ROYAN INSTITUTE

THE NINTH ROYAN INTERNATIONAL RESEARCH AWARD

Reproductive Biomedicine & Stem Cell.....

AUGUST 2008

TEHRAN - IRAN

THE TENTH

ROYAN

INTERNATIONAL RESEARCH AWARD

REPRODUCTIVE BIOMEDICINE & STEM CELL

In collaboration:

Science and Technology Deputy of the President of Islamic Repoblic of Iran

Deadline for Application: April 20, 2009

Kazemi Prize

One decade of Royan International Research Award.

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

SEPTEMBER 2009

TEHRAN - IRAN

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I.R.IRAN
TEHRAN

In the name of

GOD

The Ninth

ROYAN

INTERNATIONAL RESEARCH AWARD

Dr. Saeid Kazemi Ashtiani

The Late Founder of ROYAN Institute

Iranian Academic Centre for Education, Culture and Research (ACECR)

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Nekou Azma Teb Genetics & Molecular Biology

Contents

Foreword

Progress in medical sciences and new advances in using stem cells for treatment of incurable diseases have created a revolution in the medical field that scientists and researchers have pursued for years. Improvements in infertility treatment using the most advanced technologies have brought hope to infertile families and it is expected that in the near future huge advances will be made by using stem cells in the treatment of infertile couples whose needs have not been met by current methods.

Dissemination of new sciences and the utilization of research results make it essential for scientists to communicate with one another and exchange knowledge and experiences. Issuing invitations for the gathering of information related to advances made by researchers, holding scientific congresses, awards and other events creates an ideal opportunity for this exchange of information. . In addition to updating scientific knowledge and sharing experiences, these scientific events provide an occasion for getting familiar with different cultures, encourage friendships and promote peace among people from all over the world.

The implementation of nine Royan International Research Awards and Congresses is a good example of Iranian scientists and researchers efforts to attain these goals and create a friendly atmosphere for exchange of ideas between Iranian scientists and researchers from abroad. I hope that along with the scientific discussions, our honored guests can become familiar with the scientific progress made by Iran, an ancient civilization, and the Iranian people's rich Muslim culture.

I hope the next Royan International Research award, which will be held next year in collaboration with this deputy, will be even more greatly improved and, with the help of our colleagues at the Royan Institute, there will be greater participation by scientists from all over the world.

Best regards

Sadegh Vaez Zadeh
Science and Technology Deputy of the president of Islamic Republic of Iran

Introduction

Health is appropriately the subject of emphasis in the Islamic Republic of Iran 20-year health outlook document. Development goals for the millennium show that world leaders agree that lasting worldwide multilateral development will not be possible without safeguarding people's health.

The outlook of Iran's health system in 2025 depicts such an image: "Iran's population has the highest health level and the most developed health care system in the region." Based on this, the outlook for health related sciences and technology is described as follows: "Achieving first place in the region in health related sciences and the production and application of the best health technology."

Naturally, to attain these goals, it is essential that every opportunity be used, especially in fields that have grown rapidly while using national resources in the last decade. Thanks to the support of its specialists and scientists, in the short time since it began its work, the Royan Institute has shown that it can be a successful practical example of utilizing such opportunities. ACECR is proud to support such potential on the path toward achieving the goals of the 20-year health outlook.

I hope the Royan International Research Congress, which is a good opportunity for the exchange of knowledge between Iranian researchers, scientists, professors and students with the rest of the world, will help us attain objectives of the Islamic Republic of Iran's 20-year health outlook.

I would like to thank all the high level scientists from all around the world for submission of their valuable research papers making this event a real success. Also I must appreciate the efforts of my colleagues at the Royan Institute for holding this annual international award. I pray for their good health and success.

With Best regards

Hamid Reza Tayyebi, PhD
President of Academic Center for Education, Culture and Research (ACECR)

The astonishing speed of improvements in biomedical sciences in recent years and the need for new therapeutic protocols to fight diseases have created conditions that call for the efforts of all scientists from around the world.
Thanks to sophisticated communication technologies, today's scientific world has become one giant laboratory where advances made in one part of the world quickly affect the rest of the world, leading to greater improvements and achievements.
The Royan International Research Award has been established with this perspective as an international forum to encourage scientists (especially young researchers) who can influence reproductive biomedicine or stem cell research.
The Royan Institute is constantly working to increase the quality of this event and welcomes any new ideas. Fortunately, the Science and Technology Deputy of the President of Islamic Republic of Iran has announced his support of this event in the coming years which can lead to the qualitative and quantitative growth of this event. We are also negotiating with several international scientific societies and hope their collaboration increases the legitimacy and importance of this scientific event.
I would like to thank my colleagues from the executive board for their great efforts during the past year to make this event successful. I also thank the Iranian and international scientists who served as the jury for their great work in studying the research projects and finding the best ones.
With no doubt, without support of the scientists who submit their high level research projects to this award, this scientific event could not have taken shape, so it is necessary to present my special thanks to them all.
The Royan International Research Award belongs to all of the scientific and research centers in Iran and serves as a bridge connecting scientists and researchers from all around the world. I hope this event will always be held in an atmosphere filled with peace and friendship.

Hamid Gourabi, PhD
President of Royan Institute and Award Chairman

Organizations

ROYAN Institute

Royan Institute was established in 1991 as an infertility clinic. Now this institute has two research centers approved by the Ministry of Health, Treatment and Medical Educations: «Cell Sciences Research Center» and «Reproductive Biomedicine Research Center». Also this institute has a research site in Isfahan, mainly focus on Biotechnology and Cloning. This institute acts as the leader of Stem Cell research and also one of the best clinics for infertility treatment in the region. It has 45 scientific members and 53 assistant researchers, working in 6 departments: Stem cells, Embryology, Genetics, Female infertility, Andrology and Epidemiology.

Overview of Royan Institute Achievements:

1. The first IVF birth in Tehran (1993)
2. The second ICSI birth in Iran (1995)
3. Iran second success in open testicular biopsy to treat severe male infertility (1996)
4. The first frozen embryo birth in Iran (1996)
5. The first ICSI birth by frozen sperm of a gonadectomized man (1999)
6. The first celebration of the 1000th birth by the assisted conception treatment in Iran (1999)
7. Establishment of Stem Cells research department (2002)
8. The first human embryonic Stem Cell line establishment (2003)
9. The first PGD child born in Iran (2004)
10. The first time use of Adult Stem Cell in treatment of MI during CABG (2004)
11. Production of Insulin Producing Cells from Human Embryonic Stem Cells (2004)
12. Culture of Human Limbal Stem Cells on Chorionic Membrane and use them for corneal injuries (2004)
13. Establishment of the first organized Cord Blood Bank (2005)
14. The first IVM-IVF sheep born in Iran (2006)
15. The first cloned sheep born in Iran (2006)
16. The first IVM-IVF cow born in Iran (2008)
17. Reprogramming of human and mouse skin fibroblasts to induced pluripotent stem (iPS) cells (2008)

Other Achievements:

Awards: Razi (3 times), Kharazmi (1 time), Shahid Rajaee (1 time), Yazd Student Award (1 time), Razi Best Journal Award (1 time), Best paper in international congresses (5 times).
Selection of late director of Royan Institute as Iran's everlasting legend in 2005.
328 published papers in local and international journals.
681 presentation oral or poster in local and international congresses.
301 research projects (189 finished and 112 undergoing)
176 Ph.D. and Master Thesis.

Infertility Clinic:

This clinic is for treatment of infertile couples using the most recent and sophisticated methods making the clinic a referral center in Iran. We admit around 10000 – 15000 couples per year for treatment, our statistics per year is as follows:

- 4000-4500 ICSI and IVF cycles
- More than 900 laparoscopy (laser and normal), hysteroscopy (diagnostic and operative)
- 800 TESE&PESA
- 2800 IUI
- More than 35,000 ultrasonography
- More than 500 cervical cercullage
- More than 300 varicocelectomy
- More than 350 Diagnostic D&C
- More than 500 Hystrosonography
- More than 2000 Color Doppler ultra sonography in infertile couples.
- More than 250 PGD

Department of Stem Cells

Royan Stem Cells Department was established in 2002 to advance researches on biology and technology of stem cells from different sources including: Embryonic stem Cells (ESCs), Induced pluripotent stem cells (iPSCs), Germ line Stem Cells, Adult Stem Cells, and Cord Blood Stem Cells. Our vision is to efficiently put stem cell research findings into operation in disease treatment to increase the level of health.

