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Quarterly Newsletter | Issue 11 July - September 2022

Blastula IVF Center Announced its 100th IVF Baby

Inside Story

Dr. Bona Fernando, Director of Siloam Hospitals Sriwijaya, announced on September 24, 2022, the birth of the 100th baby from their fertility clinic–Blastula IVF.

Blastula IVF was established in 2021 and achieved its first IVF-born baby on November 11, 2021 (11-11-21). In less than a year, Blastula IVF achieved another milestone with the birth of its 100th baby.

"I did not expect our success rate to be so high that we reached the 100th IVF birth," said Dr. Bona Fernando.

With their passionate team consisting of seven fertility specialists and the modern and high-standard fertility equipment installed in their clinic; Dr. Bona Fernando is hopeful that the success rate of their clinic will remain consistent.

The Fertility Consultant at Siloam Sriwijaya Hospital Palembang, Dr. M.Airul Chakra Alibasya, Sp.OG–KFER, MIGS said that his team is committed to helping many families who want to have children.

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Differences in IVF-Conceived Children's Size Disappear by Adolescence

Researchers have found that IVF babies don't end up being smaller than those conceived naturally, with differences in height, weight, or body size commonly even out when they hit their late teenage years.

The study entitled "Association of Assisted Reproductive Technology With Offspring Growth and Adiposity From Infancy to Early Adulthood" published in JAMA Network Open used the data from 158,066 participants from Europe, Asia, and Canada, aged between several weeks and 27 years. With 4,329 having been conceived via IVF or ICSI.

The data gathered from naturally conceived and IVF-born children at different ages were compared. This includes height, weight, body fat, waist circumference, and BMI.

The study showed that any differences diminish between 14 to 17 years.

Children born via natural conception are around 0.27cm shorter than those born from IVF but as they got older, the difference got smaller, with naturally-conceived children only 0.06cm taller.

That trend is almost similar to the weight, IVF born babies are 0.27kg lighter. However, they are 0.07kg heavier during adulthood.

Children born through fertility treatment had a BMI that was 0.09 marks higher by the time they turned 17, despite being 0.18 lower as an infant.

Lead author Dr. Ahmed Elhakeem, an epidemiologist, said: 'In the UK just over one in 30 children have been conceived by assisted reproduction.

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"As proof of my commitment with Dr. Bona, we want to make an international standard IVF in the City of Palembang, South Sumatra" **he said.**

From February to December 2021, the success rate for Blastula IVF reached 55 percent. In detail, the success rate of fresh pregnancy was 50 percent of the total 141 patients in ET, and FET pregnancy was 60 percent of the total 105 patients.

"Personalization is the keyword in the best service of the Blastula IVF center, supported by comfort and a leading support system in the implementation of superior programs" **Dr. M. Aerul added.**

Meanwhile, couple Ade Pramanja and Yeni Atilatapiah were happy in welcoming their daughter Adara Putri Pramanja.

"We have been waiting for IVF for seven years. We are thankful to Blastula IVF - Siloam Hospitals Sriwijaya Hospital" **said Ade Pramanja and Yeni Atilatapiah.**

Baby Adara Putri Pramanja was born on September 22, 2022, weighing 3 kilograms.
Blastula IVF is using Esco Medical equipment in their clinic including MIRI® Multiroom Incubator, Esco Multi-Zone ART workstation, MIRI® Anti-Vibration Table (AVT), and CelCulture® CO_2 Incubator.

Esco Medical congratulates Blastula IVF on this latest milestone. Thank you for choosing us to be your partner in fulfilling the dreams of every couple to have a child.

'So we would expect on average one child in each primary school class to have been conceived this way.

'Since the first birth of a child by IVF, concerns have been raised about the risks to the children conceived.

'Parents and their children can be reassured that this might mean they are a little bit smaller and lighter from infancy to adolescence, but these differences are unlikely to have any health implications.'

Peter Thompson, chief executive of the Human Fertilisation and Embryology Authority (HFEA), said: 'The findings from this study will come as a welcome relief to these patients who begin treatment in the hope of one day having healthy children of their own.

Since 1978, IVF gave hope to couples with infertility problems to achieve their dreams of having a child. IVF also contributed to over eight million births globally.

