient insurance fertility benefit: a 21st century approach
Karmaliani, Rozina	Pakistan 	Prevalence of anxiety, depression and associated factors among pregnant women of hyderabad, Pakistan
Klitzman, Robert	USA 	Preimplantation genetic diagnosis (PGD) on in vitro fertilization (IVF) websites: presentations of risks, benefits and other information
Poote, Aimee	UK 	British women's attitudes to surrogacy
Quinn, Gwendolyn	USA 	Attitudes of high-risk women toward preimplantation genetic diagnosis
Roca, Montse	Spain 	Psychosocial risks associated with multiple births resulting from assisted reproduction: a Spanish sample
Vahidi, Serajoddin	Iran 	Prevalence of primary infertility in the Islamic Republic of Iran in 2004-2005

* *No one has been selected as winner*

Nominees Female Infertility

Ajonuma Chukwuemeka, Louis	Nigeria 	New insights into the mechanisms underlying Chlamydia trachomatis infection induced female infertility
Alborzi, Saeed	Iran 	A comparison of histopathologic findings of ovarian tissue inadvertently excised with endometrioma and other kinds of benign ovarian cyst in patients undergoing laparoscopy versus laparotomy
Bazot, Marc	France 	Diagnostic accuracy of physical examination, transvaginal sonography, rectal endoscopic sonography, and magnetic resonance imaging to diagnose deep infiltrating endometriosis
Engin, Gulgun	Turkey 	Comparison of transrectal ultrasonography and transrectal ultrasonography-guided seminal vesicle aspiration in the diagnosis of the ejaculatory duct obstruction
Ghi, Tullio	Italy 	Accuracy of 3D ultrasound in diagnosis and classification of congenital uterine anomalies
Goto, Sakae	Japan 	Stimulation of endometrium embryo transfer can improve implantation and pregnancy rates for patients undergoing assisted reproductive technology for the first time with a high-grade blastocyst
Hudelist, Gernot	Austria 	Can transvaginal sonography predict infiltration depth in patients with deep infiltrating endometriosis of the rectum?
Ma´dani, Tahereh	Iran 	Improvement of pregnancy rate in ART cycles
Schust, Danny	USA 	Human decidual stromal cells suppress cytokine secretion by allogenic CD4+ T cells via PD-1 ligand interactions
Tan, Seang lin	Canada 	Live births and obstetric outcomes following vitrification of in vitro and in vivo matured human oocytes
Zolghadri, Jaleh	Iran 	Relationship between abnormal glucose tolerance test and history of previous recurrent miscarriages, and beneficial effect of metformin in these patients: a prospective clinical study

Nominees Reproductive Genetics

Balasinor, Nafisa	India 	Embryo loss due to epigenetic anomalies in the male germ line: Role of estrogen
Bashamboo, Anu	France 	Mutations in NR5A1 associated with ovarian insufficiency
Maitra, Anurupa	India 	CYP11A1 and CYP17 promoter polymorphisms associate with hyperandrogenemia in polycystic ovary syndrome
Noruzinia, Mehrdad	Iran 	MTHFR promoter hypermethylation in testicular biopsies of patients with non-obstructive azoospermia: the role of epigenetics in male infertility
Overbeek, Annelies	The Netherlands 	Clomiphene citrate resistance in relation to follicle-stimulating hormone receptor Ser680Ser-polymorphism in polycystic ovary syndrome
Toralova, Tereza	Czech Republic 	Silencing CENPF in bovine preimplantation embryo induces arrest at 8-cell stage
Van doorninck, Hikke	The Netherlands 	X chromosome inactivation is initiated in human preimplantation embryos.
Wang, Shukui	China 	ERa and IL-10 polymorphisms in endometriosis
Zuccotti, Maurizio	Italy 	Oct-4 is a crucial player during the acquisition of the oocyte's developmental competence

Nominees

Stem Cell Biology & Technology/ Regenerative Medicine

Dipersio, John	USA 	Phase III prospective randomized double-blind placebo-controlled trial of plerixafor plus granulocyte colony-stimulating factor compared with placebo plus granulocyte colony-stimulating factor for autologous stem-cell mobilization and transplantation for patients with non-Hodgkin's lymphoma
Fathi, Ali	Iran 	Identification of mouse embryonic stem cell-Associated proteins
Fiorina, Paolo	USA 	Immunomodulatory function of bone marrow-derived mesenchymal stem cells in experimental autoimmune type 1 diabetes
Jeyakumar, Mylvaganam	UK 	Neural stem cell transplantation benefits a monogenic neurometabolic disorder during the symptomatic phase of disease
Miosge, Nicolai	Germany 	Migratory chondrogenic progenitor cells from repair tissue during the later stages of human osteoarthritis
Mostoslavsky, Gustavo	USA 	ips cell generation using a single lentiviral stem cell cassette
Mukhopadhyay, Asok	India 	Bone marrow cell therapy for treatment of hemophilia A in mice
Piryaei, Abbas	Iran 	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
Pluchino, Stefano	Italy 	Human neural stem cells ameliorate autoimmune encephalomyelitis in non-human primates
Rivolta, Marcelo	UK 	Developing the tools for a stem cell-based therapy for deafness
Sadri-Ardekani, Hooman	Iran 	Propagation of human spermatogonial stem cells in vitro
Shahrokhi, Somayeh	Iran 	Substance P and calcitonin-gene-related neuropeptides as novel growth factors for Ex vivo expansion of cord blood CD34+ hematopoietic stem cells
Yoon, Young-sup	USA 	Dual angiogenic and neurotrophic effects of bone marrow derived endothelial progenitor cells on diabetic neuropathy

Embryology

International Winner

New era in sperm selection for ICSI procedure

Mohammad Hossein Nasr-Esfahani, PhD
Iran

Mohammad Hossein Nasr-Esfahani received his PhD from the University of Cambridge, UK, in 1991 and is currently an academic member of the Royan Institute in Tehran, Iran. He has been working as laboratory director of the Isfahan Fertility and Infertility Centre since 1992 and is head of Royan Institute–Isfahan Campus. The main research areas of the group with which he works are stem cells, cloning and sperm chromatin. He has over 105 publications in international and national journals. The project of the first Iranian cloned sheep and transgenic goat was carried out under his supervision.

Objective:
Intra-cytoplasmic sperm insemination, the ICSI, is considered as the one most routine treatment of male infertility. Although the genetic inheritance of an individual is based on the genetic contribution from both the oocyte and sperm, considering the fact that ICSI by passes all the barriers to natural fertilization much emphasis was given to oocyte quality to improve the ICSI outcomes. However, recent studies suggest that sperm quality has a profound influence on ICSI outcomes and selection of sperm based on functional characteristics along with morphology and motility may significantly improve fertilization, embryo quality, implantation, and take home baby rates in ICSI. These new sperm selection procedures has led to "New era in sperm selection procedure" which are different or complementary to routine sperm processing techniques such as "swim up or density gradient centrifugation procedure". In order to establish such techniques comprehensive understanding of sperm functions including: sperm membrane functional characteristics, sperm surface proteins, and sperm DNA chromatin integrity and maturity, are essential.
Material and Methods:
In the first part of the study, we implemented the sperm functional characteristics test, then the relation of these test with semen parameters, and ICSI outcomes including fertilization, embryonic stage and quality, implantation and pregnancy rates were obtained. In the second part of the study different sperm characteristics upon which sperm can be selected including the sperm surface charge, the Zeta potential and the sperm surface receptor, the hyaluronic acid (HA) receptor were studied and functional characteristic of sperm selected in these procedures was compared to their control group, in order to confirm the efficiency of these techniques. In the third part, once the efficiency of each technique was confirmed they were implemented for ICSI procedure in two different trails.
Results:
The results, the first part of the study, showed that assessment of protamine deficiency, chromatin integrity by CMA3 staining, sperm chromatin dispersion test, tunnel, and comet assay show significant correlation with semen quality and ICSI outcomes. Thus suggesting these tests are suitable for assessment of sperm functional characteristics. Then, the efficiency of Zeta and HA sperm selection procedure based on previous studies were evaluated and the results, of the second part of the study, showed that both techniques are efficient to select normal sperm in term of sperm morphology, normal protamine content and DNA integrity, however, Zeta procedure was more efficient for selecting sperm with DNA integrity while the HA method can more efficiently select sperm with normal morphology. Following confirmation of the efficiency of these two Novel procedures we implemented these two procedures in ICSI trails along with the appropriate controls. The third part of the study, these trials showed that both techniques significantly improve fertilization rate but in our trails only the Zeta procedure significantly improved implantation and pregnancy rates. In a single case study we implemented this procedure for couple with 11 failed IVF/ICSI cycles which resulted in successful pregnancy. Further trails, including multicenter trails, are also being carried out to further verify the efficiency of the Zeta procedure on ICSI outcome.
Conclusion:
The results of these studies, along with complementary studies in the literature suggest that the novel sperm selection procedure for ICSI should become gradually mandatory for implementation of ICSI procedure.
Keywords:
ICSI, Sperm selection, Chromatin, Sperm functional test

Female Infertility

International Winner

New insights into the mechanisms underlying Chlamydia trachomatis infection induced female infertility

Louis Chukwuemeka Ajonuma, PhD
Nigeria

Louis C. Ajonuma MD, PhD, studied medicine at Lyceum Northwestern University, The Philippines and graduated in 1990. He joined the Institute of Biomedical Sciences (IBMS), Academia Sinica Taiwan for postdoctoral fellowship from 1993 to 1994 working on the molecular biology and epidemiology of viral (HBV, HCV &HPV) diseases. Then he joined the Department of Obstetrics &Gynecology, Queen Mary's Hospital, The University of Hong Kong, where he received training for his Master of Medical Science (MMedSc.) degree in Obstetrics & Gynecology specializing in Infertility and ART from 1998 to 1999. In December 2000, he joined The Chinese University of Hong Kong for his PhD in reproductive medicine, graduated in April 2004 and received his post-doctoral training in Epithelial Cell Biology Reserch Center, The Chinese University of Hong Kong till 2007. Later, he moved back to Hong Kong University as a research assistant professor from 2007 to 2009 and presently directing SMMH. He is interested in reproductive biology, infertility and assisted reproduction technology.

Objective:
Chlamydia (C.) trachomatis is an obligate intracellular gram-negative pathogen affecting over 600 million people worldwide with 92 million new cases occurring globally each year. Genital C. trachomatis infection has been recognized as the most common cause of pelvic inflammatory disease leading to severe tubal damage, ectopic pregnancy, hydrosalpinx and infertility. However, the mechanism underlying hydrosalpinx induced by C. trachomatis infection remains largely unknown.

Material and Methods:
Real time-polymerase chain reaction, western blot analysis and immunoprecipitation, histology including Masson's trichrome staining, immunostaining, electron microscopy, Chlamydia infection rodent models and Cystic fibrosis transmembrane conductance regulator (CFTR) mutant mice were used in this project. Sperm motility and acrosome reaction were determined using computer-aided sperm analysis (CASA) and acrobead assay respectively, and embryo development by mouse embryo development assay.

Results:
We first characterized hydrosalpinx of infertile patients seen on ultrasound scan. Inflammatory cells could be found in hydrosalpinx fluid (HF) in the lumen in areas with flattened to no epithelial cells, as well as dilated blood vessels and/or lymph vessels. Scanning electron microscopy revealed severe loss of both cilia and microvilli and for the first time stomatae exuding globular bodies on eroded ampullae surfaces providing explanation for HF formation, and thus for the detrimental effects of HF on reproductive processes and IVF outcome. Further investigation using Masson's trichrome staining showed areas of epithelial transformation, focally attenuated and pseudostratified epithelium. Immunostaining showed enhanced CFTR immunoreactivity in the areas of transformed hydrosalpinx epithelium. Correlation with C. trachomatis infection was done by testing hydrosalpinx patients' sera for C. trachomatis immunoglobulin G antibody titers using a Capita enzyme-linked immunosorbent assay (ELISA) based kit. We then determined CFTR involvement using a rodent C. trachomatis infection model and confirmed it using CFTR mutant (CFTR (tm1Unc)) mice. Increased CFTR expression and fluid accumulation was observed in the uterine horns infected with C. trachomatis elementary bodies. We further showed that upregulated CFTR expression and consequent fluid accumulation led to decreased implantation and infertility using a mouse model. For C. trachomatis to cause infection, it has to enter epithelial cells. However, the exact mechanism or receptor(s) for C. trachomatis reproductive tract epithelial entry is not well understood. Using human epithelial cell lines expressing functional and mutant Delta508 CFTR cells, CFTR mutant mice and wild type controls, we for the first time demonstrate that CFTR functions as a cell surface receptor for epithelial cell entry and internalization of C. trachomatis.

Conclusion:
The findings of this project may lead to the development of new treatment strategies to curtail the spread of Chlamydial infections, reduce hydrosalpinx formation and improve assisted reproduction treatment outcome in infertile patients.

Keywords:
Female infertility, Chlamydia trachomatis infection, gene expression, pathogenesis, hydrosalpinx, IVF outcome

Reproductive Genetics

International Winner

Mutations in NR5A1 associated with ovarian insufficiency

Anu Bashamboo, PhD
France

After obtaining her Ph.D. in human genetics in 2002, from the National Institute of Immunology, New Delhi, India, Dr Bashamboo joined the John Hughes Bennett Laboratory, University of Edinburgh as a post-doctoral fellow. Her post-doctoral research involved the self-renewal and multi-lineage differentiation of mouse embryonic stem cells. Since 2008, she has been working at the Institut Pasteur in Paris and was awarded a staff scientist position. Her current work focuses on investigating the molecular mechanisms involved in development of both germ and somatic cell lineages of developing mammalian gonads. Her lab is using mouse embryonic stem cells as a model system to understand the specification and differentiation of primordial germ cells. Much of the work to understand the development of somatic sex involves the genetic analyses of human cases of Disorders of Sex Development. Dr Bashamboo has also been honoured by the Outstanding Research Award from The Endocrine Society, USA. She is regularly invited to present her work at several major international meetings including the European Congress of Endocrinology, The Enodcrine Society, USA, Indian Society of Human Genetics and the Chinese Academy of Sciences, Beijing.

Objective:
The genetic causes of nonsyndromic ovarian insufficiency are largely unknown. A nuclear receptor, NR5A1 (also called steroidogenic factor 1), is a key transcriptional regulator of genes involved in the hypothalamic–pituitary–steroidogenic axis. Mutation of NR5A1 causes 46,XY disorders of sex development, with or without adrenal failure, but growing experimental evidence from studies in mice suggests a key role for this factor in ovarian development and function as well.
Material and Methods:
To test the hypothesis that mutations in NR5A1 cause disorders of ovarian development and function, we sequenced NR5A1 in four families with histories of both 46,XY disorders of sex development and 46,XX primary ovarian insufficiency and in 25 subjects with sporadic ovarian insufficiency. None of the affected subjects had clinical signs of adrenal insufficiency.
Results:
Members of each of the four families and 2 of the 25 subjects with isolated ovarian insufficiency carried mutations in the NR5A1 gene. In-frame deletions and frameshift and missense mutations were detected. Functional studies indicated that these mutations substantially impaired NR5A1 transactivational activity. Mutations were associated with a range of ovarian anomalies, including 46,XX gonadal dysgenesis and 46,XX primary ovarian insufficiency. We did not observe these mutations in more than 700 control alleles.
Conclusion:
NR5A1 mutations are associated with 46,XX primary ovarian insufficiency and 46,XY disorders of sex development.
Keywords:
NR5A1, Female infertility, Ovarian insufficiency, 46XY DSD

Stem Cell Biology & Technology

International Winner

Propagation of human spermatogonial stem cells in vitro

Hooman Sadri-Ardekani, MD
Iran

Hooman Sadri-Ardekani (1972, Tehran) has been graduated from medical school at the Shaheed Beheshti Medical University (SBMU), Tehran, Iran in 1999. Afterwards he joined the Academic Center for Education, Culture and Research (ACECR) as a faculty member. Because of his role on development of Avicenna Research Institute (ARI), he was awarded as the best manager in ACECR anniversary in 2003. From 2002-2006 he was trained as a clinical andrologist in Infertility and Recurrent Miscarriage Center of ARI and since 2004, he has been qualified as a member of the European Academy of Andrology (EAA).In 2007, he joined Center for Reproductive Medicine at the University of Amsterdam and became a candidate to get his PhD degree under supervision of Prof.Dr.Sjoerd Repping, Dr.Ans van Pelt and Prof.Dr.Fulco van der Veen. His main research subject is fertility preservation in cancer survivors by means of spermatogonial stem cells (SSCs) autotransplantaion. Recently his paper in the Journal Of the American Medical Association (JAMA,November 2009) described the first ever successful in vitro propagation of human SSCs. This work was called by Nature Reviews Urology Journal (February 2010) a milestone in the development of SSCs autotransplantation .

Objective:
Recently developed, highly effective, cancer therapy for children allows the majority of them to survive their cancer. One of the major side effects of cancer therapy in male patients is sterility. There are currently no means to preserve reproductive potential in prepubertal boys, which contrasts with adolescents and adults, for whom cryopreservation of semen prior to chemotherapy or radiotherapy is available and widely used. Therefore, establishing a human spermatogonial stem cell (hSSC) culture system to allow successful autotransplantation for young boys diagnosed with cancer is of utmost importance. As the final number of transplantable cells will influence the success rate of this technique, we first focus on the propagation of hSSC in culture.

Material and Methods:
We used testicular tissue from six men undergoing bilateral castration as part of prostate cancer treatment. Testicular cells were isolated with a two steps enzymatic digestion and overnight differential plating. Testicular cells were cultured in supplemented StemPro medium. Some formed germline stem cell (GSC) clusters were taken out of the culture and subcultured on human placental laminin coated dishes.The presence of spermatogonia in the cultures was determined by immunohistochemistry and RT-PCR for spermatogonial markers (integrin-α6, integrin-β1, PLZF). The spermatogonial stem cell transplantation assay was performed using busulphan treated nude mice, as the functional test of stem cell capability. Human cells in recipient mouse testis were detected by Fluorescent In situ hybridization (FISH) using the most common human specific repetitive DNA sequence (COT) as a probe.

Results:
Germline stem cell (GSC) cluster formation was observed in the testicular cell cultures of all six men in testicular cell cultures and in subcultures GSCs. Testicular cells and subcultured GSCs could be cultured for at least 15 and 28 weeks respectively, while expression of spermatogonial cell surface markers integrin-α6 and integrin-β1 (on RNA level) and spermatogonial nuclear marker PLZF (on RNA and protein levels) was maintained.The mouse transplantation assay showed successful colonization of cultured testicular cells in 4 out of 6 patients and from the subcultured GSCs in 1 out of 2 patients, indicating the presence of functional spermatogonial stem cells. By determining the number of colonies of transplanted cultured cells from early and later passages of the same culture, we found a more than 50 fold increase of hSSC in 19 days in our testicularcell culture when cultured from day 28 to 47 (passage 2 to 5) and a more than 18000 fold increase in number of hSSC in 64 days in our subcultured GSCs when cultured from day 77 to 141 (passage 7 to 12).

Conclusion:
This report outlines the first successful long term culture and proliferation of hSSC in vitro. This is an important step forward to future clinical application of SSC autotransplantation in prepubertal boys diagnosed with cancer to preserve their fertility

Keywords:
Cancer survivors, Infertility, Stem cells, Spermatogonial stem cells, Autotransplantation

Regenerative Medicine

International Winner

Human neural stem cells ameliorate autoimmune encephalomyelitis in non-human primates

Stefano Pluchino, MD, PhD
Italy

After receiving his MD (1995) and PhD in Neuroscience (2004) from the University of Siena, Italy, Stefano Pluchino has completed a residency program in Neurology at the same University and received additional training at the Brain Repair Centre, Cambridge University, UK (1996-1998). He has then completed a Postdoctoral fellowship in Experimental Neurology at the Neuroimmunology Unit of the San Raffaele Scientific Institute, Milan, Italy (2005), where he's progressed to the positionof Research Associate (2005) and then Group Leader of the CNS Repair Unit (2008). Dr Pluchino also holds a non-tenured Professorship in Regenerative Neuroscience at the University Vita & Salute, of the San Raffaele Scientific Institute, Milan, Italy (since 2005) and an Adjunct Associate Professorship in Neurology at the University of Vermont College of Medicine, Burlington, VT, USA (since 2008).
Stefano Pluchino has recently (2010) been appointed to a John Van Geest University lectureship in Brain Repair at the University of Cambridge, within the Centre for Brain Repair in the Department of Clinical Neurosciences. The major contribution of Dr Pluchino's studies has been the demonstration of the [constitutive vs inducible] immune modulatory functions of somatic neural stem/precursor cells (NPCs). This seminal observation has lead to a number of pre-clinical studies where NPCs injected trough biological routes, such as the blood stream and the cerebrospinal fluid, protect the nervous system from accumulation of chronic tissue damage (therapeutic plasticity of stem cells). His major recent focus has been the exploitation of the cellular and molecular mechanisms regulating the therapeutic plasticity of neural progenitor cells in inflammatory CNS diseases such as multiple sclerosis, ischemic stroke, and spinal cord injury. Having established this, current research projects are exploring the different modalities by which NPCs engage programs of horizontal cell-to-cell communication with cells in the microenvironment (more information are available on http://pluchino.brc.cam.ac.uk).

