ASX Release
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Study shows Felix™ System offers significant advantages over alternative sperm separation techniques on cryopreserved semen

Key points

- **A study released on 5 June 2023 has concluded that the Felix™ System (Felix™) provides the best separation technique for recovering high-quality sperm post cryopreservation[1] for use in assisted reproductive technology (ART)**
- **This is the first study globally to compare electrophoretic separation (using Felix™) with the DGC and Swim-up sperm isolation techniques on cryopreserved human semen**
- **Storage of semen via cryopreservation is extensively used in Assisted Reproduction Technologies ("ART") for the long-term preservation of male fertility**

Australian-based reproductive biotechnology company, Memphasys Limited (ASX: MEM), is pleased to announce results of a study titled 'Analysis of sperm separation protocols for isolating cryopreserved human spermatozoa' (the 'Study'[2]), which has revealed that only cells separated using the Felix™ system exhibited significantly lower levels of DNA fragmentation following cryopreservation.

Felix™ is a patented, automated system with a single-use cartridge that gently separates high-quality sperm from a semen sample in six minutes for use in human IVF procedures.

The results of the Study were released on 5 June 2023 at the annual Fertility Society of Australia and New Zealand (FSANZ) 2023 Conference and have also been published in the medical journal 'Reproduction and Fertility.

The cryopreservation of sperm in semen samples enables the preservation of fertility that might otherwise be compromised as a result of chemotherapy, vasectomy or other factors. Sperm is separated from the cryopreservation medium prior to clinical use, with the aim of maximising successful conception and minimising the risk of genetic defects. The most common separation techniques currently used in the assisted reproductive technology industry are density gradient centrifugation (DGC) and Swim-up.

The Study found that the cryopreservation of sperm led to lower levels of motility and vitality and created higher levels of DNA and cell membrane damage. More specifically, it found:

Felix™ Significantly lowered the levels of DNA fragmentation observed in cryostored human sperm populations, while maintaining relatively high levels of motility and sperm recovery

DGC Sperm recovery rates were high, but the spermatozoa were damaged in terms of their motility and DNA integrity

Swim-up Generated highly motile sperm populations, but recovery rates were extremely low and DNA damage levels were not lowered

Peer reviewed papers and studies underpin the value of Felix™, support regulatory filing material and ultimately enhance its commercialisation.

This announcement has been approved for release by the board of Memphasys Limited.

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1 Freezing cells to −196°C
2 The Study was designed, conducted, written and edited by A Hungerford, a PhD student funded by Memphasys Ltd. Mentorship and manuscript editing was provided by R Aitken of the University of Newcastle's Reproductive Science Centre and H Bakos of Monash IVF Sydney and the University of Newcastle's Reproductive Science Centre.

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About Memphasys

Memphasys Limited (ASX: MEM) specialises in reproductive biotechnology for high value commercial applications. Reproductive biotechnology products in development include medical devices, *in vitro* diagnostics, and new proprietary media. The Company's patented bio-separation technology, utilised by the Company's most advanced product, the Felix™ System device, combines electrophoresis with proprietary size exclusion membranes to separate the most viable sperm cells for human artificial reproduction.

Website: www.memphasys.com