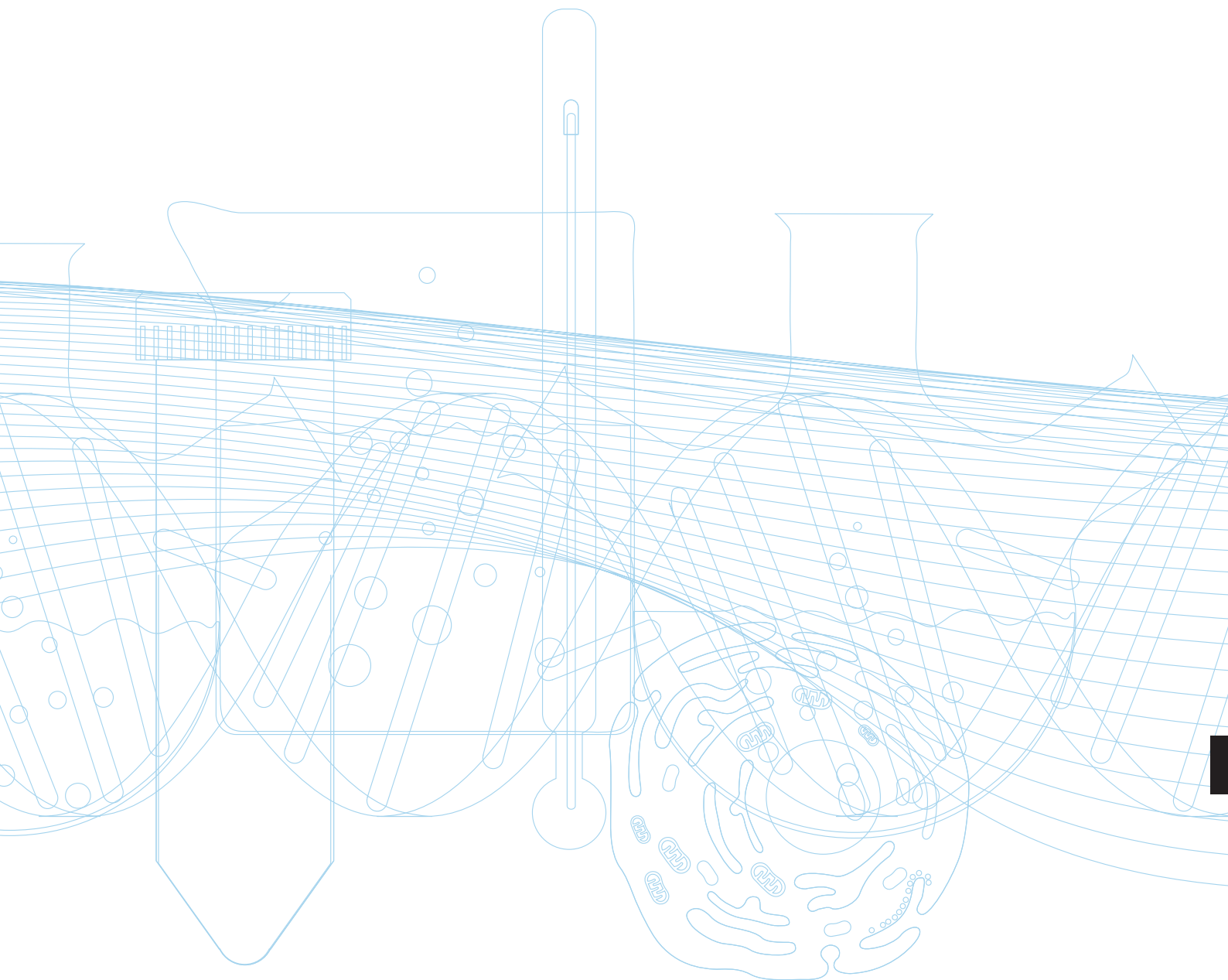


18 Cryopreservation



Grant Asymptote EF600M

Liquid nitrogen free and cryogen free controlled rate freezer for the cryopreservation of a wide range of material including: embryos, stem cells, mammalian cells, spermatozoa, antibodies, tissue sections and rodent organs. **The EF600M brings accuracy, precision and reproducibility to biological cryopreservation.**

Unlike conventional liquid Nitrogen based controlled rate cooling equipment used in IVF laboratories, the EF600M poses no contamination risk and can be used in cleanrooms and barrier facilities. The EF600M fits neatly and quietly on a bench-top and its performance in terms of cell viability after freezing is comparable or better than standard liquid nitrogen freezers. As alcohol is not used, there is also no potential fire risk. The EF600M will cool down to -100°C with straws.

The cooling rate of the EF600M is precisely controlled, ensuring accuracy and reproducibility throughout the freezing profile especially for the important nucleation/seeding phase. This ensures optimal recovery of cells upon thawing. Operation is simple and can be carried out with or without a PC; data can be logged via PC software and cooling profiles are directly displayed. Different cooling profiles are available from a drop down menu and customised profiles can be written. Published trials⁽¹⁾ have demonstrated successful freezing and recovery of embryos, sperm and embryonic stem cells.



¹RBM Online 13, 421-426, 2006; Cryoletters 27(3), 179-184 (2006)

Main applications

The EF600M is highly versatile and can be used for the cryopreservation of a wide range of samples in cryovials, straws, bags, microplates and Matrix-96-well block plates including:

- Human and veterinary IVF
- Transgenic embryos
- Stem cells
- Clinical and research samples, e.g. lymphocytes and tissue cells lines in conventional cryovials
- Various mammalian cells including cardiomyocytes, adipose, liver and muscle
- Cord blood derived stem cells in typical cryocyte bags
- Adherent cells and stem cells in microplates plates
- Cell suspensions in numbered/barcoded arrays for archiving and storage
- Robotic integration – the EF600M has also successfully been integrated into robotic systems, supporting biorepository and biobank applications

Key benefits/features

- Accurate and reproducible control of cooling rates and sample temperatures
- Easy to use and samples can be nucleated/seeded *in-situ*
- Linear and non-linear cooling profiles
- Low running costs: estimated at 1% of liquid nitrogen controlled rate freezing
- Temperature remains at -100°C at the end of cycle for straw applications until freezer is switched off
- Uninterruptible Power Supply (UPS): complete cycle run if power fails (supplied as an optional accessory)
- CE marked
- Servicing and calibration available
- 3 year warranty

Product range

The range includes various models each providing optimum performance for a specific and common vessel, or vessels for the combined heads including:

■ EF600M 100	Plate for 16 x 0.5 ml CBS high security straws
■ EF600M 101	Plate for 18 x 0.3 ml IMV straws
■ EF600M 102	Plate for 55 x 1.8 ml cryovials (0.5 ml max fill)
■ EF600M 103	Flat plate for various items/vessels
■ EF600M 104	Plate for cryocyte bag (available as a “Special” only)
■ EF600M 105	Plate for 1 x SBS microplate
■ EF600M 106	Plate for 55 x 1.8 ml cryovials (1.0ml max fill)
■ EF600M 107	Plate for 10 x 0.5 ml CBS high security straws & 12 x 1.8 ml cryovials (0.5 ml max fill)
■ EF600M 108	Plate for 12 x 0.3 ml IMV straws & 12 x 1.8 ml cryovials (0.5 ml max fill)

Accessories

■ **Cryopen ice nucleating tool:**

A small nitrous oxide cryosurgical device which uses the rapid expansion of sterile N₂O to induce ice nucleation (“seeding”) in the samples. The gas does not compromise the sterility of the operating environment.

■ **Backup electrical supply:**

Uninterruptible Power System (UPS) capable of running the freezer for a 3 hour cycle in the event of an electrical power failure

Grant are developing a number of additional accessories to compliment the EF600M. For further information please contact Grant technical support. Contact details are provided at the front of this catalogue.