Fresh and Frozen Sperm for Intrauterine Insemination (IUI) Cycles

The introduction of assisted reproductive technology, or ART, is one of the most significant advances in reproductive medicine. With treatments like Intrauterine Insemination (IUI) and In Vitro Fertilization (IVF), people can have a better chance of pregnancy. And in these treatments, patients are given the choice of using fresh or frozen sperm in the process.

The largest study of its kind discovered no difference in pregnancy rates between IUI cycles using fresh or frozen sperm. Dr. Panagiotis Cherouveim of Massachusetts General Hospital and Harvard Medical School presented the findings at the annual meeting of the European Society of Human Reproduction and Embryology.

The study examined the outcomes of over 5000 IUI treatments. There was no significant difference in pregnancy rates overall, but there were some differences in patients who had ovarian stimulation prior to insemination compared to those who did not. A limitation of the study, however, is that the majority of the frozen sperm came from anonymous donors, who are usually younger and healthier than the partners providing fresh sperm and have good quality sperm.

Fresh Sperm vs. Frozen Sperm

Fertility clinics use fresh or frozen sperm for Assisted Reproductive Technology (ART). Fresh sperm is a sample of male sperm that is taken and used almost immediately. To remove any impurities, the fertility clinic washes the sample in a special solution. The sperm is then ready for Intrauterine Insemination (IUI) or embryo creation for In Vitro Fertilization (IVF). For couples working directly with a fertility clinic, fresh samples are commonly used.

Frozen samples, on the other hand, were once fresh samples that are saved for later use. The samples are kept at the clinic in special vials filled with a freezing solution. The vials are then slowly frozen with liquid nitrogen. Because of cryopreservation, the sperm remains alive and healthy. When the sample is needed, the clinic uses a special technique to thaw the sperm.

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Fresh and Frozen Sperm for Intrauterine Insemination (IUI) Cycles

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Intrauterine Insemination (IUI) Cycles: Success Rates of Fresh vs. Frozen Sperm

Intrauterine Insemination (IUI) is a procedure that places the sperm directly into the uterus, bypassing the cervix and increasing the likelihood that the sperm will encounter the egg.

Researchers discovered that fresh sperm led to significantly higher live birth and pregnancy rates when compared to frozen sperm for IUI using ovulation-inducing medications in a study that reviewed IUI cycles for people with ovaries who were diagnosed with unexplained infertility. However, this study did not account for age and individual drug usage, which are major factors in IUI success.

Regardless, most fertility clinics agree that using either fresh or frozen sperm in IUI can get successful results. The factors that are likely to be more important for IUI have nothing to do with the type of sperm used. What can affect infertility rates significantly in IUI include age, male infertility, sperm-related factors such as sperm health, anatomical factors, and other genetic conditions.

In Vitro Fertilization (IVF) Cycles: Success Rates of Fresh vs. Frozen Sperm

The ovaries are stimulated with fertility medications during an In Vitro Fertilization (IVF) cycle in order to grow multiple follicles and mature the egg inside each follicle. This is followed by egg retrieval or egg freezing. Then, in a laboratory, the sperm and eggs are combined, followed by an embryo transfer into the uterus, where embryos ideally implant into the uterine lining, which can develop into a pregnancy.

Most research suggests that using frozen sperm does not reduce the percentage of success by a statistically significant amount. Other factors that can significantly affect the success rate include age, ovarian reserve, and other genetic disorders.

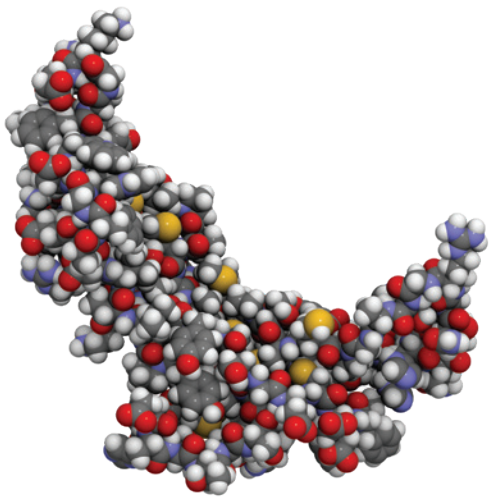
Conclusion

The sperm utilized in fertility treatment is largely determined by the patient's chosen plan, and whether they use sperm from a partner, a directed donor, or an unidentified donor. Most fertility specialists agree that any sperm type is acceptable if the partner or donor has normal sperm conditions or parameters.

