THE 5TH WANA INTERNATIONAL CONGRESS

PRE-CONGRESS WORKSHOP PROGRAM

Scientific proposals | Faculty | Timetables | Resource planning

15 PROPOSED WORKSHOPS

01 Cell & Regenerative Medicine

From fundamental cell science to translational applications

02 Reproductive Medicine & Embryology

Laboratory practice, advanced imaging and reproductive procedures

03 Biobanking & Cryopreservation

Reproductive and cord blood biobanking workflows

04 Ocular Cell & Tissue Science

Experimental models and tissue-culture practice

WORKING PROGRAM • Compiled and redesigned from the supplied proposals. Unconfirmed fields and scheduling inconsistencies require organizer review.

PROGRAM DIRECTORY

Workshops at a glance

Track-based index of all proposed workshop profiles. Format, duration and faculty reflect the supplied source; detailed workshop entries take precedence where the overview differs.

01 CELL & REGENERATIVE MEDICINE

01	**Mesenchymal Stem Cells in Practice: Isolation, Expansion, and Characterization**	16 hours (two days)
02	**Extracellular Vesicles: From Isolation and Characterization to Clinical Applications**	6 hours
03	**PRP and Stem Cell Therapy in Knee**	16 Hours (2 Days)
04	**Cancer Immune Cell Therapy: From Bench to Bedside**	6 hours

02 REPRODUCTIVE MEDICINE & EMBRYOLOGY

05	**In Vitro Maturation (IVM) and In Vitro Fertilization (IVF) in Mouse Model**	2 Days (14-16 hours total, approx. 7–8 hours per day)
06	**Quality Control in Embryology Lab**	To be confirmed
07	**Hysterosalpingography**	2 hours
08	**3D ultrasonography of Infertile Women**	2 hours
09	**Hysterosonography of Infertile Women**	2 hours
10	**Advanced Transvaginal Ultrasound Course**	2 hours
11	**Hysteroscopy**	1 Day (8 Hours)

03 BIOBANKING & CRYOPRESERVATION

12	**Biobanking: Cryopreservation of Oocytes and Embryos: Vitrification Protocols and Biobanking**	2 Days (14-16 hours total, approx. 7–8 hours per day)
13	**Cord Blood Processing: Isolation and Quality Assessment of Mononuclear Cells**	4 hours
14	**Cord Blood Cell Cryopreservation and Biobanking**	4 hours

04 OCULAR CELL & TISSUE SCIENCE

15	**Ocular Cell and Tissue Culturing Workshop**	3 days (18 hours): 8 hours of theory and 10 hours of hands-on practice

TRACK 01 / CELL & REGENERATIVE MEDICINE

01 / 15 WORKSHOP PROFILE

Mesenchymal Stem Cells in Practice: Isolation, Expansion, and Characterization

DURATION
16 hours (two days)

FORMAT
Hybrid

INSTRUCTORS
Dr. Samaneh Hosseini (Principal Investigator); Samaneh Adhami (Lab Technician)

Workshop overview

Mesenchymal stem cells (MSCs) are multipotent stromal cells valued for their self-renewal capacity, trilineage differentiation potential (osteogenic, chondrogenic, and adipogenic), and immunomodulatory properties. Their accessibility from multiple tissue sources, combined with relatively straightforward isolation protocols, has made them one of the most widely studied cell types in regenerative medicine and translational research. This workshop, "Mesenchymal Stem Cells in Practice: Isolation, Expansion, and Characterization," offers participants hands-on training in isolating MSCs from three distinct sources: adipose tissue, bone marrow, and dental tissue (tooth-derived MSCs). Each source presents unique isolation challenges and yields cells with subtly different properties, making comparative exposure valuable for researchers choosing the right MSC source for their applications. Participants will learn standardized protocols for tissue processing and cell isolation, techniques for in vitro expansion while maintaining stemness, and characterization methods following the International Society for Cell and Gene Therapy (ISCT) minimal criteria — including plastic adherence, surface marker expression (CD73, CD90, CD105 positive; CD34, CD45, CD14/CD11b, CD79α/CD19, HLA-DR negative), and trilineage differentiation assays. By the end of the workshop, attendees will be equipped to independently isolate, expand, and validate MSCs from these three tissue sources for use in their own research or translational projects.

Scientific agenda & practical sessions

Day 1 — Isolation of MSCs from Adipose, Bone Marrow, and Dental Tissue

08:30 – 09:00 30 min Registration & Welcome

09:00 – 09:30 30 min Opening Lecture: Introduction to MSCs — biology, sources, and clinical relevance

09:30 – 10:30 60 min Hands-on Session 1: Adipose-Derived MSC Isolation

10:30 – 11:00 30 min Coffee Break

11:00 – 13:30 90 min Hands-on Session 2: Bone Marrow-Derived MSC Isolation

13:30 – 14:30 60 min Lunch Break

14:30 – 15:30 15 min Hands-on Session 3: Dental Tissue-Derived MSC Isolation

15:30 – 16:15 45 min Culture Initiation, Plating, and Incubation Setup for All Three Sources