Objective:
Transplanted neural stem/precursor cells (NPCs) display peculiar therapeutic plasticity in vivo. Although the replacement of cells was first expected as the prime therapeutic mechanism of stem cells in regenerative medicine, it is now clear that transplanted NPCs simultaneously instruct several therapeutic mechanisms, among which replacement of cells might not necessarily prevail. A comprehensive understanding of the mechanism(s) by which NPCs exert their therapeutic plasticity is lacking. This study was designed as a preclinical approach to test the feasibility of human NPC transplantation in an outbreed nonhuman primate experimental autoimmune encephalomyelitis (EAE) model approximating the clinical and complex neuropathological situation of human multiple sclerosis (MS) more closely than EAE in the standard laboratory rodent.
Material and Methods:
We examined the safety and efficacy of the intravenous (IV) and intrathecal (IT) administration of human NPCs in common marmosets affected by human myelin oligodendrocyte glycoprotein 1-125–induced EAE. Treatment commenced upon the occurrence of detectable brain lesions on a 4.7T spectrometer.
Results:
EAE marmosets injected IV or IT with NPCs accumulated lower disability and displayed increased survival, as compared with sham-treated controls. Transplanted NPCs persisted within the host central nervous system (CNS), but were also found in draining lymph nodes, for up to 3 months after transplantation and exhibited remarkable immune regulatory capacity in vitro.
Conclusion:
Herein, we provide the first evidence that human CNS stem cells ameliorate EAE in nonhuman primates without overt side effects. Immune regulation (rather than neural differentiation) is suggested as the major putative mechanism by which NPCs ameliorate EAE in vivo. Our findings represent a critical step toward the clinical use of human NPCs in MS.
Keywords:
neural stem cells, transplantation, multiple sclerosis

Epidemiology & Ethics

National Winner

Prevalence of primary infertility in the Islamic Republic of Iran in 2004-2005

Serajoddin Vahidi, MD
Iran

Dr Serajoddin Vahidi Mehrgardi obtained his medical degree in 1983 from Isfahan Medical University, Iran, and his Fellowship in Endourology from Labbafinejad Medical Center, Tehran, Iran. He then took up the position of assistant professor of Urology in different Medical Science Univrsities in Iran. His current position is an assistant professor in Urology department of Shahid Sadughi University of Medical Science, Yazd, Iran. He has been a member of different Iranian urological associations and has Editorial Posts in different journals from 1993 till 2010. Moreover, he has been a member of Research Committee of the Yazd Clinical & Research Center for Infertility from 2007 till 2010. He also has managed several research projects and has a range of national and international publications, including presentations.

Objective:
This study aimed to determine the prevalence of lifetime and current primary infertility in Iran. The study was conducted in 2004-5 in all the 28 provinces of Iran.
Material and Methods:
The study was conducted in 2004-5 in all the 28 provinces of Iran. We used a cluster sampling method to select 10,783 women aged 19-49 for the survey. Life-time primary infertility was defined based on one of two contraception scenarios immediately after marriage to find experience of infertility despite one year of unprotected intercourse. The term “current-primary infertility” designated a woman who, in addition to meeting the definition of life-time infertility, had been unable to conceive up to the study time. We used a complex sampling design and SVY commands in the software package STATA 8.0 to derive 95% confidence intervals.
Results:
A history of life-time primary infertility was present in 24.9% of the subjects (95% CI: 23.5-26.2%), and the prevalence of current-primary infertility was 3.4% (95% CI: 3.0-3.8%). As for age trends in life-time primary infertility, the highest prevalence rates were observed in individuals with the lowest age at marriage. Minimum prevalence (17.2%) occurred with marriage age of 21-26, and the rates rose with higher age at marriage.
Conclusion:
About one fourth of the Iranian couples experience primary infertility at some point in their lives and 3.4% suffer from this problem at any time. For a correct interpretation of prevalence rates and the implications in terms of health care and service delivery, factors such as age at marriage and the couple’s fertility potential must be taken into consideration.
Keywords:
Current primary infertility, Infertility, Iran, Life-time primary infertility, Primary infertility.

National Winner

Female Infertility

Improvement of pregnancy rate in ART cycles

Tahereh Ma'dani, MD
Iran

Dr Tahereh Ma'dani obtained her medical degree in 1984 from Shiraz University of Medical Sciences, Iran, and completed her obstetrics and gynecology specialty in 1989 at Iran University of Medical Sciences. She then took up a post as an Associate Professor, Iran University of Medical Sciences. Her current position is as Head of the Endocrinology and Infertility Department, Reproductive Medicine Research Centre, Royan Institute. She is especially interested in assisted reproductive technology (OHSS, IVM) and reproductive immunology. She has managed several research projects and has a range of national and international publications, including presentations.

Objective:
The aim of this study was to determine the outcome of IVF/ ICSI by modification of embryo transfer technique following embryo transfer.
Material and Methods:
In this randomized trial study, two groups of infertile women (n ¼ 55) aged 40% years underwent in vitro fertilization or intracytoplasmic sperm injection treatment cycles with or without 0.2 mL of air pushed into the catheter after embryo transfer
Results:
The implantation and clinical pregnancy rates were statistically significantly higher in the study group than in the controls.
Conclusion:
This improvement on standard ET technique may advance clinical pregnancy rates.
Keywords:
Embryo transfer technique, IVF/ICSI, pregnancy rate

Reproductive Genetics

National Winner

MTHFR promoter hypermethylation in testicular biopsies of patients with non-obstructive azoospermia: the role of epigenetics in male infertility

Mehrdad Noruzinia, PhD
Iran

Dr. Mehrdad Noruzinia obtained his medical degree in 1996, Iran, and his PhD in Medical genetics from Montpellier University, France. He was a member of France society of genetics and cancer as well as Iran society of nerogenetics and Iran society of genetics. His current position is an Assistant Professor in Department of Medical Genetics and Hematology, Tarbiat Modares University, Tehran, Iran. He has managed several research projects and has a range of national and international publications, including presentations. He also acted as a jury board in different conferences and journals.

Objective:
MTHFR promoter hypermethylation in testicular biopsies of patients with non-obstructive azoospermia: the role of epigenetics in male infertility.
Material and Methods:
DNA from peripheral blood (PB) samples of 50 patients with NOA and 50 fertile men (controls) as well as DNA from testicular biopsies of 32 patients with NOA and five patients with obstructive azoospemia, but normal spermatogenesis, were analyzed by Methylation Specific PCR amplification using primers that hybridize to the CpG island in the promoter region of MTHFR.
Results:
In PB, no differences in the methylation profile of the promoter region of MTHFR were observed between patients and controls. In testis biopsies, hyper-methylation was detected in 53% of the patients with NOA compared with 0% of patients with obstructive azoospermia (P ¼ 0.03).
Conclusion:
These results indicate that hyper-methylation in testis DNA from NOA patients is specific and not due a general methylation defect, and suggest that epigenetic silencing of MTHFR could play a role in azoospermic infertility.
Keywords:
MTHFR, azoospermia, methylation, epigenetics

Stem Cell Biology & Technology

National Winner

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

Abbas Piryaei, PhD
Iran

Abbas Piryaei obteined his PhD in Anatomical sciences from Tarbiat Modares universuty, Tehran, Iran. Since 2001, he has been a member of cell and molecular biology research center, and he is currently assistant professor of medicine school of Shaheed Beheshti medical sciences university. Also he is collaborating with stem cells and developmental biology department of Royan institute, and since 2004 he has been manager of histology laboratory of the institute. Dr. Piryaei`s research intrest include ultrastructural study of living organisms tissues, and also stem cell biology, especially mesenchymal stem cells and their differentiation in vitro and in vivo.

Objective:
Liver fibrosis, the wound-healing response of the liver to chronic injury, is one of the most problems in health care. At present, liver transplantation is the only curative therapy available for the patients; however, there are various problems with this approach, including donor shortages, surgery related complications, immunological rejection, and high cost. Recent studies showed that regeneration therapy has the potential to become a useful minimally invasive technique with minimal complications. Bone marrow mesenchymal stem cells (BM-MSC) have been shown to be capable of differentiating into a liver cell lineage in vitro and in vivo. However, MSC differentiation to hepatocyte is poor, and the cell characteristics and their role in liver repair are poorly understood.
Material and Methods:
we differentiate mouse BM-MSCs into early (day 18) and late (day 36) hepatocyte-like cells (HLCs) in vitro in presence or absence of ultraweb nanofibers (nano+ and nano-). Then we evaluated their hepatocyte specific genes and proteins by Real-time PCR and immunofluorescence. We also evaluated ultrastructure of the differentiated cells by electron microscope and examined their functionality by PAS and PROD techniques and measurement of hepatocyte specific secretions in culture medium. Then we investigated potential of the untreated MSCs and the early and late HLCs of nano+ and nano- groups for recovery of mice with CCl4 induced hepatic fibrosis.
Results:
We have demonstrated that, the markers of hepatocytes-albumin (ALB), HNF4α, CX32 and CYP1A1- were upregulated consistently in a time-dependent manner in the nano+ group, but not changed or decreased in nano- group. Moreover, the urea production, secretion of ALB and α-fetoprotein, and metabolic activity of the CYP450 enzymes were significantly more within differentiated HLCs on nanofibers in vitro at day 36. MSCs and early and late HLCs in nano+ and nano- culture conditions, transplanted by intravenous route, decreased liver fibrosis, engrafted in recipient liver, and differentiated into functional hepatocytes (ALB+), except late HLCs in nano- group.
Conclusion:
These results showed that transplantation of late HLCs of nano+ group was more effective in rescuing liver failure, enhancement of serum ALB, homing of transplanted cells, and functional engraftment, than other groups. It seems that topographic properties of nanofibers enhanced hepatogenic differentiation profile and maintain the function of MSC-derived hepatocytes in long-term culture, which has implications for cell therapies.
Keywords:
Mesenchymal stem cells; Hepatocyte-like cells; Nanofibers; Liver fibrosis; Differentiation

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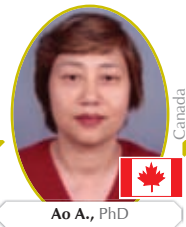
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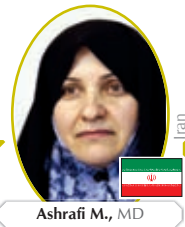
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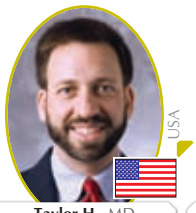
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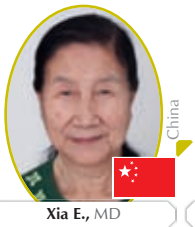
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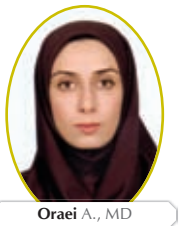
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Kazemi Prize

About Kazemi Prize

Dr. Saeid Kazemi Ashtiani was born in March 1961 in Tehran. Upon completion of his high school at age 18, he was admitted to Iran Medical University to pursue his studies in the field of Physiotherapy. He graduated in 1991 and later in 1993 he started his postgraduate education in the field of Anatomy (Embryology branch) in Tarbiat Modaress University. In 1998, he received his Doctorate Degree with Distinction.

Dr. Kazemi established Royan Research Institute in 1991. This institute renders advanced medical services to infertile couples. The center is also one of the most important and active research centers in the Middle East.

Dr. Kazemi and his colleagues at Royan Infertility Research Center could achieve a tremendous success in 2003 by establishment of human embryonic stem cell line. This great scientific achievement has earned a high position for Iran among the other top 10 countries having access to this advanced technology at that time.

He was not only a scientist who led a lot of principle research projects in the field of stem cell and cloning but a great manager as well. He was the Head of ACECR, Iran Medical University Branch, Head of Royan Research Institute, guest instructor and lecturer of many Iranian Medical universities, Manager and chief of Quarterly Scientific and Research Journal of Yakhteh, Head of Ethical research committee in Royan Institute, and an active member of Iranian society for reproductive biomedicine as well as Iran Anatomical Science Society. Dr. Saeid Kazemi also presided Royan International Award, which was held six times from 2000-2005. His short fruitful life was ended in 2006 when he died of a sudden heart attack.

Respecting his efforts and to revive his memories amongst national and international scientists as well as nonscientists, Iran supreme leader, Ayatollah Khamenei recommended to establish a yearly prize in biology entitled "Kazemi Prize" which will be awarded to the scientists who made an extraordinary progress in the biological sciences. Kazemi Research Award is for appreciation of extreme effort of these scientists who dedicate their life to make progress in human life and relief people's pain.

A nomination committee consisting of prominent national and international scientists is the working body that evaluates the nominees and presents its recommendations to the scientific board of the institute. The scientific board is responsible for the final selection of the prize laureates. This year the prize will be awarded to Prof. Rudolf Jaenisch.

Rudolf Jaenisch MD, PhD

Whitehead Institute, Cambridge, MA

Dr. Jaenisch received his MD degree from the University of Munich in 1967. After postdoctoral research at Princeton and the Fox Chase Cancer Center, he first joined the faculty at the Salk Institute and later became Head of the Department of Tumor Virology of the Heinrich-Pette Institute in Hamburg. In 1984 he became a Founding Member of the Whitehead Institute for Biomedical Research and Professor of Biology at the Massachusetts Institute of Technology. In 2005 he established the Human Stem Cell Facility at the Whitehead Institute.
The central focus of Dr. Jaenisch's research is studying stem cells, mammalian development and diseases using molecular and genetic tools. He has made several landmark contributions to our understanding of mammalian genetics, developmental biology and disease mechanisms. Dr. Jaenisch produced the first transgenic mouse strain; he inserted viral genes into early embryos and showed that the mice developed from these embryos could transmit to the next generation, at Mendelian expectations, the experimentally added exogenous viral sequences in their genomes. This work both proved that mammalian genome could be experimentally manipulated to produce stably altered new murine strains, and also provided a powerful tool for mutagenizing and tagging genes of interest across the mouse genome. This technology has now become a classic/standardized method of mutagenesis (for details, one can consult the International Gene Trap Consortium http://www.genetrap.org/).

Dr. Jaenisch's work on retroviral insertion into early embryos led to his next major discovery of developmental stage-specific DNA methylation of viral sequences as the key molecular mechanism of retroviral silencing. With the advent of embryonic stem cells and

the possibility of introducing mutations in predetermined genes via homologous recombination (for which Drs. Smithies and Cappechi won the Nobel Prize), Dr. Jaenisch and colleagues genetically mutated the enzyme responsible for de novo DNA methylation and demonstrated that DNA methylation is essential for the survival of somatic cells, for cancer development, genomic imprinting, X chromosome inactivation and the stability of the genome.
When the first cloned mammals produced by nuclear transplantation were published in 1997/1998, Dr. Jaenisch immediately recognized that nuclear cloning represents the most unbiased approach to study the role of epigenetics in development, differentiation and disease. He decided to refocus his research and used nuclear transplantation to study the mechanisms that cause reprogramming of the genome of an adult cell to an embryonic state – producing a totipotent cell and, subsequently, an individual – from a lineage-specific adult cell.

Somatic cell nuclear transfer (SCNT) and the derivation of "customized" ES cells opened the prospect of generating patient-specific ES cells for stem cell therapy that would not be rejected after transplantation into the patient, a concept often referred to as "therapeutic cloning". The Jaenisch laboratory was the first to demonstrate that SCNT in combination with gene therapy was a valid approach to treat a genetic disorder of the immune system. While this "proof of principle" experiment was encouraging and suggested that this technology might also work for stem cell therapy of human diseases, strong ethical objections were raised against the use of cloned human embryos for the production of patient- specific ES cells. "Altered Nuclear Transfer" (ANT) was suggested as a potential solution to this dilemma. The ANT concept proposed to genetically alter the somatic donor cell prior to nuclear transfer into the egg with the goal that the product of this operation would not constitute a viable embryo, but would still be able to generate normal "customized" ES cells. Again, the Jaenisch laboratory showed that the ANT approach would work and that normal ES cells can be generated from clones incapable of implantation and forming viable embryos.

Although promising, the ethical barrier of using human eggs and low efficiency of generating "customized" ES cells via nuclear transfer led Dr. Jaenisch to seek alternative ways to reprogram adult cells to a pluripotent ES cell-like state without the use of human eggs. Dr. Jaenisch and colleagues established the molecular circuitry of pluripotency, identified critical regulatory genes that distinguish the epigenetic state of an ES cell from that of a somatic cell, and discovered key transcription factors that provide the molecular identity and functionality of pluripotency. When expressed the key pluripotency factors in somatic cells, Yamanaka and colleague demonstrated in a landmark paper that four such factors were able to reprogram in vitro a skin cell to a pluripotent state. While the first publication did generate pluripotent cells, these cells were very different from normal ES cells by molecular and biological criteria, which caused widespread skepticism as to the importance of this finding for medicine. It was only one year later when a crucial modification of the approach both from the Jaenisch laboratory and the Yamanaka laboratory achieved the generation of pluripotent cells (iPS) that were indistinguishable from normal ES cells by all criteria tested. These three publications reporting both similar and complementing results attracted enormous attention throughout the world and catapulted the induced pluripotent stem cell field to become one of the hottest areas in biology and medicine. More recently, his laboratory has made major inroads in understanding the mechanisms involved in somatic cell reprogramming. They showed that all somatic cells have the potential to generate iPS cells and that the process involves stochastic events.

Recent studies from the Jaenisch group have taken the promising reprogramming technology to stem cell therapy. At this level, I think there is no question that the Jaenisch laboratory has lead the way in demonstrating, in mouse models, the practical potential for this technology, and suggested its way into the clinic. As a proof of principle study, the Jaenisch group recently demonstrated therapy for a sickle cell anemia mouse model by utilizing iPS cells, derived from autologous skin cells, in which the mutated fetal hemoglobin gene had been repaired by homologous recombination. More recently, they demonstrated the integration of iPS derived neurons into fetal brain and the subsequent reduction of symptoms in rats with Parkinson's disease, again paving the road toward iPS-mediated therapy in humans.

To extended stem cell therapy to clinic, the Jaenisch group has generated a series of patient specific iPS cells from biopsies of patients with the Parkinson's disease. Importantly, the approach used led to iPS cells from which the reprogramming vectors had been removed. However, the translation of the iPS approach to stem cell therapy of human diseases still faces major technical issues. One important unresolved problem has been the inefficiency of genetic manipulations in human ES or iPS cells, a procedure that is routine in mouse ES cells. Recently, the Jaenisch group used a novel approach for gene targeting that involved Zn-finger nucleases that allowed efficient correct genetic alterations in human ES and iPS cells, paving the road for stem cell therapy of human diseases. A major set back for the human stem cell field has been that human ES cells are so difficult to work with: they do not grow as single cells, require mechanical passage and are inefficient in using homologous recombination for gene targeting. Most recently, the Jaenisch lab has generated new human ES cells that have properties of mouse ES cells, a breakthrough that may allow using similar methods with human cells as has been routine with mouse.

During the past forty years, Dr. Jaenisch has coauthored more than 400 research papers and has received numerous prizes and other forms of recognition. He was elected to the National Academy of Sciences in 2003, and received the Peter Gruber Foundation Award in Genetics, the Robert Koch Prize for Excellence in Scientific Achievement, the Charles Rodolphe Brupracher Foundation Cancer Award, the Max Delbrück Medal for Molecular Medicine and the Vilcek Foundation Prize for Achievements of Prominent Immigrants – only a few among the many honors and awards he has received. Throughout his scientific career, he has published more than 400 scientific papers and has mentored more than 200 students and postdoctoral fellows, many of whom have become the leaders of their respective fields. He has traveled around world and promotes international scientific exchange and collaborations. Dr. Jaenisch is one of the most innovative and creative scientists in the field of developmental biology, gene regulation, stem cell biology and stem cell-mediated therapies.

Royan Institute Annual Report

Royan Institute is a world-renowned center committed to a multi-disciplinary, campus-wide, integration and collaboration of scientific, academic, and medical personnel for understanding male/ female infertility, embryo development, stem cell biology, biotechnology and providing comprehensive services in infertility treatment, regenerative medicine/cell therapy and production of recombinant proteins.

Royan Institute was established in 1991 by Dr. Saeid Kazemi Ashtiani (may he rest in peace) in Tehran. The Center supports innovation, excellence, and the highest ethical standards which are focused on increasing the success rate of infertility treatments alongside embryo health. Furthermore, it supports putting stem cell research findings into operation in cell therapy and disease treatment with the purpose of increasing the level of health. Royan institute aims to increase knowledge transfer by providing short and long (MSc. & PhD.) educational courses and establishing national and international scientific collaboration to improve research programs.

Improving human health through discovery in the fields of reproduction, stem cells and biotechnology is the vision of our Institute.

The mission of the Institute is to achieve its goals by combining basic and clinical research along with the international collaboration for the treatment and cure of human disease.

Overview of the Institute's Developments

- The first IVF child born in Tehran (1993)
- The first ICSI child born in Tehran (1995)
- Iran's second success in open testicular biopsy to treat severe male infertility (1996)
- The first frozen embryo child born in Iran (1996)
- The first ICSI birth by frozen sperm of a gonadectomized man in Iran (1999)
- The first human embryonic stem cell line established in Iran and the region (2003)
- The first PGD child born in Iran (2004)
- First time use of adult stem cells in the treatment of MI during CABG in Iran (2004)
- Production of insulin producing cells from human embryonic stem cells (2004)
- Culture of human limbal stem cells on chorionic membrane (2004)
- Establishment of the first Private Cord Blood Bank in Iran (2005)
- The first IVM-IVF sheep born in Iran (2006)
- The first cloned sheep born in Iran (2006)
- Establishment of mouse and human induced pluripotent stem cells (iPS) (2008)
- The first cloned goat born in Iran (2009)
- The first transgenic goats born in Iran (2010)

Royan consists of three research institutes, each focused on different fields of research

1. Royan Institute for Stem Cell Biology and Technology (RI-SCBT)
2. Royan Institute for Reproductive Biomedicine (RI-RB)
3. Royan Institute for Animal Biotechnology (RI-AB)

Reproductive Biomedicine Departments	Stem Cell Biology and Technology Departments	Animal Biotechnology Departments
• Gynecology and Endocrinology • Andrology • Embryology • Reproductive Genetics • Reproductive Imaging • Epidemiology and Reproductive Health • Infertility Clinic	• Regenerative Medicine • Molecular Systems Biology • Stem Cell and Developmental Biology • Cell Therapy Center	• Reproduction and Development • Molecular Biotechnology • Cell and Molecular Biology • Dairy Assist Center • Laboratory Animal Science

Royan Institute for Reproductive Biomedicine (RI-RB)

Royan Institute for Reproductive Biomedicine, founded in 1991, consists of six groups actively working on different aspects of infertility and the development of new methods for infertility treatment.

Its vision is to improve the population's health through infertility treatments and giving infertile families the hope of having children.

In this regard, RI-RB mission is to research different aspects of infertility and its treatment in order to increase the success rate alongside improving embryo health.

RI-RB Departments:

- Gynecology And Endocrinology
- Andrology
- Embryology
- Reproductive Genetics
- Reproductive Imaging
- Epidemiology And Reproductive Health

Gynecology and Endocrinology Department of RI-RB

Head of Department
Dr Mahnaz Ashrafi

Associate Professor, Faculty of Medicine, Iran University of Medical Science, Tehran, Iran (2005-present)

Assistant Professor, Faculty of Medicine, Iran University of Medical Science, Tehran, Iran (1989-2005)

Obstetrics & Gynecology Iran University of Medical Science, Tehran, Iran (1985-1989)

Principal Investigators

- R. Aflatonian, PhD
- Sh. Alizadegan, MD
- F. Ghaffari, MD
- M. Hafezi, MD
- M. hemat, MD
- R. Hoseyni, MD
- T. Madani, MD
- A. Moini, MD
- F. Ramezanali, MD
- E. Shahrokh Tehrani Nejad, MD
- M. Shiva, MD
- M. zangene, MD

Research Assistants

- E. Amirchaghmaghi, PhD
- N. Jahangiri, MSc
- Sh. Jahanian, Msc
- S. Jalali, BSc
- A. Janan, MSc
- M. Joudmardi, BSc
- M. Keshvarian, BSc
- K. Kiani, MSc
- F. Malekzadeh, MSc
- L. Mohamadi yeganeh, MSc
- L. shajarehpour salavati, BSc
- Z. Zolfaghari, BSc

This department was established in 1995, and began to research on new strategies and advanced methods for diagnosis and treatment of female infertility and recurrent abortion in order to increase the implantation rate.

Goal of the department

- Performing applied researches to achieve the best and easiest strategies for diagnosis and improving ART outcomes

The mission of this department is evaluation and treatment of infertile couples by establishment of new guidelines to improve ART outcomes

Well diagnosis and best treatment of infertile females for having best outcome is also its vision.

Primary activities and researches of the Gynecology and Endocrinology department:

- Treatment and research on PCOS, recurrent abortion, endometriosis, poor responders and recurrent implantation failure
- Various research on ovulation induction, COH and ART/ ET methods
- Follow up and evaluation of children born via ART
- Establishing an online system for patient management
- Achieving new strategies for special reproductive concerns such as PCOS, endometriosis, uterine factors, recurrent implantation failure and recurrent abortion.

Articles

Hysteroscopic polypectomy without cycle cancellation in IVF cycle. Madani T, Ghaffari F, Kiani K, Hosseini F. Reproductive Biomedicine Online 2009; 18(3):412-415.

Appropriate timing of uterine cavity length measurement positively affects assisted reproduction cycle outcome. Madani T, Ashrafi M, Bahman Abadi A, Kiani K. Reproductive Biomedicine Online 2009; 19(5):734-736.

Discontinuation decision in assisted reproductive technique treatment. Moini A, Salehizadeh S, Moosavi F, Kiandokht K, Khafri S. International journal of Fertility & Sterility 2009; 2(4):173-78.

Familial associations between polycystic ovarian syndrome and common diseases. Moini A, Eslami B. Journal of Assisted Reproductive and Genetic 2009; 26(2-3):123-7.

Comparison of metformin treatment and laparoscopic ovarian diathermy in patients with polycystic ovary syndrome. Ashrafinia M, HosseiniR, Moini A, Eslami B, Asgari Z. International Journal of Gynecology and Obstetrics, 2009; 107:236-239.

Heterotopic pregnancy after assisted reproductive techniques:Case Reports. Moini A, Hoseini R, Mohammadi Yeganeh L . International journal of Fertility & Sterility 2010; 3(4):195-198.

The outcome of in vitro fertilization / intracytoplasmic sperm injection in endometriosis–associated and tubal factor infertility. Tehrani Nejad ESh, Hosein Rashidi B, Larti A , Ezabadi Z , Jahangiri N, Azimi Nekoo E. Iranian Journal of Reproductive and Medicine 2009; 7(1): 1-5.

Retained fetal bone ininfertile patients: Two reports case. Tehrani Nejad ESh, Ghaffari F, Kiani K. International journal of Fertility & Sterility 2009; 3(3):153-154

A Successful induction of lactation in surrogate pregnancy with metoclopramide and review of lactation induction. Shiva M,Frotan M,Arabipoor A,Mirzaagha E. International journal of Fertility & Sterility 2010; 3(4):191-194.

Developing the moral distress scale in the population of Iranian nurses. Alizadegan Sh, Vazir E, Merghati M.H, Goushegiri S. A. Iranian Journal of Psychiatry 2008; 3(2) : 55-58.

Calciotropic hormones, insulin resistance, and the polycystic ovary syndrome. Mahmoudi T, Gourabi H, Ashrafi M, Salman Yazdi R. Fertility and Sterility; 2009Feb19.

Andrology Department of RI-RB

Head of Department
Dr Mohamad Ali Sadighi Gilani

Specialist in Urology: Faculty of Medicine, Iran University of Medical Science, Tehran, Iran

MD: Faculty of Medicine, Iran University of Medical Science, Tehran, Iran

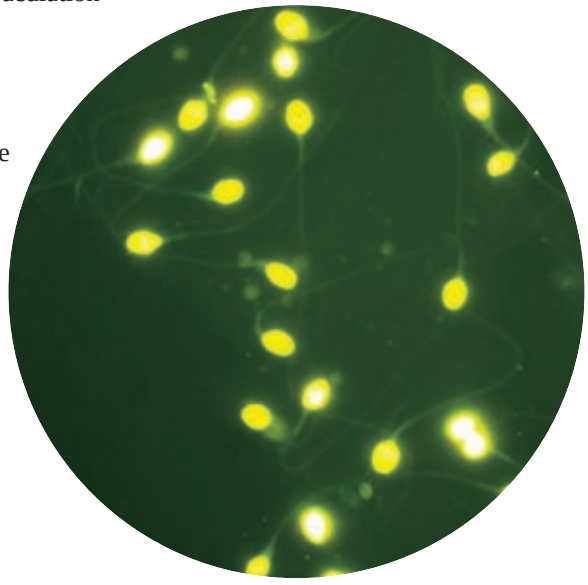
Research Assistants

- M. Azizi, MD
- F. Dadkhah, MD
- A. Daliri, MD
- F. Farrahi, MD
- S. Jalil Hosseyni, MD
- F. Jannat Alipoor, MSc
- T. Modaresi, MSc
- M. Sabbaghian, PhD
- R. Salman Yazdi, MD
- A. Vosough, MD
- M. Zarabi, MD

The first step in infertility management is couple's evaluation. Male factor infertility accounts for approximately 50% of all infertility cases. Thus, in order to study male factor infertility, it is necessary to use appropriate diagnostic and therapeutic techniques .The intent of this research department is to develop new diagnostic methods and treatment for male factor infertility.

Goals of the department

- Determining the etiology of spermatogenesis, sperm function and ejaculation disorders
- Determining the etiology of azoospermia, genetic and maturation disorders
- Determining the etiology of Dry and Retrograde ejaculation



The andrology department includes

- Clinic
- Education & research

The mission of this department is expected to improve diagnostic and therapeutic methods by using the results of investigative projects, applying these results and using stem cells to treat the patient with incomplete spermatogenesis.

Providing quality health care for infertile males, educating the lay and professional communities on the latest treatments for male fertility and enhancing understanding male infertility issues by developing research projects are the vision of this department.

Main activities of the Andrology department

- Improving diagnostic and therapeutic methods
- Determining the Etiology of spermatogenesis, as well as functional and ejaculation disorders

Articles

Achieving high survival rate following cryopreservation after isolation of prepubertal mouse spermatogonial cells. Jannat Alipoor F, Sadighi Gilani MA, EftekhariYazdi P, Daliri A, Hosseinifar H, Alipour H, Lotfi Panah M . J. of Assisted Reproduction and Genet 2009; 26:143-149.

The Correlation between sexual practices and the development of antisperm antibodies. Salman Yazdi R, Akbari Sene A, Kohpaee Z, Hosseini SJ, Fallahian M. IJFS 2009; 2(4): 189-192

Urine macrophage migration inhibitory factor (MIF) in children with urinary tract infection: a possible predictor of acute pyelonephritis. Otukesh H, Fereshtehnejad SM, Hoseini R, Hekmat S, Chalian H, Chalian M, Bedayat A, Salman Yazdi R, Sabaghi S, Mahdavi S. Pediatr Nephrol. 2009; 24(1):105-118.

Calciotropic hormones, insulin resistance, and the polycystic ovary syndrome. Mahmoudi T, Gourabi H, Ashrafi M, Salman Yazdi R, Ezabadi Z. Fertil Steril. 2009 Feb 19

The Effect of FBS concentration on cryopreservation of isolated spermatogonial cells from neonatal mouse by MACS method. Jannat Alipoor F, Sadighi Gilani MA, Eftekhari-Yazdi P, Daneshzadeh MT, Khakzad H. Journal of Iranian Anatomical Science 2010; 7:113-120

Embryology Department of RI-RB

Head of Department
Prof Mojtaba Rezazadeh Valojerdi

PhD in Anatomy, University of Glasgow, Glasgow, England

Faculty Member, Tarbiat Modarres University, School of Medicine, Anatomy Dept. (Full Professor)

Principal Investigators

- P. Eftekhari Yazdi, PhD
- H. Eimani, PhD
- L. Karimian, MSc
- B. movaghar, PhD
- A. Shahverdi, PhD

Research Assistants

- M. Afshani, DVM
- H. Alipour, DVM
- S. Askarian, MSc
- A. Behbahanian, MSc
- A. Dalman, MSc
- R. Fakheri, BSc
- R. Fathi, MSc
- M. Fazel, MSc
- F. Hasani, MSc
- M. Sharbatoghli, MSc
- L. Tahaei, MSc
- Z. Vahabi, BSc

The department of Embryology, founded in 1995, is a part of Royan Institute's Reproductive Biomedicine and Stem Cell Research. During the succeeding decade, a fundamental description of human and animal experimental studies has emerged in the field of embryology. The interesting focuses of this department are: to increase the quality of gametes and embryos, study the molecular aspects of gamete maturation and embryo development, perform embryo co-culture with various types of somatic cells, study molecular aspects of gamete

and embryo freezing, in vitro maturation of animal and human gametes (IVM), molecular and cellular events of embryo implantation, three-dimensional cell culture to design an endometrial biomodel, nuclear transfer, animal cloning and transgenesis, and sperm chromatin deficiency.

The embryology department consists of five groups

- Oocyte Biology
- Sperm Biology
- Embryo Biotechnology
- Implantation Biology
- Clinical Research

Goals of the department

- Increaseing the numbers of high quality human embryos with the use of different culture techniques
- Producing transgenic goats with selected genes
- Establishing a vitrified ovarian tissue bank

The mission of embryology department of RI-RB is to research different aspects of infertility and its treatment, in order to increase the success rate besides improving the embryo health.

Its vision is to improve embryo quality through infertility treatment and therefore give the hope of having children to infertile couples.

The main researches of the department

- Human factor IX production in a transgenic goat by nuclear transfer
- Vitrification of mouse, sheep and human ovarian tissue
- DNA methylation pattern in embryos
- Assessment of bovine sexed semen preceding cryopreservation with egg yolk-based and soybean lecithin-based extenders
- Reproduction of miniature Caspian horse with the use of frozen semen

Most important researches of the department in 2009

- Production of transgenic goat carrying human factor IX gene by nuclear transfer
- Pregnancy in the miniature Caspian horse by using frozen semen Sheep ovarian tissue vitrification

Articles

Synchronizing cell cycle of goat fibroblasts by serum starvation causes apoptosis. Dalman A, Eftekhari-Yazdi P, Rezazadeh Valojerdi M, Shahverdi A, Gourabi H, Janzamin E, Fakheri R, Hassani F, Sadeghian F. Reprod Domest Anim 2009. Sep 24. [Epub ahead of print].

Starvation and full confluence on cell cycle synchronization and apoptosis of Goat dermal fibroblast. Dalman A, Eftekhari Yazdi P, Rezazadeh Valojerdi M, Shahverdi A, Gourabi H, Fakheri R, Janzamin E, Sadeghian F. Effect of serum. Yakhteh Medical Journal 2009; 2(11): 212-219.

Autologus transplantation of intact mouse ovariesin gluteus superficialis muscle. Imani H, Siyadat S F, Parivar K, Eftelhari Yazdi P, Rezazadeh Valojerdi M, Shahverdi A. Yakhteh Medical Journal 2009; 2(11): 184-189.

Bio treatment protects rat marrow-derived mesenchymal stem cell culture against the TNF-α Induced apoptosis. Eslaminegad MR, Salami F, Soleimani Mehrangani M, abnoosi MH, Eftekhari-Yazdi P. Yakhteh Medical Gournal 2009; 1(11): 35-42.

Effect of mono-(2-ethylhexyl) phthalate (MEHP) on resumption of meiosis, in vitro maturation and embryo development of immature mouse oocytes. Dalman A, Eimani H, Sepehri H, Kazemi Ashtiani S , Rezazadeh Valojerdi M, Eftekhari Yazdi P, Shahverdi A. Biofactors 2008; 33(2): 149-55.

Vitrrification versus slow freezing gives excellent survival, post warming embryo morfology and pregnancy outcomes for human cleaved embryos. Rezazadeh Valojerdi M, Eftekhari-Yazdi P, Karimian L, Hassani F, Movaghar B. J Assist Reprod Genet 2009; 26(6): 347-54.

IVM and gene expression of sheep cumulus–oocyte complexes following different methods of vitrification. Ebrahimi B, Rezazadeh Valojerdi M, Eftekhari-Yazdi P, Baharvand H, Farrokhi A. RBM Online 2010; Issue 1(20): 26-34.

Articles

Effect of laser zona thinning on vitrified–warmed embryo transfer at the cleavage stage: a prospective, randomized study. Rezazadeh Valojerdi M, Eftekhari-Yazdi P, Karimian L, Hassani F, Movaghar B. RBM Online 2010; No 2(20).

Unexpected detrimental effect of Insulin like growth factor-1 on bovine oocyte developmental competence under heat stress. Zhandi M, Towhidi A, Nasr-Esfahani MH, Eftekhari-Yazdi P, Zare-Shahneh A. J Assist Reprod Genet 2009; 26(11-12): 605-11

Comparative study between intact and non-intact intramuscular auto-grafted mouse ovaries. Eimani H, Siadat SF, Eftekhari-Yazdi P, Parivar K, Rezazadeh Valojerdi M, Shahverdi A. Reprod Biomed Online 2009; 18(1): 53-60.

Achieving high survival rate following cryopreservation after isolation of prepubertal mouse spermatogonial cells. Jannat Alipoor F , Sadighi Gilani M A, Eftekhari-Yazdi P, Daliri Hampa A, Hosseinifar H, Alipour H, Lotfi Panah M. J Assist Reprod Genet 2009; 26(2-3): 143-9.

Human embryonic stem cell-derived neural precursor transplants in collagen scaffolds promote recovery in injured rat spinal cord. Hatami M, Mehrjardi NZ, Kiani S, Hemmesi K, Azizi H, Shahverdi A, Baharvand H. Cytotherapy 2009; 11(5): 618-30.

Estimating young's modulus of zona pellucida by micropipette aspiration in combination with theoretical models of ovum. Khalilian M, Navidbakhsh M, Valojerdi MR, Chizari M, Eftekhari Yazdi P. J R Soc Interface 2009.

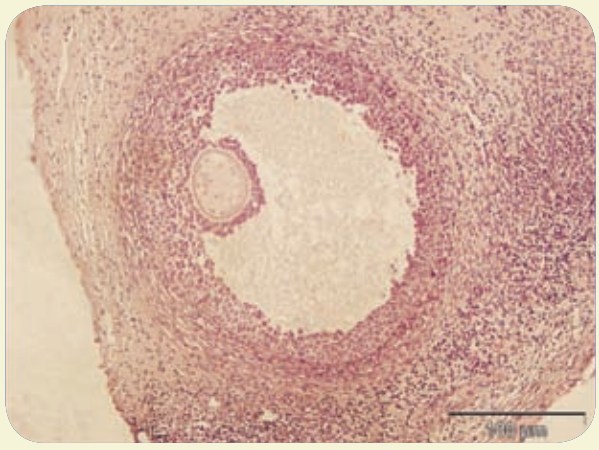
Evaluation of embryos dirived from in vitro fertilized oocytes reconstructed by meiosis-II chromosome transplantation from aged mice to ooplasms of young mice. Shahverdi H, Movahedin M, Rezazadeh Valojerdi M, Baharvand H Iranian Journal of Fertility and Sterility 2009; 4(3): 170-165.

Proteomic analysis of monkey embryonic stem cell during differentiation. Nasrabadi D, Rezaei Larijani M, Pirhaji L, Gourabi H, Shahverdi A, Baharvand H, Salekdeh GH. J Proteome Res 2009; 8(3): 1527-39.

Effect of serum starvation and full confluence on cell cycle synchronization and apoptosis of goat dermal fibroblast. Dalman A, Eftekhari Yazdi P,Rezazadeh Valojerdi M, Shahverdi A, Gourabi H, Fakheri R, Janzamin E , Sadeghian F. Yakhteh Medical Journal 2009; 11(2): 212-219

Vitrified-Warmed Sheep Ovarian Tissue

Rouhollah Fathi, MSc, Mojtaba Rezazadeh Valojerdi, PhD, Hossein Eimani, PhD, Poopak Eftekhari Yazdi, PhD, Fatemeh Hassani, MSc
Embryology Department, Cell Sciences Research Center
Royan Institute, ACECR



An antral follicle derived from vitrified-warmed sheep ovarian tissue.
The antral follicles are destroyed in vitrified ovarian tissue, but here in the current novel protocol which some results are presented in this figure, an antral follicle with normal morphology survived after this novel vitrification procedure.