The department is focusing on the following fields:

1. Stem Cells and Developmental Biology

Main goals in this research area include:

a. Establishment of different stem cell lines.
b. Differentiation of the stem cells into Neural cells, Bone and Cartilage cells, Endocrine pancreatic cells, Cardiac cells, Liver cells, Hematopoetic cells and Germ cells.
c. Transplantation of stem cells or their derivatives in animal models.
d. Production of transgenic mice

2. Molecular Systems Biology

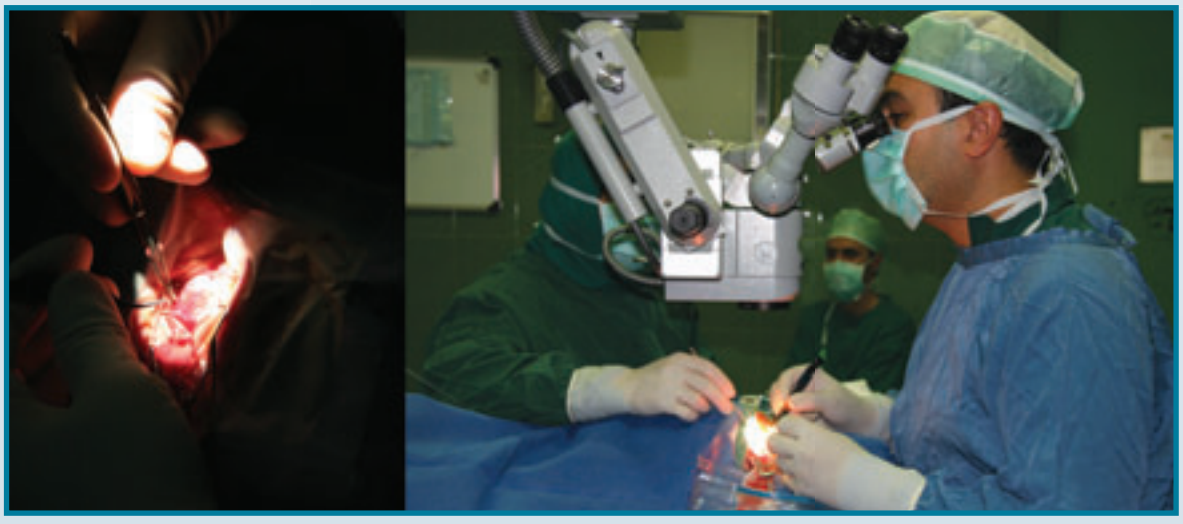
High throughput and functional analyses of the stem cells and their derivatives along with integration of data are performed by following approaches:

a. Proteomics
b. Transcriptomics
c. Epigenomics
d. Bioinformatics

3. Regenerative Medicine

Human clinical trials and application of cell therapy to cure following diseases:

a. Corneal injury
b. liver failure
c. Myocardial infarction
d. Vitiligo
e. Lower limb chronic ischemia
f. Bone and cartilage defects
g. Blood Cancer
h. Rejection of kidney transplantation



Major Achievements:

- Establishment of several human and mouse embryonic stem cell lines.
- Generation of human and mouse induced pluripotent stem cells (iPSCs)
- Clinical trials for myocardial infarction, corneal injury, vitiligo, and liver failure by autologous stem cell transplantation.
- Establishment of the first Cord Blood Bank.
- Production of recombinant human basic fibroblast growth factor.

- Congress of Stem cell Biology and Technology.
- Publication of several books, chapter books and papers in international and national journals.
- Publication of first proteomic map of human embryonic stem cells.
- Presentation of some new surface markers for mouse mesenchymal stem cells.

Department of Genetics:

This department established in 2001 to work mainly on genetic and epigenetic aspects of infertility, reproduction and stem cells. Main researches in this department are in both basic and applied types such as:

- Report of three new mutation of cystic fibrosis in CBAVD patients to the world.
- Establishment of DNA bank of infertile couples.
- PGS for screening of chromosomal aneuploidies and PGD for diagnosis of structural aberrations and in near future for single gene defects.
- Genetic screening of ART children.
- Genetic causes of recurrent abortions.
- Genetic effects of cancer therapies on Oocytes, sperms and embryos.
- Cytogenetic effects of embryo freezing.
- Cytogenetic effects of ovarian stimulation.
- Epigenetic, cytogenetic and quantitative expression of genetical markers of human and mouse embryonic stem cells.

Department of Embryology:

This department works in two fields of infertility treatment and production of cloned and transgenic animals for drug production through biotechnology. The main activities of this department are:

- Animal cloning leading to birth of the first cloned sheep in Iran.
- Transgenic animals for production of special proteins and drugs.
- Genomic distribution studies in Esfahan
- Vitrification of human embryos and oocytes leading to a sophisticated human egg bank.
- In vitro maturation of human oocyte leading to treatment of many infertile couples.
- Many hands on workshops and courses in IVF, ICSI, freezing, IVM and clinical embryology

Department of Female Infertility and Endocrinology:

This department established in 1995 to find new strategies and advanced methods for treatment of female infertility, leading to birth of healthy children. The target of all researches is toward these goals:

- Increasing the rate of embryo implantation.
- Advanced research on ovarian stimulation protocols.

- Research for new treatments of endometriosis and PCOs.
- Clinical trials to approve new imported drugs in the field of infertility treatment.
- Determining the age of menupause in Iranian females.
- Advanced research on recurrent abortion.
- Training course for residents in infertility.
- Infertility fellowship for gynecologists.
- Several highly scientific and skill hands on workshops.

Department of Andrology:

This department focuses on male infertility and main researches are conducted to higher the treatment results. As male infertility is considered somehow genetic disease, most of the research projects are related to genetics also.

- Advanced research on Sperm DNA.
- Genetic problems of male infertility and their treatments.
- Advanced microscopic surgery and new advancement in surgical treatment of male infertility.
- Several audiovisual and hands on workshops in reproductive microscopic surgery.

Department of Epidemiology and Reproductive Health:

This department works on frequencies, reproductive health, emotional and social issues, ethical issues and job factors interfering with infertility.

- Frequency of infertility in Tehran
- Stress, anxiety and depression in infertility and stress reduction ways.
- Ethical concerns related to ART
- Ethical guidelines and legislations.
- Methodological and ethical monitoring and support of other research projects.

Journals:

- **Yakhteh medical journal** quarterly indexed in ISI, EMBASE, CSA, EMRO, ESCOPUS
- **International Journal of Fertility and Sterility** (IJFS) quarterly indexed in ISI, Embase, ESCOPUS

ISRM
Iranian Society for Reproductive Medicine

The Iranian Society for Reproductive Medicine (ISRM) was founded in 1995.
ISRM's goal is to promote the dissemination of knowledge concerning both basic science and clinical practice in the field of human reproduction. The national administrative office of ISRM is located in Tehran.
The ISRM is a voluntary non-profit organization. Members must demonstrate the high ethical principles of the medical profession, evidence an interest in reproductive medicine and biology work as a professional at least one year in ART centers.
Members of ISRM including gynecologists and obstetrics, Reproductive Endocrinologists, Urologists and Embryologists, Physicians, specialists involved in the filed of reproduction, and other allied health professionals.
The ISRM promotes excellence in the practice of reproductive medicine through professional education programs such as workshops and annual congress.
There are committees for scientific research and patient supporting, and ethics for evaluating the problems in Iran.
The Iranian Society for Reproductive Medicine was founded by a group of fertility experts who met in Tehran in 1998. Distinguished members of ISRM have led the development of the field of reproductive medicine.
The Society is multidisciplinary with members including obstetrician/gynecologists, urologists, andrologists, reproductive endocrinologists, embryologists, nurses, practice administrators, laboratory technicians, biologists and gentician.

ISRM contact address:
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Tehran. Iran
E-mail: ISRM @ hotmail.com

ISCN
Iran Stemcell Network

Introduction:

The Iranian Stem cell Network was established in November 2005, and its vision is to cover all stem cell Research centers. Iranian Stem cell Network (ISCN) is a virtual Network organized by the Iran Health ministry, Research and Technology Deputy.

The ISCN brings together scientists, clinicians, business and society to enable advances in stem cell biology to be rapidly translated to deliver new treatments for disease currently incurable by conventional approaches such as degenerative disease "Alzheimer's, Parkinson's, cancer, diabetes, Multiple Sclerosis and sight loss etc…" through the progress of stem cell research.

There are 20 members from universities, research centers and other scientific professions.

Networking is the key to success in Stem cell studies; it provides global facilities, avoids parallel work and is a practice for team work.

Iranian stem cell Network coordinates stem cell research centers in Iran.

Mission:

- Developing and promoting quantity and quality of research in stem cell biology to be rapidly translated to deliver new treatments for disease.
- Attract, train and retain top stem cell researchers and entrepreneurs for Iran.
- Create a suitable substructure and promote quality and quantity level of research.

Goals and Objectives:

- Developing and promote quality and quantity of stem cell research with collaborative research program among related centers.
- Create a suitable substructure for stem cell research in Iran
- the ability to translate research outcome into clinical applications for disease treatment.
- to attract the attention of public and private organizations to support the network.
- to receive credit from the country's internal and international sources.
- Establishing a support fund for stem cell research

Activities:

1. Organize Lectures, Seminars and Workshop in stem cell research.
2. Organize and support international conferences in stem cell research.
3. Organize visits to member's centers, to facilitate cross border collaboration and knowledge exchange.
4. Planning for a data base to register scientists and laboratories engaged in activities in Stem Cell research.
5. Publishing information on Stem cell Network.
6. ISCN would initiate joint ventures and cooperation with academic institutions and organizations for projects in stem cell research.
7. Facilitating knowledge transfer and encouraging collaboration between those with an interest in stem cell research and its applications in Iran.

8. Providing a single point of contact for all those with a potential interest in stem cell research, its applications and implications.
9. Developing and contributing to an environment that encourages stem cell research and new investment in this region.
10. Working with other partner organizations, including patient groups, to promote the importance and need for stem cell research, both within the eastern region and on a national and international level.

Stem Cell Network Members:
1. TUMS Hematology-Oncology & Stem Cell Transplantation Research Center
2. Royan Institute
3. Pasteur Institute of Iran
4. Iran University of Medical Sciences- Dept of Pharmacology and Cell and Molecular Research Center
5. Shahid Beheshti University of Medical Sciences Cellular and Molecular Biology Research Center
6. Iranian Blood Transfusion Organization
7. TUMS Endocrinology and Metabolism Research Center
8. TUMS Digestive Disease Research Center
9. Tarbiat Modares University - Hematology Department
10. Tarbiat Modares University - Anatomy Department
11. Ahvaz Jundishapur University of Medical Sciences - Faculty of Anatomy
12. Babol University of Medical Sciences - Faculty of Biochemistry
13. TUMS School of Public Health
14. Isfahan University of Medical Science - Medical Faculty
15. Iran University of Medical Sciences - Immunology Department
16. Zanjan University of Medical Sciences - Medical Faculty
17. CHMC - Orology Department
18. Tehran University of Medical Science - Genetic Department
19. TUMS School of Pharmacology
20. Avicenna Research Institute

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ROYAN Awards

Royan International Research Award was founded by late director of Royan Institute, Dr Saeid Kazemi Ashtiyani with the aim of encouraging the researchers, appreciation of their efforts and to prepare a friendly scientific atmosphere for researchers to exchange their knowledge and experiences. Kazemi had wonderful ideas to bring researchers together and motivate them to increase their efforts and perform high level researches that one of them was 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 five 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 researchers among them with variations in methods, implements and results is almost impossible, from this year five same prizes are distributed between five winners. Each winner is selected from one of the following fields: female infertility, andrology, embryology, genetics and stem cell biology and technology.

The scope of subjects are:

Winners are rewarded by a certificate, award's symbol and $5000 cash.

The First Royan International Research Award

September 2000

In Oct. 1999, by the establishment of the executive committee, the first practical measured of the first Royan International Infertility Research Award were taken.

International Winners:

First Place: Mohamed Mitwally, Canada

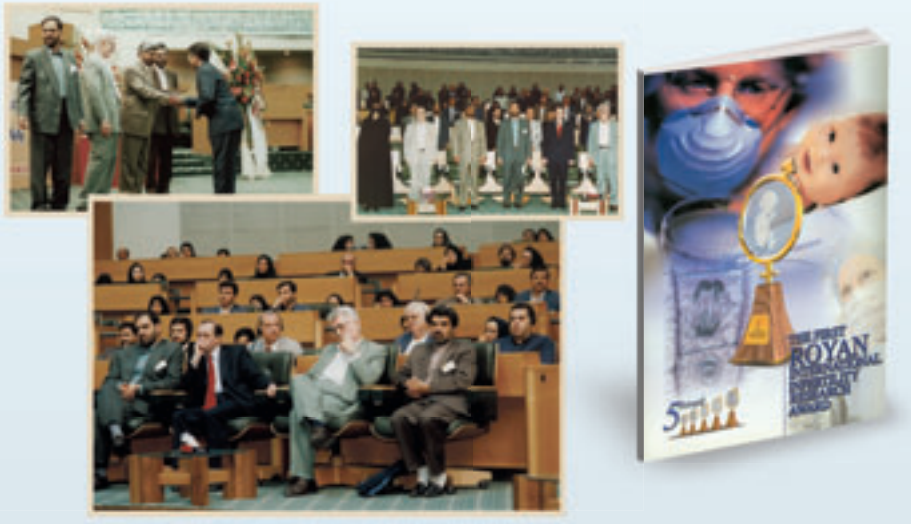
Cmparison of an Aromatase Inhibitor with Clomiphene Citrate for Induction of Ovulation

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

In Oct. 2000, the executive committee was responsible to take care of all affairs concerning the Award, in addition to programming and policy making. More than 60 sessions were respectively held to discuss any possible details. By June, 28, 2001, the central committee of the judges, taking the judgments of the local and international judges into consideration announced the winners of the Award. By July 5, 2001, all the winners were informed of the results. The final results are as follows:

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, Royan Institute

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

- Marzieh Nojomi, Iran Medical University

Epidemiology of Infertility in the West of Tehran 2000-2001

- Gholamreza Pourmand, Tehran Medical University

Effect of Renal Transplantation on Sperm Quality and Sex Hormones Level

The Third Royan International Research Award

September 2002

Royan's third international research award has been more extensive than the previous Awards and The most significant difference between the present Award and previous two Awards was the remarkable increase in number of the papers, which was three times more than papers in the second and first award. The other noticeable difference was increase in the number of participants' countries, which reached to forty two countries that year.

