



The Next Generation of Time-Lapse Systems.

Miri[®] TL6

time-lapse incubator for IVF



Miri® TL6

“An affordable time-lapse incubation system for IVF”

The Next Generation of Time-Lapse Systems. Continuously monitor embryo development without missing crucial events.

Six (6) chambers

- The Miri® TL6 has six (6) individual chambers which allow embryologists to culture embryos such that there is one independent chamber for each patient.
- The small chamber design allows for excellent recovery rates:

Gas recovery: less than three (3) minutes

Temperature recovery: less than one (1) minute

Time-Lapse Monitoring

With Miri® TL6, you can continuously monitor the development of embryos using built-in microscope and camera, specifically designed for embryo illumination. As images are digitally-stored, a video can be generated to enable a more objective and reliable grading criteria. This enables a detailed scoring of embryos cultured for better prediction of future developmental and implantation potential.

Embryo Analysis and Evaluation System

The Miri® TL6 Viewer is equipped with embryo viability evaluation tools. These features help embryologists select only the best embryos to transfer. With retrospective embryo development analysis, you can maintain a complete documentation of patient details, treatment and embryo data. See Page 7.



A number of IVF clinics have already switched from an analogue method to a digital process.

“HAVE YOU?”

In Miri® TL6, six (6) separate chambers have been designed to prevent cross-contamination during the process. The independent temperature regulation ensures optimal embryo developmental conditions. This lessens disturbance and minimizes stressful factors that may be introduced when taking the dishes out of the incubator. This value-added treatment provides a unique incubation environment with the market's most secure and safe handling procedures.



Heated Lid

- Prevents condensation.
- Enhances temperature regulation/recovery.
- Excellent uniformity between the top and bottom lid.

Direct Heat Transfer

- Provides superior temperature stability.
- Less than one (1) minute of temperature recovery.

2 Temperature Mode Options:

- **Single:** Uniform set points for all 6 (six) chambers.
- **Multi:** Individual set points for each chamber.

Touch Screen Control Panel

Easily change parameter settings with a reliable touch-screen display. Configuration is as simple as you need it to be.



CultureCoin, a culture dish, especially designed for the Miri® TL

- One (1) Miri® TL6 chamber contains one (1) CultureCoin and has room for fourteen (14) embryos.
- With 6 chambers, total capacity is 84 embryos.

More Data For Observations, Better Selection

- In using the embryo evaluation tools, only the best embryos are selected and unviable embryos are eliminated.
- Retrospective data analysis provides complete documentation of patient details, treatment and embryo data. This can also be used for reference, knowledge sharing and training for embryologists.

Time-Lapse Embryo Recording And Monitoring



The main screen shows all six (6) chambers as each counter illustrates the duration of time-lapse recording done. At the upper right portion, snapshots of other useful information regarding the incubator such as temperature, pH measurement, CO₂ and O₂ status, and Set Points (SP) are displayed.



To initialize the time-lapse procedure, the user will be asked to assign patient IDs. Since the Mini® TL6 chambers are physically separated, each chamber can be easily assigned to different patients at the same time.



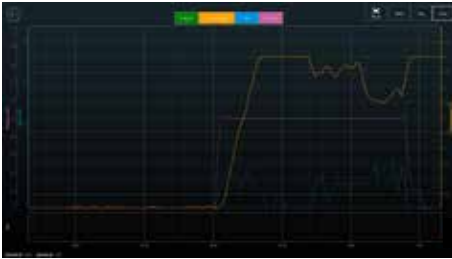
Navigation through the stacked timeline is easy and intuitive as all 14 wells of the special culture dish (CultureCoin) in a selected chamber can be monitored closely.

Shown on the image is a magnified view of embryo #4 at 28 hpi (hours post insemination).

Data And Alarms Logging

The Miri® TL6 data logger continuously documents all incubation parameters such as flow, pressure, and concentration of CO₂, O₂ and temperature regulation data. Details of any alarm events such as out-of-range parameters are also stored for retrieval.