Reproductive Genetics Department of RI-RB

Head of Department
Dr. Hamid Gourabi

PhD in Medical Physics
(Radiobiology)
Tarbiat Modares University
(Tehran, Iran)
Academi Staff of: ACECR 1993
Iran Medical University 1997-2001
Royan Institute Since 2001
Director of PGD Lab Since 2002

Research Assistants

- N. Almadani, MD
- A. Amiri Yekta, MSc
- Kh. Anisi hamaseh, MSc
- O. Asadpour, MSc
- M. Bazrgar, MSc
- P. Borjian, BSc
- N. Fatemi, MSc
- R. Favaedi, MSc
- R. Habibi, MSc
- H. Hosseinifar, MSc
- Z. Mansouri, MSc
- N. Masoudi, MSc
- A. Mohseni Meiboudi, PhD
- P. Mokhtari, BSc
- M. Sanati, PhD
- M. Shahhosseini, PhD
- A. Shahzadeh Fazeli , PhD
- M. Totonchi, MSc
- Sh. Zaree Moradi, MSc
- H. Vaziri Nasab, MSc
- A. Zomorodipour, PhD

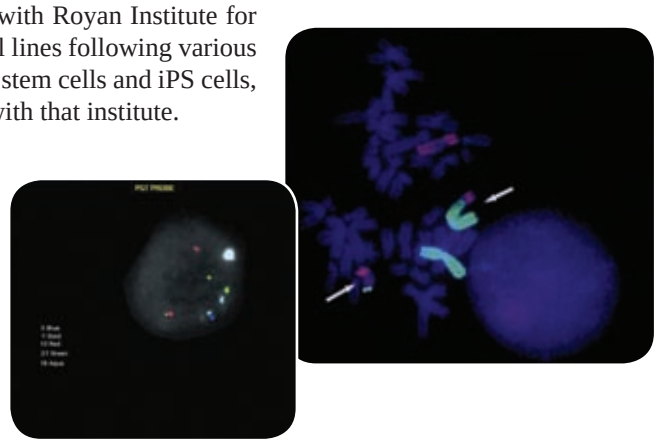
The Genetics Department was established in 2001. Some routine activities of this department include: genetic counseling, lymphocyte karyotyping, preimplantation genetic diagnosis (PGD), molecular diagnostic tests for Y chromosomal deletions and certain mutations, in addition to candidate in the diagnosis of causes for abortions.

The major research interests in this department are: the genetic causes of male and female infertility, recurrent spontaneous abortion (RSA), genetic factors leading to azoospermia, mutations leading to congenital agenesis

of the vas deferens, pre-implantation genetic diagnosis, pharmacogenetics, epigenetic and gene expression profiles of early embryogenesis.

The production of transgenic animals in a joint project with the Embryology Group is another main activity of this department.

Also, the activities carried out in collaboration with Royan Institute for Stem Cell Research are: karyotyping of stem cell lines following various manipulations, epigenetic and genetic studies of stem cells and iPS cells, in addition to other common research interests with that institute.



Goals of the department

- To improve implantation rates and health of embryos by preimplantation genetic screening and diagnosis
- To assist physicians with prescribing medicine for controlled ovarian stimulation via pharmacogenetics
- Genetic follow up of newborns conceived by ART
- Evaluation of candidate genes related to recurrent abortion in the Iranian population
- Epigenetic studies of oocytes, sperm and embryos

The mission of the Genetics Department is basic research on genetic and epigenetic factors that may impact fertility, embryo development and implantation, bringing these research results to the clinical setting with the purpose of improving the health of patients and newborns, and also producing pharmaceutical proteins through transgenic animals.

Its vision is to use genetic science to understand the reasons for infertility, to discover better treatments, and to ensure the health of patients and newborns following ART.

Overview of the department in 2009

The department was working on 11 research projects, and collaborating on 20 projects from other departments. 12 MSc and two PhD thesis were started and 5 students finished their thesis. Nine oral and 23 posters presented in national and international congresses. The list of department's published papers will come below. Also two hands on workshops were held during last year.

In the clinical part, more than 1800 genetic consultation, 2000 Karyotypes, 850 AZF deletions, 250 PGD tests have been performed.

The main activities and researches of the department

- Genetic causes of male and female infertility
- Recurrent spontaneous abortion (RSA)
- Genetic factors leading to azoospermia
- Mutations leading to congenital agenesis of the vas deferens
- Preimplantation genetic diagnosis
- Pharmacogenetics
- Epigenetic and gene expression profiles of early embryogenesis
- Genetic engineering and manipulations of mammalian cells for use in farm animal cloning to produce transgenic animals

Articles

Epigenetic analysis of human embryonic carcinoma cell during retinoic acid. Shahhosseini M, Taei A, Zare Z, Salekdeh GH, Baharvand H. Induced Neural Differentiation Biochemistry and Cell Biology 2010: 88:527-538

Evidece for the structural stability of ribonucleoprotein LMG 160 under ribonuclease. Shahhoseini M, Rabbani Chadegani A, Abdosamadi S.–A treatment Mol Cell Biochem 2009

Constitutional telomeric dsfunction in an azoospermic male with extensive telomeric Salahshori far I. Gourabi H, Karimi H, Tavakolzadeh T. Association American Journal of Medical Genetic 2009

Feeder-and serum-free establishment and expansion of human induced pluripotent stem cells. Totonchi M, Taei A, Seifinejad A, Gourabi H, Salekdeh GH, Baharvand H. Int.J.Dev.Biol 2009

Calciotropic hormones, insulin resistance, and the polycystic ovary syndrome. Mahmoudi T, Gourabi H, Ashrafi M, Yazdi RS, Ezabadi Z. Fertil Steril 2010; 93(4):1208-14

Genetic variation in the vitamin D receptor and polycystic ovary syndrome risk. Mahmoudi T. Fertil, Steril 2009; 92: 1381–3

Separation of X and Y bearing human spermatozoa by PureSperm gradients evaluated by fluorescent in situ hybridization. Aleahmad F, Gourabi H , Zeinali B , Kazemi Ashtiani S, Baharvand H. RBM 2009; 18(4): 475-478

A simple and efficient cryopreservation method for feeder- free disociated human induced pluripotent stem cells and human embryonic stem cells. Mollamohamadi S, Taei A, Pakzad M, Totonchi M, Masoudi N, Baharvand H.

Presence of ROCK inhibitor in extracellular matrix support more undifferentiated growth of feeder-free human embryonic and induced pluripotent stem cells upon passaging. Pakzad M, Totonchi M, Seifinejad A, Taei A, Hassani S, Baharvand H. Stem cell Rev. and Rep 2009

Derivation of new human embryonic stem cell lines from preimplantation genetic screening and diagnosis-analyzed embryos. Taei A, Gourabi H, Seifinejad A, Totonchi M, Shahbazi E, Rezazadeh Valojerdi M , Eftekhari P, Karimian L, Baharvand H. In Vitro Cell Dev Biol Anim 2009

Generation of human induced pluripotent stem cell from a Bombay individual: Moving towards "universal –donors" red blood cells. Seifinejad A, taei A, Totochi M, Vaziri H, Baharvand H. Biochemical and Biophysical Research Communications 2010

Synchronizing cell cycle of goat fibroblasts by serum starvation causes poptosis. Dalman A, Eftekhari-Yazdi P, Rezazadeh ValojerdiM, Shahverdi A, Gourabi H, Janzamin E, Fakheri1 R, Sadeghian F , Hasani F. Reprod Dom Anim doi 2009

Comparative proteome and transcriptome analyses of embryonic stem cells during embryoid body-based Differentiation. Fathi A, Pakzad M, Taei A, Thore C. Brink, Pirhaji L, Guifre R, Tabe Bordbar MS, Gourabi H, James Adjaye, Baharvand H, Hosseini Salekdeh Gh. Proteomics 2009; 9: 4859–4870

Gen Exression patterns of bcl2, bax, bag1 and casp3 genes in fragmented and normal human embryos derived from ART. Piltan A, Totonchi M, Rezazadeh M, Gourabi H, Eftekhari P .Yakhteh

Detection Of high risk humanpapillomavirus DNA squences in head and neck squamouse cell carcinoma in Iranian fanconi anemia patients. Mohseni A, Haratian K, Zaree Moradi Sh. Yakhteh

Efficiency of adult mouse spermatogonoal stem cell colony formation under several culture conditions. Koruji M, Movahedin M, Mowla S.J, Gourabi H, Arfaee A.J. In viro Cell Dev Biol 2009; 45(5-6): 281-289.

Perinatal outcomes of newborn infants conceived by assisted reproductive techniques in Royan institute. Mozafari Kermani R, Allahverdi B, Gourabi H, Koohpayezade J, Nateghi M.R, Dadashloo Sh. IJFS 2009; 3(2): 62-65

A- thalassemia mutation analyses in Mazandaran province, north IRAN. Tamaddoni A, Hadavi V, Hafezi N, Khosh-Ain A, Siami R, Aghai Meibodi J, Almadani N, Oberkanins Ch, Law H, Najmabadi H. Hemoglobin; 33(2):115-123

Most important research of the department in 2009

- Production of transgenic goats carrying human coagulation factor IX (hfIX) transgene within their genomes.

Transgenesis is a method of creating animals with desirable and usually marketable characteristics by the insertion of a gene or genes from another animal or species into their genome. It is a form of genetic modification and is one of the fastest growing areas of biotechnology.

In this department, in addition to other projects that focus on genetic causes of infertility and epigenetics, the ways to produce transgenic animals with different characteristics are studied. In this way, the first transgenic twin goats in the Middle East were born at Royan Institute. These goats have the human coagulation factor IX gene after the beta-casein promoter in the gene construct (transgene). Therefore, expression of the expected recombinant protein in their milk is anticipated.

Epidemiology and Reproductive Health Department of RI-RB

Head of Department:
Dr. Reza Omani Samani

MD, Medical Doctor, Bioethics: Faculty of Medicine, Iran University of Medical Science, Tehran, Iran

Principal Investigators:

- M. Akhoond, PhD
- A. Azin, PhD
- N. Bagheri Lankarani, PhD
- Gh. Khalili, PhD
- T. Merghati, PhD
- M. Rezania Moalem, PhD

Research Assistants:

- A. Akhlaghi, MSc
- L. Alizadeh, BSc
- M. Chehrazi, MSc
- L. Mounesan, MSc
- M. Mozafari, MSc
- M. Oudi, BSc
- S. Sazvar, BSc
- F. Shabani, BSc
- M. Shamsipour, MSc

The Epidemiology and Reproductive Health Department was established in 2000 with the aim of promoting reproductive health by epidemiological research in the field of reproduction. This department is responsible for checking all research proposals in three faculties and gives both methodological and statistical consultation.

This department undertakes multicentre research between Iran and other countries in the following areas

- Frequency, incidence and influencing factors for all subfertility and infertility types
- Environmental and occupational factors affecting fertility and reproduction
- Psychosocial issues affecting infertile couples, their treatment and coping mechanisms
- Experiences, quality of life, marital and sexual satisfaction of infertile couples, even after IVF failure
- Ethical issues, legislation and guidelines in assisted reproduction

- Statistical models and methods for research in reproduction, genetics and the cellular and molecular fields
- Animal ethics

The mission of this department is the promotion of reproductive health in Iran.

Reproductive health is an important aspect of general health and involves people of all ages within the society, from an embryo to the elderly. Focusing on sexual and reproductive health guarantees the future health of the society by ensuring healthy children and healthy adults. Our work involves research into all reproduction related areas including social, medical, psychological and ethical issues, and therefore it is our vision to ensure the health of the society, by undertaking this research.

Overview of the department in 2009

- Numerous researches were initiated in 2009 in addition to the continuation of previously started projects
- Symposium entitled: Legal Validity and Content of Consents Used in Medicine
- Conduction of a Reproductive Ethics Session for Continuing Medical Education

The department focuses on

- Social and occupational factors influencing reproduction and fertility
- Attitudes, knowledge and practice of the society regarding reproductive issues
- Quality of life, marital and sexual satisfaction and influential factors among infertile couples
- Psychological issues of infertility and interventions to improve them
- Statistical methods with the intent to increase the accuracy of statistical analysis
- Ethical, legal and religious aspects of reproduction

The department's main activities and researches

- Ethical, legal and religious issues regarding embryo donation from fertile couples
- Knowledge, attitude and practice of Iranian patients, experts and personnel toward stem cell research and the therapeutic potential of stem cell research in the context of cardiovascular disease
- Establishment of Ethical Guidelines and legislation in the reproductive field
- Applying artificial neural network to predicting the outcome of ART cycles in the patients who refer to Royan Infertility Center
- The Islamic view of embryo reduction
- Posthumous assisted reproduction from an Islamic view
- Survey of marital issuesin fertile and infertile couples
- Ethical and legal issues regarding animal cloning
- Evaluation of ART treatment in HIV discordant couples from ethical, legal, religious and medical aspects
- Knowledge and attitude about cord blood banking in pregnant women from Tehran

Articles

Donation and surrogacy together with the parents. Alizadeh L, Merghati ST, Omani Samani R. J of Medical Ethics & History 2009:12-20

The correlation between serum and peritoneal fluid CA125 level in women with pelvic endometriosis. Salehpour S, Akhbari Sene A, Kalantarian Mehrjerdi E, Akhoond MR IJFS. 2009; 3(1):29-34

Debate in embryo donation: embryo donation or both –gamete donation. Omani Samani R .RBM online 2009; 18 Suppl.1:29-33/// Ethics, Bioscience and Life 2009; 4 (2): 29-33

Symptoms of natural menopause among Iranian women living in Tehran. Ashrafi M, Kazemi Ashtiani S, Malekzadeh F, Amirchaghmaghi E, Eshrati B, Kashfi F, Shabani F. In Press: IJRM, Winter 2010

The effect of provision of information regarding infertility treatment strategies on anxiety level of infertile couples. Hamideh M, Alizadegan Sh, Nikzad V. IJFS. 2009; 2(4): 185-88

Posthumous reproduction and donation, Islamic and Iranian perspective. Omani Samani R, Rezania Moalem MR. 10th congress on reproductive biomedicine-5thcongress on stem cell biology & technology, Royan.Yakhteh (the cell) 2009; vol 11, suppl.Tehran, Iran. Oral. p: 8-9

Anonymity in gamete and embryo donation. Mozafari M,Omani Samani R,Oraei A. 5th congress on stem cell biology & technology, Royan. Yakhteh(the cell). 10th congress on reproductive biomedicine 2009; 11, suppl. Tehran, Iran. Poster. p: 63

Which one is more ethical: egg donation or egg sharing.10th congress on reproductive biomedicine. Alizadeh L, Omani Samani. 5th congress on stem cell biology & technology, Royan.Yakhteh(the cell).2009; 11, suppl. Tehran, Iran. Oral. p:31

Ethical consideration around sex selection. Mozafari S, Omani Samani R. 10th congress on reproductive biomedicine-5th congress on stem cell biology & technology. Royan.Yakhteh(the cell).2009; 11, suppl. Tehran, Iran. Poster. p: 62

Risks and pregnancy outcome in women with mechanical heart valves (prospective study). Kashfi F,Hosseini S,Khamoushi S, Gavidel A, Yazdaniyan F, Noohi F. International Journal of Gynecology and Obstetrics 2009; 107 (2): S221/XIX FIGO World Congress of Gynecology and Obstetrics,2009. FIGO,Cape Town, South Africa.

Reproductive Imaging Department of RI-RB

Head of Department
Dr Firoozeh Ahmadi

MD, Radiology
Iran University of Medical Science
1994-1997

General physician Iran University of Medical Science 1986-1993

Principal Investigators

- M. Niknejadi, MD
- A.Vosough , MD
- F. Zafarani , BSc

Research Assistants

- F. Ghaderi, BSc
- H. Haghighi, BSc
- S. Irani, BSc
- N. Nasiri, MSc
- F. Niknejad, BSc
- Z. Rashidi, BSc
- M. Salamati, MD

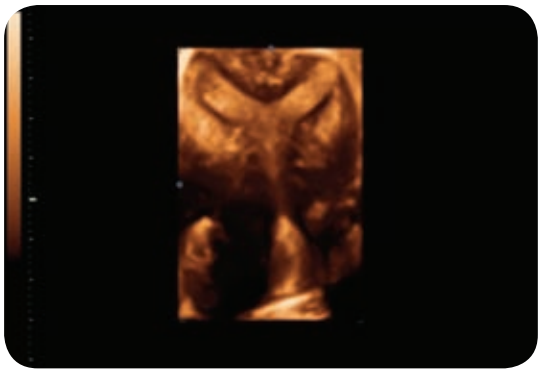
Reproductive Imaging department was established in 2008 to focus on infertility assessment as well as evaluation of pregnancies in both clinic and research fields.

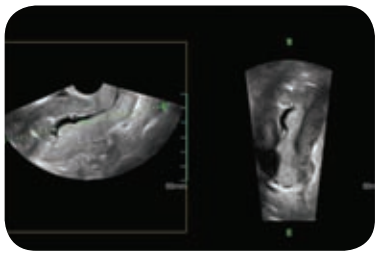
Goals of the department are

- Conducting research in the field of male and female infertility in order to provide modern strategies and improve clinical services for infertile couples
- Expanding clinical and fundamental research in the reproductive imaging

Mission of the department

- Prenatal ultrasonographic screening of fetal anormalies
- Power Doppler ultrasound assessment of follicular vascularity in poor ovarian response and its relationship with outcome of in vitro fertilization
- Study of congenital uterine abnormalities using 3D/4D ultrasonograpgy and sonohysterography
- Endometrial and subendometrial blood flows measured by Power Doppler ultrasound in the prediction of pregnancy during IVF treatment
- Diagnostic and interventional imaging in male infertility
- Sonohysterography for evaluation of endometrial cavity and tubal patency





The vision in this department is performing national and international multicentral research and having collaboration with universities and other infertility centers to provide educational courses in diagnostic ultrasound including transvaginal, color Doppler, power Doppler, 3D/4D imaging and radiology for radiologist, gynecologist and fellowships.

Overview of the department in 2009

1. Diagnostic imaging in female infertility
   - Sonography (Transvaginal & Abdominal)
   - Hysterosalpingography
   - Sonohysterography
2. Diagnostic imaging in male infertility

The main activities and researches of the department

- Diagnostic imaging in male infertility
- Diagnostic imaging in female infertility

Articles

Diagnostic accuracy of transvaginal sonogarphy in infertile patients with endometrial polyps. Niknejadi M, Ahmadi F, Zafarani F, Khalili Gh, Ghaderi F,Rashidi Z., IJFS 2010;4: 157-160

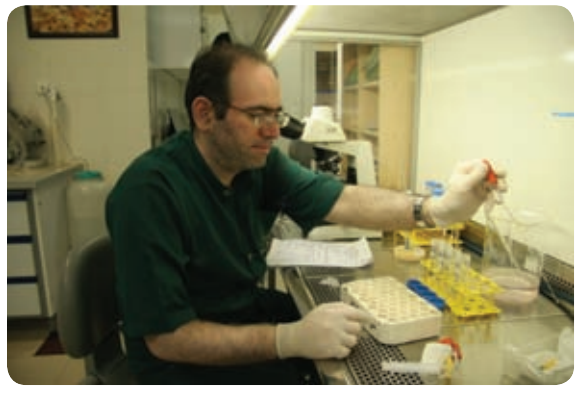
Nuclear proteome analysis of monkey embryonic stem cells during differentiation. Nasrabadi D, Rezaei M, Fathi A, Gourabi H, Vosough Dizaji A, Baharvand H*, Hosseini Salekdeh Gh. Stem Cell Reviews and Reports. In press

Effect of ultrasound on parthenogenic Activation of Mouse Oocyte. Vosough Dizaji A, Nasiri N, Ahmadi F, Gourabi H, Hamrahi D, Eftekhari P

Screening of major structural anomalies at the first and second trimester of pregnancy by ultrasonographic examination. Niknejadi M, Ahmadi F, Zafarani F, Vosough A, Irani Sh, Rashidi Z, Moeni A, Sadeghi M, Akhound MR, Mahjob F, Monajemzadeh M

Royan Infertility Clinics

Royan Infertility Clinic is the second clinic which stablished for the treatment of infertility in Iran and the first one in Tehran. Although there are more than 50 infertility clinics throughout Iran, after 18 years of experience in this field and due to the high rate of success, many patients prefer to have their treatments in this clinic. Each year we have numerous foreign patients who come to Iran for infertility treatment. Different services including diagnostic and operative laparoscopy, IUI, ovulation induction, IVF, ICSI, PGD, PESA/TESE, microscopic TESA, vasovasostomy, vasoepididymostomy, TURD, gamete and embryo cryopreservation, assisted hatching, karyotyping, molecular genetic tests such as Factor V Leiden, Factor II and MTHFR gene, as well as others routinely offered to patients.



Royan Infertility Clinic includes different sections for the assessment of different aspects of infertility and developing the best treatment methods:

1. Endocrinology Clinic
2. Endoscopy Clinic
3. Endometriosis Clinic
4. Recurrent Abortion Clinic
5. Prenatology Clinic
6. IVF Failure Clinic
7. Male Infertility Clinic
8. Psycho- Social Support and Counseling Clinic
9. Genetic Counseling Clinic
10. Imaging modalities such as rectal and vaginal ultrasonography

Statistics of Royan Infertility Clinic Activities and Treatment Cycles in 2008-2009:

Total number of visited patients	45844
Genetic Counseling	1846
Psychological Counseling	1117
Diagnostic Laparoscopy	254
Diagnostic Hysteroscopy	1193
Diagnostic Laparohysteroscopy	144
Hysterosonography	541
Varicocelectomy	158
PESA/TESE	1819
PGD	246
Embryo Transfer & Freezing	1040
IUI	2686
IVM	15
ZIFT	11
ICSI/IVF cycle	5251

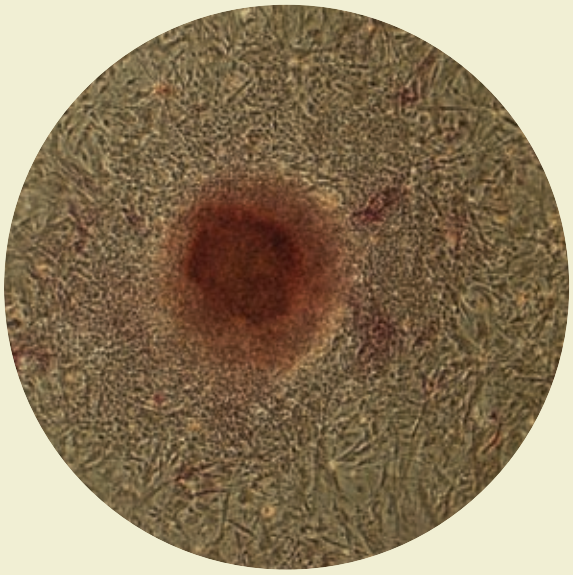
Royan Institute for Stem Cell Biology and Technology

Royan Institute for Stem Cell Biology and Technology (RI-SCBT) was established in 2002 to promote research on general stem cell biology in Iran. It continues its activities from the early months of 2010 in three departments and one center:

1. Stem Cells and Developmental Biology
2. Molecular Systems Biology
3. Regenerative Medicine
4. Cell Therapy Center

RI-SCBT vision is to efficiently put stem cell research findings into operation in disease treatment with the aim of increasing health.

RI-SCBT mission is to generate insights into the biology of stem cells through basic research and to provide the foundation needed for novel therapies from regenerative medicine.



Stem Cells and Developmental Biology Department of RI-SCBT

Head of Department:
Dr Hossein Baharvand

BSc: Biology/Shiraz Uni. (Shiraz, Iran)/1990-94
MSc: Developmental Biology/ Shahid Beheshti Uni. (Tehran, Iran)/1994-96
PhD: Developmental Biology/ Tarbiat Moallem University (Tehran, Iran) 2001-04

Principal Investigators:

- N. Aghdami, PhD
- M. Baghban Eslaminejad, PhD
- M. Ebrahimi, PhD

Research Assistants:

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- Z. Ajdari-Tafti, BSc
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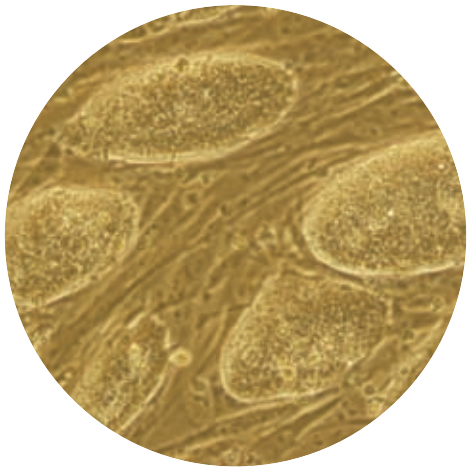
- S. Bordbar, MSc
- F. Faghihi, MSc
- N. Fani, MSc
- A. Farrokhi, MSc
- Z. Farzaneh, MSc
- H. Founodi, BSc
- A. Ghodsizadeh, BSc
- N. Hassani, MSc
- M. Hatami, MSc
- K. Hemmesi, MSc
- Sh. Jahangiri, MSc
- E. Jan zamin, BSc
- K. Khalooghi, MSc
- F. Khayyatan, BSc
- Z. Maghari, BSc
- R. Moghimi Nasr, BSc
- S. Mollamohamadi, BSc
- A. Moradmand, BSc
- M. Namiri, MSc
- H. Nazarian, MSc
- Sh. Nemati, MSc
- H. Nezari, MSc
- M. Pakzad, BSc
- A. Piryaei (Ph.D)
- A. Pouya, MSc
- B. Pournasr Khakbaz, MSc
- V. Rabbani, MSc
- M. Rezaee, BSc
- A. Samadian, BSc
- A. Seifinejad, MSc
- F. Sahraneshin Samani, BSc
- E. Shahbazi, MSc
- M. Shahsavani, BSc
- N. shayan, MSc
- A. Taee, BSc
- E. Taghiabadi, BSc
- L. Taghiyar, MSc
- Y. Tahamtani, MSc
- F. Tavakkolifar, MSc
- S. Vahdat, BSc
- M. Vosough, MD
- N. Zare, MSc
- E. Zomorodiyan, MSc

This department includes following research groups

- Embryonic and induced pluripotent stem cells
- Cardiovascular differentiation
- Hepatocyte differentiation
- Neural differentiation
- Beta-cell differentiation
- Mesenchymal stem cells and bone and cartilage differentiation
- Hematopoietic stem cells and Cancer stem cells
- Germ line stem cells



Research in this area seeks to address major questions in basic stem cell biology that will potentially provide the framework for the development of therapeutic stem cell products and related applications. The mechanisms of stem cell self-renewal and differentiation are under intense investigation.

The mission of this department is to achieve world-class applicative approaches in stem cell biology particularly in the field of animal models of human diseases or translational research.

Most important researches of the department from March, 2009- March, 2010

- Establishment and characterization of pluripotent stem cell-derived neural progenitor cell lines (more than 1 cell line) and their applications to spinal cord injury and MS animal models
- Application of stem cell-derived hepatocytes in cirrhotic animal models
- Bone and cartilage regeneration with tissue engineering
- High efficient derivation of mouse, human and induced pluripotent stem cells

Articles

Transplantation of primed or unprimed mouse embryonic stem cell-derived neural precursor cells improves cognitive function in alzheimerian rats. Homayouni Moghadam F, Alaiei H, Karbalaie Kh, Tanhaei S, Nasr Esfahani MH*, Baharvand H*. Differentiation 2009;78(2-3): 59-68

Generation of motor neurons by co-culture of retinoic acid-pretreated embryonic stem cells with chicken notochords. Anjomshoa M, Karbalaie Kh, Mardani M, Razavi Sh, Tanhaei S, Nasr-Esfahani MH*, Baharvand H*. Stem Cells and Development 2009 March; 18(2): 259-67.

A simple and efficient cryopreservation method for feeder-free dissociated human induced pluripotent stem cells and human embryonic stem Cells. Mollamohammadi S, Taei A, Pakzad M, Totonchi M, Seifinejad A, Masoudi N, Baharvand H. Hum Reprod 2009; 24(10): 2468-76

Neurogenic and mitotic effects of dehydroepiandrosterone on neural-competent marrow mesenchymal stem cells. Hashemi Shiri E, Zare Mehrjardi N, Tavallaei M, Kazemi Ashtiani S, Baharvand H*. International Journal of Developmental Biology 2009; 53 (4): 579-84

Embryonic stem cell-derived cardiomyocytes as model system to study cardioprotective effects of dexamethasone in doxorubicin cardiotoxicity. Farokhpour M, Karbalaie Kh, Tanhaei S, Nematollahi M, Etebari M, Mirmohammad Sadeghi H, Nasr-Esfahani* MH, Baharvand*H. Toxicol In Vitro 2009 Oct; 23(7):1422-8

Articles

Murine mesenchymal stem cell isolated and expanded in low and high density culture system: surface antigen expression and osteogenic culture mineralization. Baghban Eslaminejad MR, Nadri S. In Vitro Cell.Dev.Biol. Animal, (2009), 45(8): 451-459

Proteomic analysis of monkey embryonic stem cell during differentiation. Bagher Nasrabadi D, Rezaei M, Pirhaji L, Gourabi H, Shahverdi A, Baharvand H*, Hosseini Salekdeh Gh*. J. of Proteome Research 2009; 8 (3): 1527-1539

Preparation and surface characterization of poly-l-lysine-coated PLGA microsphere scaffolds containing retinoic acid for nerve tissue engineering: In vitro study. Nojehdehian H, Moztarzadeh F, Baharvand H, Nazarian H, Tahriri M. Colloids Surf B Biointerfaces 2009; 73(1): 23-9

Rat marrow-derived mesenchymal stem cells developed in a medium supplemented with the autologous versus bovine serum. Eslaminejad MB, Rouhi L, Arabnajafi M, Baharvand H. Cell Biology International 2009, May; 33(5): 607-16

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Type I collagen gel in seeding medium improves murine mesencymal stem cell loading onto the scaffold, increases their subsequent proliferation and enhances the culture mineralization. Eslaminejed MB, Mirzadeh H, Nickmahzar A, Mohamadi Y, Mivehchi H. J Biomed Mater Res part B: Appl Biomater 2009; 90B: 659-667

Human embryonic stem cell-derived neural precursor transplants in collagen scaffolds promote recovery in injured rat spinal cord. Hatami M, Zare Mehrjerdi N, Kiani S, Azizi H, Hemmesi K, Baharvand* H. Cytotherapy. 2009; 11(5): 618-30,

The thickness of electrospun poly (ε-caprolactone) nanofibrous scaffolds influences cell proliferation. Ghasemi Mobarakeh L, Morshed M, Karbalaie Kh, Fesharaki M, Nematallahi M, Nasr-Esfahani MH*, Baharvand H*. The Int. J. Artificial Organs 2009; 32(3):150-158.

The effects of different extracellular matrices and co-cultures on human limbal stem cell expansion in vitro. Ahmadiankia N, Ebrahimi M, Hosseini A, Baharvand H*. Cell Biol Int 2009 ; 33(9): 978-87

Human-induced pluripotent stem cells: derivation, propagation, and freezing in serum- and feeder layer-free culture conditions. Baharvand H*, Totonchi M, Taei A, Seifinejad A, Aghdami N, Salekdeh GH. Methods Mol Biol 2010; 584: 425-43.

Quantitative analysis of the proliferation and differentiation of rat articular chondrocytes in alginate 3D culture. Eslaminejad MB, Taghiyar L, Falahi F. Iranian Biomed J 2009; 13: 153-160

Equine marrow-derived mesenchymal stem cells: Isolation, differentiation and culture optimization. Eslaminejad MB, Taghiyar L, Dehghan MM, Falahi F, Kazemi H. Iranian Journal of Veterinary Research, Shiraz University 2009; 10 (1): 1-11

Co-culture of mesenchymal stem cells with mature chondrocytes: producing cartilage construct for application in cartilage regeneration. Eslaminejad MB, Taghiyar L, Falahi F. Iran J Med Sci December 2009; 34 (4): 251-258

Ex vivo expansion and differentiation of mesenchymal stem cells from goat bone marrow. Eslaminejad MB, Nazarian H, Falahi F, Taghiyar L, Daneshzadeh MT. Iranian Journal of Basic Medical Sciences 2009; 12 (2): 70-79

Tissue engineering approach for reconstructing bone defects using mesenchymal stem cells. Baghban Eslaminejad MR*, Bagheri F. Yakhteh Medical J 2009; 11(3):263-272

Effect of Lithium chloride on proliferation and bone differentiation of rat marrow-derived mesenchymal stem cells in culture. Eslaminejad MB, Talkhabi M, Zeinali B. Yakhteh Medical Journal 2009; 11 (3): 263-272

Differentiation of mouse embryonic stem cells into dorsal interneurons of the spinal cord using BMP4 and Activin A. Najafi F, Zare Mehrjardi N, Hatami M, Baharvand H*. Yakhteh Medical J, 2009; 11 (3): 277-284

Cell-based regenerative therapy as an alternative to liver transplantation for end-stage liver disease: experience from Iran. R. Malekzadeh*, M. Mohamadnejad, K. Alimoghaddam, M. Bagheri, H. Baharvand, A. Ghavamzadeh. International Journal of Organ Transplantation Medicine 2010; 1 (1): 15-21

Articles

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Peroxisomal sorting analysis of mouse peroxisomal protein by in vitro studies. Ostadsharif M, Ghaedi K, Nasr-Esfahani MH, Tanhaie S, Karbalaii Kh, Baharvand H. Iranian Journal of Biotechnology 2009, In press

BIO treatment protects rat marrow-derived mesenchymal stem cell culture against the TNF-α- induced apoptosis. Eslaminejad MB, Salami F, Soleimani M, Abnousi M, Eftekhari-Yazdi P. Yakhteh Med J, In press

Biocompatibility evaluation of nano-rod hydroxyapatite/gelatin coated with nano-Hap as a novel scaffold using mesenchymal stem cells. Zandi M, Mirzedeh H, Mayer C, Urch H, Eslaminejad MB, Bagheri F, Mivehchi H. J Biomed Mater Res A 2009, In press

Feeder- and serum-free establishment and expansion of human induced pluripotent stem cells. Totonchi M, Taei A, Seifinejad A, Tabebordbar MSH, Rassouli H, Aghdami N, Gourabi H, Hosseini Salekdeh GH, Baharvand H* . Int. J. Dev. Biol. 2009, In Press

Neural induction in mouse embryonic stem cells by co-culturing with chicken somites. Sagha M, Karbalaie K, Tanhaee S, Esfandiari E, Salehi H, Sadeghi-Aliabadi H, Razavi S, Nasr-Esfahani MH*, Baharvand H*. Stem cells and Development, 2009 May 12. [Epub ahead of print]

Comparative proteome and transcriptome analyses of human embryonic stem cells during embryoid body-based differentiation. Fathi A, Pakzad M, Taei A, Thore C. Brink, Pirhaji L, Guifré Ruiz, Tabebordbar M, Gourabi H, Adjaye J, Baharvand H*, Hosseini Salekdeh Gh*. Proteomics 2009; 9(21):4859-70

Dehydroepiandrosterone stimulates neurogrnesis in retinoic acid treated embryonic carcinoma and embryonic stem cells-derived neuronal progenitors and induces dopaminergic neurons. Azizi H, Zare Mehrjardi N, Shahbazi E, Hemmesi K, Bahmani MKh, Baharvand*H. Stem Cells Dev 2009 Sep 29. [Epub ahead of print]

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Epigenetic analysis of embryonic carcinoma cells during neural differentiation induced by retinoic acid. Shahhoseini M*, Taee A, Zare Mehrjardi N, Hosseini Salekdeh Gh, Baharvand* H. Biochemistry and Cell Biology. In press

Articles

Nuclear proteome analysis of monkey embryonic stem cells during differentiation. Nasrabadi D, Rezaei M, Fathi A, Gourabi H, Vosough Dizaji A, Baharvand*H, Hosseini Salekdeh*Gh. Stem Cell Reviews and Reports. In press

Safety and efficacy of autologous intramuscular implantation of bone marrow-mononuclear cells in combination with granulocyte colony stimulating factor: a randomized controlled trial in patients with advanced lower limb ischemia. Zafarghandi NR, Ravari H, Aghdami N, Namiri M, Moazzami K, Taghiabadi E, Fazel 'A, Pournasr B, Sharifian RA, Salimi J, Moini M, Baharvand H*. Cytotherapy. In Press

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Progress and promise towards safe induced pluripotent stem cells for therapy. Seifinejad A, Tabebordbar MSh, Baharvand H, Boyer LA, Hosseini Salekdeh Gh. Stem Cell Reviews and Reports; In press

Bone morphogenetic protein-4 influences neural differentiation of induced mouse mesenchymal stem cells. Rezaei M, Karbalaie Kh, Tanhaie S, Madani H, Nasr-EsfahaniMH, Baharvand* Hossein. Yakhteh Medical J, (English), In press

Intraepidermal injection of dissociated epidermal cell suspension improves vitiligo. Khodadadi L, Shafian S, Aghdami N, Baharvand H. Archives of Dermatological Research. In press

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Mesenchymal stem cell infusion therapy in carbon tetrachloride-induced liver fibrosis model affect matrix methatoproteinase expression. Rabani V, Shahsavani M, Gharavi M, Azhdari Z, Baharvand*H. Cell Biology International 2010. In press

In vitro mturation, apoptotic gene expression and incidence of oocyte chromosomal abnormalities following cryotop vitrification of sheep cumulus-oocyte Complexes. Ebrahimi B, Rezazadeh Valojerdi B, Eftekhari-Yazdi P, Baharvand H. Assisted reproduction and Genetics 2010. In press

A novel method to obtain highly enriched cultures of adult rat schwann cells. Niapour A, Karamali F, Karbalaie Kh, Kiani A, Mardani M, Nasr-Esfahani* MH, Baharvand*H. Biotechnology letters 2010. In press

Proteome analysis of brain in murine experimental autoimmune encephalomyelitis. shahzadeh Fazeli A, Nasrabadi D, Sanati MH, Pouya A, Ibrahim S M, Baharvand*H, Hosseini Salekdeh*Gh. Proteomics. In press

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Induced pluripotent stem cells: a new era for hepatology. Asgari S, Pournasr B, Hosseini Salekdeh Gh, Ghodsizadeh A, Ott M, Baharvand*H. Journal of Hepatology 2010. In press

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Separation of X- and Y-bearing human spermatozoa by sperm isolation medium gradients evaluated by FISH. Aleahmad F, Gourabi H, Zeinali B, Kazemi Ashtiani S, Baharvand H. Reprod Biomed Online 2009; 18(4): 475-8.

Molecular Systems Biology
Department of RI-SCBT

Head of Department
Dr Ghasem Hosseini Salekdeh

BSc: Plant Breeding/ Urmia University (Iran)/ 1994
MSc: Plant Breeding/ Tehran University (Iran)/ 1997
PhD: Genetics/ UPLB (Republic of the Philippines)/ 2002

Research Assistants

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- F. Fattahi, BSc
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- V. Hajihoseini, BSc
- M. Jadaliha, BSc
- Sh. Mirshahvaladi, BSc
- M. Naghavi, BSc
- L. Pirhaji , MSc
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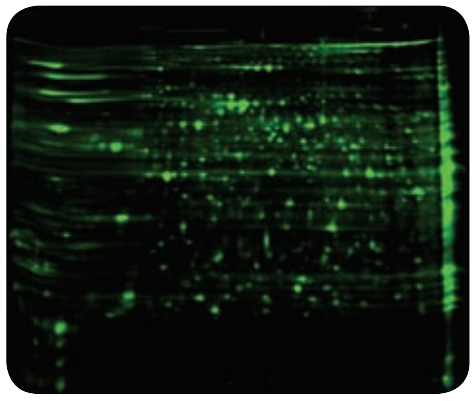
- R. Sorbi, BSc
- H. Vakilian, MSc
- T. Valadbeigi, MSc
- M. Yeganeh, BSc
- M. Yousefi, BSc



Systems biology department aims to explain how higher level properties of complex biological systems arise from the interactions among their parts. The ultimate goal is to employ systems biology to predict, prevent and cure diseases.

Its mission is to apply omics technologies supported with bioinformatics and functional analyses in order to understand molecular networks and mechanisms that control embryonic stem cell self-renewal and differentiation, as well as adult cell reprogramming into induced pluripotent stem cells.