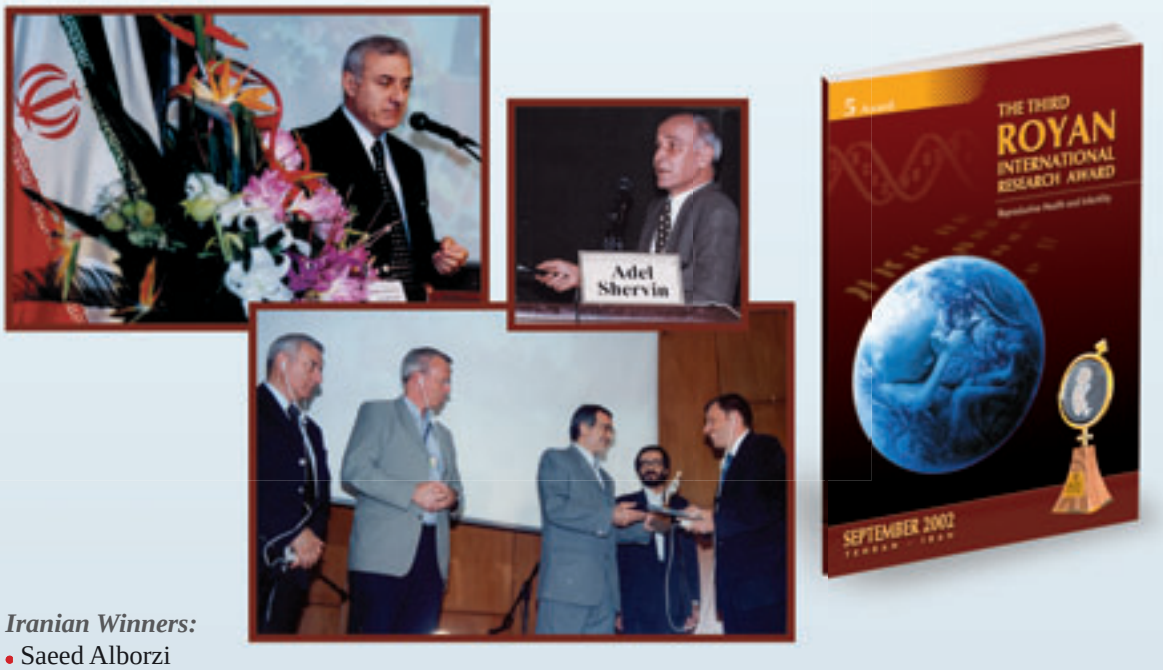
International Winners:
First Place: Marco Filicori, Italy
Novel Approaches to Ovulation Induction: The Critical Role of Luteinizing Hormone Activity in Regulating Folliculogenesis.

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

The Fourth Royan international Research Award was more extensive than the previous Awards, since more papers and research have submitted to the office and in indicates the increasing interest among the scientists

throughout the world. The number of papers, 222 high quality papers from 47 countries, was a good sample. European Society of Human Reproduction & Embryology (ESHRE) and Middle East Fertility Society (MEFS) were two main fertility societies that helped us in this award.

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
Elective Single Embryo Transfer Halves the Twinning Rate without Decrease in the Total Ongoing Pregnancy Rate of an AVF/ICSI Program

Iranian Winners:

- Mohammad E. 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

Royan international Research Award was getting bigger and better. That year we received 199 high level papers. Although the number of the papers is decreased comparing to previous award, the quality of the papers have been increased. At that year, jury committee could not find any research project for the first place, so, two second step winners were announced.

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

The sixth Royan International Research Award was well developed after five successful experiences and we received 198 papers from 34 countries.
Entrance of stem cell research in this award increased the scientific level of it and also opened the new subject which considered as MEDICAL REVOLUTION. The scientific level of the received paper was too high so we increased the number of our referees from all around the world and sent each paper to five referees to prevent misjudgment.
We appreciate the cooperation of Middle East Fertility Society (MEFS) and European Society of Human Reproduction and Embryology (ESHRE) and also British Fertility Society (BAS) that have been our kind friends in this award. Also we should thank Iranian Society of Reproductive Medicine (ISRM) that was beside us from the beginning to the end.

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 near 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

This year we received 221 research articles from the National and International recognized and prominent scientists (15 national and 206 international research articles) all of which enjoyed standard quality and majority of which were published in the scientific recognized journals. This made the task of judgment demanding. Thanks to our 136 international high level referees, we made a grate success in jury system and find out the best and most prominent projects from all good scientific submissions.

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:

- Mohammad Reza Baghban Eslami Nejad

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

The eighth Royan International Research Award was one of the best in the recent years.
248 received research projects from 50 countries, was a considerable increased statistic in comparison with last awards. Most of the projects were from America, Iran, India, Germany and Italy. 94 projects were able to pass the first step of jury which 13 projects were in the field of Stem Cell Biotechnology and others were for the Reproductive Biomedicine part.
Without cooperation of European of Human Reproduction and Embryology (ESHRE) Middle East Fertility Society (MEFS) and Iranian Society for Reproductive Medicine (ISRM), we could not successfully hold this award, which definitely had a positive effect on increasing the international scientific cooperation with other countries.

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

ROYAN
INTERNATIONAL RESEARCH AWARD
THE NINTH AWARD

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 fertility 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

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Winners

Female Infertility

International Winner

Uterine Doppler Investigations and Trophoblast Biology in Early Pregnancy

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Objective:
The aim of this project was to verify the hypothesis that uterine artery Doppler measurements in the first trimester of pregnancy are related to placental development and physiology, as well as maternal responses to the pregnancy.

Material and Methods:
Uterine artery Doppler impedance was measured by ultrasonography at 11-14 weeks of gestation in (a) unselected pregnant women; (b) women attending a termination of pregnancy clinic. Maternal serum and trophoblast specimens were collected as appropriate. Correlations were investigated between uterine artery Doppler indices and a number of clinical and biochemical parameters.

Results:
After establishing reference values for uterine artery Doppler velocimetry at 10-14 weeks of gestation, an association was demonstrated between uterine artery resistance indices and both birthweight and maternal echocardiographic indices. Moreover, the timing of appearance of a low-impedance uterine circulation between 11 and 23 weeks was also shown to be related to birth weight. However, uterine artery Doppler velocimetry was not found to be related with the risk of preterm delivery or with the use of ART to obtain the pregnancy. The extent of decidual endovascular trophoblast invasion in products of conception was demonstrated to be significantly higher in normal uterine resistance pregnancies compared to high resistance ones. A possible biological basis for these findings was demonstrated by assessing in vitro sensitivity to apoptosis of primary extravillous trophoblast cultures and observing that trophoblasts derived from high resistance pregnancies are more sensitive to apoptosis than controls. It was also observed that decidual endovascular trophoblast is more efficient in parous than nulliaprous women. Pregnancy associated plasma protein-A and free beta subunit of the human chorionic gonadothropin were independently associated with pregnancy outcome suggesting that Doppler and biochemical markers could be used for the prediction of adverse pregnancy outcomes. Finally, maternal serum ischaemia modified albumin (IMA), a marker of tissue ischaemia, was found to be elevated to supra-physiological levels in normal pregnancy. Maternal serum IMA levels were negatively correlated with uterine resistance, but were paradoxically increased in those women who subsequently developed severe pre-eclampsia.

Conclusion:
There is a number of relationships between uterine artery Doppler, maternal biochemistry, trophoblast and cardiovascular physiology, and pregnancy outcome. These findings help the understanding of the physiology of early pregnancy, and guide the development of clinical predictive tests for a number of adverse pregancy outcomes.

Keyword:
uterine artery Doppler; trophoblast; physiological transformation; pre-eclampsia; fetal growth restriction; maternal serum; oxydative stress; methylarginine; echocardiography

Winners
International Winner

Female Infertility

Laparoscopic Metroplasty in Bicornuate and Didelphic Uterus.

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Objective:
To determine feasibility of laparoscopic metroplasty in treatment of bicornuate and didelphic uterus.
Material and Methods:
Case report. Setting: University and private hospitals. Patients: Four women with a diagnosis of double uterine cavity (2 bicornuate and 2 didelphic uteri) with a history of two recurrent spontaneous abortions less than five months of pregnancy. Intervention: Laparoscopic metroplasty with diagnostic hysteroscopy was performed for the unification of the uterus. Second look laparoscopy and hysteroscopy was performed about three months later. Main Outcome Measures: Evaluation of the uterine compliance to high intrauterine pressure, presence of adhesions in pelvic and uterine cavity.
Results:
In all four patients, laparoscopic metroplasty results in a unified uterus with a good cavity and tolerance to high intrauterine pressure. Minimal pelvic adhesions were noted in the two patients at the second surgery.
Conclusion:
This new technique of laparoscopic metroplasty is an acceptable alternative for abdominal metroplasty, with minimal adhesion formation.
Keyword:
Adhesion formation; bicornuate uterus; didelphic uterus; laparoscopy; metroplasty.

