

Automated Vitrification and Warming System

Are you facing any of the following challenges?

- Unsatisfactory embryo cryopreservation success rates
- A shortage of embryologists or high staff turnover
- Heavy workloads placing substantial pressure on embryologists



► Performance

Automates embryo processing during vitrification and warming.
Reduces variability associated with manual handling.

► Advantages

Improved Consistency

Enhances consistency by reducing operator error through simplified operation.

High Throughput

With 4 independent channels, the system can continuously process up to 12 vitrification vessels, achieving a vitrification throughput of up to **3,360** embryos/hr and a warming throughput of up to **6,720** embryos/hr.

Compatible

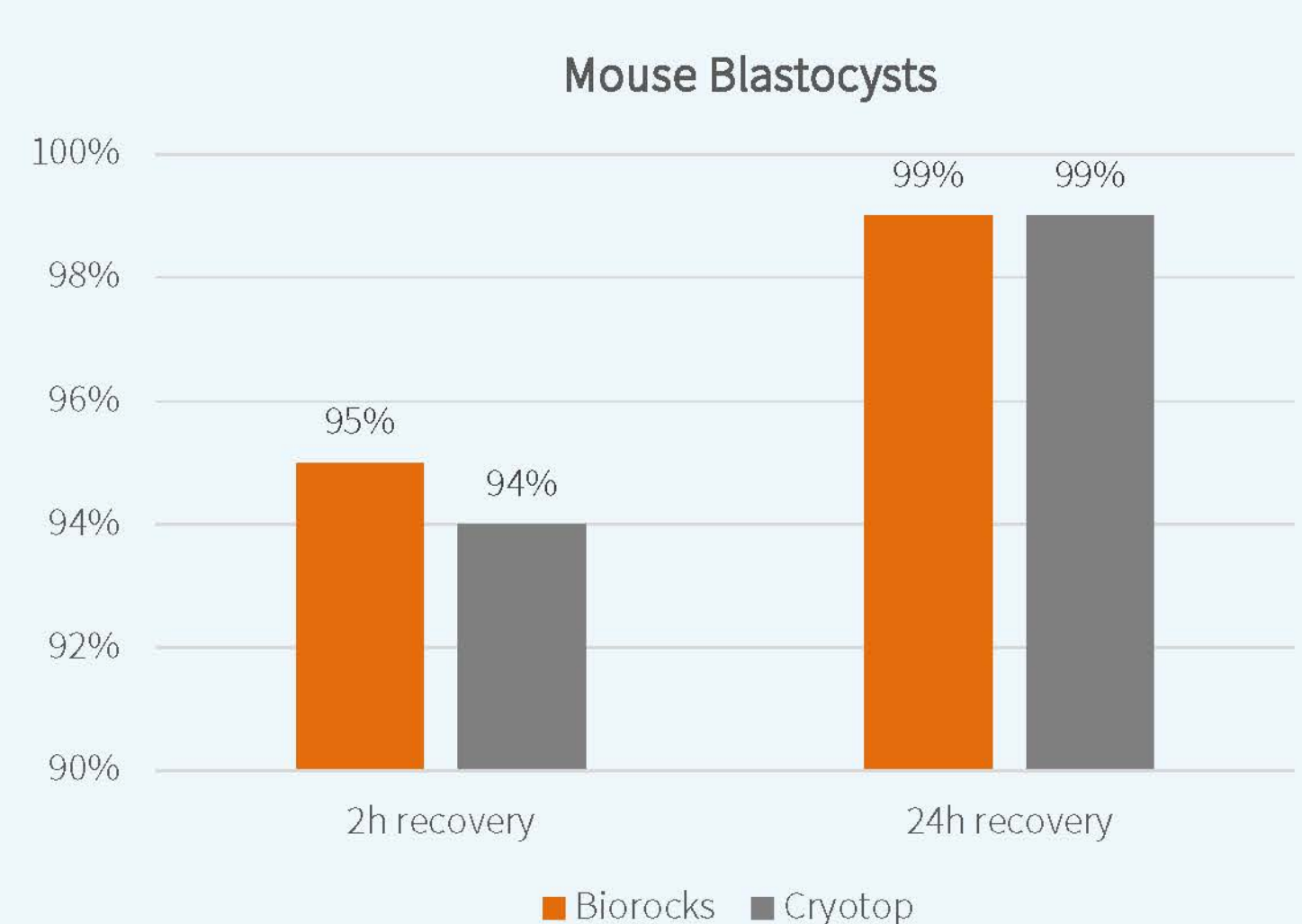
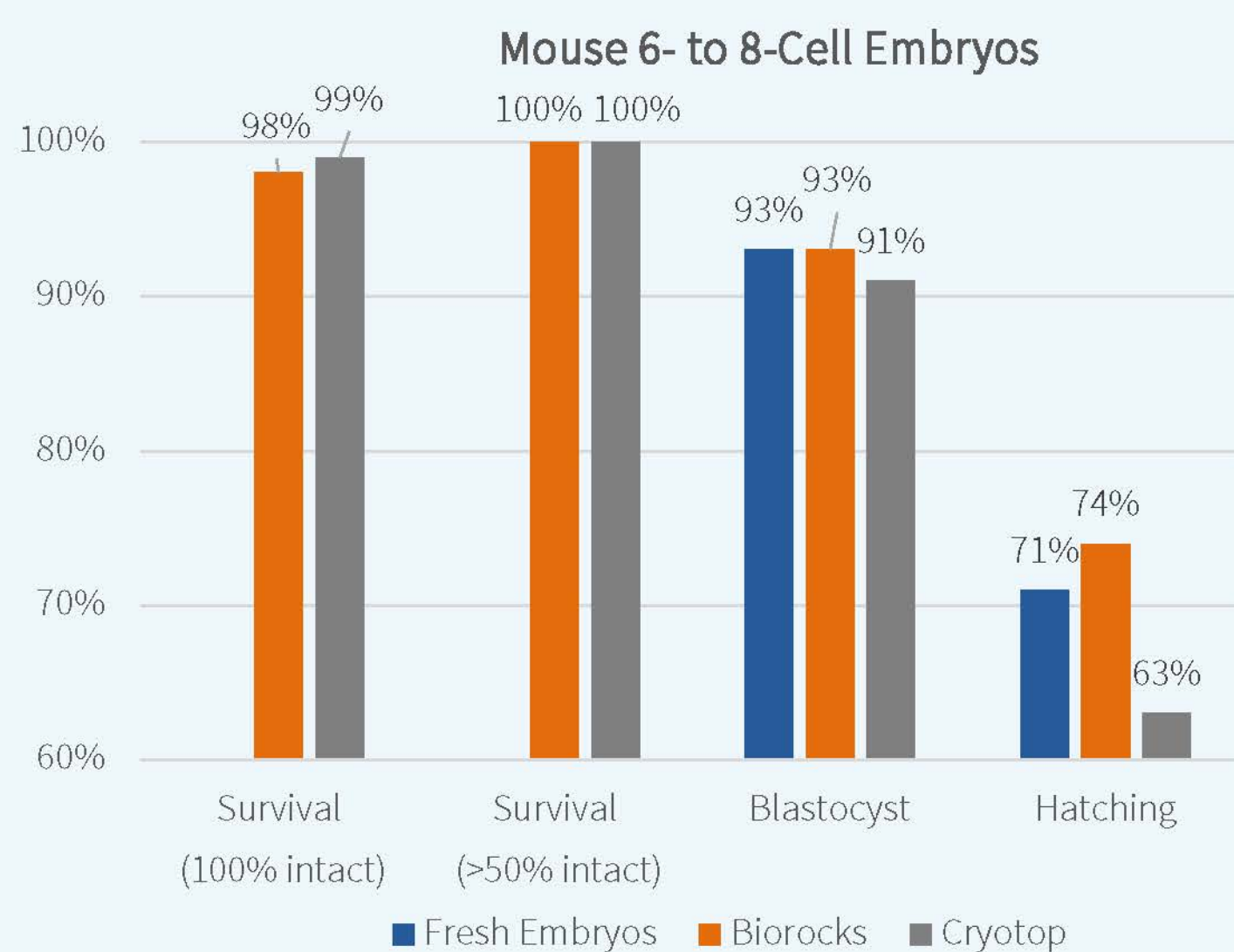
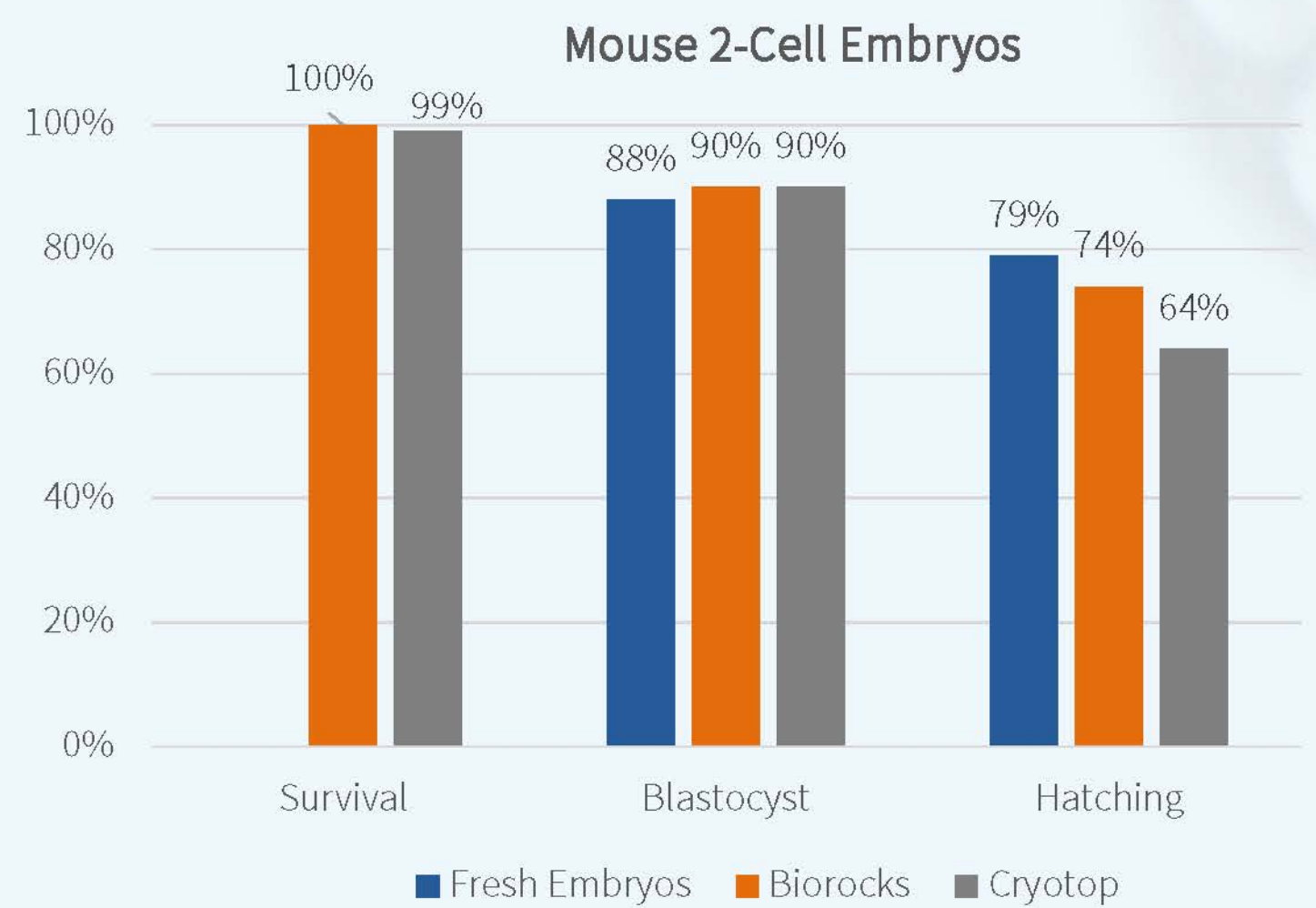
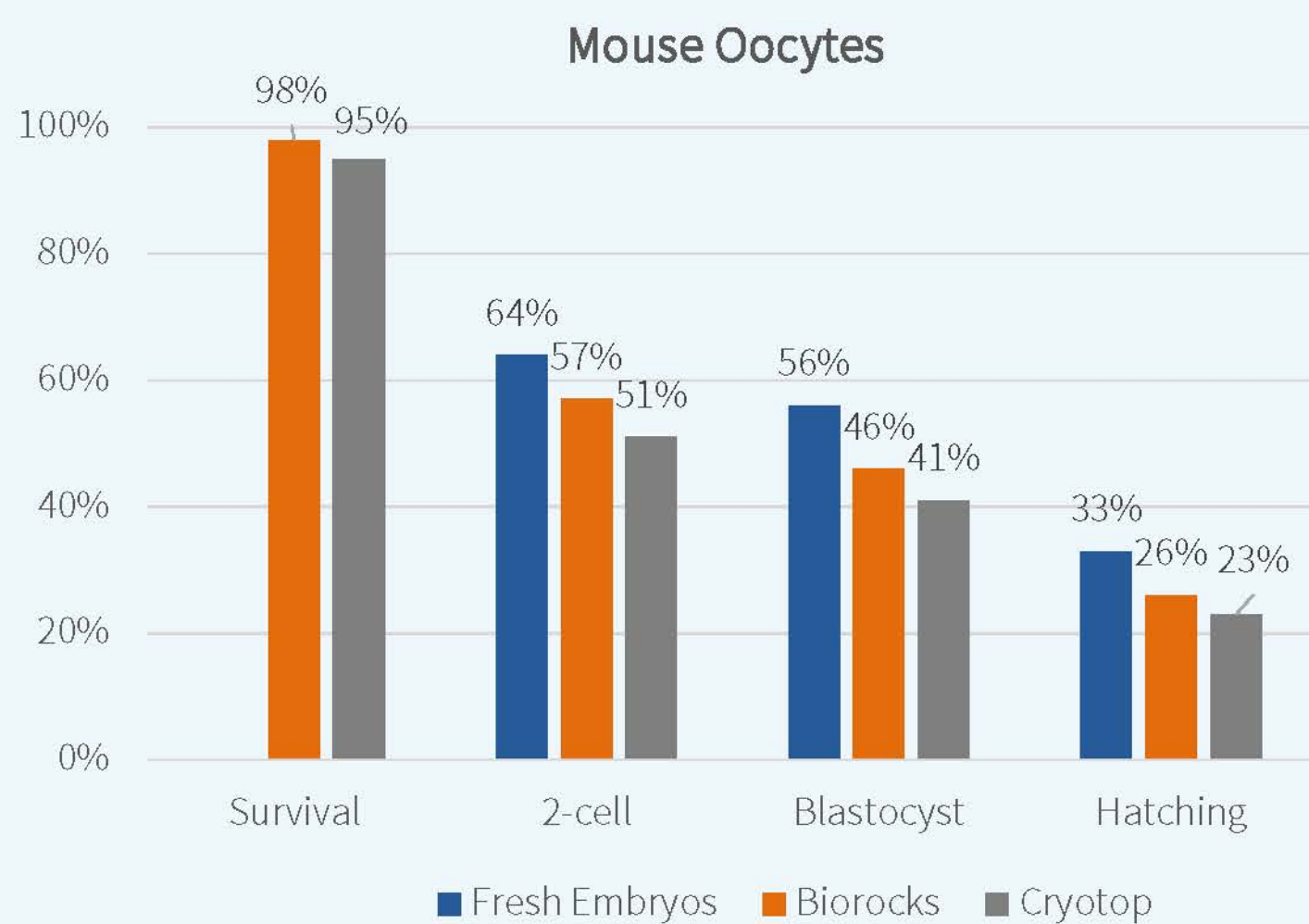
Compatible with manual vitrification and warming workflows and existing storage systems, providing a more standardized and reliable option.

High Successful Rate

Significantly reduces embryo damage during vitrification and warming. In the cited study, the recovery rate of 2-cell embryos reached **99%**

The World's First Automated Vitrification and Warming System

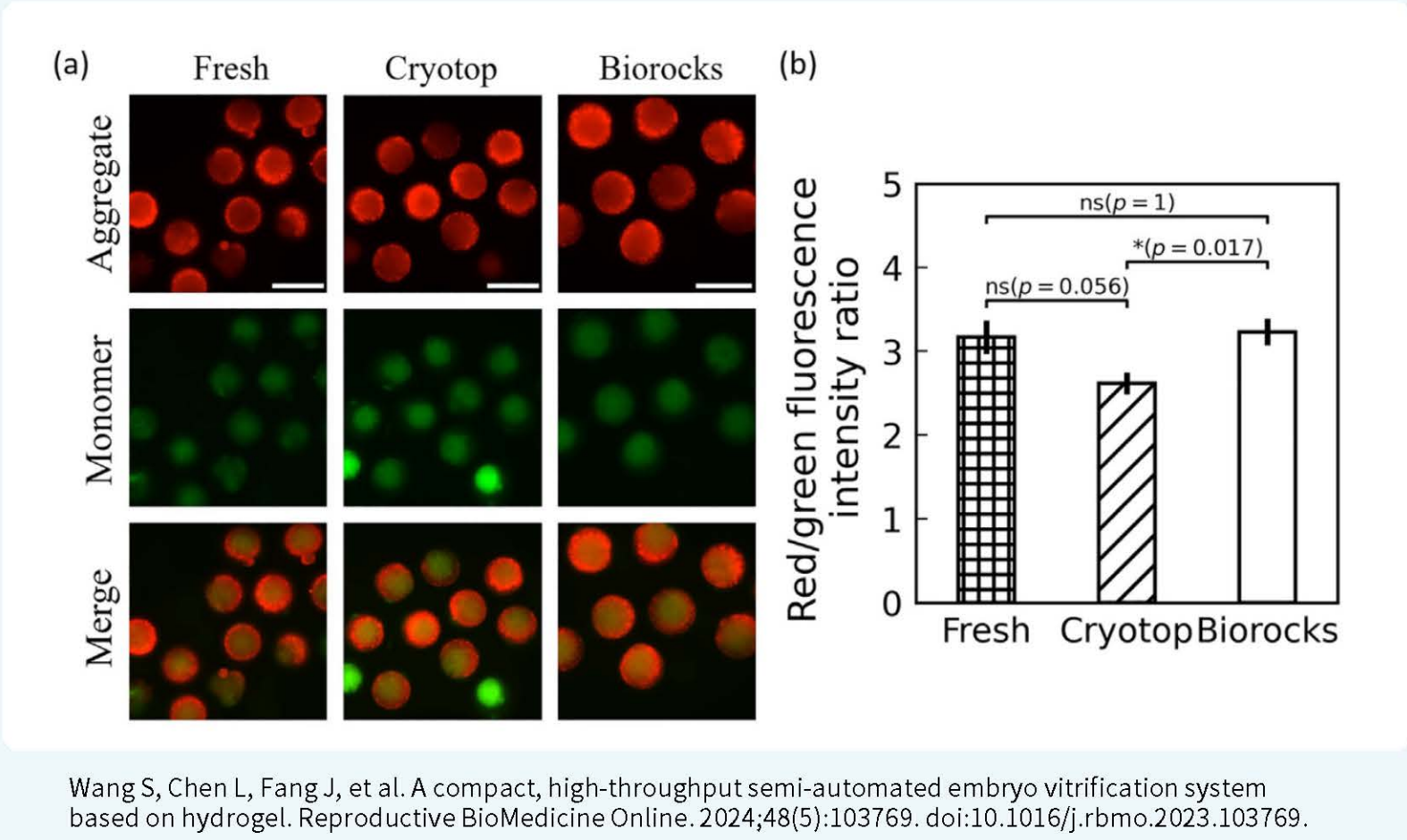
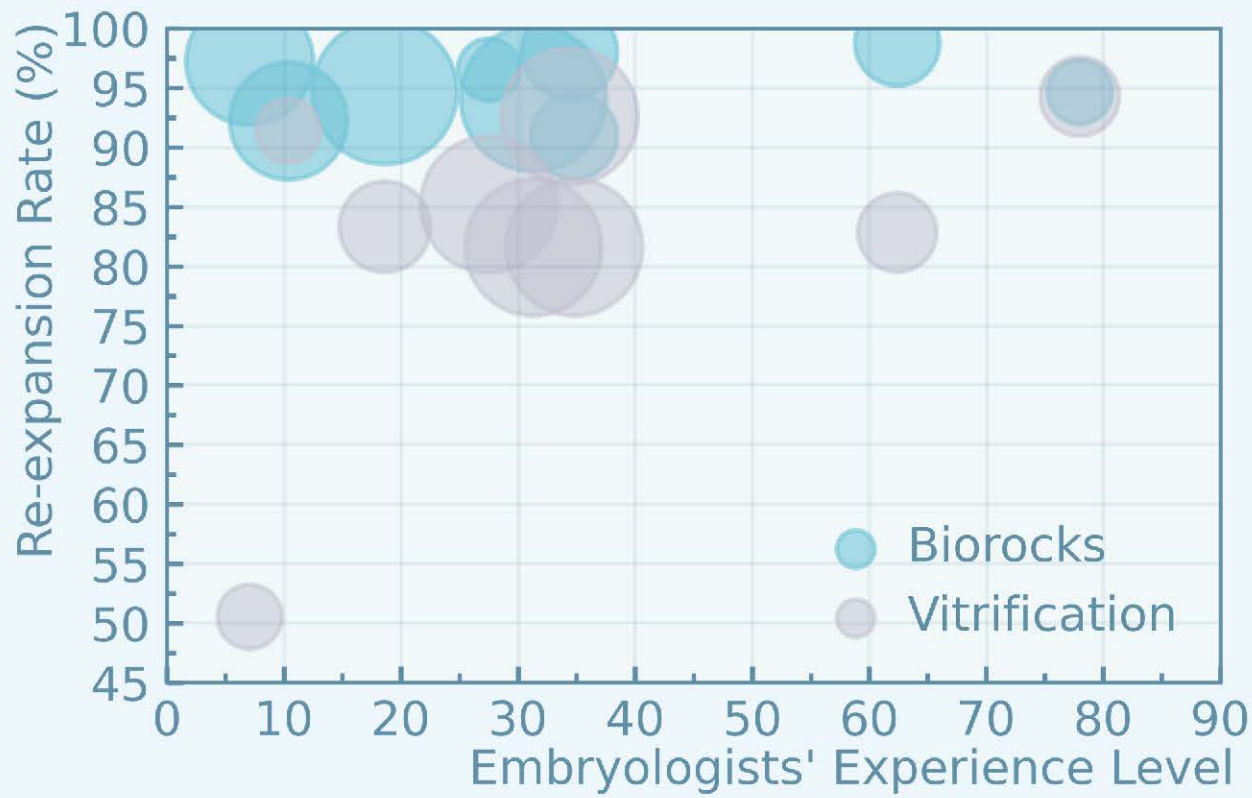
► Data



Biorocks Automated Vitrification and Warming System
The Biorocks system better preserves mitochondrial membrane potential in oocytes during vitrification.



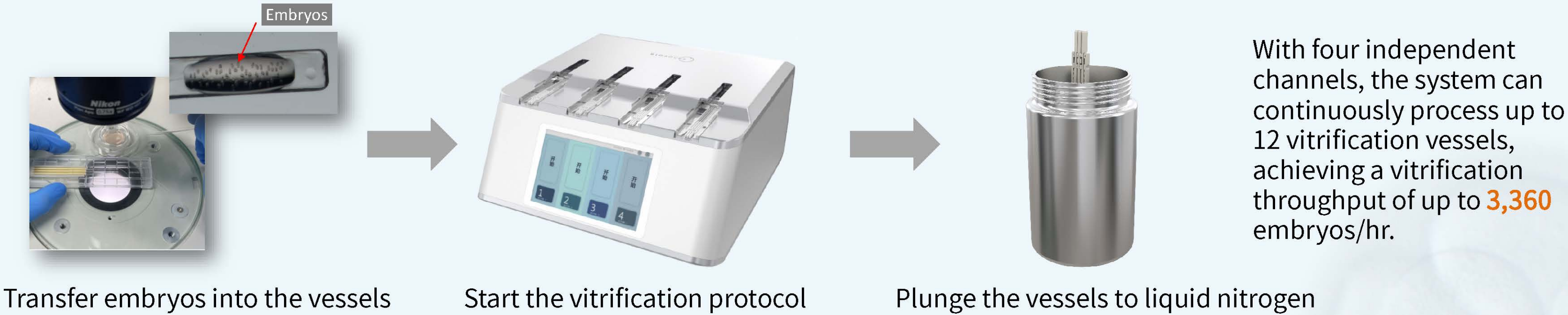
JC-1 fluorescence staining was used to measure mitochondrial membrane potential (MMP). (a) Relative MMP (ΔΨm) in fresh oocytes and oocytes vitrified using Cryotop or the Biorocks system. Scale bar: 100 μm. All images were processed in the same manner. Degenerated oocytes (abnormally bright cells in the FITC channel) were excluded from subsequent intensity-ratio calculations. (b) Red/green fluorescence intensity ratios for the three groups. These data represent the results of three independent experiments.
*p < 0.05 indicates statistical significance.



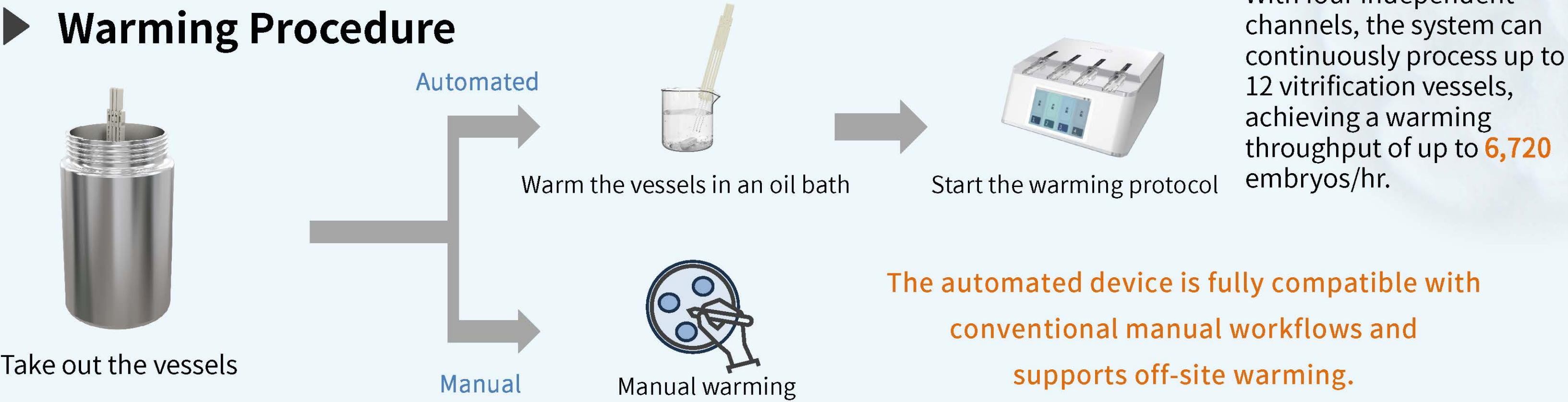
Wang S, Chen L, Fang J, et al. A compact, high-throughput semi-automated embryo vitrification system based on hydrogel. Reproductive BioMedicine Online. 2024;48(5):103769. doi:10.1016/j.rbmo.2023.103769.

Manual vitrification and warming procedures showed substantial variability, even when performed by experienced embryologists.
In contrast, the Biorocks system significantly reduced variability, even when operated by less-experienced embryologists.

Vitrification Procedure



Warming Procedure



The automated device is fully compatible with conventional manual workflows and supports off-site warming.

Data for 2-Cell Embryos from Different Mouse Strains

Table 1. Survival and Development of Mouse Embryos from Different Strains Following Vitrification and Warming Using the Biorocks System, Compared with Fresh Controls

	B6D2F1	B6D2F1(Fresh Control)	KM	KM (Fresh Control)	C57BL/6	C57BL/6 (Fresh Control)
Number of 2-Cell Embryos	371	144	448	128	40	38
Survived (100% Intact)	365	144	438	128	39	38
Blastocysts on Day 4	317	129	276	91	34	30
Survival Rate	98.4%	100.0%	97.8%	100.0%	97.5%	100.0%
Blastocyst Formation Rate	85.4%	89.6%	61.6%	71.1%	85.0%	78.9%