Most important researches of the department from March, 2009 - March, 2010

- Chromosome Y Proteome Project
- Membrane proteomics
- Protein transduction
- Recombinant proteins
- Protein-protein interactions
- Neural differentiation proteomics and transcriptomics

Articles:

Proteomic analysis of monkey embryonic stem cell during differentiation. Bagher Nasrabadi D, Rezaei M, Pirhaji L, Gourabi H, Shahverdi A, Baharvand H*, Hosseini Salekdeh Gh*. J. of Proteome Research 2009; 8 (3): 1527-1539

Feeder- and serum-free establishment and expansion of human induced pluripotent stem cells. Totonchi M, Taei A, Seifinejad A, Tabebordbar MSH, Rassouli H, Aghdami N, Gourabi H, Hosseini Salekdeh GH, Baharvand H* . Int. J. Dev. Biol. 2009, In Press

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Nuclear proteome analysis of monkey embryonic stem cells during differentiation. Nasrabadi D, Rezaei M, Fathi A, Gourabi H, Vosough Dizaji A, Baharvand* H, Hosseini Salekdeh*Gh. Stem Cell Reviews and Reports. In press

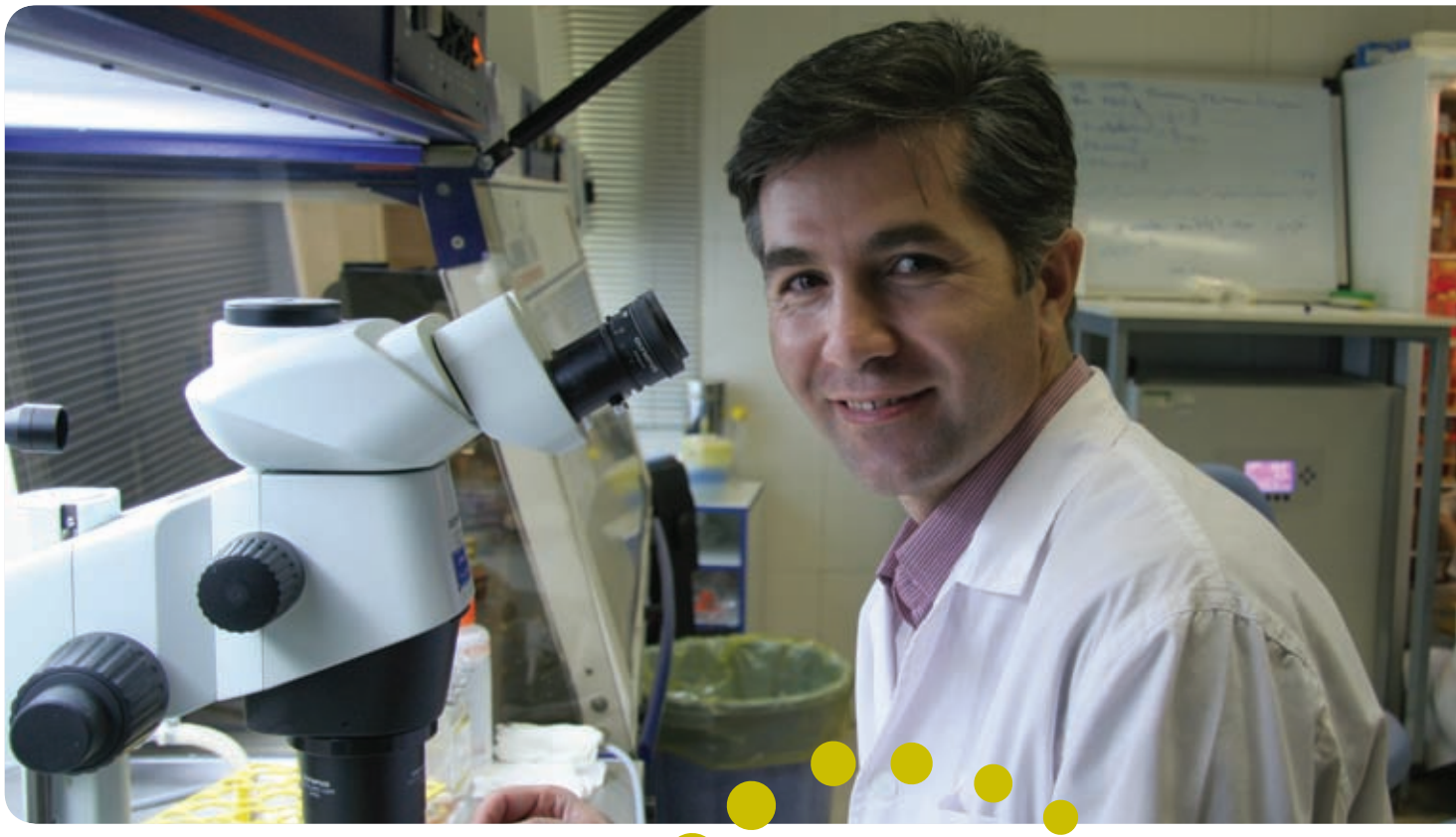
An efficient and easy-to-use cryopreservation protocol for human ES and iPS cells. Baharvand*H, Hosseini Salekdeh Gh, Taei A, Mollamohammadi S. Nature Protocols. 2010; 5 (3): 588-94

Progress and promise towards safe induced pluripotent stem cells for therapy. Ali Seifinejad, Mohammadsharif Tabebordbar, Hossein Baharvand, Laurie A Boyer, Ghasem Hosseini Salekdeh. Stem Cell Reviews and Reports. In press

Proteome analysis of brain in murine experimental autoimmune encephalomyelitis. shahzadeh Fazeli A, Nasrabadi D, Sanati MH, Pouya A, Ibrahim SM, Baharvand* H, Hosseini Salekdeh* Gh. Proteomics. In press

Induced pluripotent stem cells: a new era for hepatology. Asgari S, Pournasr B, Hosseini Salekdeh Gh, Ghodsizadeh A, Ott M, Baharvand* H, Journal of Hepatology 2010. In press

Effect of selenite and telurite on growth, physiology and proteome of a moderately halophilic bacterium. Kabiri M, Amoozegar Ma, tabebordbar M, Gilany K, Hosseini Salekdeh Gh J. Proteome Research. In Press



Regenerative Medicine Department and Cell Therapy Center of RI-SCBT

Head of Department
Dr Nasser Aghdami

Educational summary of the leader
2001-2007: PhD in Immunology, Tarbiat Moddaress University, Tehran, Iran

1991 – 1998: MD Urmia University of Medical Sciences, Urmia, Iran

Principal Investigators

- L. Arab, MD
- L. Ashgtalkh, BSc
- V. Azimiyan, Msc
- M. Ebrahimi, PhD
- S. Ebrahimkhani, Msc
- R. Fazeli, MD
- A. Goodarzi, Msc
- E. Hosseini, BSc
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- A. kouhkan, MD
- S. Mardpor, Msc
- M. Mirzaei, BSc
- R. Moghadas ali, MSc
- M. Mohamad, BSc
- P. Mohamadi, Msc
- L. Mohammadi, BSc
- M. Namiri, Msc
- M. Nezampour, BSc
- M. Nori, Msc
- Z. Oroji, MD
- Z. Pakniyat, BSc
- Z. Ravesh, Msc
- F. Samani, BSc
- A. Shahbazi, BSc
- N. Shayan, Msc
- F. Soltanalizadeh, BSc
- F. Vaezi rad, BSc
- S. Vahdat, Msc

This department was founded in 2008 with the purpose to 'build bridge' between basic stem cells science and clinical applications.

The department of Regenerative Medicine consists of the following research groups

- Skin diseases
- Liver diseases
- Cardiovascular diseases
- Cartilage and bone diseases
- Eye diseases
- Blood diseases
- Neurological diseases
- Diabetes

Regenerative medicine has been shown to be a promising alternative to human tissue or organ transplantation. Its aim is to replace, repair or enhance the function of damaged tissues or organs. Stem cells, due to their ability to repair damaged tissues and develop into specialized cells and organs, can have a major impact in regenerative medicine. The department of Regenerative Medicine is a "translational" research facility which brings discoveries from the laboratory directly to the clinical setting. The department is committed to enhancing human health care by promoting the quality, safety and efficiency of clinical trials through ethical considerations, scientific expertise, education, and quality assurance by establishing GMP standards for production of engraftable cell populations and development of new methods for cell tracking, establishing a cell therapy center for public service.

Overview of the department in 2009

With the use of adult stem cells it became possible in 2009 to initiate new clinical trials in the department of Regenerative Medicine for bone and joint disorders. The use of mesenchymal stem cells for bone disorders has shown promising results and the group of Regenerative Medicine intends to extend this treatment for new diseases. The public cord blood bank, another center related to the cell therapy center, began sampling in 2009 and by the end of the year there were more than 700 samples which had been banked. The use of in vitro cultured fibroblasts to treat skin deformities was established in the Cell Therapy Center for the first time, and preliminary results have shown a positive effect on improving the patients' health conditions. Additionally, over 2000 vitiligo patients have been examined in clinic, of which 200 were treated by their own isolated melanocytes, as a novel therapy.

Most important focus of the department

- Prevention, improvement or cure of human diseases by the application of cell therapies with the use of adult stem cells in immediate applications and, potentially, other stem cells in the future, after demonstration of their safety and efficacy
- Development of in vivo imaging to track the localization and function of transplanted cells.
- Development of new matrix materials using nanotechnology or tissue engineering for clinical applications
- Performing detailed comparisons between stem cells from a variety of sources by using disease animal models

Articles

Human-induced pluripotent stem cells: derivation, propagation, and freezing in serum- and feeder layer-free culture conditions. Baharvand H*, Totonchi M, Taei A, Seifinejad A, Aghdami N, Salekdeh GH. Methods Mol Biol 2010; 584: 425-43.

Feeder- and serum-free establishment and expansion of human induced pluripotent stem cells. Totonchi M, Taei A, Seifinejad A, Tabebordbar MSH, Rassouli H, Aghdami N, Gourabi H, Hosseini Salekdeh GH, Baharvand H*. Int. J. Dev. Biol. 2009. In Press

Generation of human induced pluripotent stem cells from a bombay individual: moving towards "universal-donor" red blood cells. Seifinejad A, Taei A, Totonchi M, Vazirinasab H, Hassani SN, Aghdami N, Shahbazi E, Hosseini Salekdeh* G, Baharvand*H. Biochemical and Biophysical Research Communications. 2009 Nov 11. [Epub ahead of print]. doi:10.1016/j.bbrc.2009.11.058

Midterm outcomes of autologous cultivated limbal stem cell transplantation with or without penetrating keratoplasty. Baradaran-Rafii A, Ebrahimi M, Rezaei Kanavi M, Taghiabadi E, Aghdami N, Eslani M, Bakhtiari P, Einollahi P, Javadi MA, Baharvand*H. Cornea. In Press

Safety and efficacy of autologous intramuscular implantation of bone marrow-mononuclear cells in combination with granulocyte colony stimulating factor: a randomized controlled trial in patients with advanced lower limb ischemia. Zafarghandi NR, Ravari H, Aghdami N, Namiri M, Moazzami K, Taghiabadi E, Fazel 'A, Pournasr B, Sharifian RA, Salimi J, Moini M, Baharvand H* . Cytotherapy. In Press

Transplantation of allogenic bone marrow MSC-derived hepatocyte-like cells in homozygous familial hypercholesterolemia. Mohamadnejad M, Pournasr B, Mohammad Bagheri M, Aghdami N, Shahsavani M, Abdollahzadeh L, Taghiabadi E, Azizi H, Heidari I, Akhlaghpoor SH, Calandra S, Malekzadeh* R, Baharvand* H. Cytotherapy. In press

Intraepidermal injection of dissociated epidermal cell suspension improves vitiligo. Khodadadi L, Shafian S, Aghdami N, Baharvand H. Archives of Dermatological Research. In press

Royan Institute for Animal Biotechnology

Royan Institute for Animal Biotechnology was initially established in 2004 as the first research branch of Royan Institute. It is located in Isfahan Province, which is famous for its architecture, rivers and handcrafts, and is known as the city of "blue tiles".

Royan Institute for Animal Biotechnology was established with the purpose of advanceing research in reproduction, development, cell and molecular biology, in addition to the fields of bioengineering and reproductive technology. In this regard, this institute has focused on somatic cell nuclear technology (SCNT), interspecies-SCNT, transgenesis, the establishment of novel sperm selection methods for assisted reproductive technology, cell differentiation, production of recombinant proteins and the cell biology of peroxisomes. The endeavors of Royan Institute for Animal Biotechnology have made us the pioneer of animal cloning in Iran and the Middle East. Therefore, this institute is well known for its cloned animals, Royana and Hanna: the first cloned sheep and goat in Iran, and Bovana, the first calf born with IVF. Areas of interest at our institute are: gene reprogramming during SCNT, transgenesis, sperm cell biology, the role of sub-cellular organelles in differentiation and recombinant protein technology. In addition, the institute is providing a comprehensive and coordinated "bench to production" approach in recombinant protein technology, animal farming and the establishment of methods to increase the efficiency of assisted reproductive techniques.

Royan Institute for Animal Biotechnology consists of three departments and one center

- Reproduction and Development
- Molecular Biotechnology
- Cell and Molecular Biology
- Dairy Assist Center

The institute's vision is to attain new heights in biotechnology research, shaping biotechnology into a premier precision tool of the future for creation of wealth, ensuring social justice and also efficiently bridging science with daily life.

Department of Reproduction and Development

The mechanisms of in vivo and in vitro embryo development are of paramount importance in the field of Assisted Reproductive Technology (ART), dairy farming and biopharming. Although much effort has been put into the establishment of sequential media, further advances are required in order to overcome in vitro stress for embryo development.

Main goals within this research area

- Establishment of different methods for somatic cell nuclear transfer (SCNT) or cloning
- Production of transgenic animals via cloning, sperm and germ cells
- Production of novel culture media for in vitro embryo development
- Cryopreservation of gametes, embryos and reproductive tissues
- Increasing cloning efficiency by epigenetic modification
- Establishment of a screening test for the assessment of sperm integrity
- Establishment of novel sperm selection procedures for ART

The mission of this department is to achieve world-class applicative approaches in transgenesis in the hope of producing recombinant proteins.

Focused areas of the department

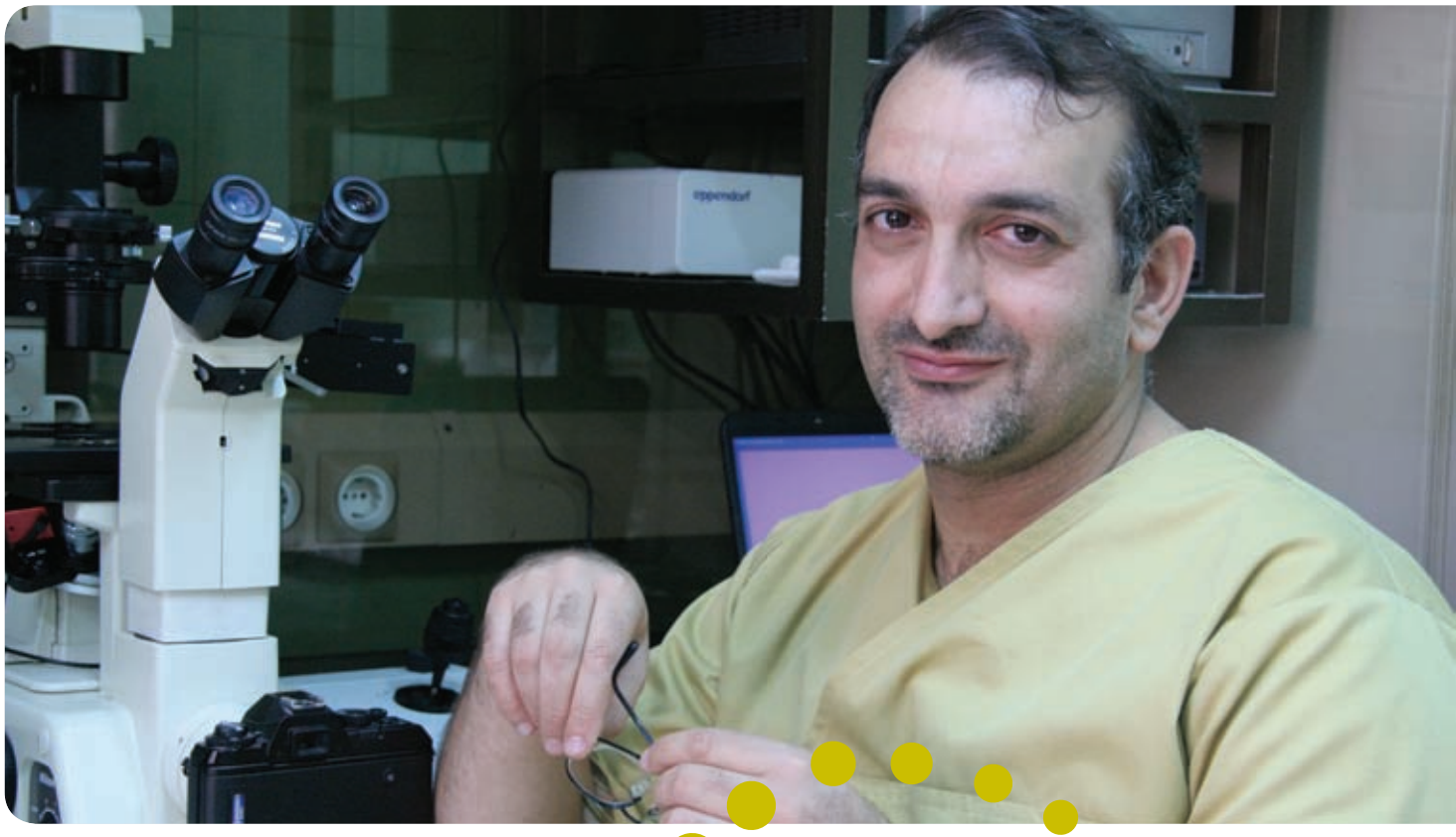
- Somatic cell nuclear transfer
- Transgenesis
- Cryobiology
- Novel sperm selection procedure
- Sperm functional tests
- Sperm biology

Department of Molecular Biotechnology

Following the production of the first recombinant protein in 1978, insulin, extensive research has been undertaken for the purpose of producing other recombinant proteins. Different strategies can be utilized for the production of recombinant proteins; which include proteins produced via bacteria, plants, cell culture and through milk production in transgenic animals. Although the production of recombinant proteins through the former methods might be the easiest and most straight forward procedures; however, research has shown that the production of recombinant proteins through the latter methods might be more functional due to post-translational modifications, which are very similar to the native protein. Therefore, one of the main missions of this group is to master and establish efficient methods for producing recombinant proteins through cell culture and animal transgenesis.

The main goals of this department

- Production and construction of efficient vectors for producing recombinant proteins
- Cloning of appropriate genes
- Genetic manipulation of the genes for pharmaceutical purposes
- Increasing gene transfection through non-viral procedures
- Isolation and maintenance of the stable transformants of mammalian cells
- Homologous or site directed recombination of genes into a target genome



Department of Cell and Molecular Biology

Head of Department
Dr Mohammad Hossein Nasr Esfahani

PhD in Embryology
University of Cambridge
Department of Anatomy
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BSc Human Biology
University of London
King's College London.1985-1988
Embryologist
Hallam Medical Centre, UK1991-1992

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- M. Hosseini, DVM
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- S. Tanhaei, MSc
- M. Tavalaei, MSc

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- A. Khaghani, DVM
- S. H. Khodaei, MSc
- A. Kiani, MSc
- Z. Nasiri, MSc
- S. Ostad Hosseini, MSc
- A. Salamian, MSc
- F. Shadanlo, MSc

Understanding molecular mechanisms which are involved in cell differentiation is an interesting area in research and study. In this department, the researchers are engaged in locating genetic and molecular factors responsible for neurogenesis at the cellular level. The peroxisome biogenesis factors which are required for the maintenance and integrity of peroxisome are tested to discover their possible roles for neural cell differentiation. Furthermore, this department is interested in the role of genes and their related promoters in the neurogenesis process.

The main goals in this research area

- Assessment of peroxin gene expression in development and cell differentiation
- Assessment of recent peroxisomal protein (PEP) gene expression and function
- Implementation of RNAi technique to assess gene functions
- Analysis of promoters of genes responsible for cellular differentiation
- Analysis of protein interactions in cellular differentiation

The mission of this department is to locate molecular mechanisms of stem cell proliferation and neural differentiation steps with the purpose of restoring or replacing tissue that has been damaged by disease or injury. Consequently , its mission is to transplant fetal stem cells, embryonic stem cells or pluripotent stem cell derivatives in animal models for the treatment of many chronic diseases, such as Parkinson, diabetes and spinal cord injuries, to name a few.

Dairy Assist Center (DAC)

The Dairy Assist Center (DAC) is a newly designed center within the department of Reproduction and Development that provides R&D support for expanding the dairy industry throughout the country. Over the years with excellent experience in the field of mammalian in vitro embryo development, embryo transfer and genetics; DAC has now gained prominence as a front-ranking research center whose purpose is to create the first joint effort to offer a continuum of academic, technical and applied collaboration with the local and national industrial dairy complexes.

The main missions of DRC

1. Sperm technologies:

Although expensive, many farmers are concerned or even dissatisfied with the results of some semen batches used for artificial insemination. Here, they can accurately be informed of the quality of purchased semen with the use of a dozen semen tests such as: morphology, motility and integrity (DNA/plasmalemma/cytoplasm). The semen's fertilization potential can also be checked by IVF experiments.

2. Ovary and oocyte technology:

Frequently, champion dairy cattle are omitted due to their sudden death, critical fractures or acute diseases. In these situations, there are only two biotechnological approaches to sustain the reproductive performances of these champions: a) obtaining immature oocytes to be used for either IVF or freezing and b) cryopreservation of ovarian tissue for future use.

3. Embryo technologies:

In order to assist those dairy owners who desire to increase the numbers of their champion cattle, several technologies have been established to distribute superior genetic constitutes throughout the country. Some of these technologies include: multiple ovulation (MO), artificial insemination (AI), embryo flushing, embryo transfer (ET), in vitro fertilization (IVF) with sexed semen, sperm sexing, intracytoplasmic sperm injection (ICSI), in vitro embryo culture, embryo sexing, embryo splitting, assisted zona drilling, embryo freezing and embryo banking.