Winners

Genetics

International Winner

Structural, Functional and Molecular Aspects of Follicle Stimulating Hormone Receptor: Applications in Designing Receptor Targets and Management of Female Infertility

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Objective:
Follicle stimulating hormone (FSH) acts through specific receptors present on the target cells in the gonads. Extracellular domain (ECD) of the follicle stimulating hormone receptor (FSHR) plays an important role in ligand binding and ligand specificity. the objectives of our project are (i) to identify regions in the receptor ECD, involved in hormone binding and signal transduction; (ii) to identify bioneutralizing epitopes of FSHR; and (iii) to study FSHR genotype with an aim to develop a molecular method for predicting ovarian response in an ART programme.

Material and Methods:
Series of peptides from the ECD were synthesized by solid phase peptide synthesis technology. Antipeptide antibodies were developed to these peptides after conjugating to carrier protein. Effect of peptides and antibodies on binding of the hormone to the receptor was tested by radioreceptor assay. Effect on signal transduction was studied by measuring FSH induced cAMP levels. HEK 293 cells expressing FSHR were used as receptor source. Bioneutralization of FSHR activity in vivo was tested in a female rat model, where the effect of passive administration of antibodies on pregnancy outcome was monitored. Single nucleotide polymorphisms in FSHR gene were studied in females undergoing IVF/ET programme and genotype-phenotype correlation was done.

Results:
Peptides from the C-terminal part of FSHR were effective in inhibiting hormone binding and signal transduction. A small peptide 20-30 was also effective at much lower concentrations and the inhibitory effect on FSH binding was more than 90%. Antibodies to peptide 285-309 were able to recognize parent receptor in western blot and also FSHR in the rat ovary. These antibodies also inhibited receptor activity both in-vitro and in-vivo.

Conclusion:
Peptide 20-30 acts like a potent FSH antagonist and this information will be helpful in the design of molecules in the development of FSH regulating agents. Antibodied to peptide 285-309 neutralized the biological activity of endogenous receptor, which resulted in the induction of infertility in the treated animals. Thus bioneutralization of FSHR was achieved by targeting the region 285-309 of FSHR in an in-vivo system. Molecular studies performed in Indian women revealed that FSHR polymorphism (Thr307Ala) is associated with variable ovarian response and ovarian hyperstimulation syndrome.

Keyword:
FSH, FSHR, bioneutralizing

Winners

Embryology

International Winner

Nuclear and Cytoplasmic Maturation of in Vitro Matured Human Oocytes After Temporary Nuclear Arrest by Phosphodiesterase 3-Inhibitor

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Objective:
The use of hormones for controlled ovarian stimulation results in follicular heterogeneity, with oocytes at diverse stages of nuclear and cytoplasmic development. This study evaluated the impact of temporary nuclear arrest by a specific phosphodiesterase 3-inhibitor (PDE3-I), Cilostamide, on nuclear and cytoplasmic maturation of cumulus-free germinal vesicle (GV) human oocytes from controlled ovarian stimulated cycles.
Material and Methods:
GV oocytes were culture in: (1) medium without the inhibitor (control); (2) medium supplemented with 1 µM Cilostamide and (3) medium supplemented with 10 µM Cilostamide. Oocytes in groups (2) en (3) were exposed to Cilostamide for 24 h. the PDE3-I was subsequently removed by transfer of oocytes to fresh in vitro maturation (IVM) medium and the reversibility of GV arrest was assessed during IVM culture for maximum 48 h.
Results:
Cilostamide (1 and 10 µM) could maintain >80% of the oocytes at the GV stage, without affecting subsequent maturation to metaphase II (MII). Oocytes exposed to 1 µM Cilostamide were more likely to have normal bipolar spindles with aligned chromosomes than control oocytes ($P<0.05$). When GV chromatin configurations before and after arrest were compared, a significantly higher proportion of oocytes had acquired a nucleolus completely surrounded by a rim of highly condensed chromatin ($P<0.05$).
Conclusion:
Temporary nuclear arrest of human GV oocytes with PDE3-I proved to be beneficial for obtaining normal spindle and chromosome configurations after IVM. It resulted also in synchronization within the population of GV oocytes.
Keyword:
in vitro maturation, meiosis, oocyte maturation, phosphodiesterases

Winners

Andrology **International Winner**

Haplotype Analysis of the Estrogen Receptor Alpha Gene in Male Genital and Reproductive Abnormalities

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Objective:
We have recently suggested that homozygosity for a specific "AGATA" haplotype within a ~50 kb linkage disequilibrium (LD) block of the gene for estrogen receptor alpha may raise the susceptibility to cryptorchidism by enhancing estrogenic effects of environmental endocrine disruptors (EEDs).
Material and Methods:
Haplotype analysis of ESR1 was performed in 328 Japanese subjects, i.e., 70 patients with micropenis (MP), 43 patients with hypospadias (HS), 80 patients with spermatogenic failure (SF), and 135 control males.
Results:
The LD block was identified in each of the patient groups and in the control males. the frequency of homozygotes for the specific "AGATA" haplotype was markedly higher in the HS patients (P=0.0000033, odds ratio [OR]=11.26) and mildly higher in the MP patients (P=0.034, OR=3.64) than in the control males, and the specific haplotype was strongly associated with HS (P=0.0000022, OR=11.26) and weakly associated with MP (P=0.040, OR=3.64) in a recessive mode. There was no significant difference between the SF patients and the control males.
Conclusion:
Homozygosity for the specific haplotype may raise the susceptibility to the development of male genital abnormalities in response to estrogenic EEDs.
Keyword:
environmental endocrine disruptors, ESR1, haplotype analysis, susceptibility, undermasculinization

Winners

Stem Cell

International Winner

Human Embryonic Stem Cells As A Tool of Discovery

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Objective:
To identify intrinsic determinants and extrinsic factors that govern human neuroectoderm development.
Material and Methods:
Along hESC differentiation to neuroectodermal cells in our chemically defined model systems (Zhang et al., 2001), we identified epiblast cells, primitive and definitive neuroectodermal cells by immunocytochemistry, FACS analysis, DNA microarray, qPCR. the functional properties of the intermediate cell types were analyzed by their ability to produce functionally specialized neuronal subtypes including cortical neurons (Johnson et al., 2007) and spinal motor neurons (Li et al., 2005).
Results:
Human ESCs differentiated to epiblasts at 4-6 days, primitive neuroectoderm after 8-10 days, and definitive neuroectoderm cells at 14-17 days based on morphological transformation and gene expression patterns. in particular, we uncovered a primitive neuroectodermal cell that uniformly exhibits columnar morphology and expresses Pax6 and other anterior but not posterior homeodomain proteins. the anterior identity of these cells developed regardless of morphogens present during initial neuroectoderm specification. This anterior phenotype could be maintained or transformed to a caudal fate with specific morphogens over the following week when cells became definitive neuroepithelia, marked by neural tube-like structures with distinct adhesion molecule expression, Sox1 expression and a resistance to additional patterning signals. Thus, primitive neuroepithelia represents the earliest neural cells that possess the potential to differentiate to regionally specific neural progenitors.
Conclusion:
We have uncovered a unique neural stem cell type we refer to as primitive anterior neuroepithelial cells. These cells represent true neural stem cells as they are able to generate neurons, astrocytes, and oligodendrocytes in all parts of the brain and spinal cord. This finding offers insights into early human brain development and lays a foundation for generating neural cells with correct positional and transmitter profiles. the differentiation system offers a platform for dissecting biochemical interactions underlying the cellular differentiation processes, thus bridging what we have learned from animal studies to human biology.
Keyword:
neural stem cell, neural patterning, human biology