16:15 – 17:00 45 min Day 1 Wrap-up & Q&A — Troubleshooting Common

- Isolation Issues

Day 2 — Expansion and Characterization of MSCs

09:00 – 09:30 30 min Recap of Day 1 & Morning Culture Check

09:30 – 10:00 30 min Lecture: MSC Expansion and characterization

10:00 – 11:00 60 min Hands-on Session 4: Passaging, and Cryopreservation

11:00 – 11:30 15 min Coffee Break

11:30 – 13:00 90 min Hands-on Session 6: Histochemical Staining & Confirmation

13:00 – 14:00 60 min Lunch Break

- Time Duration Session

14:00 – 15:00 60 min Lecture: ISCT Minimal Criteria, Functional Assays, and Data

- Interpretation

15:30 – 16:30 60 min Group Discussion: Comparing MSC Yield, Phenotype, and

- Differentiation across the Three Sources

16:30 – 17:00 30 min Closing Remarks, Certificates, and Feedback

Required facilities & equipment

• Biosafety cabinet (Class II) — minimum 2 units for parallel hands-on work	• Multi-well culture plates (6-well, 24-well)
• Cell culture room with CO_2 incubators (37°C, 5% CO_2)	• Culture media (e.g., DMEM)
• Centrifuge(s) suitable for 15/50 mL tubes	• FBS
• Inverted light microscope (phase contrast)	• Penicillin-Streptomycin
• Water bath (37°C)	• PBS
• Autoclave and general sterilization equipment	• Trypsin-EDTA
• -20°C and -80°C freezers (for reagent/sample storage)	• Pipettes, pipette tips, serological pipettes
• Liquid nitrogen storage	• Culture flasks (T25/T75)
• Tissue dissection tools (scalpels, scissors, Bone cutter, Scalpel Blade, Scalpel Handle) —	• Methanol
• sterile sets per group	• Syringe (2ml)
• Collagenase type I	• Alcohol
• Dispase	• Gloves
• Cell strainers (70 µm, 100 µm)	• Rat
• Hemocytometer	• Cryo-vial
• Staining reagents: Alizarin Red S, and Oil Red O	

Faculty

- Dr. Samaneh Hosseini (Principal Investigator)
- Samaneh Adhami (Lab Technician)

Dr. Samaneh Hosseini is an assistant professor in the Department of Cell Engineering at the Royan Institute in Tehran, Iran. Her research focuses on Tissue Engineering and regenerative medicine, with a specialization in mesenchymal stem cells, mimetic peptides, extracellular vesicles and cell-based strategies for bone and cartilage regeneration. She has conducted numerous research projects spanning basic science and preclinical studies within the fields of tissue engineering and regenerative medicine and has supervised a broad spectrum of graduate students. She serves as a reviewer for several international journals, including Stem Cell Research and Therapy, International Journal of Biological Macromolecules, Journal of Cellular Physiology, Acta Biomaterialia, Colloids and Surfaces B: Biointerfaces, and Bioactive materials. With over 14 years of teaching experience in tissue engineering and nanobiotechnology, she has published more than 40 peer-reviewed research articles and contributed as an author or co-author to 16 book chapters. Her publication on "3D Printing in Dentistry" was selected as a Springer Nature highlight in 2020. Notably, she is one of the editors of the book "Cartilage: From Biology to Biofabrication" published in 2023.

Samaneh Adhami holds an MSc degree and currently serves as a laboratory specialist at Royan Institute. Her scientific and research activities primarily focus on mesenchymal stem cells, tissue engineering and regenerative medicine, chondrogenesis and osteogenesis. She has contributed to laboratory-based studies and research projects involving the culture and differentiation of mesenchymal stem cells, and in vitro investigations. She has also contributed to the organization and implementation of workshops and training programs in stem cell research and tissue engineering.

Intended participants

- Relevant Fields/Backgrounds:
- Biomedical Sciences / Biotechnology
- Cell and Molecular Biology
- Regenerative Medicine / Tissue Engineering
- Stem Cell Research
- Dentistry / Oral Biology (especially for dental pulp MSCs)
- Orthopedics (for bone marrow/cartilage applications)
- Veterinary Medicine (if comparative/animal models are relevant)
- Target Level:
- Graduate students (MSc/PhD) in life sciences or biomedical research
- Early-career researchers and postdoctoral fellows new to MSC work
- Research technicians/lab personnel performing or supporting cell culture work

Participation capacity

- Minimum: 8 participants
- Maximum: 15 participants (ensures adequate access to isolation benches, biosafety cabinets, and microscopes during hands-on sessions)

TRACK 01 / CELL & REGENERATIVE MEDICINE

02 / 15 WORKSHOP PROFILE

Extracellular Vesicles: From Isolation and Characterization to Clinical Applications

DURATION	FORMAT	INSTRUCTORS
6 hours	hybrid	Dr. Masood Vosough; 1 Lab Technician

Workshop overview

Extracellular vesicles (EVs) have emerged as important mediators of intercellular communication and promising tools for disease diagnosis, prognosis, and therapeutic development. As EV research continues to expand and more investigators enter the field, there is a growing need for specialized training in this rapidly evolving area. A thorough understanding of the principles, advantages, and limitations of different EV isolation and characterization strategies, together with current international guidelines, is essential for generating reproducible and scientifically meaningful results.

This workshop, “Extracellular Vesicles: From Isolation and Characterization to Medical Applications,” will provide participants with an integrated overview of EV biology, including their biogenesis, composition, and function, as well as the key steps in EV research, from sample collection and pre-processing to EV isolation and characterization. Particular emphasis will be placed on current ISEV/MISEV recommendations and key methodological considerations, followed by an overview of the current status of EVs as diagnostic biomarkers and therapeutic tools, future perspectives, and the major challenges that need to be addressed for their clinical translation.