The main activities and researches of Royan institute for Animal Biotechnology

- Production of the first cloned sheep in Iran
- Production of the first cloned cow in Iran
- Production of the first cloned goat in Iran
- Production of the first transgenic goat carrying human tPA gene in its genome
- Production of the first IVF cow, sheep and goat
- Establishment of novel sperm selection procedures
- Clinical trials for novel sperm selection procedures
- Establishment of the genomic bank for local endangered species
- Publications of book and papers in international and national journals in andrology, stem cell, and cloning
- Establishment of the International Journal of Fertility and Sterility
- Isolation of OCT-4 promoter for the control of EGFP gene in an indicator plasmid
- Construction of a more efficient variant of TPA termed tenctoplase
- Cloning of PEP and PPAR gamma cDNAs
- Investigating the role of PEP and PPAR gamma for the first time in embryonic stem cell
- Cell transplantation on animal with spinal cord injury
- Use of co culture models to study differentiation under controlled conditions for investigation of early developmental events in mammals
- Introducing simple, fast, inexpensive, and efficient methods for production of both homogenous and purified cells such as SC (Schwan cells) and SHED (Stem cell from human exfoliated Deciduce tooth)
- Use of scaffold materials as a matrix for tissue engineering
- Drug screening and toxicity studies by embryonic and adult stem cell culture

Most important research of Royan Institute for Animal Biotechnology in 2009

- Production of the first transgenic goat carrying human tPA gene in its genome
- Novel sperm selection procedure for ICSI

Articles

Selection of sperm based on combined density gradient and Zeta method may improve ICSI outcome. Kheirollahi-Kouhestani M, Razavi S,Tavalaee M, Deemeh MR, Mardani M, Moshtaghian J, Nasr-Esfahani MH. Human Reproduction 2009, In Press.

Artificial oocyte activation and intracytoplasmic sperm injection. Nasr-Esfahani MH, Deemeh MR, Tavalaee M. Fertility and Sterility 2009. In press.

Different cell behavior on electrospun Poly (ε-caprolactone) nanofiber scaffolds, GhasemiMobarakeh L, Morshed M, Karbalaie K, Fesharaki M, Nematallahi M, Nasr- Esfahani MH, Baharvand H. Journal of human Artificial Organ 2009. In Press

Can zeta sperm selection method, recover sperm with higher DNA integrity compare to density gradient centrifugation? Khajavi N, Razavi SH, Mardani M, Tavalaee M, Deemeh MR, Nasr-Esfahani MH. Iranian Journal of Reproductive Medicine 2009.

Credibility of chromomycin A3 staining in prediction of fertility. Nasr-Esfahani MH, Aboutorabi R, Razavi Sh. International Journal of Fertility and Sterility 2009.

Maternal exposure to second-hand smoke and super ovulation outcome for assisted reproduction. Kazemi A., Nasr Esfahani MH, Ahmadi M, Ehsanpour S, Ganji J. International Journal of Fertility and Sterility 2009.

In vitro comparison of soybean lecithin based-extender with commercially available extender for ram semen cryopreservation. Sharafi M, Forouzanfar M, Hosseini SM, Hajian M, Ostadhosseini S, Hosseini L, Abedi P, Nili N, Rahmani HR, Javaheri AM, Nasr Esfahani MH. International Journal of Fertility and Sterility 2009.

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Varicocelectomy: semen parameters and protamine deficiency. Nasr-Esfahani MH, Abasi H, Razavi S, Ashrafi S, Tavalaee M. Int J Androl 2009.

Influence of sperm chromatin anomalies on assisted reproductive technology outcome. Tavalaee M, Razavi SH, Nasr-Esfahani MH. 2009 Apr. Fertil Steril 2009.

Artificial oocyte activation and intracytoplasmic sperm injection. Nasr-Esfahani MH, Deemeh MR, Tavalaee M. Fertil Steril 2009.

The thickness of electrospun poly (epsilon-caprolactone) nanofibrous scaffolds influences cell proliferation. Ghasemi-Mobarakeh L, Morshed M, Karbalaie K, Fesharaki MA, Nematallahi M, Nasr-Esfahani MH, Baharvand H. Int J Artif Organs 2009.

Antioxidant supplementation of culture medium during embryo development and/or after vitrification-warming; which is the most important? Hosseini SM, Forouzanfar M, Hajian M, Asgari V, Abedi P, Hosseini L, Ostadhosseini S, Moulavi F, Safahani Langrroodi M, Sadeghi H, Bahramian H, Eghbalsaied SH, Nasr-Esfahani MH. J Assist Reprod Genet 2009.

Selection of sperm based on combined density gradient and Zeta method may improve ICSI outcome. Kheirollahi-Kouhestani M, Razavi S, Tavalaee M, Deemeh MR, Mardani M, Moshtaghian J, Nasr-Esfahani MH. Hum Reprod 2009.

Embryonic stem cell-derived cardiomyocytes as a model system to study cardioprotective effects of dexamethasone in doxorubicin cardiotoxicity. Farokhpour M, Karbalaie K, Tanhaei S, Nematollahi M, Etebari M, Sadeghi HM, Nasr-Esfahani MH, Baharvand H. Toxicol In Vitro 2009.

Generation of motor neurons by coculture of retinoic acid-pretreated embryonic stem cells with chicken notochords. Anjomshoa M, Karbalaie K, Mardani M, Razavi S, Tanhaei S, Nasr-Esfahani MH, Baharvand H. Stem Cells Dev 2009.

Neural induction in mouse embryonic stem cells by co-culturing with chicken somites. Sagha M, Karbalaie K, Tanhaee S, Esfandiari E, Salehi H, Sadeghi-Aliabadi H, Razavi S, Nasr-Esfahani MH, Baharvand H. Stem Cells Dev 2009.

Reproductive potential of domestic Ovis aries for preservation of threatened Ovis orientalis isphahanica: in vitro and in vivo studies. Hosseini MS, Fazilati M, Moulavi F, Foruzanfar M, Hajian M, Abedi P, Nasiri N, Kaveh AK, Shahverdi AH, Hemami MR, Nasr-Esfahani MH. European Journal of Wildlife Research 2009.

Unexpected detrimental effect of Insulin like growth factor-1 on bovine oocyte developmental competence under heat stress. Zhandi M,Towhidi A, Nasr-Esfahani MH, Eftekhari-Yazdi P, Zare-Shahneh A. J Assist Reprod Genet 2009.

Electrical stimulation of nerve cells using conductive nanofibrous scaffolds for nerve tissue engineering. Ghasemi-Mobarakeh L, Prabhakaran MP, Morshed M, Nasr-Esfahani MH, Ramakrishna S. Tissue Eng Part A 2009.

Construction of expression vectors carrying mouse peroxisomal protein gene (PeP) with GST and Flag labels. Nazari Jahantigh M, Nasr Isfahani MH, Tanhaei S, Rabiee F, Karbalaei KH, Ostad Sharif S, Nematollahi M, Baharvand H, Razavi SH, Miroliaei M. African Journal of Biotechnology 2009.

Laboratory Animal Science Department

Head of Department
Dr Mohammad Taghi Daneshzadeh

DVM: Shahid Chamran University Faculty of Veterinary Medicine

Research Assistants

- M. Hajinasrollah, DVM
- Gh. Hajmousa, DVM
- A. Kheimeh, BSc
- F. Mostafaei, BSc
- A. Nekukar, DVM

The Laboratory Animal Science Department of Royan Institute consists of the Laboratory Animal Facility, Research Farm and Primate Research Center.

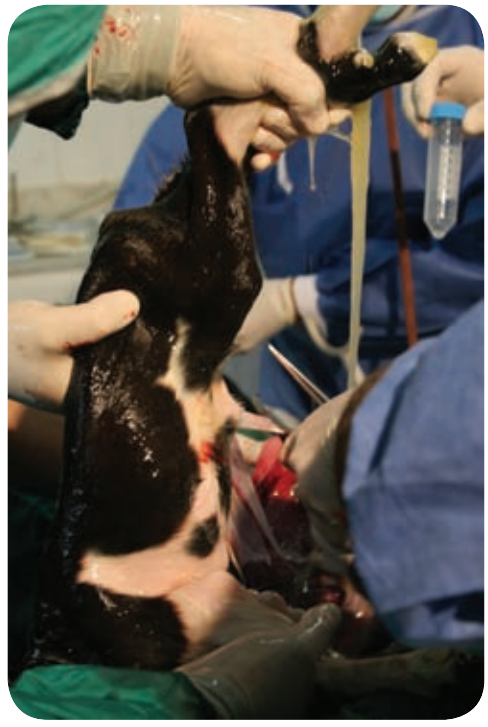
The Laboratory Animal Facility at Royan Institute is a service unit which plays a national role in the education of those who work with experimental animals, by arranging courses in all categories within the animal research field.

Facilities exist for research on rodents (inbred, out bred, and SPF mice and rats), rabbits, sheep, goats, cattle, horses and other non-human primates. The unit provides services for all departments at Royan Institute.

Modern laboratory animal science builds on the three Rs of Russell & Burch

- Replacement: Replace animal experiments where possible with alternatives
- Reduction: Reduce the number of experiments and number of animals in each experiment to an absolute minimum
- Refinement: Refine experiments such that the animals undergo a minimum of discomfort

The primary aim of the Laboratory Animal Facility is to ensure that the three Rs are followed in practice. Within this unit, scientists responsible for the design of animal experiments must be graduated from one of the biomedical science fields. Additionally, scientists in this unit must have taken a course on laboratory animal science which concentrates on the humane and careful use of animals, and have included information on the alternatives and ethical aspects of animal experimentation.



The mission of the department is to discover and disseminate new knowledge about the biology and management of laboratory animals with the vision of expanding knowledge in laboratory animal sciences.

Common goals of the department

- To provide researchers with a relevant education and enable them to achieve scientific pre-eminence in selected areas as well as to produce and support laboratory animals required for research
- To manage the Animal Care and Use Program of the Institute
- To supervise the overall program of laboratory animal housing and care
- To manage a preventive medicine program for disease control
- To advise the research staff on all aspects of the experimental use of animals, including experimental design, surgical, pre- and post-operative care, and experimental techniques

The Research Farm at Royan Institute began their activities on animals at the Jihad Research Complex in 2006. This center was equipped with a laboratory and operating room for embryo transfer and other specific operations.

The main approaches and accomplishments of this center

- Transgenic goats carrying human factor IX gene were produced by nuclear transfer in January 2010
- Birth of the first IVM-IVF goat in Iran
- Birth of the first IVM-IVF lamb in Iran

This center is also trying to enhance or improve its technology and equipment to meet the research needs of the Institute.

The Primate Research Center was established in 2007 in conjunction with Loghman Hospital. Within this Center are individual and public maintenance rooms, a laboratory and operating room.

This Center is a unique resource for the study of human health and disease which offers the opportunity to access the causes of diseases and new treatment methods in nonhuman primate models that closely recapitulate humans.

Education in Royan Institute

Long term education Courses

Joint Degree with Elm va Farhang University of Iran in developmental biology

- Msc Students: 5
- PhD students: 5

Ongoing Thesis projects

- Msc Students: 22
- PhD Students: 11

Finished Thesis projects

- Msc Students: 14
- PhD Students: 3

Infertility One-month course for residents of Iran University of Medical Sciences

- Urology Residents: 4
- Gynecology Residents: 13

Short Term Education Courses and Workshops in Andrology Department

- Semen Analysis
- TESE/PESA
- 10th congress on reproductive biomedicine

Reproductive Imaging Courses and Workshops

- Vaginal Sonography course
- Workshop on Hysterosonography at 10th Royan International Twin Congress
- 10th congress on reproductive biomedicine

Gynecology and Endocrinology Department

- Patient Management
- Endometrial Preparation for Egg Donation
- Tubal Microsurgery with Laparoscopy
- IUI
- IVF
- ICSI
- Continuous Medical Education Course on Infertility Treatment
- 16th practical workshop on advanced methods of diagnosis and treatment of ART infertility
- Workshop on Office Hysteroscopy
- Workshop on Implantation by Office Hysteroscopy at 10th Royan International Twin Congress
- Codified curriculum infertility (1) & (2)
- 10th congress on reproductive biomedicine

Reproductive Genetics Department

- FISH technique
- Chromosomal Evaluation of Oocyte and Sperm
- Cytogenetic Biomonitoring
- Chorionic Villous and Amniotic Fluid Karyotype

- Lymphocyte Karyotype
- Workshop on epithelial genetic (epigenetic) methods
- Workshop on culture and chromosome banding of peripheral blood lymphocytes
- Workshop on introduction of PCR techniques and primer designed
- 10th congress on reproductive biomedicine

Embryology Department

Experimental Embryology:

- IVF and IVM in Mouse
- Embryo Co-culture
- Embryo Transfer
- Nuclear Transfer and Animal Cloning
- Workshop on ovarian tissue vitrification
- Workshop on evaluation of sperm function tests in the diagnosis and treatment of infertility
- Workshop on mammalian genes cloning and transfection of their cell lines
- Workshop on evaluation of sperm function tests in the diagnosis and treatment of infertility
- 10th congress on reproductive biomedicine

Clinical Embryology

- Semen Analysis and IUI
- Embryo Hatching, Biopsy and Fragmentation Removal
- Gamete and Embryo Freezing
- IVF
- ICSI
- 10th congress on reproductive biomedicine

Stem Cells Department

- Workshop on bone tissue engineering at 10th Royan International Twin Congress
- Workshop on culture and proliferation of mouse embryonic stem cells
- Workshop on Real Time
- Theoretical and practical workshop on proteomics
- Symposium on application of mesenchymal stem cells in orthopedics
- 2nd congress on proteomics
- 1st Pre-Congress Stem Cells
- 5th International Congress on Stem Cell Biology & Technology
- Workshop on culture and differentiation of mouse ESC to nerve cells
- Workshop on basic and application of flowcytometry in identification of cells markers
- 10th congress on reproductive biomedicine

Epidemiology and Reproductive Health Department

- Workshop on basic research methodology
- Workshop on Data Cleaning
- Workshop on END Note
- 10th congress on reproductive biomedicine

Ethical Department

- Symposium on legality and contents of clinical consents
- 10th congress on reproductive biomedicine

Royan Institute Publications

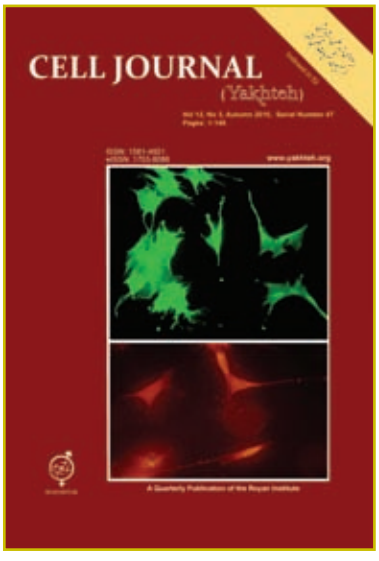
Journals

Cell Journal (Yakhteh)
Cell Journal (Yakhteh), formerly published as Yakhteh Medical Journal, is a quarterly English publication, which has been published since 1999 and indexed in ISI, IMEMR, EMBASE, Scopus, Index Copernicus Division, Cambridge Scientific Abstract (CSA), Magiran, Scientific Information Database (SID), Iran Medex, Google Scholar, Cinahl Database, Regional Information Center for Sciences and Technology, and CAS (Chemical Abstract Service). Cell Journal (Yakhteh) is also a member of the Committee on Publication Ethics (COPE).

This journal focuses on issues relevant to cellular and molecular scientific areas, besides other related fields. To date, 46 issues of the journal have been published.

Online submission is available at: www.yakhteh.org

International Journal of Fertility & Sterility (IJFS)
IJFS began publication in 2007 and is indexed in ISI, Index Medicus for the WHO Eastern Mediterranean Region (IMEMR), Index Copernicus Division, EMBASE, Magiran, Scientific Information Database (SID), Iran Medex, Cinahl Database, Google Scholar, and Scopus. IJFS is also a member of the Committee on Publication Ethics (COPE).
IJFS publishes articles and reviews related to the broad fields of fertility and sterility.
Currently, 14 issues of the journal have been published.
Online submission is available at: www.ijfs.ir



Books

Whole Book Authorship in English

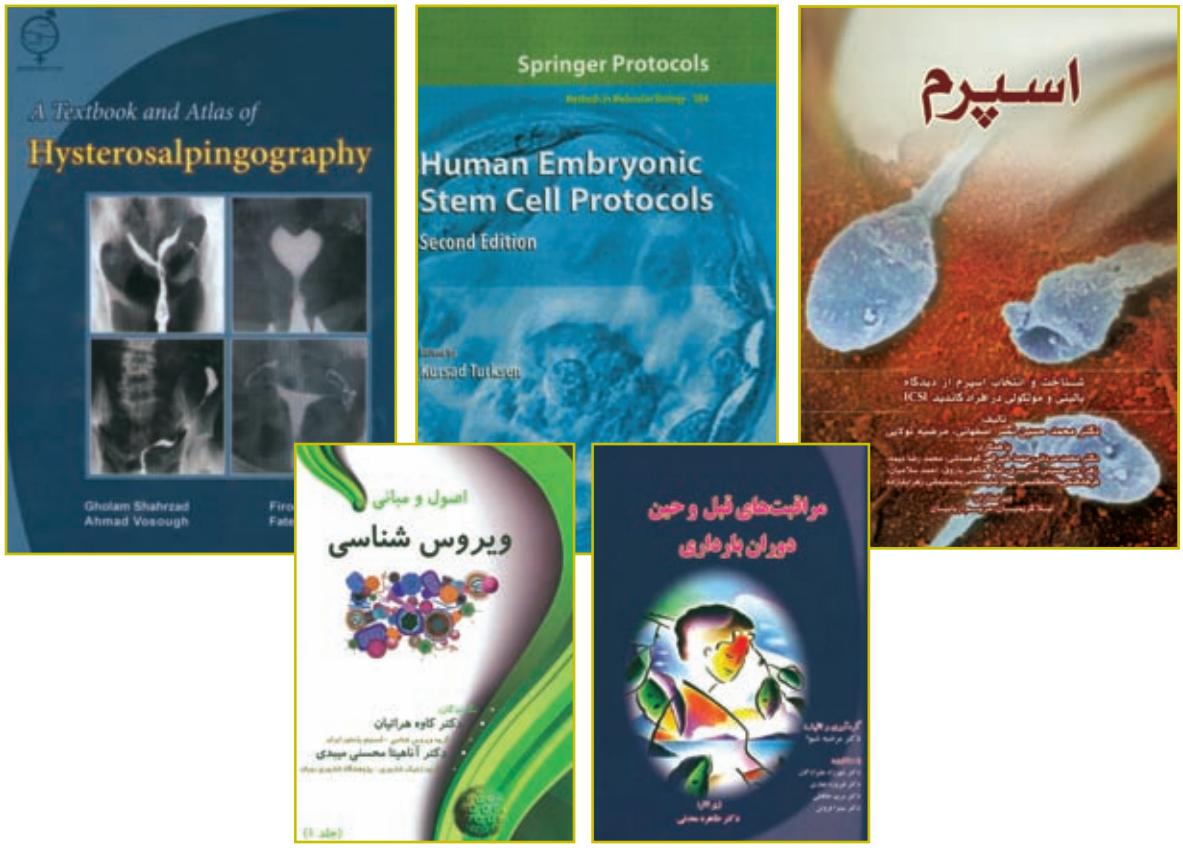
- Baharvand H., Trends in Stem Cell Biology and Technology. New York: Humana Press; 2009.
- Shahrzad G., Vosough A., Ahmadi F., Zafarani F., A Textbook and Atlas of Hysterosalpingography.Tehran: Boshra; 2009.

Whole Book Authorships in Persian

- Nasr Esfahani M., Tavalaei M., Identification and Selection of Sperm from the Molecular and Clinical Aspect in ICSI Candicates. Tehran: MirMah; 2010.
- Madani T., Shiva M., Prenatal Care. Tehran: MirMah; 2010.
- Haratian K., Mohseni Meybodi A., A Principle of Virology (Volume l).Tehran: Baresh Danesh; 2009.

Book Chapter Authorships

- Baharvand H., Human-Induced Pluripotent Stem Cells: Derivation, Propagation, and Freezing in Serum and Feeder Layer-Free Culture Conditions. In: Turksen K., Human Embryonic Stem Cell Protocols. 2nd ed. New York: Humana Press; 2009.



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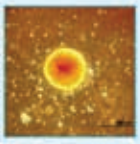
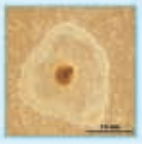


Royan Stem Cell Bank (RSCB)

a general research stock center supplying access to well-characterized stem cell lines in Iran





Stem cell biology as a quickly growing field provides researchers with the opportunity of conducting research in the field of developmental biology, drug screening, toxicology, disease modeling, cell therapy and moving towards personalized medicine. The need for strict supplies on preparation and use of stem cells including adult, embryonic and induced pluripotent stem cell lines exhorted Royan institute to fund the establishment of a bank for stem cell lines derived from human and other mammals. The Royan Stem Cell Bank (RSCB) is committed to working closely with the research and clinical organizations to prepare good quality controlled and well characterized stem cell lines for both research utilization and clinical trials for many disorders.