Winners
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Characterizing Endothelial Cells Derived From the Murine Embryonic Stem Cell Line CCE

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Objective:
Embryonic stem cells (ESC) are defined by two main properties of self-renewal and their multipotency to differentiate into virtually all cell types of the body, including endothelial cells. ESCs have been widely regarded as an unlimited source of cells in regeneration medicine and also an ideal in vitro model to investigate complex developmental processes. Here, we report a simple and efficient in vitro model to derive a nearly pure population of endothelial cells from a murine ESC line.
Material and Methods:
CCE ES cells are exposed to alpha-MEM medium containing 10% FBS for 4 days and then cultured in endothelial basal-2 medium containing vascular endothelial growth factor (VEGF), basic fibroblast growth factor (bFGF), insulin-like growth factor (IGF), epidermal growth factor (EGF), and 2% FBS for 42 days.
Results:
The cells acquired a relatively uniform endothelial cell morphology and were able to propagate and expand in culture. When murine ES cell–derived endothelial cells (MESDECs) were cultured on Matrigel and incubated for 48 h, vessel-like tube structures consisting of CD31 (PECAM-1) or BS-1 immunoreactive cells were developed. Immunocytochemistry and RT-PCR analyses revealed that MESDECs express endothelial cell-specific marker proteins such as Flk-1, PECAM-1, Tie- 1, and Tie-2, in which the expressions persist for long periods of time after differentiation. the cells were also capable of taking up acetylated low-density lipoprotein (LDL) in culture.
Conclusion:
Our data suggest that MESDECs could provide a suitable in vitro model to study molecular events involved in vascular development and open up a new therapeutic strategy in regeneration medicine of cardiovascular disorders.
Keyword:
Embryonic Stem Cells

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The Molecular Mechanisms Controlling Embryonic Stem Cells (Escs) Proliferation and Differentiation

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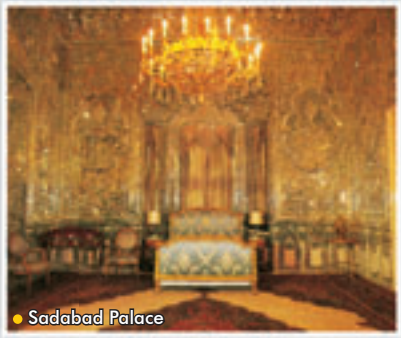
Objective:
Over the past few years, there has been a growing interest in discovering the molecular mechanisms controlling embryonic stem cells (ESCs) proliferation and differentiation. Proteomics and transcripteomics analysis showed to be an effective approach to comprehensively unravel the regulatory network of differentiation
Material and Methods:
We applied a two dimensional electrophoresis based proteomic approach followed by mass spectrometry to analyze the proteome of two Human ESC lines, Royan H5 and Royan H6, at 0, 3, 6, 12 and 20 days after differentiation initiation and the transcripteom analysis performed by microarray DNA chips for a total of 20597 genes
Results:
Out of 127 differentiation associated proteins detected in two lines, 35 proteins were common. Mass spectrometry analysis of these protein spots led to identification of 92 proteins. Our results showed that proteins involved in signal transduction, Metabolism, cell motility and Transport are the main proteins that differentially expressed whereas Immune response and stress related proteins have a less abundance related to total differentially expressed proteins. Proliferation associated proteins such EBP1 (Erbb1 binding protein), RCL (putative c-myc responsive protein), Nucleophosmin (Multifunctional protein) and HSC70 tested by western blotting and immunocytochemistry. Concurrently transcripteomics analysis with microarray and real-time quantitative PCR approaches for candidate proteins are running.
Conclusion:
Several novel ESC-associated genes and proteins have been presented in this study which warrants further investigation with respect to the etiology of stemness.
Keyword:
human embryonic stem

About IRAN

TEHRAN

The metropolitan city of Tehran on the slopes of the mountains of Shemiran and at the foot of the magnificent Mount Damavand is the world famous capital of the Islamic Republic of Iran and the province of Tehran. It has been the country's capital city for only 200 years now. With an altitude of 1200 meters above sea level, Tehran is a city of all four seasons with hot summers, freezing winters, and brief springs and autumns. The highest registered summer temperature in Tehran has been 42 degrees centigrade; while the low has been registered as 8 degrees below zero. Tehran's central position and economic flourishing has attracted great numbers of immigrants from other Iranian cities justifying the nickname " the city of 72 nations". Tehran is Iran's political and administrative center, a major focal point of the middle-east and a city of international reputation. Tehran's grand Bazaar is a network comprising of several kilometers and thousands of shops that are run in the traditionally specialized way. Hundreds of the thousands of people visit this huge shopping center everyday. The oldest historical monuments of Tehran date back to the Qajar period. Some of them are: the Golestan Palace and Museum, the Shamsolemareh Building , the Imam Khomeini Mosque (ex-Shah Mosque), parts of the Bazaar, the shrines of Emamzadeh Saleh in Tajrish, Emamzadeh Ghassem, Emamzadeh Seyed Esmaeil, Emamzadeh Yahya, Emamzadeh Zeid, and Seyed Nassreddin as well as the Bagh-I-Ferdows Building, Sorkheh Hessar Palace (Hospital), Firouzeh Palace, Shahid Motahari (Sepahsalar) Mosque and School , the building of ex-National Assembly, The Pamenar Minaret, and Marvi School and Bazaar. Some of the famous museums of Tehran are: the National Iranian Museum (ex-Ancient Iran Museum), the Anthropological Museum, Abgineh (Glass) Museum, the Museum of Contemporary Arts, Central Bank's Treasury Museum, the Fine Arts Museum, Decorative Arts Museum and the Carpet Museum. There are also several large beautiful parks in Tehran and its suburbs beside the city's natural parks located in the mountains around the capital. Shemiranat is located North of Tehran on the Alborz slopes and includes various areas like the central part, Roudbar & Ghassran (Fasham, Ushan, Meygoon, etc), Lavassant and Galanduak. Located among the central Alborz ranges these places have a beautiful natural setting with a highland cold weather that makes them an ideal summer recreation resort for the people of Tehran. There are several remains of Qajar monuments in these areas.

Milad Tower



Sadabad Palace

Damavand

Azadi Sq.

About IRAN

HAMADAN

Hamadan is one of the oldest cities of not only Iran but of the world. Its historical origins date back to several centuries before Christ. Hamadan, which was the summer capital of the Median and Achaemenid empires was then called Ekbatan or Heg mataneh; meaning a place for gathering together.

Hamadan is one of the cradles of Oriental civilization with legendary background.

Hamadan has been developed and renovated to a great extent in recent years and this has changed the city's old texture gradually. There are still old neighborhoods with nostalgic names in Hamadan besides its large modern streets and beautiful parks. There are plenty of historical monuments and places in Hamadan to be visited by everybody. These include the Stony Lion or the stone lion which is a big Parthian period monument that was made to look like a lion. It is believed that there once was a counterpart for this monument.

In the city's suburb, at the end of the beautiful Abbassabad valley, there are two stone reliefs on the rocks of Mount Alvand. One of them had been carved at the time of King Darius and the other at the time of king Khashayarsha, both of the Achaemenid dynasty, and their contents praise God, Ahura Mazda, reveal the family tree of the monarchs and pray for their country's integrity.

The tomb of great Iranian scientist, Avicenna, is in Hamadan with a building and done built in 1954. The design of the dome is inspired by the Shape of Ghabous Voshmgir Tower.