You can also view similar performance data right on your Miri® TL6 Viewer Software on a daily, weekly or monthly basis for all six (6) chambers.



The data-logger stores continuous performance data of the machine throughout its use. These can be viewed in graphs.



Conditions that put the Miri® TL6 into alarm state are recorded. It is possible for the software to send email alerts as well.

Time-Lapse Monitoring

- The time-lapse sessions run up to **199** hours.
- A video can be generated as images and are digitally stored in multiple focal planes.
- Retrospective data analysis can be used for reference, knowledge sharing and training for embryologists.



Superior Incubation Environment

- A total of 12 completely separate sensors ensure constant temperature stability.
- Rapid temperature and gas recovery to ensure optimal environment stability.
- Pre-mixed gas is not required and total gas consumption is very low.



High Quality Environment for Optimum Embryo Growth

Advanced
CO₂ + O₂
Regulation

Provide total control of the gas phase environment

The built-in gas mixer and the high-performance CO₂ and O₂ sensors allow accurate control of gas phase composition in the chambers.

Gas Recovery:
< 3 minutes

Gas Consumption:
CO₂: < 2 L/h
N₂: < 10 L/h

High Quality
Recirculated
Airstream

High Quality Airstream Via:

Volatile Organic Compounds or VOCs are toxic to an embryo. It directly attaches to the DNA and can pose detrimental effects on its development. The Miri® TL6 is specially equipped with HEPA+VOC filter to help eliminate harmful VOCs and particulates.

HEPA+VOC filter
254 nm UV-C with 185 nm filter



Easy
Parameter
Validation

Quality Checking an easy breeze!

Each compartment has an individual PT1000 sensor and gas sample port specifically designed for independent and continuous validation of temperature and gas concentration. Can be connected to a Miri® GA, a Gas and Temperature Validation unit, for continuous external validation of both gas and temperature.

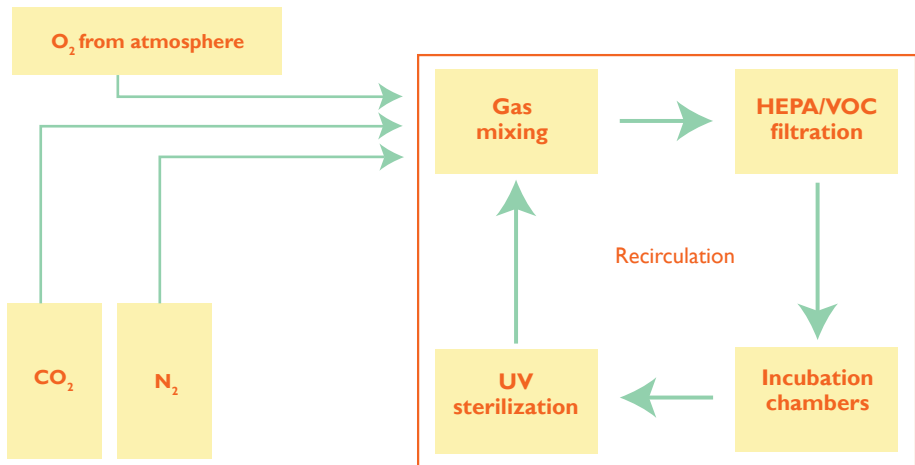


It also has a pH measuring system and a small validation well on the CultureCoin for easy checking of the pH in each compartment.



MRI-GA

Airflow Diagram



Embryo Analysis and Evaluation System



Simple and Intuitive

The Miri® TL6 Viewer Software is a simple yet sophisticated information-providing tool that can help embryologists process the data generated. You can review, annotate and compare the morphokinetic parameters of each embryo to select or deselect embryos for transfer and export the data for retrospective analysis.

Complete Data Logging System

The main view shows four buttons:

- Timelapses (a list of pending, ongoing and past time-lapse sessions)
- Patients (Patient database)
- Incubators (view connected Miri® TL6 incubators)
- Settings (customized any annotation and ideal timing parameters)



Embryo Development Overview

Viewing the embryo development has never been this better. The *Revolver View* shows all embryos incubated within a CultureCoin. This view is your jumping point for doing the annotation and selection. From here, you can select an embryo to annotate and to compare its development with other embryos to select the most viable one.

Sophisticated Tools for Annotation

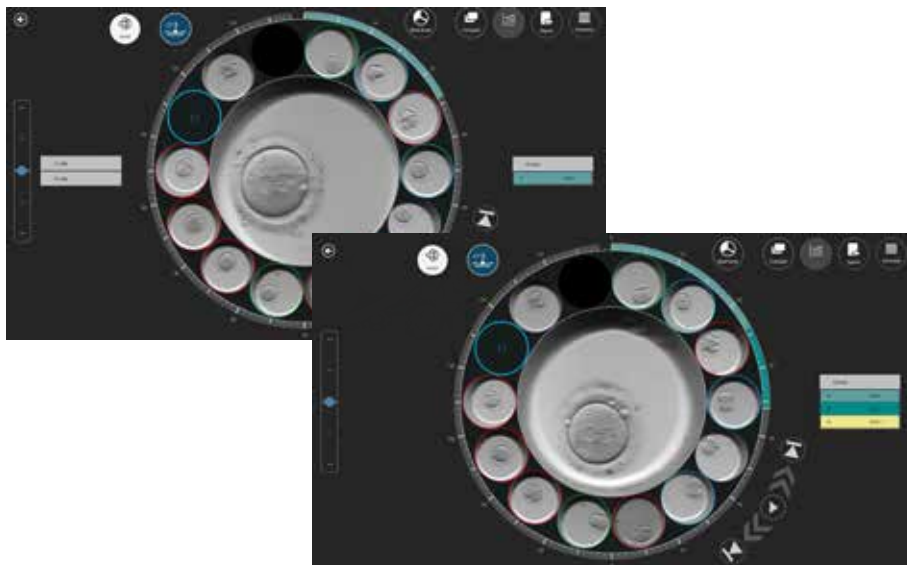
Embryo annotation is made easy! The annotation system is structured around the “events” that are located on the left of the wheel. Annotation is the process of time-marking a specific event/ parameter e.g. if you’ve observed t2 to happen at 27 hpi, you can click “t2” on the list of events from the left column and the annotated parameter of t2 at 27 hpi will be displayed in the right column. By default, the events list has t2, t3, t4, t5, 56, t7, t8, morula, blastocyst and early blastocyst.

What’s so good with the software is the user’s ability to customize each event completely. The events listed in the left column can be customized to include other parameters not included in the default settings. You can go to Settings then there are more advanced parameters that can be included in your time-lapse grading system. To complement, we have added the Ideal Time function, which by a circular coloured band on the outside of the annotated events, indicates the ideal timings, making it easier to compare between the actual timing of the embryo development to the ideal time.



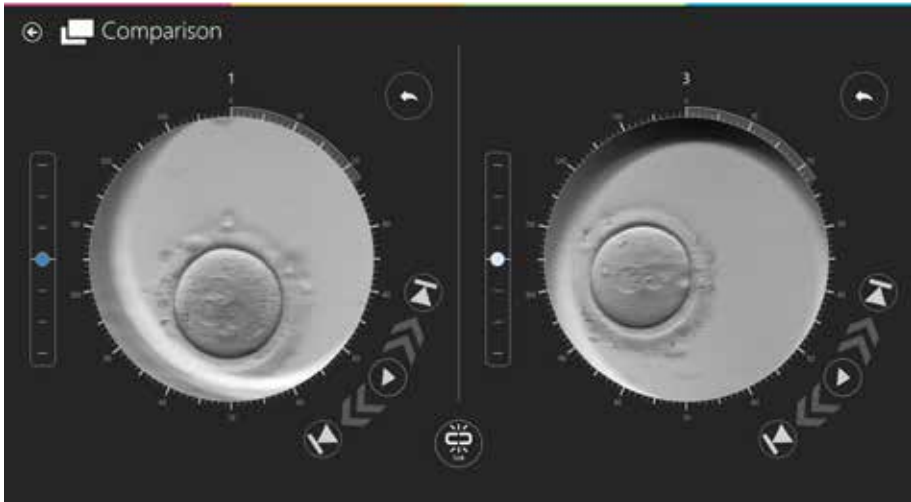
Assisted Annotation

Mir[®] TL6 Viewer also has an “**Assist Button**” tool that automatically detects cleavage events. This helps embryologists for the accurate detection of the first cleavage. The Assist function does an automatic detection of cleavages up to the 4 cell-stage event.



Side-by-Side Comparison

Choosing the most viable embryo for transfer is made easier with the **Compare Tool**. It allows you to make a side-by-side comparison of the embryo development. It offers you the flexibility to choose the particular time point you would like to compare.



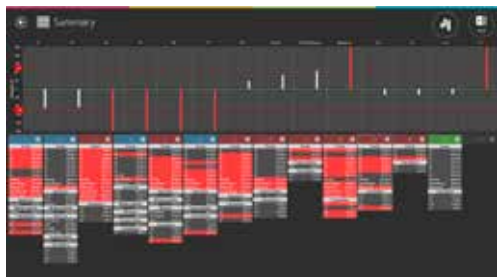
Easy to Understand Summary View

The **Summary View** is a helpful tool in comparing and selecting the most viable embryo based on the annotations you've made. The Horizontal View allows you to compare the actual cleavage timings of all embryos against the ideal timing.



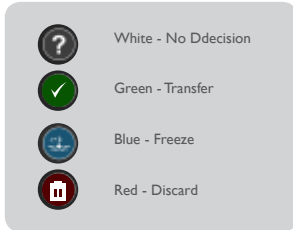
Horizontal View

The Vertical View provides information if the cleavage timing is within the acceptable criteria (range) or not. The white vertical bar indicates that the cleavage timing is within the acceptable range while the red bar indicates otherwise.



Vertical View

Once the evaluation and comparison have been completed, the embryos can be assigned with colours that indicate the decision:



A coloured ring will appear around the embryo well and the colour on the dish map will also change accordingly



Freedom to Personalize

Our belief is that it's your laboratory, it's your device. It should offer you the freedom to customize and adjust the instrument and parameter settings completely. Therefore, the "Ideal Time" function and Events for the annotation can be optimized based on the requirements of your clinic.

The Time-Lapse incubator keeps true to Esco's world class expertise and quality in IVF technology.

Make Miri® TL6 a part of your IVF lab.



Miri[®] TL General Specification

Miri [®] Time-Lapse Incubator	
Overall Dimensions	785 × 596 × 380 mm (30.9 × 23.5 × 15.0")
Temperature Control Range	25 - 40 °C
Gas Consumption (CO ₂) *	< 2 L/h
Gas Consumption (N ₂) **	< 10 L/h
CO ₂ Control Range	1.9 - 10%
O ₂ Control Range	5 - 20%
Input Gas Pressure	0.6 bar (8.7 psi)
Built-in Microscope	Zeiss 20x, objective has numerical aperture of 0.35, specialized for 635 nm illumination
Embryo Illumination	0.064s per image, using 1W single red LED (635nm)
Camera Resolution	1280 × 1024. Monochrome, 8-bit, IDS system.
Optics Tube Ratio	2.22 px/μm
Imaging Focal Planes	5 min. image interval in 3 to 7 focal planes

* Under normal condition (CO₂ set point reached at 5.0%, all lids closed).

** Under normal condition (O₂ set point reached at 5.0%, all lids closed).

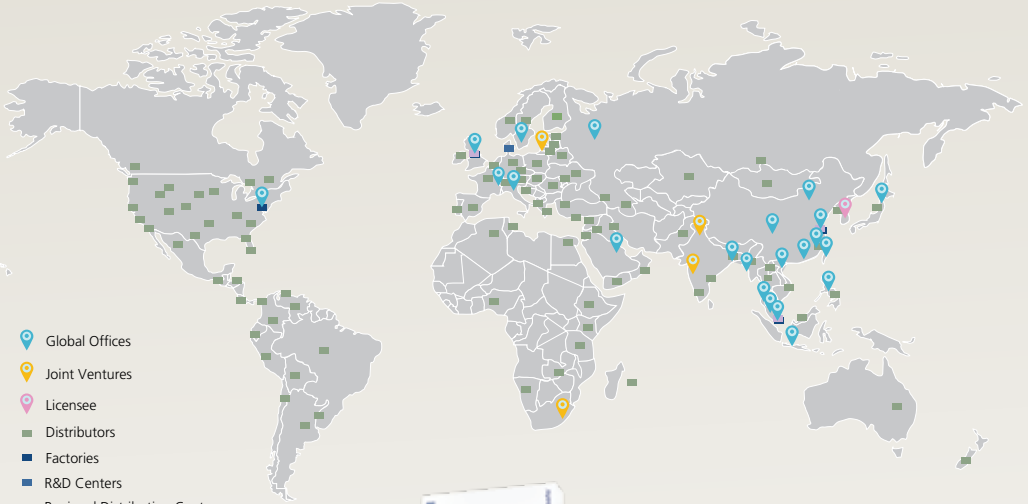
Ordering Information

ITEM CODE	MODEL CODE	DESCRIPTION
Unit		
2070091	MRI-TL-MN-6C-8	Miri [®] Time-Lapse Incubator; Mini, 6 Chambers, 230 V, 50/60 Hz
2070092	MRI-TL-MN-6C-9	Miri [®] Time-Lapse Incubator; Mini, 6 Chambers, 115 V, 50/60 Hz
Accessories		
1320011	MRA-1007	HEPA + VOC filter (to be replaced every 3 months)
1320088	MRI-CC	CultureCoin for Time-Lapse of 14 embryos (25 pcs. per pack)
1320045	MRI-GA	Miri [®] GA CO ₂ /O ₂ & Temperature Validation Unit, 115V/ 230V

Certification



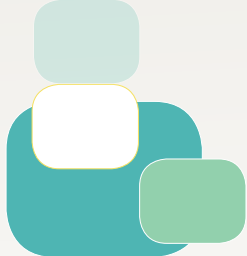
GLOBAL NETWORK



- Global Offices
- Joint Ventures
- Licensee
- Distributors
- Factories
- R&D Centers
- Regional Distribution Centers



- Esco Medical Products:**
- Anti-Vibration Table (AVT)
 - CelCulture CO₂ Incubator
 - Culture and Fertilization Dishes
 - Fertilisafe® IVF Workstation
 - Miri® Benchtop Multi-room Incubators
 - Mini Miri® Humidified Benchtop Incubator
 - Miri® TL6 Time Lapse Embryo Incubator
 - Miri® GA (Gas and Temperature Validation Unit)
 - Miri® GA Mini (Gas Analyzer)
 - Semi Closed Environment (IVF/ICSI)



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

Esco Medical is one of the divisions of the Esco Group of Companies, the other two being the laboratory and pharmaceutical equipment divisions. Esco is now targeting innovative technological solutions for fertility clinics and laboratories. Esco Medical is positioned to become a leading manufacturer and innovator of high-quality equipment such as long-term embryo incubators, ART workstations, anti vibration table, time-lapse incubator and etc.

Esco Medical products are designed to develop 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. The primary focus of this division is to increase pregnancy success rates and patient satisfaction.



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