Cell type	RSCB NO.	(karyotype)	Cell line
Mouse Embryonic Stem cells (mESCs)	RSCB NO.	Strain	Cell Line
	RSCB0001	C57BL/6 x C57BL/6	Royan B1
	RSCB0002	C57BL/6 x C57BL/6	Royan B2
	RSCB0003	BALB/c x BALB/c	Royan C1
	RSCB0004	BALB/c x BALB/c	Royan C2.3
	RSCB0005	BALB/c x BALB/c	Royan C3
	RSCB0154	BALB/c x BALB/c	Royan C4
	RSCB0155	♂NMRI x ♀ BALB/c	Royan C5
	RSCB0156	♂NMRI x ♀ BALB/c	Royan C6
	RSCB NO.	**Karyotype**	**Cell Line**
Human Embryonic Stem cells (hESCs)	RSCB0018	46, XX	Royan H1
	RSCB0019	46, XX	Royan H2
	RSCB0020	69,XXY	Royan H3
	RSCB0021	Mosaic 69,XXY	Royan H4
	RSCB0022	46, XX	Royan H5
	RSCB0023	46,XY	Royan H6
	RSCB0024	46, XX	Royan H7
	RSCB0025	46, XX	Royan H8
	RSCB0026	45, XX, der(13;14)(q10;q10)	Royan H9
	RSCB0027	46, XX	Royan H10
	RSCB NO.	**Karyotype / Disease Name**	**Cell Line**
Human Induced Pluripotent Stem cells (hiPSCs)	RSCB0042	46, XY / Normal	R1-hiPSC1
	RSCB0043	46, XX / Bombay Blood Group	BOM1-hiPSC1
	RSCB0048	46, XX / Familial Hypercholesterolemia	FHC1-hiPSC3
	RSCB0059	46, XY / Glycogen Storage	GSD1-hiPSC7
	RSCB0067	46, XX / Tyrosinemia	TYR1-hiPSC1
	RSCB0074	46, XX / Heridatory Cholestasis	HER1-hiPSC1
	RSCB0082	46, XY / Normal	R1-hiPSC4
	RSCB0087	46, XY / Normal	R1-hiPSC9
	RSCB0095	46, XY, per inv(9)(p11q12) / Retinitis Pigmentosa	RP2-hiPSC3
	RSCB0096	46, XY / Leber's Congenital Amaurosis	LCA1-hiPSC1
	RSCB0105	46, XX / Usher syndrome	USH1-hiPSC6
	RSCB0109	46, XX / Retinitis Pigmentosa	RP1-hiPSC1
	RSCB0121	46, XX / Age Related Macular Degeneration	ARMD1-hiPSC2
	RSCB0130	46, XY / Leber's Hereditary Optic Neuropathy	LHON1-hiPSC5
	RSCB0139	46, XX / Cligler Najjar	CNS1-hiPSC10
	RSCB0146	46, XY / Cligler Najjar	CNS2-hiPSC7
	Cell type	**RSCB NO.**	**Cell line**
	Human Mesenchymal Stem Cells(hMSC)	RSCB0178	Bone Marrow Stromal Cell (BMSC)
	Human Skin Fibroblast	RSCB0179	Human Dermal Fibroblast (hDF)
	Human Cardiac	RSCB0180	hCSCs
	Stem Cells (hCSCs)	RSCB0181	-
	Neural Stem Cell Mouse feeder cells	RSCB0182	Mouse embryonic fibroblast (MEF)

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تلفن: ۲۲۰۶۸۴۷۹(۰۲۱) فاکس: ۲۲۰۶۱۷۰۴(۰۲۱)

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- Grant انگلستان سازنده پیشرفته ترین Water Bath و شیکر بن ماری در سایزهای متفاوت
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- GONOTEC آلمان، ارائه کننده سیستم های اسموتر شامل Osmomat 030 و Osmomat auto مورد استفاده در مراکز پزشکی، تحقیقاتی، IVF و آزمایشگاههای تشخیص طبی
- MEDITE آلمان، سازنده پیشرفته ترین تجهیزات پاتولوژی، سیتولوژی و هیستولوژی
- MSE انگلستان، سازنده انواع سانتریفوژهای معمولی و یخچال دار
- LABPLANT انگلستان، تولید کننده دستگاه های اسپری درایر (مولد پودر)
- ASTELL انگلستان، عرضه کننده انواع اتوکلاوها در حجم های مختلف
- BIOTEC FISCHER آلمان، عرضه کننده انواع الکتروفورز های عمودی و افقی مورد استفاده در مراکز پزشکی و تحقیقاتی
- ARTmoderne Labortechnik آلمان، پیشتاز در جهت ارائه انواع هموژنایزرهای کوچک آزمایشگاهی جهت هموژن کردن ترکیبات گوناگون در حداقل زمان ممکن
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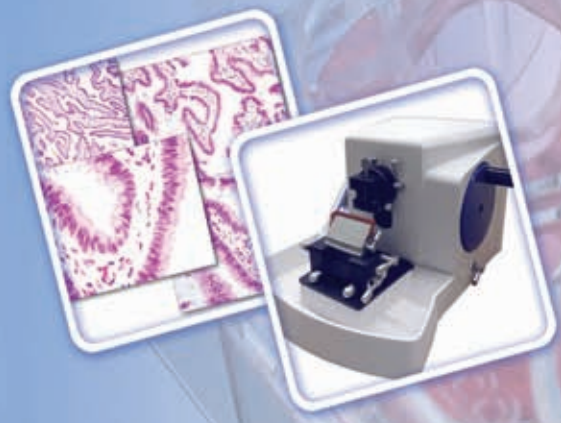

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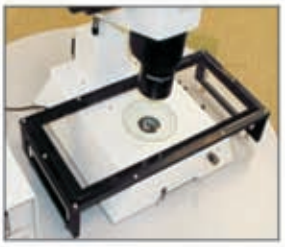

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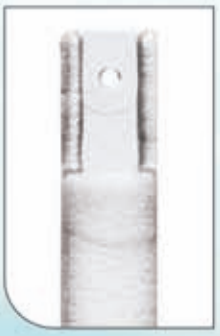

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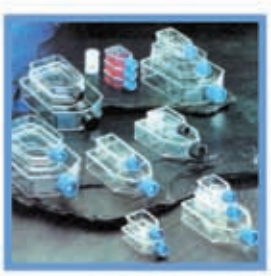

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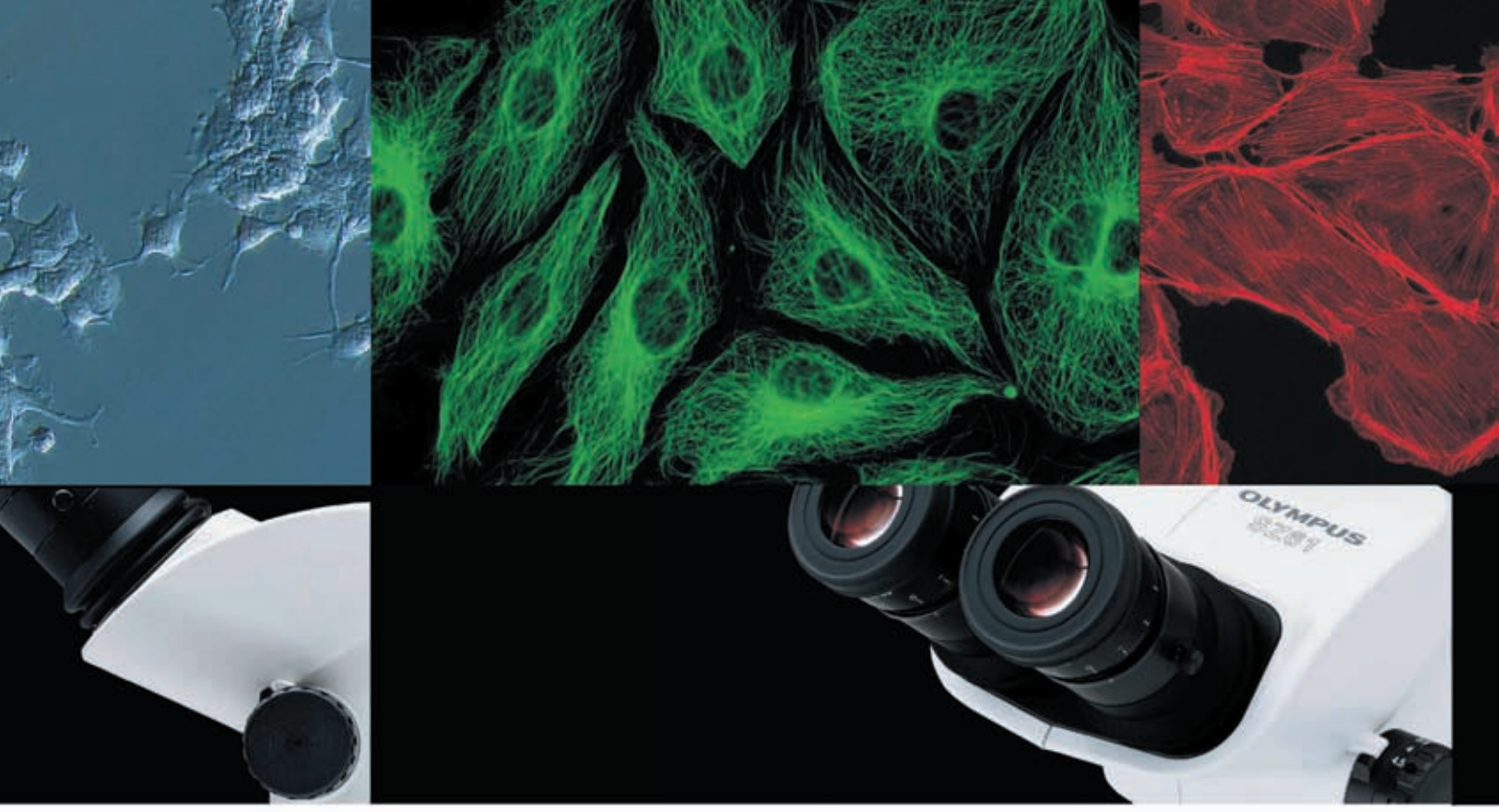

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References: 1- Yeko S.R et al. Fertility & Sterility 2004; 82 (Supp.2):s119. 2- Keck C. et al. Reproductive BioMedicine Online 2005;11(5):562-569. 3- Driebergen A, Baer G. Cur Med Res Opin 2003; 19(1): 41-46 4- Neuspiller N, Kelly E, Loumaye E, et al. 12th World Congress on In Vitro Fertilization and Molecular Reproduction, Buenos Aires, Argentina, 16-19 March 2002. Abstract. 5- Balasch J. et al. Reproductive BioMedicine Online 2004;8(4):408-413. 6- Carizza C, Alam V, Yeko T, et al. European Society for Human Reproduction and Embryology (ESHRE), Madrid, Spain, 29 June-2 July 2003. Abstract. 7- R. Porter et al, Current Medical research and Opinion Vol. 24, No 3, 2008.

GONAL-f
FOLLITROPIN ALFA

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GONAL-f™, Pre-filled pen 300 IU/0.5 ml , 450 IU/0.75ml ,900 IU/1.5 ml

Composition: The active substance is follitropin alfa. Follitropin alfa is a recombinant human follicle stimulating hormone (FSH) produced by recombinant DNA technology in Chinese Hamster Ovary (CHO) cell line, belonging to the pharmacotherapeutic group gonadotrophins. The quantity of follitropin alfa per ml is 600 IU (equivalent to 44 micrograms). Each cartridge delivers either 300 IU (equivalent to 22 micrograms) in 0.5 ml. , 450 IU (equivalent to 33 micrograms) in 0.75 ml or 900 IU (equivalent to 66 micrograms) in 1.5 ml **Indications:** • GONAL-f can be used to cause ovulation in women who are not ovulating and who have not responded to treatment with clomiphene citrate. • GONAL-f is used to bring about the development of several follicles (and therefore several eggs) for women undergoing assisted reproductive technologies such as in vitro fertilisation, gamete intra-fallopian transfer or zygote intra-fallopian transfer. • GONAL-f is used together with another hormone called lutropin alfa (recombinant human luteinising hormone) to cause ovulation in women who are not ovulating due to very low production of the fertility hormones (FSH and LH) by their pituitary gland. • GONAL-f is used in combination with another medicine, human chorionic gonadotrophin (hCG), to produce sperm in men who are infertile due to hormonal deficiency. **Contraindication:** • hypersensitivity to follicle stimulating hormone or to any of the other ingredients of GONAL-f • tumours of the hypothalamus and pituitary gland • ovarian enlargement or cyst not due to polycystic ovarian disease • gynaecological bleeding of unknown cause • ovarian, uterine or breast cancer • if you have irreversible testicular damage. The medicine should not be used when a condition exists which would make a normal pregnancy impossible, such as premature menopause, malformation of sexual organs or specific tumours of the womb. **Dosage & administration:** GONAL-f is administered by injection just under the skin (subcutaneous use). Women who are not ovulating and are having irregular periods or no periods at all. GONAL-f is usually given every day. The treatment should start within the first 7 days of the menstrual cycle. A commonly used dose starts at 75-150 IU FSH every day (0.12-0.24 ml). This may be increased by 37.5-75 IU at 7 or preferably 14 day intervals if necessary to obtain an adequate, but not excessive, response. The maximal daily dose is usually lower than 225 IU FSH (0.36 ml). If your doctor cannot see a response after 4 weeks of treatment, that treatment cycle should be abandoned. For the following cycle, your doctor will prescribe a treatment at a higher starting dose than in the abandoned cycle. When an optimal response is obtained, a single injection of another medicine (hCG) is administered 24-48 hours after the last GONAL-f injection. You are recommended to have sexual intercourse on the day of the administration of this second medicine and the following day. If an excessive response is obtained, treatment should be stopped and hCG withheld (see Possible side effects). For the following cycle, your doctor will prescribe a dosage lower than that of the previous cycle. Women undergoing ovarian stimulation for multiple follicular development prior to in vitro fertilisation or other assisted reproductive technologies. A commonly used dose for superovulation involves the administration of 150-225 IU (0.24-0.36 ml) of GONAL-f daily, commencing on days 2 or 3 of the treatment cycle. Treatment is continued until adequate follicular development has been achieved (as assessed by blood monitoring and/or ultrasound examination), with the dose adjusted according to your response, to usually not higher than 450 IU (0.72 ml) daily. Adequate follicular development is usually achieved on average by the tenth day of treatment (range 5 to 20 days). Then a single injection of a medicine used to induce final follicular maturation and containing 250 micrograms r-hCG or 5000 IU up to 10 000 IU human chorionic gonadotrophin (hCG) is administered 24-48 hours after the last GONAL-f injection. Women who are not ovulating, having no periods at all and have been diagnosed as FSH and LH deficient. GONAL-f is usually taken every day for up to five weeks simultaneously with injections of lutropin alfa. A commonly used dose starts with 75-150 IU (0.12-0.24 ml) of GONAL-f together with 75 IU of lutropin alfa. According to your response, your doctor may increase your dose of GONAL-f by preferably 37.5-75 IU at 7 to 14-day intervals. If your doctor does not observe a response of your ovaries after 5 weeks of treatment, that cycle should be abandoned. For the following cycle, your doctor may prescribe treatment at a higher starting dose of GONAL-f than in the abandoned cycle. When the desired response has been obtained, a single injection of 250 micrograms r-hCG or 5000 IU up to 10 000 IU hCG is given 24-48 hours after the last injections of GONAL-f and lutropin alfa. Infertile men with hormonal deficiency GONAL-f is usually prescribed at a dose of 150 IU (0.24 ml) three times a week in combination with another medicine (hCG) for at least 4 months. If you have not responded to treatment after this period, your treatment may carry on for at least 18 months. **Possible side effects:** The most commonly reported side effects are ovarian cysts, headache and local reactions at the injection site (pain, redness, bruising, swelling and/or irritation). Following treatment with GONAL-f when human chorionic gonadotrophin is administered, a condition called ovarian hyperstimulation syndrome This syndrome is characterised by large ovarian cysts. First symptoms of ovarian hyperstimulation are pain in the lower abdominal region, possibly in combination with nausea, vomiting and weight gain. Isolated cases of non-serious allergic reactions to GONAL-f have been reported. This occurs in less than 1 patient for each 10000 treated. Ectopic pregnancy (embryo implanted outside the womb) may occur especially in women with a history of prior tubal disease. Men may experience some breast development, acne or weight gain due to treatment with hCG (between 1 and 10% of the patients). **Stability and storage:** Store at 2°C - 8°C (in a refrigerator). Do not freeze. Within its shelf-life, the product may be stored at or below 25°C for up to 28 days and must be discarded if not used. **Packaging:** GONAL-f is presented as a clear, colourless solution for injection in a pre-filled pen. - Gonal-f 300 IU pen: Each cartridge delivers 300 IU (equivalent 22 micrograms) in 0.5 ml , it is supplied in packs of 1 pre-filled pen and 5 needles for administration - Gonal-f 450 IU pen: Each cartridge delivers 450 IU (equivalent 33 micrograms) in 0.75 ml. It is supplied in packs of 1 pre-filled pen and 7 needles for administration. - Gonal-f 900 IU pen: Each cartridge delivers 900 IU (equivalent 66 micrograms) in 1.5 ml. It is supplied in packs of 1 pre-filled pen and 14 needles for administration.

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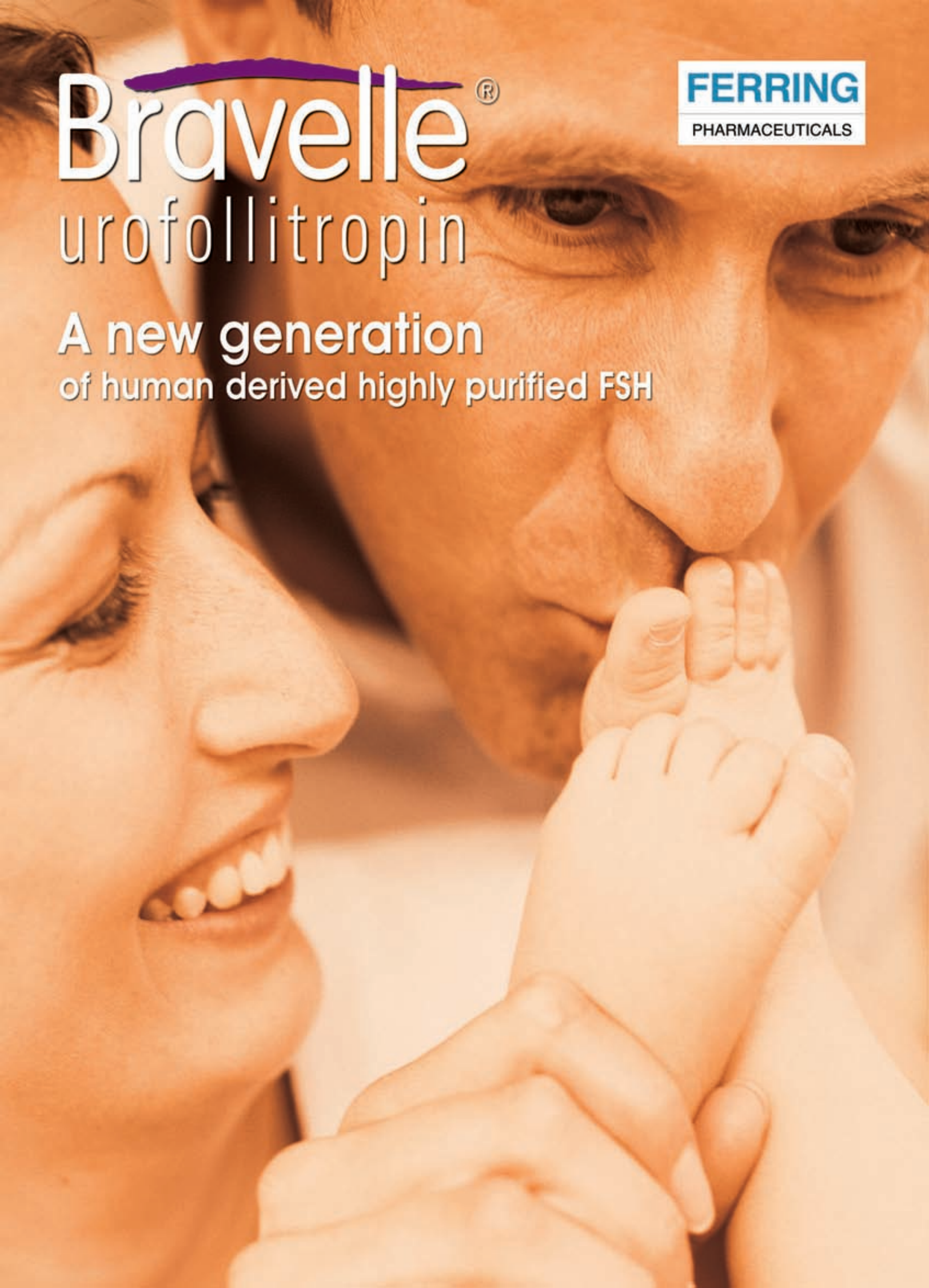
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