The health of the sperm and the patients is far more important than the type of sperm. Sperm from older men who have shape and mobility issues has a negative impact on IUI as well as IVF. The quality of sperm can affect the success of IVF cycles. A woman's overall health, such as a healthy uterine lining or ovarian reserve, is also important. Age and overall fertility are necessary considerations to keep in mind. These considerations will center on whether the sperm is fresh or frozen.

The factors mentioned are far more important for the success rate of fertility and pregnancy than the type of sperm utilized in the process.

The Role of Myostatin in Female Reproduction and Fertility



The protein known as myostatin (MSTN) has repeatedly been shown to play a crucial role in human reproduction as scientists learn more about the mysteries of human physiology. Some of the most important roles played by MSTN in female reproductive health and disease are discussed in recent studies about Reproductive Biology and Endocrinology.

What is Myostatin (MSTN)?

On chromosome 2, MSTN, also referred to as growth differentiation factor 8 (GDF8), has an encoded region. This protein inhibits the growth of skeletal muscle, preventing the overgrowth of this tissue in a variety of mammalian and aquatic species.

MSTN is a member of the superfamily of growth differentiation factors (GDFs), bone morphogenetic proteins (BMPs), transforming growth factors (TGFs), activins, inhibins, and anti-Müllerian hormone (AMH). In addition

to controlling cancer and fibrosis, the TGF-family of proteins also controls immune response, skeletal pathologies, wound healing, and cell proliferation and differentiation.

Recently, it was discovered that MSTN plays a significant role in reproduction and fertility. High concentrations of AMH, BMP15, and GDF9 are observed in the female reproductive system.

What are the Functions of MSTN?

Skeletal muscle development is regulated by MSTN as its main function. However, MSTN's biological function may extend beyond preventing the growth of muscles; it may engage in additional redundant processes.

According to a prior study, MSTN plays a crucial role in the heart in preserving cardiac energy homeostasis and preventing ventricular hypertrophy. Congenital heart disease and decompensated heart failure patients have higher levels of MSTN expression. Myostatin has local effects in the failing human heart, as indicated by increased cardiac expression of BMP1 (which releases and activates myostatin from its latent complex), increased expression of the myostatin receptor ActRIIB, and finally increased SMAD2/3 activation.

Type 2 diabetes and MSTN are related. Increased MSTN mRNA levels were discovered in skeletal muscle biopsy samples from people with type 2 diabetes and their non-obese but hyperinsulinemic relatives through gene chip analysis. In insulin-resistant middle-aged men, exercise decreased muscle and plasma MSTN protein levels, lowering insulin sensitivity.

The serum levels of MSTN are increased in patients with cancer, AIDS, renal failure, COPD, and heart failure, and the muscles' expression of MSTN is also elevated in these patients. The response to these various disorders is influenced by myostatin, which may also act as a potential regulator of the escalating muscle atrophy brought on by physiological and pathological stressors. MSTN levels are also higher in the elderly.

Early Development of MSTN

The developing embryo's skeletal muscle expresses MSTN. Although it is also present at maturity, this is when it is found at its highest level.

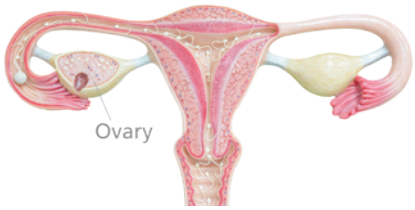
The heart and adipose tissue are additional sites for MSTN. MSTN deficiency results in muscle cell hyperplasia.

The cell surface activin receptor type II or IIb is the mechanism by which MSTN inhibits the proliferation and differentiation of muscle stem cells. In adulthood, there is less protein in the muscle fibers, which leads to less muscle mass.

Cardiac energy homeostasis and preventing ventricular overgrowth in response to ischemia and heart failure are two additional tasks carried out by MSTN. Similar to obese individuals with high insulin levels, type 2 diabetes also exhibits upregulation of MSTN. Exercise increases insulin sensitivity, which suggests that MSTN is involved in controlling how well muscle cells take up and use glucose.