Scientific agenda & practical sessions

Title	Time	Type
Introduction to EVs: Biogenesis, Sources, Molecular Composition, Nomenclature, and ISEV/MISEV	45 min	Lecture
Collection and Pre-processing of EV-Containing Sources: Key Pre-analytical Considerations	30 min	Lecture
Different Methods for EV Isolation: Principles, Advantages, Limitations, and ISEV Recommendations	45 min	Lecture
EV Characterization: Physical, Morphological and Molecular Approaches with ISEV Recommendations	45 min	Lecture
EVs as the Next Generation of Disease Biomarkers: Current Status and Future Perspectives	30 min	Lecture
EVs as Therapeutic Agents and Drug Delivery Carriers: Key Challenges and Translational Barriers	45 min	Lecture
EV Isolation and Characterization (quantification)	60 min	Hands-on

Title	Time	Type
Fluorescent Labelling of EVs and Drug Loading into EVs	60 min	Hands-on

Required facilities & equipment

• High-speed or ultracentrifuge, Amicon Ultra-2 Centrifugal Filter 100 kDa MWCO, Precipitation-based EV isolation kit, BCA assay kit, Calcein AM, PBS, Incubator, Sonicator, Methanol, Ethanol, Gloves, Micropipettes and corresponding tips: 10, 100, and 1000 µL; Falcon 15 and 50 mL, vials 0.5, 1.5, and 2 mL, (cell culture materials for EV uptake assay)

Faculty

• Dr. Masood Vosough

• 1 Lab Technician

Faculty biographies not supplied.

Intended participants

• Master's and PhD students, postdoctoral researchers, clinicians, and other researchers interested in EVs and their diagnostic and therapeutic applications.

Participation capacity

Minimum / maximum capacity to be confirmed.

TRACK 01 / CELL & REGENERATIVE MEDICINE

03 / 15 WORKSHOP PROFILE

PRP and Stem Cell Therapy in Knee

DURATION	FORMAT	INSTRUCTORS
16 Hours (2 Days)	Hybrid (Lectures + Hands-on Practical Training)	Dr. Moteza Zarrabi; Dr. Mohsen Emaddodin

Workshop overview

Musculoskeletal disorders are among the leading causes of disability worldwide. Recent advances in regenerative medicine have introduced innovative approaches for repairing and regenerating bone, cartilage, tendon, ligament, and muscle tissues. This workshop provides participants with both theoretical knowledge and practical experience in stem cell-based therapies, orthobiologics, tissue engineering, and translational applications in orthopedic medicine. Participants will gain insights into current clinical practices, laboratory techniques, and future developments in musculoskeletal regeneration.

Scientific agenda & practical sessions

Day 1

09:00–10:30 Introduction to Musculoskeletal Regeneration

10:45–12:15 Biology of Bone, Cartilage, Tendon, and Ligament Repair

13:30–15:00 Regenerative Medicine Approaches in Orthopedics

15:15–17:00 Case Discussions and Clinical Applications

Day 2

09:00–10:30 Stem Cell Isolation and Characterization Techniques

10:45–12:15 Platelet-Rich Plasma (PRP) Preparation and Applications

13:30–15:30 Hands-on Laboratory Session

15:45–17:00 Translational Research, Clinical Trials, and Future Perspectives

- Fundamentals of Musculoskeletal Tissue Regeneration (1.5 h)
- Bone and Cartilage Biology (1.5 h)
- Stem Cell-Based Therapies in Orthopedics (1.5 h)
- Biomaterials and Tissue Engineering Scaffolds (1 h)
- PRP and Orthobiologics Applications (1 h)
- Clinical Case Studies and Treatment Planning (1.5 h)
- Stem Cell Processing and Characterization (2 h)
- PRP Preparation Techniques (1.5 h)
- Hands-on Laboratory Training (2 h)
- Emerging Technologies and Clinical Translation (1.5 h)

Required facilities & equipment

- Cell culture laboratory
- Biosafety cabinet (Class II)
- CO_2 incubator
- Centrifuge
- Flow cytometry facility (if available)
- PRP preparation kits
- Tissue engineering and biomaterials demonstration materials
- Projector and audiovisual equipment

- Microscopes
- Laboratory consumables and personal protective equipment (PPE)

Faculty

- Dr. Moteza Zarrabi
- Dr. Mohsen Emaddodin

The instructors are experienced researchers and clinicians in regenerative medicine, orthopedics, stem cell biology, tissue engineering, and translational medicine. They have extensive academic and clinical expertise in musculoskeletal disorders, stem cell therapies, biomaterials development, and orthopedic regenerative applications, with numerous peer-reviewed publications and international teaching experience.

Intended participants

- Fields:
- Orthopedics
- Sports Medicine
- Physical Medicine and Rehabilitation
- Regenerative Medicine
- Stem Cell Biology
- Tissue Engineering
- Biomedical Sciences
- Physiotherapy
- Level:
- Senior undergraduate students
- MSc and PhD students
- Medical residents
- Fellows
- Clinicians and researchers

Participation capacity

- Minimum: 15 participants/ Maximum: 30 participants (for effective hands-on training)

TRACK 01 / CELL & REGENERATIVE MEDICINE

04 / 15 WORKSHOP PROFILE

Cancer Immune Cell Therapy: From Bench to Bedside

DURATION	FORMAT	INSTRUCTORS
6 hours	Hybrid: Lecture + Case-Based Discussion + Interactive Sessions	Dr. Marzieh Ebrahimi

Workshop overview

Cancer immune cell therapy is one of the rapidly evolving areas of modern cancer treatment, combining principles of tumor immunology, cell biology, genetic engineering, bioprocessing and clinical medicine. This workshop provides participants with an integrated overview of immune effector cells used in cancer therapy and the major platforms of adoptive cell therapy, including CAR-T, NK-cell and CAR-NK cells therapies. The workshop follows the complete translational pathway from immune-cell biology and therapeutic target selection to cell isolation, activation and expansion, engineering, quality control, clinical application and regulatory considerations. Through case-based discussions and interactive exercises, participants will learn how a research concept can be developed into a clinically relevant cell therapy product.

Scientific agenda & practical sessions

Time	Topic
09:00–10:00	Introduction to Immune Cell Therapy and Adoptive Cell Therapy Platforms
10:00–10:30	Q&A
10:30-11:00	Break
11:00–12:00	NK cell therapy for solid tumors
12:00-12:45	NK cell therapy for high grade glioma; from patient selection to intrathecal injection
12:45–13:00	Q&A
13:00–14:00	Lunch Break
14:00–14:30	NK cell therapy for neuroblastoma; from patient selection to systemic infusion
14:30-15:00	NK cell therapy for hematological malignancy
15:00-15:30	CAR-T cell therapy in AML
15:30–16:00	Case-Based Workshop (Designing a Cancer Immune Cell Therapy Product: Cell source, manufacturing strategy, route of administration, product characterization, and quality control)
16:00–16:30	Summary, Key Take home message and Q&A

Required facilities & equipment

- Projector/display and sound system
- Whiteboard
- Internet access
- Presentation computer

Faculty

- Dr. Marzieh Ebrahimi

Professor Marzieh Ebrahimi is a Professor of Medical Immunology and an accomplished researcher and scientific leader in stem cell biology, cancer biology, regenerative medicine, and cancer immunotherapy. She received her B.Sc. in Cellular and Molecular Biology from the University of Tehran and her M.Sc. and Ph.D. in Immunology from Tarbiat Modares University. She has built her academic career at the Royan Institute for Stem Cell Biology and Technology, where she has contributed to and led research programs in stem cell and cancer biology, with particular emphasis on hematopoietic and cancer stem cells and cellular therapy, especially immune cell therapy in cancer. Her scientific contributions have resulted in more than 100 international publications, as well as books and book chapters, spanning fundamental research and translational approaches to cancer treatment. Professor Ebrahimi has also been actively involved in translating scientific discoveries into clinical and biotechnology applications. She contributed to the development of cord blood stem cell banking and biological products derived from umbilical cord blood and tissues and has held scientific and research leadership roles at the Royan Institute. As an entrepreneur and innovator, she is the Founder and CEO of Kian Immune Cell, a knowledge-based biotechnology company focused on developing innovative immune cell-based therapies for cancer, particularly NK cell-based technologies. She has served as a study director and sponsor of clinical research investigating NK cell therapy for brain tumors and gliomas, reflecting her commitment to advancing cellular immunotherapy from the laboratory to clinical practice. In 2024, her project, “Immune Cell Bank for the Treatment of Cancer and Autoimmune Diseases,” received the Health and Medicine Award at the BRICS Women’s Startups Contest, recognizing its innovative potential in cellular medicine. Through her academic, clinical, and entrepreneurial activities, Professor Ebrahimi continues to bridge fundamental science, biotechnology, and clinical medicine. Her work is guided by a commitment to transforming advances in stem cell and immune cell research into innovative and clinically meaningful therapies for cancer and other challenging diseases.

Intended participants

- Medical doctors and oncologists
- Hematologists
- Immunologists
- Cell and molecular biologists
- Biotechnology and pharmaceutical researchers
- Stem-cell and regenerative medicine researchers
- Biomedical scientists
- Clinical laboratory scientists
- Graduate students (MSc/PhD)
- Residents and fellows interested in oncology and cellular therapy

Participation capacity

- Minimum: 15 participants/ Maximum: 20 participants

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

05 / 15 WORKSHOP PROFILE

In Vitro Maturation (IVM) and In Vitro Fertilization (IVF) in Mouse Model

DURATION	FORMAT	INSTRUCTORS
2 Days (14-16 hours total, approx. 7–8 hours per day)	Hybrid (Theoretical Lectures & Intensive Hands-on Laboratory Practice)	Dr. Azam Dalman; Aliyeh Bakhshalizadehtarki

Workshop overview

The objective of this comprehensive two-day workshop is to impart practical expertise in the manipulation of mouse gametes and preimplantation embryos. Participants will acquire foundational knowledge in folliculogenesis, spermatogenesis, and early development, paired with extensive bench practice covering in vitro maturation (IVM), epididymal sperm capacitation, and in vitro fertilization (IVF). This course is specifically tailored to equip researchers with standard manipulation and IVM/IVF skills required for advanced reproductive biology.

Scientific agenda & practical sessions

Day 1: Micro-tools, Gametogenesis & IVM Setup (7.5 Hours)

08:30 – 10:00 (Theory): Folliculogenesis, mechanisms of oocyte meiotic arrest and resumption, and principles of In Vitro Maturation (IVM).

10:00 – 11:30 (Hands-on): Preparation of micro-pipettes (glass capillary pulling over a flame), and dish preparation (micro-drop culture under mineral oil).

11:30 – 13:00 (Hands-on): Surgical dissection of female mice and mechanical retrieval of Cumulus-Oocyte Complexes (COCs).

13:00 – 14:00 : Lunch break.

14:00 – 16:00 (Hands-on): Processing COCs, assessing maturation, and setting up IVM culture plates.

Day 2: Sperm Retrieval, Capacitation & In Vitro Fertilization (7 Hours)

08:30 – 09:30 (Theory): Spermatogenesis, sperm capacitation, and the kinetics of fertilization.

09:30 – 11:30 (Hands-on): Surgical dissection of male mice, epididymal sperm collection, capacitation, and preparation of insemination droplets.

11:30 – 13:00 (Hands-on): Denudation of mature oocytes (assessing polar body extrusion) / COC preparation and insemination (IVF setup).

13:00 – 14:00 : Lunch break.

14:00 – 15:30 (Hands-on & Theory): Washing fertilized oocytes, assessment of 2-pronuclear (2PN) formation, and culture to the 2-cell stage.

