

Scientific Evidence for

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MIRI[®] Multiroom Incubator

VIP Treatment for High Success Rate Embryos in IVF



Embryo Development Consistency Across Stages

Time-Lapse Incubation for Embryo Culture-Morphokinetics and Environmental Stability May Not Be Enough: Results from a Pilot Randomized Controlled Trial
Sacks et al., 2024 | Journal of Clinical Medicine, 13(6), 1701

Key outcomes:

- **High early embryo quality:** Robust cleavage-stage development was observed, with Day 2 and Day 3 top-quality embryo rates of **65.3%**, indicating stable and consistent early embryonic growth.
- **Effective blastocyst development:** Extended embryo culture resulted in a blastulation rate of **37.6%**, indicating effective support of development through the later embryonic stages.
- **Reliable clinical usability:** A consistent proportion of embryos (**32.4 ± 3.3%**) were suitable for transfer or cryopreservation, supporting effective embryo utilization throughout the treatment cycle.
- **Stable controlled incubation environment:** Precise control of temperature and gas composition throughout all developmental stages maintained optimal conditions for embryo growth.

Relation between anti-mullerian hormone and blastocyst rate in patients less than 35 years old
Bahgat & Denek, 2022 | International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 11(5), 1351

Key outcomes:

- **Efficient embryo development:** The mean cleavage rate remained high at **98%**, indicating consistent embryo progression across all 3 Anti-Mullerian Hormone (AMH) groups.
- **Consistent blastocyst formation:** Across 247 cycles, **54.82%** of cleaved embryos and **52.39%** of fertilised oocytes reached the blastocyst stage.

Blastocyst versus cleavage transfers: who benefits?
Dirican et al., 2022 | Archives of Gynecology and Obstetrics, 305(3), 749-756

Key outcome:

- **Embryo transfer efficiency:** High transfer rates were observed across 1116 patients, with **100%** for cleavage-stage embryos and **86.84%** for blastocyst-stage embryos, reflecting the incubator's ability to sustain embryo viability throughout both short and extended culture periods.





The impact of culture conditions on blastocyst formation and aneuploidy rates: a comparison between single-step and sequential media in a large academic practice
Deng et al., 2020 | Journal of Assisted Reproduction and Genetics, 37(1), 161–169

In this state-of-the-art study, Deng et al. (2020) aimed to compare the effects of single-step and sequential culture media on human blastocyst formation and aneuploidy rates, using the MIRI® multiroom IVF incubator solely as a culture device without evaluating its performance, so the outcomes of the study cannot be linked directly to clinical performance of the incubator.

Key outcomes:

- **Effective blastocyst support:** High blastocyst formation achieved across 2 media types, with single-step medium supporting **52.2%** in women **under age 38** and **48.0%** in women **age 38 and above**, compared to sequential medium (**50.2%** and **33.6%**, respectively), demonstrating robust support for late-stage embryo development.
- **Precise environmental control:** Continuous regulation of temperature and gas composition throughout all developmental stages supported proper embryo ploidy and consistent developmental potential across patient age groups.

Tracking quality: can embryology key performance indicators be used to identify clinically relevant shifts in pregnancy rate?
Hammond & Morbeck, 2019 | Human Reproduction (Oxford, England), 34(1), 37–43

Key outcomes:

- **High-quality blastocyst production:** Consistent Day 5 usable blastocyst rates (**25–32%**) and a high proportion of top-quality blastocyst transfers (**35–48%**) supported reliable generation of embryos suitable for transfer or cryopreservation.
- **Stable overall blastocyst yield:** Total Usable Blastocyst Rate (TBUR) remained consistent (**39–43%**) across all 3 periods (P1, P2, P3), ensuring effective embryo utilization and consistent clinical performance.

Scientific Significance for User:

Across diverse clinical conditions, patient populations, culture media, and developmental stages, MIRI® multiroom IVF incubator consistently provided a stable and precisely controlled incubation environment. This stability supported reliable embryo development from cleavage to blastocyst stages, maintained embryo viability during both short and extended culture, and enabled consistent clinical performance and effective embryo utilization in IVF laboratories.

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Esco Medical Products:

MIRI® M Multiroom Incubator
 MIRI® Multiroom Incubator
 MIRI® Humidity Multiroom Incubator
 MIRI® II-12 Multiroom Incubator
 Mini MIRI® Dry Multiroom Incubator

Mini MIRI® Humidity Multiroom Incubator
 MIRI® TL6 Time-Lapse Incubator
 MIRI® TL12 Time-Lapse Incubator
 Multi-Zone ART Workstation
 MIRI® Laminar Flow Cabinet

MIRI® Evidence RFID Witnessing & Traceability System
 CelCulture® CO₂ Incubator
 MIRI® GA (Gas and Temperature Validation Unit)
 MIRI® AVT
 CultureCoin®

Infertility is a problem that has a significant social, psychological, and economic impact on afflicted individuals and couples. It is a global concern that knows no race or creed. It has been estimated that 1 in 6 couples struggle with infertility at least once in their lifetime.

Esco Medical is one of the divisions of the Esco Lifesciences Group. We provide innovative technological solutions for fertility clinics and laboratories. We aim to become the leading manufacturer of high-quality equipment such as long-term embryo incubators, ART workstations, anti-vibration tables, and time-lapse incubators.

Our products are designed with the Silent Embryo Hypothesis as a guiding principle. The Silent Embryo Hypothesis states that the less disturbed an embryo can remain, the better its developmental potential will be. Most of our products are designed in Denmark and made in the EU. Our primary focus is to increase pregnancy success rates and patient satisfaction.



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