Patients with cancer, heart or kidney failure, or AIDS have higher levels of the protein MSTN, which is thought to control the stress-induced atrophy of muscle cells. MSTN levels are also higher in the elderly and in people who spend a lot of time in bed.

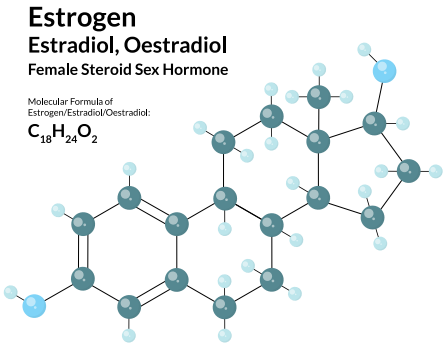
The Role of Myostatin in Female Fertility and Reproduction



Ovarian function is regulated by MSTN. Furthermore, it appears that the absence of this protein is linked to decreased fertility in animals. This protein may regulate the growth of the gonads. MSTN also inhibits the steroidogenic acute regulatory (StAR), the rate-limiting enzyme in the steroid synthesis pathway.

Both the follicular fluid, where MSTN lowers progesterone levels, and the ovarian granulosa cells, which use the aromatase enzyme to convert testosterone to estradiol, both contain MSTN. The ovarian theca cells synthesize testosterone, whereas estradiol is crucial to female reproductive physiology.

Through increased cytochrome P450 aromatase expression, MSTN boosts the production of estradiol. Follicle-stimulating hormone (FSH) is promoted by this protein by increasing the number of FSH receptors.



Therefore, the impact of MSTN is probably a crucial factor in the production of sex hormones and gonadotropin responses.

Additionally, MSTN affects follicle growth, the recruitment of ovarian theca cells, and the maintenance of a healthy vascular supply to the corpus luteum by upregulating connective tissue growth factor (CTGF). Both of these things prevent the proliferation of granulosa cells.

Lysyl oxidase (LOX), an enzyme necessary for the production of the

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The Role of Myostatin in Female Reproduction and Fertility

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extracellular matrix, is also increased in response to an increase in CTGF (ECM). As a result, CTGF is essential for the coordinated operation of different cell types via hormones, as well as autocrine and paracrine factors within the ovarian follicle, ultimately leading to a mature oocyte.

MSTN is also necessary for controlling cumulus cell growth, which creates the complex that houses the maturing follicle. The oocyte and its follicular cells' hormonal interactions control this. Pentraxin 3 (PTX3), which is crucial for female fertility, is inhibited by MSTN. In order to ensure proper expansion of the cumulus-oocyte complex, ovulation, and fertilization, PTX3 controls the critical process of ECM formation. The ovary may also produce MSTN as a regulatory substance to control intra-ovarian processes.

3rd Quarter Esco Medical Events and Webinars

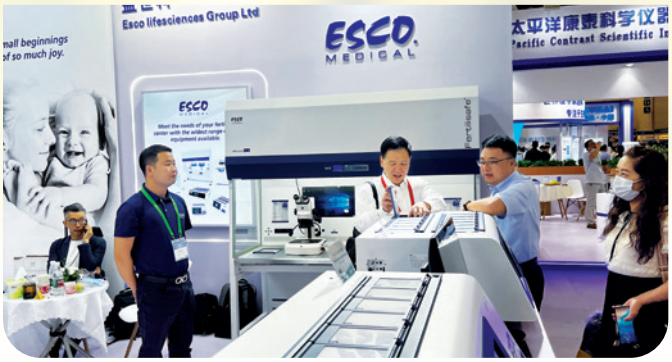
EVENTS

World Embryologist Day - Scientists in Reproductive Technologies (SIRT)
July 23, 2022
Adelaide, Australia

11th ATE : ICSI New Horizons and beyond 2022
July 27 – 28, 2022
At Nimman Convention Centre, Chiang Mai

15th Annual Conference of the Chinese Society of Reproductive Medicine (CSRM 2022)

August 5-7, 2022 | Xiamen, China



CHA City Fertility Clinical Conference

August 27-28, 2022

JW Marriott Gold Coast, Australia

26th Brazilian Congress on Assisted Reproduction (CBRA 2022)

August 31 - September 3, 2022

Frei Caneca Convention Center, São Paulo, Brazil

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3rd Quarter Esco Medical Events and Webinars

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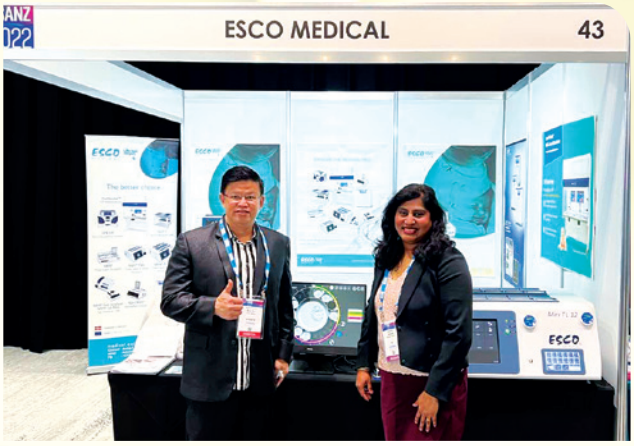
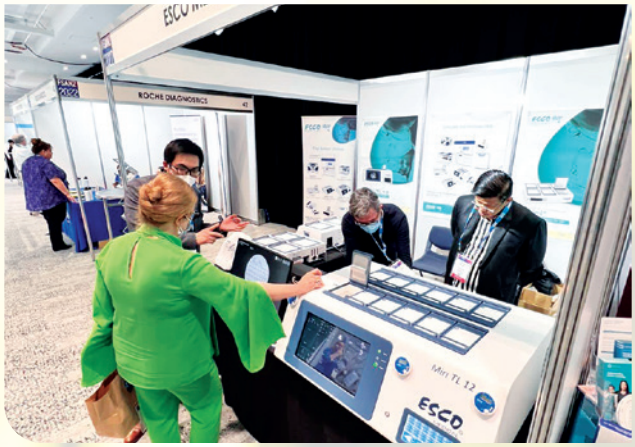
Scientists in Reproductive Technologies (SIRT) and Fertility Society of Australia and New Zealand (FSANZ) Annual Conference

July 30- August 2, 2022

Sydney International Convention Center, Sydney, Australia



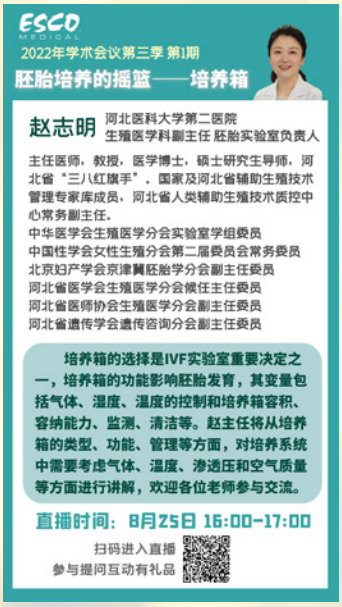


10th International Congress of the Academy of Clinical Embryologists (ACE 2022)

September 23-25, 2022

Leela Hotel Gurugram Delhi NCR

WEBINARS & WORKSHOPS



The Cradle of Embryo Culture - Incubator

August 25, 2022

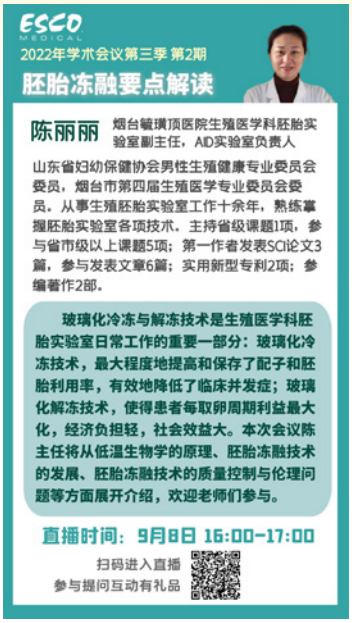
Zhiming Zhao

Deputy Director of the Department of Reproductive Medicine, Head of Embryo Laboratory