Required facilities & equipment

- Stereo dissecting microscopes (with heating stage)
- Inverted microscopes
- Standard CO2 incubators
- Pipettes (10, 100, and 1000 µL) with autoclaved tips
- Pastor pipettes, aspirator tubes, mouth-pipette assemblies, insulin syringes, test tubes, Petri dishes (3.5 and 6.5 cm), latex gloves, surgical gauze, conical tubes (15 mL), 70% alcohol
- Culture media: IVM media (α-MEM nucleoside or equivalent culture media, FBS, FSH, hCG), IVF media (Ham-F10 or equivalent culture media, BSA) and mineral oil

- Laminar flow hoods (Class II)
- NMRI mouse models (male and female donors)
- Surgical dissection instruments (fine forceps, micro-dissecting scissors, dressing tray)

Faculty

- Dr. Azam Dalman
- Aliyeh Bakhshalizadehtarki

Dr. Azam Dalman is a Reproductive Biologist at the Royan Institute in Tehran, Iran. Her research focuses on micromanipulation techniques in oocytes, the isolation and activation of human ovarian follicles, and the study of ovarian stem cells. She is also specialized in the in vitro generation of germ cell-like cells derived from human ovarian somatic stem cells. Dr. Dalman has authored over 50 peer-reviewed publications and has contributed to three book chapters covering topics such as in vitro mouse embryo culture, the development and histophysiology of the female reproductive system, and advanced tissue and cell culture techniques.

Aliyeh Bakhshalizadehtarki, who holds a master's degree in Developmental Biology, is a reproductive biomedicine researcher and laboratory assistant at the Royan Institute in Tehran, Iran. She specializes in mouse modeling and handling, as well as mouse oocyte in vitro maturation (IVM) and in vitro fertilization (IVF).

Intended participants

- Target Fields: Reproductive Biology, Embryology, Developmental Biology, Animal Biotechnology, Veterinary Medicine, Genetics, and Animal Sciences.
- Academic Level: M.Sc. students, Ph.D. candidates, postdocs, research assistants, and embryology laboratory technicians.

Participation capacity

- Maximum attendees: 10 participants (to guarantee individual hands-on microscope workstations)
- Minimum attendees: 4–5 participants

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

06 / 15 WORKSHOP PROFILE

Quality Control in Embryology Lab

DURATION	FORMAT	INSTRUCTORS
To be confirmed	To be confirmed	Dr Fatemeh Hassani

Scientific agenda & practical sessions

Scientific agenda to be provided.

Required facilities & equipment

To be specified.

Faculty

- Dr Fatemeh Hassani

Faculty biographies not supplied.

Intended participants

Not specified in source.

Participation capacity

Minimum / maximum capacity to be confirmed.

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

07 / 15 WORKSHOP PROFILE

Hysterosalpingography

DURATION
2 hours

FORMAT
Lecture + Case Review

INSTRUCTORS
Dr. Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor; Maryam Javam (Midwife): Executive Secretary

Workshop overview

Royan Institute is the first center founded for the modern diagnosis and treatment of infertility in Iran and possesses an extensive archive comprising thousands of hysterosalpingography images from infertile women. The organizers of this workshop aim to share the expertise and experience of specialists from the Royan Institute's specialized imaging center with radiologists, gynecologists, and infertility fellows. They intend to achieve this by utilizing a valuable collection of HSG images, categorized based on data gathered from over 1,100 infertile women throughout years of research and clinical practice in reproductive and infertility imaging. Moreover, they offer a package of English books including "Textbook and atlas of hysterosalpingography, "Textbook and atlas of hysterosonography" and "3D Ultrasound of the uterus," published by Royan Institute.

Scientific agenda & practical sessions

- Normal appearance of the uterus and fallopian tubes on hysterosalpingography: 30 min
- Abnormal Uterine & Cervical Appearances in HSG of Infertile Women: 30 min
- Abnormal findings of Fallopian tubes & pelvis in HSG of Infertile Women: 30 min
- Case presentation and review of a valuable hysterosalpingography archive comprising findings from over 1000 infertile women: 30 min

Required facilities & equipment

- Computer + projector

Faculty

- Dr. Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor
- Maryam Javam (Midwife): Executive Secretary

Faculty biographies not supplied.

Intended participants

- Radiologists, Gynecologists, and infertility Residents and fellows

Participation capacity

- 5 to 30 persons

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

08 / 15 WORKSHOP PROFILE

3D ultrasonography of Infertile Women

DURATION
2 hours

FORMAT
Lecture + Case Review + hands-on

INSTRUCTORS
Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor; Maryam Javam (Midwife): Executive Secretary

Workshop overview

Royan Institute is the first center founded for the modern diagnosis and treatment of infertility in Iran and possesses an extensive archive comprising thousands of hysterosalpingography images from infertile women. The organizers of this workshop aim to share the expertise and experience of specialists from the Royan Institute's specialized imaging center with radiologists, gynecologists, and infertility fellows. They intend to achieve this by utilizing a valuable collection of 3D ultrasonography images, categorized based on data gathered from over 500 infertile women throughout years of research and clinical practice in reproductive and infertility imaging. Moreover, they offer a package of English books including "Textbook and atlas of hysterosalpingography, "Text-book and atlas of hysterosonography," and "3D Ultrasound of the uterus" published by Royan Institute.

Scientific agenda & practical sessions

- Normal appearance of the uterus and fallopian tubes on 3D ultrasonography: 30 min
- Abnormal Uterine & Cervical Appearances of Infertile Women in 3D ultrasonography: 30 min
- Abnormal findings of Fallopian tubes & pelvis of Infertile Women in 3D ultrasonography: 30 min
- Case presentation and review of a valuable 3D ultrasonography archive: 30 min

Required facilities & equipment

- Computer + projector + 3D Ultrasound machine and vaginal probe

Faculty

- Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor
- Maryam Javam (Midwife): Executive Secretary

Faculty biographies not supplied.

