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Stem cells isolated from ovaries of young infertile women with non-functional ovaries can be developed into oocyte precursors

Text books in Medicine teach us women are born with the final pool of oocytes they ovulate and eventually they run out of oocytes. The aging of oocytes is also considered a cause to decreased fertility and the higher incidence of retarded births as the women ages. New research findings question this dogma. Recently it was found mice develop oocytes throughout their life, and earlier this year stem cells were isolated from ovaries of young fertile women, implanted into mice and some developed into oocytes. For ethical reasons these oocytes were not fertilized.

Now a research team under the leadership of Dr Irma Virant Klun at University Medical Centre in Ljubljana, Slovenia in collaboration with Dr Thomas Skutella at University of Heidelberg, Germany and TATAA Biocenter in Göteborg, Sweden have been successful collecting stem cells from the surface of ovaries of young infertile women with premature ovarian failure (non-functional ovaries, no oocytes), grow these cells in culture under advantages conditions, and, using powerful single-cell gene expression profiling technology, identify among those cells with distinct stem cell and some oocyte-like features. The results are being published in *BioMed Research International*. “We are very excited about these finding”, says Irma Virant Klun, “Maybe it is major step towards regaining fertility in the future for a large number of women that today don’t have their own oocytes and cannot get children but it is still a lot of work to be done”. “It is very rewarding to see the first potential clinical applications of the single cell qPCR profiling technique we developed in 2005”, says Dr Mikael Kubista, CEO and founder of the TATAA Biocenters.

University Medical Centre Ljubljana

The Ljubljana University Medical Centre (UMCL) is Ljubljana's hospital centre and the largest hospital centre in Slovenia. It is one of the largest hospital centers in the Central Europe. The principal aim is to provide quality care to patients from Slovenia and other European countries. The

UMCL's organization and activities are geared at continuous improvement of medical services, development and introduction of new methods of treatment, and transfer of knowledge. It is the main training base for the Faculty of Medicine in Ljubljana, which is housed nearby. University Medical Centre Ljubljana is the main Slovenian medical institution performing clinical practice and strong research activity, including very advanced diagnostics and treatment of infertility.

University of Heidelberg

University of Heidelberg is a research university with a strong international orientation. It has twelve faculties with a total of more than 29,000 students. As the oldest German university it was founded in y. 1386 (medicine in y. 1988). Numerous great minds have learned, taught and conducted research at Heidelberg University. According to its motto »Semper apertus« (»Always open«) Heidelberg University, in a spirit of open-mindedness and tolerance toward individuals and ideas, aspires to generate and harness knowledge and skills for the benefit of today's and future generations.

About TATAA Biocenter

TATAA Biocenter is world's largest organizer of hands-on training in quantitative real-time PCR, Europe's leading provider of nucleic acid analysis services, and Scandinavia's most comprehensive distributor of products for nucleic acids analysis. TATAA Biocenter has the best equipped laboratories for qPCR based analysis in Europe, and provides contract research with full range of nucleic acid analysis services, including primer and probe design, validation, quality control, profiling, data and pathway analysis, and kit and instrument evaluation to the pharmaceutical and biotech industry. TATAA offers a seamless workflow, with all the instrumentation necessary for performing high quality experiments and for optimal sample handling, meeting the specific requirements for compliance with ISO17025 standard. TATAA core facility laboratories are also available for academic researchers. Founded in 2001, TATAA has laboratories in Gothenburg, Sweden, and Prague, Czech Republic.

For more information about TATAA Biocenter, see www.tataa.com or contact us on info@tataa.com