Time-Lapse Workshop - Health

September 3 – 4, 2022

Jumeirah Beach Hotel Dubai, UAE



Embryo Freezing and Thawing

September 8th

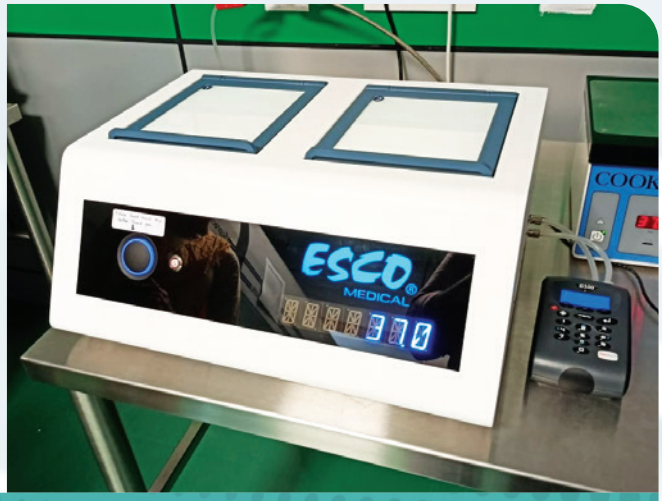
Lili Chen

Deputy Director of Embryo Laboratory

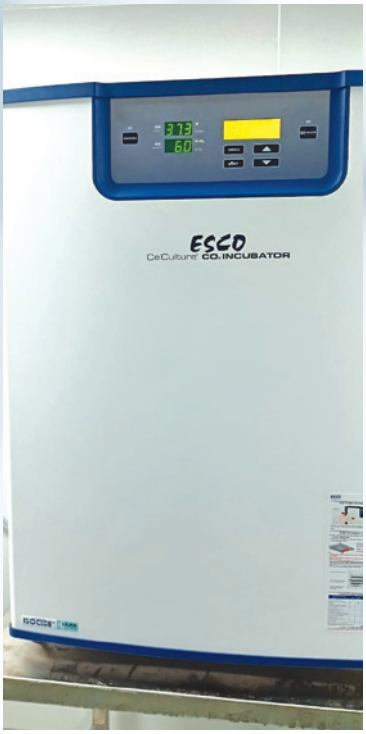
3rd Quarter

Installations

INDIA



Kasturba Medical College Manipal University
Madhava Nagar, Manipal-576104, Udupi, Karnataka, India
Date installed: July 14, 2022
Devices Installed: Mini MIRI® Humidity



BELS IVF & Surgical Center
Indus Empire, Shahpura
Bhopal, Madhya Pradesh 462026
India
Date installed: July 21, 2022
Devices Installed: CelCulture® CO_2 Incubator

INDONESIA






Bali Fertility Centre - Kasih Ibu Hospital
Denpasar Bali, Indonesia
Date installed: Sept 15, 2022
Devices Installed: 2 MIRI® Multiroom Incubator, 1 MAW Workstation 6 feet, CelCulture® CO_2 Incubator, 1 AVT-1, 1 Laminar Flow Cabinet for Andrology

Customer Testimonials

"I am so grateful now that we are finally able to setup our lab with the help of Esco Philippines. *We are now a thriving state-of-the-art laboratory that is at par with the other successful IVF centers in the world.*

I'll talk to you about our newest addition to our list of many Esco equipment which is their MIRI® TL 12. It really amazes me how it allows us to continuously monitor the development of the embryos in a non-invasive manner without having to remove them from the incubator. "

Dr. Eileen Co-Sy
Medical Director, Co-Sy Fertility Clinic

"I would like to thank M/s. Esco Micro Pte Ltd, Singapore for timely providing us Esco Medical equipment (MIRI® Time-Lapse 6 Chamber Incubator) at the Shree IVF laboratory 1.5 years back. We are very much satisfied with the performance of the equipment.

We are using Esco manufactured equipment, and are extremely happy with Esco's products.

I am happy to recommend these products. We appreciate their prompt and other great services as well."

Dr. Jay Mehta
Director - Shree IVF Center

Manufacturer:
Esco Medical Technologies, Ltd.
Draugystes g. 19, 51230 Kaunas, Lithuania

Service address: Please contact your local distributor for details.
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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