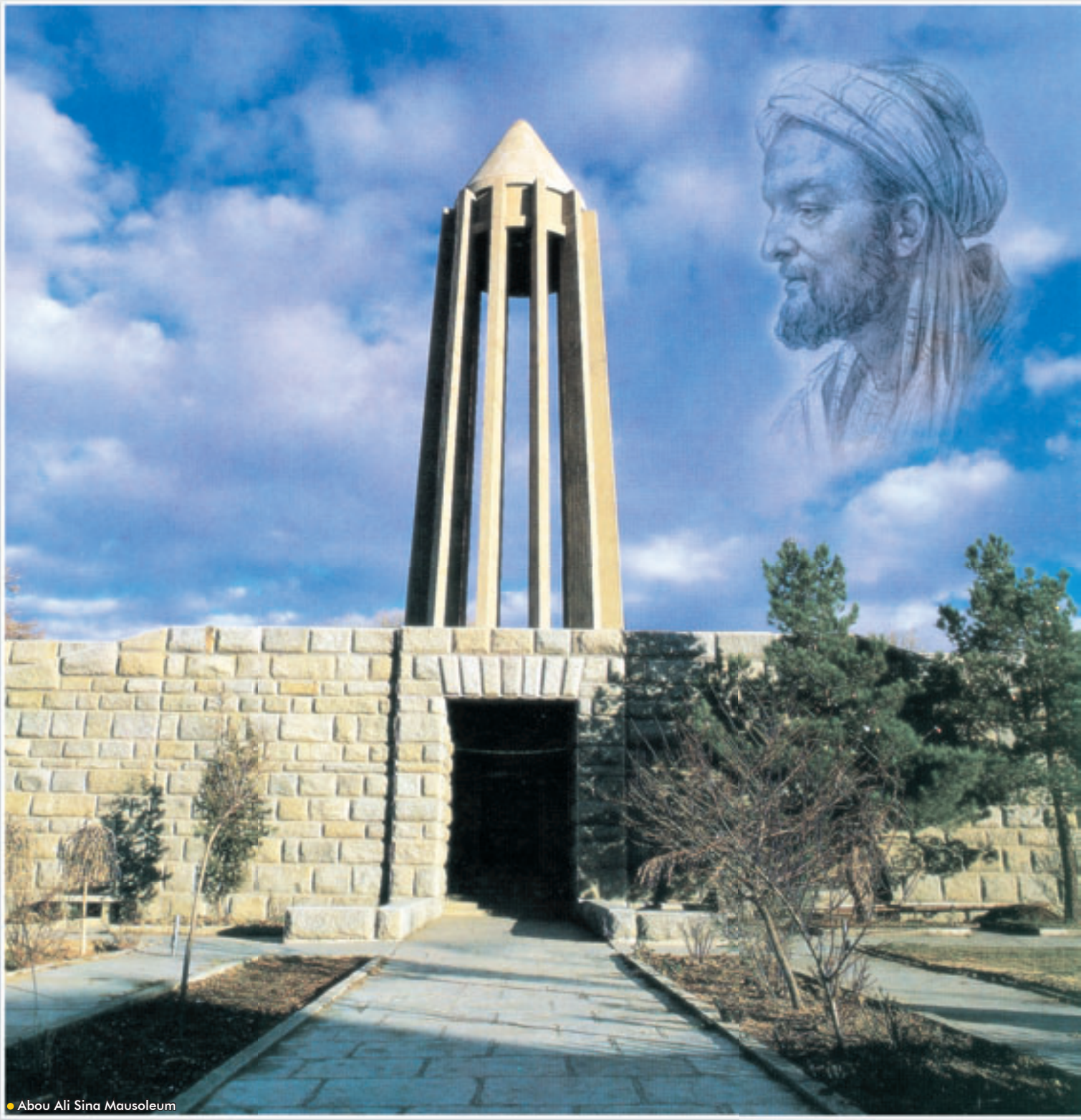
There is a library with a number of manuscripts in this building. In thr court yard of the building, there is the tomb of late Qajar period poet and song writer Abolghassem Aref.

The tomb of the writer of many romantic couplets, Baba Taher Orian, is in Hamadan. The building of the great mystic's tomb has been built in a beautiful park northwest of Hamadan in recent years.

The devotedly faithful people of Hamadan have always paid respectful attention to holy shrines. There are several mosques, mausoleums and shrines in Hamadan including Emamzadeh Farzand- I- Ali, Emamzadeh Esmaeil, Emamzadeh Abdullah, the Jami Mosque and Khaneghah.

Tomb of Baba Taher

Stony Lion



Abou Ali Sina Mausoleum

About IRAN
ISFAHAN

Isfahan probably is one of the few Iranian cities that stand almost close to a tourist's expectation of a Persian town. It is a monument of Safavid period with a large number of elements that are reminiscent of the glory and splendor of Islamic and Persian civilization. Situated on the slopes of mount Zagross in the center of Iranian plateau, Isfahan is a city taken shape on a fertile land which is irrigated by Zayandeh Roud (the life-giving river). Yet, the city has a rather industrial outlook now owing to the rising number of large and small industries in and around it. It is only a 400 km journey far from the capital, less than one hour of an air trip by numerous flights that leave Tehran and many other Iranian cities for Isfahan everyday. A trip by road may be a very good opportunity to find out even more about the colorful variety of environment in Iran.

The world famous Persian Art is still living in Isfahan where here are many practicing artists in different fields of the fine arts that are seen on textile, clay, ceramics, metals and tapestry. Watching a traditional artisan at his workshop can be one of the many enjoyable things one can do in an afternoon in Isfahan. on the other hand , a walk anywhere in the town is next to visiting a living museum. Highlights of that living museum can be visited at Maidan-e Naghsh-e Jahan where there is an abundance of examples of Safavid period Persian architecture, including the Sheik Lotfollah Mosque, the Imam Mosque, the Ali Qapu, and the main gate to the Bazaar. All this is located in the vicinity of the Chehel Sotun (forty pillars) palace.

Chehel Sotoon, September 2007

See-o-Se Pol

The Entrance Porch to the Imam Musque

About IRAN

SHIRAZ

The capital of Fars province is the world famous historical and beautiful city of Shiraz; the birth and resting place of the greatest of Persian poets, Hafiz and Sa'di. This makes the city one of the most important tourist attractions of the country. Shiraz is about 900 kilometers far from Tehran at an altitude of 1540 meters above sea level.

This city is located next to the ancient city of Estakhr. Shiraz was mainly flourished and developed in the post-Islamic period. the architectural texture of the city's older neighborhoods mark its age-old historical background. the city witnessed the peak of its prosperity at the time of Karim Khan Zand when it became the country's capital. the city's modern texture has found a new beautiful outlook with large streets, modern building and a grand university. Shiraz is the birth place of many great Iranian men of science and letters including Ibn Moghafa, Sibovaih, Sa di, Ghotbehddin Shirazi, Hafiz , Sheikh Rouzbehan, Molla Sadra and Gha'ani. the tombs of Hafiz and Sa'di located in two deservingly pleasant gardens by the names of Hafizieh and Sa'dieh are visited everyday by thousands of fans of Persian poetry and literature. the tomb of Khaju, the 14th century poet is also located in Shiraz at Tang-e-Allahu Akbar. the magnificent holy shrine of Hazrat Seyed Mir Ahmad, son of Imam Mussa (PBUH) - the seventh imam of the Shiie sect - better known as Shahi-e-Cheragh which is a major site of Shiite pilgrimage has lent a certain religious significance to Shiraz. There are also a number of other holy shrines in Shiraz including those of Hazrat Seyed Mir Mohammad-Shahi-e-Cheragh's brother, Hazrat Seyed Aladdin , Hazrat Shah Mir Ali Hamza and Emamzadeh Ibrahim. Meanwhile, Christian and Jewish minorities have their own churches and synagogues in Shiraz. Shiraz has been always famous for its pleasant gardens, tall cypress trees and heart ravishing rose gardens. the most well known gardens of Shiraz are Bagh-e-Eram with its enchanting building. Bagh-e-Khalili, Bagh-e-Farsi, Bagh-e-Delgosha and Bagh-e-Takht. All of these gardens are recreation resorts for both the people of Shiraz and the tourists that come to this city. They are all remarkable examples of the art of Persian gardening.

The city's status as a place where knowledge was disseminated; and its people's religious commitment have led to the building of major mosques and schools in Shiraz since a very long time ago. Among these buildings are the ancient Jami Mosque that dates back to the time of Amr-Leiss of Saffari dynasty, Masjid-e-Vakil and its forty column nocturnal prayers quarter, Masjid-e-Now (Martyr's Mosque), Masjid-e-Nassirulmolk and Masjid-e-Shiraz of the Qajar period, the spledid Khan School (Madrassa-e-Khan) of Safavid period, Madrassa-e-Vakil, Madrassa-e-Mansurieh, the Haft Tanan Mausoleum and the Chehel Tanan Mausoleum. There are many beautiful old public buildings in Shiraz. the Quran Gate (Darvazeh Ghor'an), Sara-ye-Moshir, Bazaar-e-Vakil. the Karim Khan Fortress (Arg) and the Narenjestan Building are just some of them. the highly significant Persepolis complex that dates back to the time of the Achaemenids, Naqsh-e- Rustam (including the tombs of Achaemenid kings, Sassanid epigraphs and reliefs, and the Zoroastrian Kaba monument in the vicinity of Shiraz; as well as Passargada, the site of Syru's tomb in Morghab plain, are among the important sights of Shiraz and Fars. There are regular bus services and everyday flights to Shiraz by domestic airlines. in this great tourist city, there are various types of hotels and other luxury hospitality establishments of various classes as well as plenty of recreation centers, restaurants, parks, movie houses, etc. at the disposal of tourists.

Naghsh e Rostam, September 2007

Takht e Jamshid, September 2007

Tomb of Hafez

Takht e Jamshid

About IRAN

Mashhad

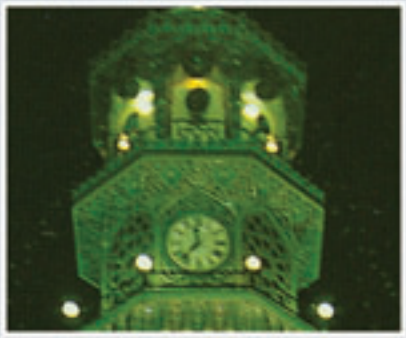
The holy city of Mashhad, with the shrine of Imam Reza (PBUH), the eighth Imam of Shiite sect as its focal point, is located in a distance of 850 kilometers from Tehran. Millions of people pay pilgrimage to the holy shrine, undoubtedly the largest and most magnificent of its kind, every year. the city and its suburbs have a population of more than two million. the city's climatic conditions are unstable with very cold winters, usually mild summers and pleasant springs and autumns.

The magnificent holy shrine of Imam Reza and the historical cultural complex attached to it including the arenas, porticos and porches, the Goharshad Mosque (of Timurid period) as well as its rich museum and library are the most significant sight to be seen by any visitor and pilgrim. There is magnificent golden dome over the shrine's building; surrounded by several porches. to the westof the shrine, there is the Grand Goharshad Mosque, the the southeast the museum and the tomb of Sheik Bahaee; and on the west there are Parizad and Balasar Schools. There are plenty of princeless objects and unique manuscripts at the shrine's library.

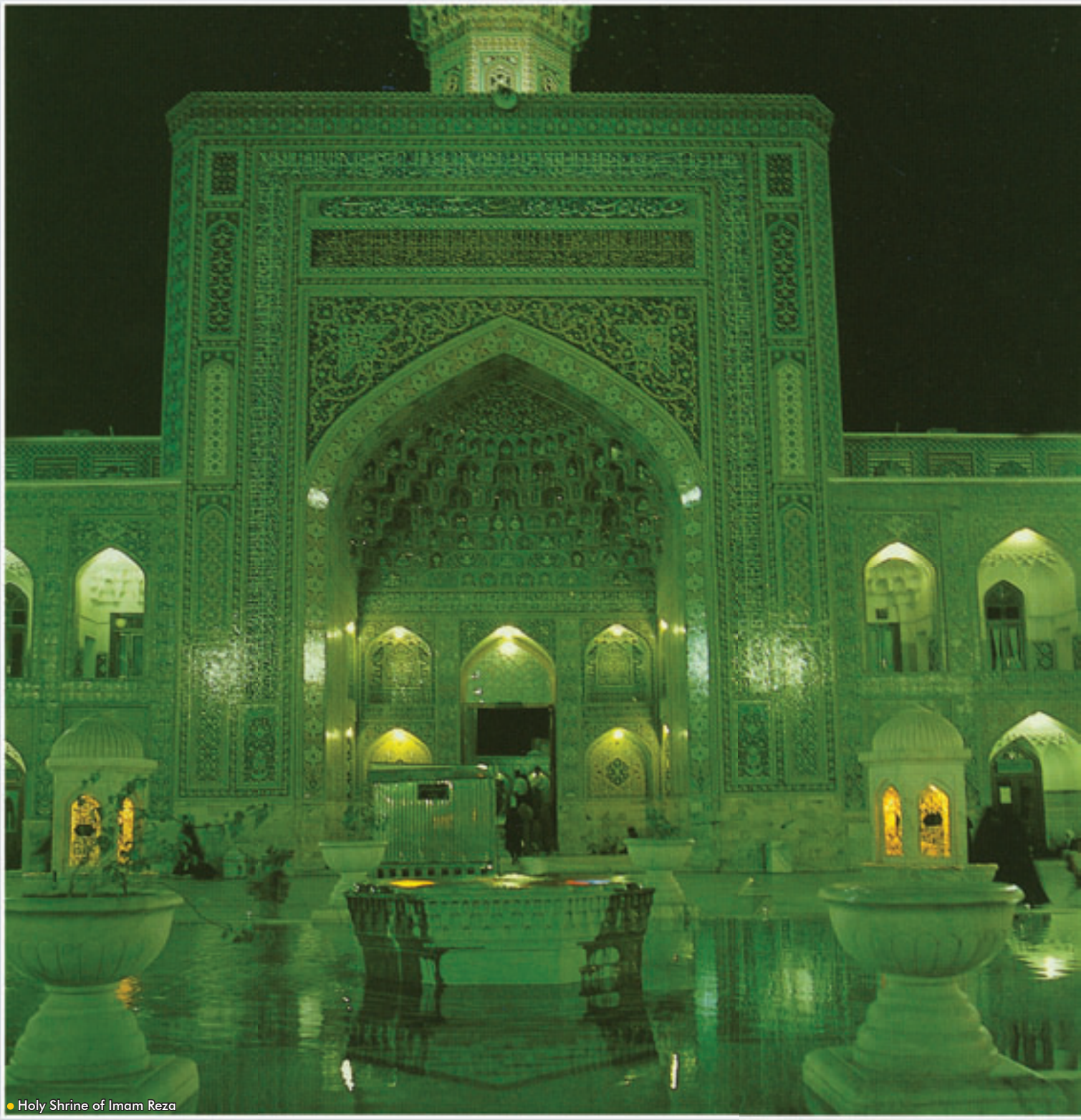
Other that a number of large beautiful parks, the other sights of Mashhad are: the tomb of Nader Shah, the national park, Kooh sangi pool and recreation center. There are also some other shrines and sights outside the city. These included the tomb of Khajeh Morad in a distance of 15 kilometers from Mashhad along the road to Tehran, the tomb of Khajeh Rabi located 6 kilometers north of the city where there are some inscriptions by renowned Safavie calligrapher Reza Abbasi, the tomb of Khajeh Abasalt in a distance of 20 kilometers from Mashhad alone the road to Neishabur. the three personalities were the disciples of Imam Reza. Among the other sights are the tomb of great poet Ferdowsi in Tus, 24 kilometers from Mashhad; and the recreation resorts at Torghabeh, Torogh, Akhlomod, Zoshk and Shandiz. Mashhad is a tourist city with several hotels of various classes as well as scores of hostels for the pilgrims who come to this city from the other parts of the country everyday by tens of flights, trains and buses.

Tomb of Khayyam

Tomb of Attar



Tomb of Kamal-ol molk



Holy Shrine of Imam Reza