Cryopreservation and CAM-xenotransplantation of human ovarian tissue

We would like to call your attention to the following One-on-One Training Course (hands-on workshop) on Cryopreservation and CAM-xenotransplantation of human ovarian tissue. This workshop will provide exclusive face-to-face individual training to facilitate learning, and the approach is anticipated to provide value-for-cost for participants as this type of training is more effective than group training. We extend a cordial invitation to you to attend this event and will be pleased to welcome you to Cologne.

Generally about the workshop

This workshop is intended for postgraduate students and specialists in the field of cryopreservation of human reproductive cells. Our course contains short basic lectures and films regarding the technology. The central part of our workshop is hands-on manipulations. All demonstrating manipulations will be performed on bovine ovarian tissue.

A few concise paragraphs on technologies and the workshop

Each element of the technology is a result of our own research that has already been published [1–38]. In the description of the course we present the respective articles in squire brackets. The organizers of this course transplanted ovarian tissue that had been cryo-stored for five years and achieved a pregnancy and a baby—the first in Germany [22, 23]. We will present the technique of ovarian tissue cryopreservation modernized over the last years.

This course will include three major parts:
1. The first part: Technology of low-temperature transportation, freezing and thawing of ovarian tissue [6-28, 31, 34, 35, 37].
2. The second part: Technology of cryopreservation of whole human ovaries with pedicles [29, 30, 32, 33]. The near future: Construction of human artificial ovaries from cryopreserved ovarian tissue [36, 38].
3. The third part: Technology for CAM-xenotransplantation of thawed ovarian tissue [21, 24, 25, 27, 28].

Course directors

1. Prof. Dr. Peter Mallmann, Director of University Maternal Hospital
2. Dr. (SU) Evgenia Isachenko, Biological Director of IVF-Laboratory
3. Prof. Dr. Gohar Rahimi, Medical Director of IVF-Laboratory
4. Prof. Dr. Raul Sanchez, Director of Biomedical Center, La Frontera University, Temuco, Chile (during certain periods only)
5. Dr. (SU) Vladimir Isachenko, Leader of Research Group for Reproductive Medicine

Further Information and Program

Date: Beginning October 2019 (any date at the participant’s convenience)
Duration: 3 days
Number of participants: One, a maximum of two per session
Location: Cologne University Maternal Hospital, Research Laboratory for Reproductive Medicine, Kerpener Str. 34, 50931 Cologne, Germany
Language: English and German
Course fee: 2500 EUR for a single participant, 3000 EUR for two participants

Information and registration:
Dr. (SU) Vladimir Isachenko
Phone +49 221 478-7349
E-Mail vladimir.isachenko@uk-koeln.de

About the place
Cologne is a famous tourist city. Staying in Cologne allows easy access to the Netherlands, Belgium, Luxemburg and France. For example, a tour to Amsterdam with a 5 to 6 hour stay in the city with transport Cologne-Amsterdam-Cologne occupies a little bit more than one light-day and costs up to 25 EUR. A 4-day tour to Paris (3 days in this city) including transport und hotel costs from 90 to 180 EUR.

Program

First day
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| 08:00-08:45  | Lecture with discussion
Technology of 24 hours low-temperature transportation, preparation and freezing of ovarian tissue of Patient W. the first baby born in Germany after cryopreservation of ovarian tissue: detailed information [22, 23]. | Dr. (SU) Evgenia Isachenko            |
| 09:00-09:45  | Lecture with discussion
Modernized technology for ovarian tissue as a result of 14 years of research [6–21, 24–28, 31, 34, 35]. | Dr. (SU) Vladimir Isachenko           |
| 10:00-10:45  | Film with comments and discussion
Year 2018. Modernized technology of preparation, freezing, thawing and in vitro culture of human ovarian tissue. | Dr. (SU) Vladimir Isachenko           |
| 11:00-12:45  and 13:10-16:00 | Hands-on
• Long-term transport of ovarian tissue [15, 26, 27, 34].
• Removal of GV-Oocytes (puncture of follicles) in fresh ovarian tissue before cooling as element of concept of our cryobank.
• Preparation of strips of ovarian tissue: release of cortex from medulla [24, 35].
• One-day cooling of ovarian tissue as an important element of cryopreservation protocol [27, 34].
• Saturation of tissue with cryoprotectants on the moving system [6].
• Freezing of strips in 5 ml Cryo-Vials with different freezing constructions; the role of ice-seeding [8]. |
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| 08:00-08:45       | **Lecture with discussion**  
Technology of cryopreservation of whole human ovaries with pedicles.  
The near future: Construction of a human artificial ovary from cryopreserved ovarian tissue [29, 30, 32, 33, 37, 38]. | Prof. Dr. Peter Mallmann              |
| 09:00-12:50 and   | **Hands-on**  
• Quick thawing of ovarian tissue in boiling water and removal of cryoprotectants [12, 14, 17]  
• In vitro culture of ovarian tissue in large volume with agitation [6].  
• Evaluation of viability of ovarian tissue: quality of follicles as central criterion of this evaluation [18].  
• Storage and culture of chicken eggs.  
• Manufacturing and preparation of silicon rings.  
• Drilling of eggs and cutting a window.  
• Placing the silicon rings on the CAM surface and transfer of tissues and tumor cells. | Dr. (SU) Evgenia Isachenko  
Prof. Dr. Gohar Rahimi |
| 13:10-16:00       | **Film with comments and discussion**  
Technology of CAM-xenotransplantation of ovarian, testicular and cancer tissues [21, 24, 25, 27, 28]. | Dr. (SU) Vladimir Isachenko           |

Third day
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| 09:00-10:00| **Lecture with discussion**  
Cryopreservation of human ovarian tissue: freezing vs. vitrification [2-5, 10, 12, 13, 14, 16, 17,19]. |                                                      |
| 10:00-12:50| **Hands-on**  
- Extraction of tissues after culture and fixation for evaluation of their viability.  
- Evaluation of angiogenesis during CAM-Culture of tissues [26].  
- Injection of solutions into blood capillaries.  
- Macroscopic and microscopic examination of CAM-cultured tissues.  
- SCID-Mouse-Xenotransplantation of ovarian tissue [5, 13, 17, 34, 35]. | Prof. Dr. Gohar Rahimi  
Dr. (SU) Evgenia Isachenko  
Dr. (SU) Vladimir Isachenko |
| 13:10-16:00|                                                          |                                                      |
| 16:00-17:00| **Extensive discussion and repeated hands-on-manipulations**             | Prof. Dr. Peter Mallmann  
Dr. (SU) Evgenia Isachenko  
Dr. (SU) Vladimir Isachenko  
Prof. Dr. Gohar Rahimi |
| 17:00-17:15| **Presentation of certificates and departure**                           |                                                      |

**Publications**

Our publications are mentioned in this announcement: