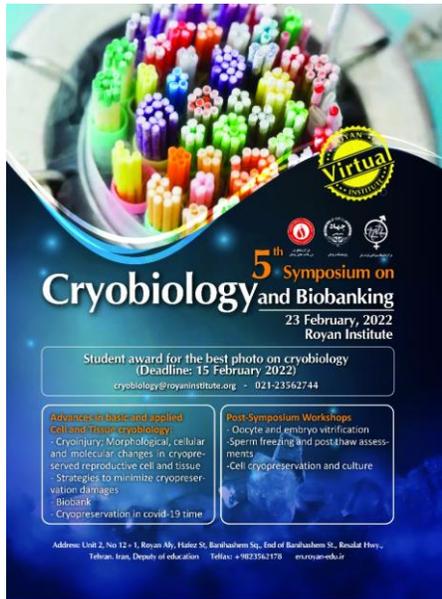


5th Royan Symposium on Cryobiology and Biobanking



The 5th Royan Symposium on Cryobiology and Biobanking was held here at Royan Research Institute (Tehran, Iran) on 23, February 2022, starting with generous and heartwarming message of **Professor Gregory M. Fahy, President of Society for Cryobiology.**



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Greetings to all Attendees of the
5th Royan Institute Symposium on
Cryobiology and Biobanking

From Gregory M. Fahy
Society for Cryobiology President

Dear Esteemed Colleagues:

Congratulations on the convening of this, your fifth annual exploration of the vital science of cryobiology and cryopreservation. There is no doubt that your gathering is recognized as a much appreciated and valued part of the international scientific enterprise in general and especially as a warmly welcomed contribution to the international progress of the science of cryobiology. Science knows no boundaries, and the good that you do in Iran will benefit not only the citizens of Iran but eventually also all of humanity.

The Society for Cryobiology is more than just the largest scientific organization for scientists who study low temperature biology, it is also a global society that welcomes all who share our interests in this unique and fascinating field. The Society sponsors student travel awards and facilitates participation in our annual scientific meetings by travel-disadvantaged established investigators as well so that we may all get to know each other on a personal level and extend our friendships across all borders. I have personally met many of your countrymen who have made major contributions to our field, and I have found them all to be not only talented scientists, but also kind individuals who I count as my friends.

We hope to build more bridges between countries and between international science and business communities in 2022 and beyond, and we will soon be facilitating the formation of more local groups such as yours so that the kind of success you have already achieved can be multiplied world-wide. Progress starts with small beginnings, and we embrace your promising example.

Looking at your present program, I can see that Iran remains on the cutting edge of our field, with contributions ranging from applied physics to molecular biology to fundamental principles and applied needs as well as advances to changing constraints such as those posed by the recent pandemic. But of course, this is just the start!

The Society for Cryobiology and I personally look forward to your continuing future success as you continue to address genuine human needs with the aid of cryobiological science. I hope to see many of you at future meetings of the Society! For now, enjoy your meeting, learn from one another, and know that you have friends from all around the world who wish you well.

With my sincere best wishes,

Gregory M. Fahy
Gregory M. Fahy, Ph.D.
Cryo Fellow and President
Society for Cryobiology

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Following the relief of COVID 19 pandemic and observing all health regulations and social distancing, this round of symposium was held as the virtual in which more than 160 participants followed the event on line.

This year symposium enjoyed highly notable lecturers from all around the world whose topics and speeches enriched the symposium far beyond what was expected leading to fruitful discussion sessions as the consequences.

The realms of topics and lectures represented through this one-day symposium were mainly concerned with:

- 1- Cryoinjury; cellular and molecular changes in cryopreserved reproductive cells and tissue
- 2- Strategies to minimize cryopreservation damages
- 3- Biobanks
- 4- Cryopreservation in covid-19 time

Some 12 lecturers joined the symposium virtually from remote distances and represented their speeches:

Welcome message of scientific chairperson:

Azam Dalman, PhD



Fatemeh Hassani, PhD:

Cryopreservation: An overview of principles and its clinical application

Professor Mohammad Hossein Nasr-Esfahani:

Evaluation of cryoinjury of spermatozoa after slow or rapid freeze–thawing techniques

Elham Movahed, PhD:

Impact of oocyte and embryo vitrification on epigenetic modification

Zahra Shams Mofarahe, PhD:

Morphological analysis of cryoinjury in human ovarian tissue following Vitrification or slow freezing

Farzaneh Baniasadi, PhD:

Static magnetic field and magnetic nanoparticle in oocyte cryopreservation

Mojgan Moshrefi, PhD:

Current and future perspectives for improving ovarian tissue cryopreservation

Professor Mansoureh Movahedin:

Storage of testicular tissue in pre-pubertal boys: challenges and limitations

Professor Seyed Abolhassan Shahzade Fazeli:

Biopreservation and biobanking

Morteza Zarrabi, MD, PhD:

Umbilical cord blood bank

AliReza Alizadeh, PhD:

Adipose tissue biobank: a glimpse of the future

Leila Rashki Ghaleno, PhD candidate:

Sperm biobank

Reza Omani Samani, MD, PhD:

Ethical considerations for the cryopreservation of gametes, embryos and reproductive tissues

Panel discussion: Cryopreservation in covid-19 time;

Dr Popak Eftekhari Yazdi, Dr Maryam Hafezi, Professor Mansoureh Movahedin, Dr Morteza Zarrabi

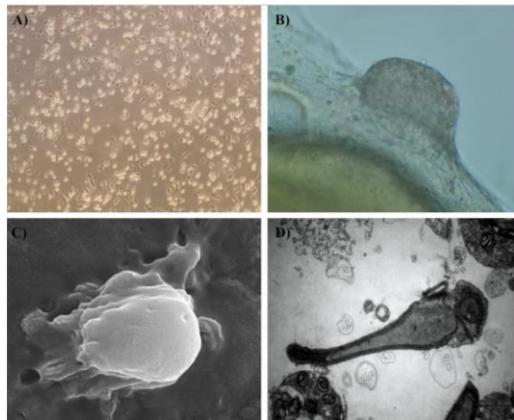
Along with the main event there was also held “**Student award for the best photo on cryobiology**” and post-symposium workshops on some more topics linked to the main nature of this year symposium which covered some fields of interest such as:

A) Oocyte and embryo vitrification

B) Sperm freezing and post-thaw assessments

C) Cell cryopreservation and culture

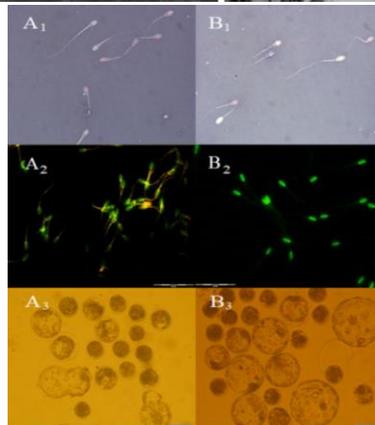
Selected Photos:



Dr. Zahra Bashiri

Postdoctoral student of Iran University of Medical Sciences.

A) Image of mouse spermatogonia stem cells (SSCs) before freezing. B) Colony formation after freezing on the 3D system. C) SEM image of SSC after freezing. D) TEM image of mature sperm on the 3D system after 3 weeks.



Nima Tanhaei Vash

Department of Reproductive Biotechnology, Reproductive Biomedicine Research Center, Royan Institute for Biotechnology, ACECR, Isfahan, Iran

Evaluation of the antioxidant effects of myoinositol and melatonin against oxidative stress induced by cryopreservation in Sanan goat sperm. A: control group, B: Use of myoinositol and melatonin in the cryopreservation medium. 1. Eosin-Nigrosin staining (viability test), 2. Acridine orange staining (DNA fragmentation test), 3. In vitro fertilization embryos. Combination of myoinositol and melatonin as antioxidants in the cryopreservation medium of sperm reduces the damaging effects of cryopreservation.

Beside of the main event, there was another amusing scientific program held for “**School Students**” in Persian and in a simple language. Over 1200 students participated in this event virtually and got familiar with the terminology and application of “Cryobiology”.

Four lecturers explained different dimensions of **Cryobiology** to participants:

Rouhollah Fathi, PhD:

What is the Cryobiology and its history

Pooneh Ghaznavi, DVM:

Using of Cryoprotectants by cold-blooded animals

Nahid Nasiri, PhD:

Application of cryopreservation in Biology

Naeimeh Sadat Abtahi, PhD candidate:

How to preserve the body cells and tissues



The executive and scientific board of the 5th Royan Symposium on Cryobiology and Biobanking wishes to extend their eternal gratitude to **Prof. Gregory M. Fahy** and his colleagues at Society for Cryobiology, **Ms. Nicole Evans** and **Ms. Amelia Hanson** in particular, whose constructive supports played a key role in launching this year symposium and also to Royan Research Institute management and scientific board members whose presence led to such a great and successful event.

We do also hope to see more scientific research collaboration and cooperation among all scientists, researchers and students involved in the fields of Cryobiology and Biobanking globally in the years to come, wishing days full of prosperity and health for all.