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Esco Medical in 2021 Celebrating Big and Small Wins

Inside Story

Long before the COVID-19 pandemic happened, Esco Medical's focus is to continuously provide fertility-technologies that aim to help couples around the world to have a child. Our customers have always been at the centre of concern, enabling a better and a more connected experience through our partner institutions across the globe.

Last year was a challenging year for everyone – a year in which the world met a pandemic of such far-reaching magnitudes as to leave no person untouched. Nonetheless, it was also the year where we saw the world come together as one to battle the same fight. 2021 served as a flicker of light at the end of the tunnel. It was a hopeful year for all of us to recover and heal, as vaccines started to roll-out, and businesses getting back on their feet.

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Esco Medical in 2021:
Celebrating Big and Small Wins

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Like most of the world, Esco Medical is grateful and happy to say goodbye to 2021. And before this year ends, we would like to acknowledge the progress and successes that emerged this year. The Esco Medical team is able to continuously provide products and services in various IVF centers wherein a good number of installations were done successfully. Also, bans on international travel this year didn't stop us from participating in various international congresses and exhibitions from this year's ASRM to the Arab Lab to MEFS. Moreover, we were able to hold several webinars and trainings, both virtual and face-to-face, for our customers and business partners.

One highlight this year is the introduction of a limited-edition incubator (MIRI® II-12) as part of Esco Medical's 10th year anniversary. Another milestone is the launching of a new Esco Medical website, wherein our team of web developers and marketing specialists were able to come up with a more modern and web navigation – efficient site for our web visitors to enjoy browsing, reading, and going through our products and services information.

A few more days and 2021 is about to end; and a new year is about to unfold. We all should look forward to 2022 as a year of unrelenting healing, optimism, and welcome it with plenty of aspirations.

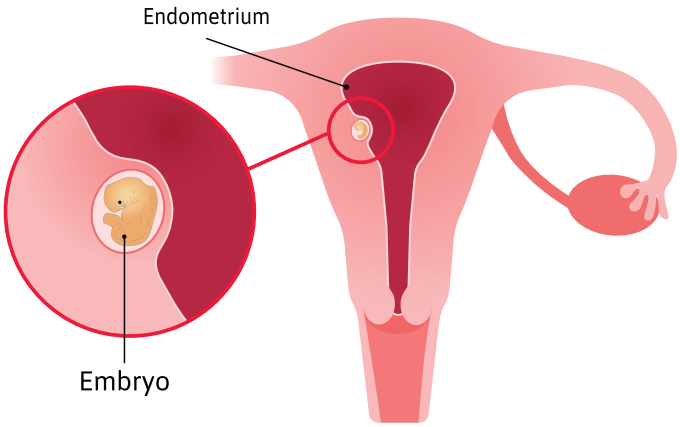
Are children conceived by IVF at risk of poor mental health?

It is no question that there are still doubts in some people about the overall health of children conceived using assisted reproductive techniques (ART) and speculation if they will grow "normal" like any naturally-conceived children. Throughout the years, *in vitro* fertilization (IVF) has evolved to help couples increase their chance in getting pregnant and this comes with the unknown if there are negative effects to human embryos being transferred to the female. Just this December, Wang et. al. have published a national birth cohort study in JAMA Psychiatry entitled "Long-term Follow-up of Psychiatric Disorders in Children and Adolescents Conceived by Assisted Reproductive Techniques in Sweden" that focused on the mental status of children conceived by ART.

The study included a total of 1 221 812 children born from January 1994 to December 2006 in Sweden and the follow-up was done December 2018 where the participants are 12 to 25 years old. The population of the study is composed of 51.4% male and 48.6% female wherein 2.6% or 31565 children were conceived by IVF. According to Wang et. al., "Overall, we found that adolescents conceived with ART had a slightly higher risk of anxiety and antidepressant use but a lower risk of mood disorder and suicidal behavior compared with all other children. Importantly, the observed differences in risk were explained by differences in parental characteristics, including the underlying infertility, rather than the ART intervention itself."

Studies like this is of great help especially for children born of IVF as there is still existing prejudice towards them that can greatly affect their mental health. This kind of studies also promotes that ART is a safe and good option for infertile couples seeking conception.

Podocalyxin,
a molecule inhibiting embryo implantation



In the medical practice of human *in vitro* fertilization (IVF), pregnancy is highly dependent on embryo implantation. According to most researches, a successful embryo implantation is dependent primarily on three factors: transfer efficiency, embryo quality, and endometrial receptivity.

This post focuses on the significance of endometrial receptivity. In order to initiate pregnancy, a healthy embryo is essential, but also, the lining of the uterus lining must be able to receive/ accept the embryo. Implantation efficiency is a significant predictor of pregnancy rates. A capable endometrium permits healthy embryos to attach, while an inefficient one may refuse a healthy embryo.

What makes an endometrium receptive or non-receptive?

A very interesting research finding points out that endometrial epithelial receptivity, specifically adhesiveness, is regulated at the luminal epithelial surface for embryo implantation human. A study by Sophia Heng et al called "Podocalyxin inhibits human embryo implantation *in vitro* and luminal podocalyxin in putative receptive endometrium is associated with implantation failure in fertility treatment" stresses out the significance of a transmembrane protein called "podocalyxin".

Podocalyxin was acknowledged as a key negative controller of endometrial epithelial receptivity. A specific down regulation of this protein in the luminal epithelium probably intervened by progesterone, may act as a significant phase in transforming endometrial surface from a non-receptive to an implantation-permitting state.

Results of the study show that high levels of podocalyxin suggestively inhibited blastocyst attachment and penetration. Among the 81 putative receptive tissues, 73% were negative, but 27% were heterogeneously positive for podocalyxin in the luminal epithelium. The pregnancy rate was at 53% in those with a podocalyxin-negative luminal epithelium but only 18% in those with a podocalyxin-positive luminal epithelium. With these findings, it was concluded that podocalyxin inhibits embryo implantation.

This novel information is helpful in understanding human endometrial remodeling for receptivity and can be a useful tool in the assessment and optimization of endometrial receptivity during fertility treatment like IVF.

Esco Medical
China successfully holds various IVF-related events

The last quarter of the year was busy and exciting as Esco Medical China participated in various exhibitions and webinar:

The 22nd Chongqing Conference on Assisted Reproductive Medicine

Date 2021/10/26-28

Products Displayed Mini MIRI®, MIRI®, MIRI® Time-Lapse 12, MIRI® Time-Lapse 6, Esco Multi-Zone ART Workstation

The 4th China International Import Expo

Date 2021/11/5-10

Products Displayed Esco Medical Virtual Booth

Webinar on Clinical Application of PIEzo-ICSI Technique and Improvement of Fertilization Outcome in Elderly Patients

Date 2021/11/18

Speakers Zhongshan Hospital affiliated to Fudan University

Embryo Laboratory Supervisor Xiang Cao

Supervising Technician Miao Liu

4th Quarter Installations

India

Clinic: Lifeline Hospital
Address: Adoor Kerala, India
Date Installed: December 12, 2021
Devices installed: MIRI® Multiroom Incubator

Clinic: Bangalore Baptist Hospital
Address: India
Date Installed: December 1, 2021
Devices installed: Esco Multi-Zone ART Workstation

Bangladesh

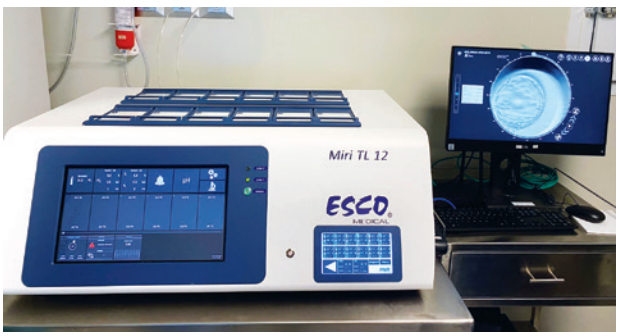
Clinic: Motherland Infertility Center and Hospital
Address: Bangladesh
Date Installed: November 8, 2021
Devices installed: CelCulture® CO_2 Incubator and Esco Multi-Zone ART Workstation

Kingdom of Saudi Arabia

Clinic: Abha Specialized Hospital
Address: Kingdom of Saudi Arabia
Date Installed: December 16, 2021
Devices installed: MIRI® Time-Lapse, MIRI® Multiroom Incubator and Esco Multi-Zone ART Workstation

Morocco

Clinic: Hôpital Cheikh Zayd Rabat
Address: Morocco
Date Installed: November
Devices installed: MIRI® Multiroom Incubator and a Multi-zone ART Workstation



Philippines

Clinic: Co-Sy Fertility Clinic
Address: Pampanga, Philippines
Date Installed: October 15, 2021
Devices installed: MIRI® Time-Lapse

Uruguay

Clinic: Centro de Esterilidad Montevideo
Address: Avda. Cataluña 3137 - Montevideo, Uruguay
Date Installed: October
Devices installed: MIRI® Multiroom Incubator and a Multi-Zone ART Workstation

Newly NIH-funded research aims to beat male infertility

Couples undergoing infertility treatments through assisted reproductive techniques (ART) consider not only the female factor but the males' as well. Throughout the years, male infertility cases have been on the rise and there are increasing numbers of studies that target to treat male infertility. Although it takes fewer tests to diagnose than female infertility, it is still vital to treat it accordingly to succeed in conceiving via *in vitro* fertilization (IVF).

Several studies concern male infertility however it is still some ways to completely beat it. Recently, a multimillion-dollar grant from the National Institutes of Health (NIH) was given to Dr. Paula Cohen – an associate vice provost for life sciences at Cornell and a professor of genetics at the College of Medicine (CVM). Dr. Cohen and her colleagues take on the challenge to solve the male infertility puzzle and to further understand the process of spermatogenesis. This study on spermatogenesis will be subdivided into three stages namely: RNA regulation, investigating "junk" RNA, and monitoring RNA modifications.

With the excellent team handling this research, it will surely unravel more solutions for male infertility. In addition, having funding for these kinds of studies contributes another step forward for ART and further helps infertile couples achieve pregnancy.

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Users of Esco Medical products should not hesitate to contact us if there are any unclear points or ambiguities in this newsletter.

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