Intended participants

- Radiologists, Gynecologists, and infertility Residents and fellows

Participation capacity

- 5 to 30 persons

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

09 / 15 WORKSHOP PROFILE

Hysterosonography of Infertile Women

DURATION
2 hours

FORMAT
Lecture + Case Review (hands-on)

INSTRUCTORS
Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor; Maryam Javam (Midwife): Executive Secretary

Workshop overview

Royan Institute is the first center founded for the modern diagnosis and treatment of infertility in Iran and possesses an extensive archive comprising thousands of hysterosonography images from infertile women. The organizers of this workshop aim to share the expertise and experience of specialists from the Royan Institute's specialized imaging center with radiologists, gynecologists, and infertility fellows. They intend to achieve this by utilizing a valuable collection of SHG images, categorized based on data gathered from over 700 infertile women throughout years of research and clinical practice in reproductive and infertility imaging. Moreover, they offer a package of English books including "Textbook and atlas of hysterosalpingography, "Textbook and atlas of hysterosonography," and "3D Ultrasound of the uterus" published by Royan Institute.

Scientific agenda & practical sessions

- Normal appearance of the uterus on hysterosonography: 30 min
- Abnormal Uterine & Cervical Appearances in hysterosonography of Infertile Women: 60 min
- Case presentation and review of a valuable hysterosonography archive: 30 min

Required facilities & equipment

- Computer + projector

Faculty

- Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor
- Maryam Javam (Midwife): Executive Secretary

Faculty biographies not supplied.

Intended participants

- Radiologists, Gynecologists, and infertility Residents and fellows

Participation capacity

- 5 to 30 persons

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

10 / 15 WORKSHOP PROFILE

Advanced Transvaginal Ultrasound Course

DURATION
2 hours

FORMAT
Lecture + Case Review (hands-on)

INSTRUCTORS
Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor; Maryam Javam (Midwife): Executive Secretary

Workshop overview

Royan Institute is the first center founded for the modern diagnosis and treatment of infertility in Iran and possesses an extensive archive comprising thousands of hysterosonography images from infertile women. The organizers of this workshop aim to share the expertise and experience of specialists from the Royan Institute's specialized imaging center with radiologists, gynecologists, and infertility fellows. They intend to achieve this by utilizing a valuable collection of TVS images, categorized based on data gathered from over 2000 infertile women throughout years of research and clinical practice in reproductive and infertility imaging. Moreover, they offer a package of English books including "Textbook and atlas of hysterosalpingography, "Textbook and atlas of hysterosonography," and "3D Ultrasound of the uterus" published by Royan Institute. They also provide a DVD containing a 4-hour video lecture about detaiad investigation of the endometrium.

Scientific agenda & practical sessions

- Normal appearance of the uterus on transvaginal ultrasound: 30 min
- Abnormal Uterine & Cervical Appearances in transvaginal ultrasound of Infertile Women: 60 min
- Case presentation and review of a valuable transvaginal ultrasound archive: 30 min

Required facilities & equipment

- Computer + projector

Faculty

- Firoozeh Ahmadi (Radiologist): Scientific Secretary and Instructor
- Maryam Javam (Midwife): Executive Secretary

Faculty biographies not supplied.

Intended participants

- Radiologists, Gynecologists, and infertility Residents and fellows

Participation capacity

- 5 to 30 persons

TRACK 02 / REPRODUCTIVE MEDICINE & EMBRYOLOGY

11 / 15 WORKSHOP PROFILE

Hysteroscopy

DURATION	FORMAT	INSTRUCTORS
1 Day (8 Hours)	Hands-on	Dr. Mehri Mashayekhi (MD); Dr. Marziyeh Agha Hosseini (MD)

Workshop overview

Hysteroscopy is a minimally invasive and valuable technique for the direct visualization and evaluation of the uterine cavity, with an increasing role in the diagnosis and management of intrauterine pathology. Advances in office and operative hysteroscopy have expanded its applications in the assessment and treatment of congenital and acquired uterine anomalies. This workshop aims to provide participants with a practical and comprehensive overview of hysteroscopy, including its indications, office and operative approaches, diagnostic techniques, and hands-on training in hysteroscopic procedures.

Scientific agenda & practical sessions

- Indications for hysteroscopy
- Office hysteroscopy and operative hysteroscopy
- Diagnostic hysteroscopy: Hands-on training
- Operative hysteroscopy for congenital and acquired anomalies

Required facilities & equipment

• Basic operating-room facilities and appropriate surgical instruments	• Office hysteroscopy equipment and accessories
• Video projection system for lectures and live demonstration	• Operative hysteroscopic instruments and accessories
• Hysteroscopy system, including hysteroscope, camera, light source, and monitor	• Hysteroscopic tissue removal system (e.g., resectoscope or tissue removal device)
• Uterine distension system and appropriate distension media	• Hysteroscopic models for hands-on training, where available

Faculty

- Dr. Mehri Mashayekhi (MD)
- Dr. Marziyeh Agha Hosseini (MD)

Dr. Mehri Mashayekhi is a reproductive medicine specialist with fellowship training in infertility. She has extensive academic and clinical experience in reproductive medicine and has contributed to numerous research publications in this field.

Intended participants

- Gynecologists

Participation capacity

- persons

TRACK 03 / BIOBANKING & CRYOPRESERVATION

12 / 15 WORKSHOP PROFILE

Biobanking: Cryopreservation of Oocytes and Embryos: Vitrification Protocols and Biobanking

DURATION	FORMAT	INSTRUCTORS
2 Days (14-16 hours total, approx. 7–8 hours per day)	Hybrid (Theoretical Lectures & Intensive Hands-on Laboratory Practice)	Dr Fatemeh Hassani; Maryam Shirazy Azar

Scientific agenda & practical sessions

Day 1: Cryobiology Principles & Vitrification Protocol (7 Hours)

08:30 – 10:00 (Theory): Fundamentals of cryobiology: ice crystal formation, osmotic shock, cryoprotective agents (permeating vs. non-permeating CPAs), and slow freezing vs. vitrification.

10:00 – 12:00 (Hands-on): Handling delicate micro-tools, loading non-biological control drops on Cryotop carriers, and mastering rapid immersion in liquid nitrogen

12:00 – 13:00 : Lunch break.

13:00 – 15:30 (Hands-on): Step-wise equilibration of mouse oocytes/embryos and vitrification procedure (loading and plunging into liquid nitrogen).

Day 2: Warming (Thawing), Survival Evaluation & Biobanking (5.5 Hours)

09:00 – 10:00 (Theory): Thermodynamics of rapid warming, serial dilution of CPAs to prevent osmotic lysis, and quality control in cryobanks.

10:00 – 12:00 (Hands-on): rapid transfer through sucrose gradients and recovery of samples.

12:00 – 13:00 : Lunch break.

13:00 – 14:30 (Hands-on): Morphological assessment of viability post-warming, viability scoring, and biobanking management guidelines.

Required facilities & equipment

- Stereo dissecting microscopes (with heating stage)
- Standard CO2 incubators
- Laminar flow hoods (Class II)
- Pastor pipettes, aspirator tubes, mouth-pipette assemblies, insulin syringes, test tubes, petri dishes (10 cm)
- Cryotop devices and vitrification/warming media kits
- Liquid nitrogen tanks, Dewar flasks, and cryo-protective handling equipment

Faculty

- Dr Fatemeh Hassani
- Maryam Shirazy Azar

Faculty biographies not supplied.

Intended participants

- Target Fields: Reproductive Biology, Embryology, Developmental Biology, Animal Biotechnology, Veterinary Medicine, Genetics, and Animal Sciences.
- Academic Level: M.Sc. students, Ph.D. candidates, postdocs, research assistants, and embryology laboratory technicians.

PARTICIPATION CAPACITY

Maximum attendees: 10 participants (to guarantee individual hands-on microscope workstations) | Minimum attendees: 4–5 participants

TRACK 03 / BIOBANKING & CRYOPRESERVATION

13 / 15 WORKSHOP PROFILE

Cord Blood Processing: Isolation and Quality Assessment of Mononuclear Cells

DURATION	FORMAT	INSTRUCTORS
4 hours	Hands-on	To be confirmed

Workshop overview

This hands-on workshop provides practical training in the isolation and quality assessment of mononuclear cells from umbilical cord blood. Participants will follow the workflow from sample preparation and density-gradient separation to cell recovery, counting, viability assessment, and calculation of cell yield. The workshop is designed to provide participants with a practical understanding of the key steps that determine the quality and suitability of cord blood-derived cellular material for biobanking and downstream applications.

Scientific agenda & practical sessions

1. Introduction to cord blood processing and biobanking — 30 min

- Cord blood as a source of valuable cell populations
- Overview of the cord blood processing workflow
- Principles of mononuclear cell isolation

2. Practical demonstration and preparation — 30 min

- Sample preparation
- Reagent and equipment setup
- Safety and handling considerations

3. Hands-on: Isolation of mononuclear cells — 120 min

- Density-gradient-based separation
- Mononuclear cell layer collection
- Cell washing and recovery

4. Cell counting and quality assessment — 45 min

- Cell concentration and total cell number
- Cell viability assessment
- Recovery and yield calculation

5. Results, troubleshooting and discussion — 15 min

- Total: 4 hours

Required facilities & equipment

- Cell processing laboratory equipped with appropriate biosafety facilities, centrifuge, biological safety cabinet, pipettes, cell counting equipment, microscope, density-gradient separation reagents, cell culture/processing consumables, and viability assessment reagents.

Faculty

- To be confirmed

Source overview lists: Dr. Masoumeh Nouri 1 Lab Technician. The detailed profile lists faculty as to be confirmed.

To be provided upon confirmation of the instructors.

Intended participants

- Graduate students, PhD students, researchers, laboratory scientists, and professionals working in stem cell biology, cell therapy, regenerative medicine, cord blood banking, biobanking, and related biomedical fields.
- Level: Intermediate to advanced. Basic knowledge of cell biology is recommended.

Participation capacity

- Minimum: 8 participants
- Maximum: 16 participants

TRACK 03 / BIOBANKING & CRYOPRESERVATION

14 / 15 WORKSHOP PROFILE

Cord Blood Cell Cryopreservation and Biobanking

DURATION	FORMAT	INSTRUCTORS
4 hours	Hands-on	To be confirmed

Workshop overview

This hands-on workshop focuses on the principles and practical aspects of cryopreservation and long-term biobanking of cord blood-derived cells. Participants will learn how to prepare cellular material for cryopreservation, apply cryoprotective strategies, perform freezing and thawing procedures, and evaluate post-thaw cell viability and recovery. The workshop also introduces key principles of long-term storage, sample traceability, and quality monitoring in a cell biobank.

Scientific agenda & practical sessions

1. Principles of cell cryopreservation — 30 min

- Fundamentals of cryobiology
- Cryoprotective agents
- Factors affecting post-thaw cell recovery and viability

2. Preparation for cryopreservation — 30 min

- Cell concentration and viability assessment
- Preparation of cryopreservation medium
- Sample labeling and traceability

3. Hands-on: Cryopreservation of cord blood-derived cells — 90 min

- Preparation of cell suspension
- Addition of cryoprotective solution
- Controlled-rate freezing
- Transfer to cryogenic storage

4. Thawing and post-thaw quality assessment — 60 min

- Thawing procedure
- Removal/dilution of cryoprotectant
- Cell counting and viability assessment
- Calculation of post-thaw recovery

5. Biobanking, storage and discussion — 30 min

- Long-term cryogenic storage
- Sample identification and traceability
- Pre-freeze versus post-thaw quality
- Troubleshooting and discussion
- Total: 4 hours

Required facilities & equipment

- Cell processing laboratory equipped with a biological safety cabinet, centrifuge, controlled-rate freezing system or validated freezing device, cryogenic storage facilities, liquid nitrogen storage system, temperature monitoring system, cell counting equipment, microscope, cryopreservation reagents and consumables, cryovials, and appropriate personal protective equipment.

Faculty

- To be confirmed

Source overview lists: Dr. Masoumeh Nouri 1 Lab Technician. The detailed profile lists faculty as to be confirmed.

To be provided upon confirmation of the instructors.

Intended participants

- Graduate students, PhD students, researchers, laboratory scientists, and professionals working in stem cell biology, cell therapy, regenerative medicine, cord blood banking, biobanking, and related biomedical fields.
- Level: Intermediate to advanced. Basic knowledge of cell biology and cell processing is recommended.

Participation capacity

- Minimum: 8 participants
- Maximum: 16 participants

TRACK 04 / OCULAR CELL & TISSUE SCIENCE

15 / 15 WORKSHOP PROFILE

Ocular Cell and Tissue Culturing Workshop

DURATION
3 days (18 hours): 8 hours of theory and 10 hours of hands-on practice

FORMAT
hybrid

INSTRUCTORS
Dr. Leila Satarian; Seyedeh Zeinab Mousavi

Workshop overview

The eye, and the retina in particular, are one of the most important targets of regenerative medicine, cell therapy and neuroscience research. Studying retinal diseases requires reliable ex vivo and in vitro models that preserve the structure and function of ocular tissues. This workshop is a practical introduction to culturing ocular cells and tissues. Participants first review the anatomy, physiology and histology of the eye, then learn to enucleate mouse eyes, isolate the retina and choroid, and prepare suitable culture media. They then establish primary cultures of retinal pigment epithelium (RPE) cells and retinal explants and examine them under the microscope. The program also covers animal models of ocular disease and the use of ImageJ to quantify choroidal vasculature. By the end of the workshop, participants will have the theoretical background and hands-on skills to set up these culture systems for their own research.

Scientific agenda & practical sessions

No.	Topic	Theory (h)	Practical (h)	Total (h)	Schedule
1	Eye anatomy and physiology	1	0	1	Day 1, 8:00–9:00
2	Eye histology	1	0	1	Day 1, 9:00–10:00
3	Preparation of appropriate culture medium for each retinal cell and choroid tissue	0	2	2	Day 1, 10:00–12:00
4	Mouse eye enucleation and correct method for retina and choroid isolation	0	2	2	Day 1, 13:00–15:00
5	Primary culturing of mouse retinal pigment epithelium (RPE) cells and retinal explants (retina and choroid)	0	2	2	Day 1, 15:00–17:00
6	Ocular disease animal modelling	2	0	2	Day 2, 8:00–10:00
7	Microscopic investigation of cultured mouse RPE cells and retinal explants (retina and choroid)	0	2	2	Day 2, 10:00–12:00
8	ImageJ application for vascular measurement	2	0	2	Day 3, 8:00–10:00

No.	Topic	Theory (h)	Practical (h)	Total (h)	Schedule
9	Microscopic investigation of cultured mouse RPE cells and retinal explants (retina and choroid), continued	0	2	2	Day 3, 10:00–12:00
10	Q&A	2	0	2	Day 3, 13:00–15:00
	Total	8	10	18	

Required facilities & equipment

- Cell culture laboratory with a biosafety cabinet (Class II laminar flow hood) and CO_2 incubator
- Animal facility access or ethically approved, freshly sacrificed mice
- Dissection tools and stereomicroscope (microsurgical scissors, fine forceps, etc.)
- Inverted phase-contrast microscope
- Culture media, supplements and consumables (culture plates, dishes, PBS, etc.)
- Centrifuge, water bath and standard laboratory equipment
- Computers with ImageJ (Fiji) installed for image analysis
- Projector and audio system for the theory sessions

Faculty

- Dr. Leila Satarian
- Seyedeh Zeinab Mousavi

Dr. Leila Satarian holds a Ph.D. in Medical Physiology from Tarbiat Modares University, Tehran, Iran. During her doctoral and postdoctoral research at Royan Institute, under the supervision of Prof. Hossein Baharvand and Prof. Mohammad Javan, she developed innovative strategies for optic nerve regeneration using human neural progenitor cells and worked on differentiating human pluripotent stem cell-derived retinal pigment epithelium (RPE) cells. Since 2010, she has led the Royan Eye Group, and in 2014 she became a member of the stem cell faculty at Royan Institute. Currently, as an associate professor, Dr. Satarian focuses on both fundamental (notably optic nerve regeneration) and clinical aspects (particularly retinoblastoma) of retinal regeneration.

Seyedeh Zeinab Mousavi holds an M.Sc. in Developmental Biology from the University of Science and Culture, Tehran, Iran. During her thesis at Royan Institute, under the supervision of Dr. Leila Satarian, she developed innovative strategies for retinal vasculature assessment. She evaluated a siRNA designed for diabetic retinopathy in vitro and in the mouse choroid. She graduated in 2026.

Intended participants

- Regenerative medicine (MSC, Ph. D)
- Stem cell research (MSC, Ph. D)
- Ophthalmology (MD)
- Neuroscience (MSC, Ph. D)
- Biology (MSC, Ph. D)
- Medicine (Student/MD)

PARTICIPATION CAPACITY

- Minimum 10, maximum 15