SPERMFREEZE SOLUTION™ STUDIES SHOW EQUAL PERFORMANCE COMPARED TO EGG YOLK CONTAINING MEDIUM

Background

SpermFreeze Solution™ is a chemically defined solution for cryopreservation of semen. It contains glycerol as cryoprotective agent and cholesterol for additional membrane protection. During recent years, concerns about safety regarding animal derived products result in increased use of alternative products without egg yolk.

Two recent studies show that there are no significant differences in performance of SpermFreeze Solution™ compared to egg yolk containing media, Test Yolk Buffer (TYB, Irvine Sci).[1,2]

The first study was presented at the annual meeting of the American Society of Reproductive Medicine, 2011.[1] It included 14 comparisons and the following study endpoints:

- Preservation of sperm motility
- Sperm-hyaluronic acid binding
- Sperm-attributes (bio markers) that promote paternal contribution

The second study was presented at the ASPIRE meeting in 2012.[2] This study was a comparison between an egg yolk containing medium (TYB, Irvine Sci) and six different sperm freezing media, including Vitrolife´s SpermFreeze Solution™. There were 28 samples included in the study, the samples were divided in two and cryosurvival of the two fractions was compared.

Results

Study 1

Post-thaw motility

The motility of spermatozoa was evaluated after 1-2 weeks (short term) and 1-2 months (long term) of storage. Recovery of sperm motility (expressed as % of pre-freezing motility) was comparable between SpermFreeze Solution™ and TYB (Figure 1).

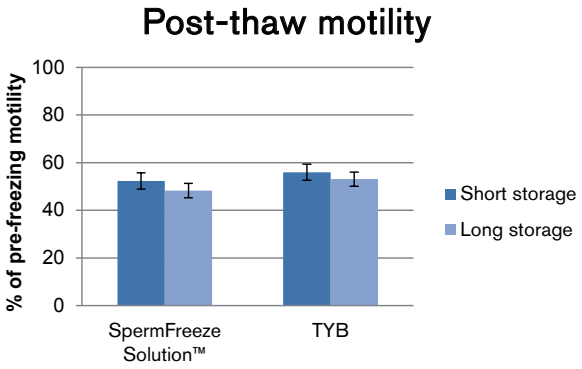

Figure 1. No significant difference in sperm motility recovery is seen comparing SpermFreeze Solution™ and Test Yolk buffer.

Sperm-Hyaluronic acid binding

A Sperm-Hyaluronic acid binding test represents the sperm fertilising potential regarding binding to the zona pellucida upon sperm-oocyte interaction. The data indicate that the sperm hyaluronic acid binding score did not change. Indeed the recovery of the binding post-thaw was identical in the SpermFreeze Solution™ and TYB-cryopreserved fractions (Figure 2).

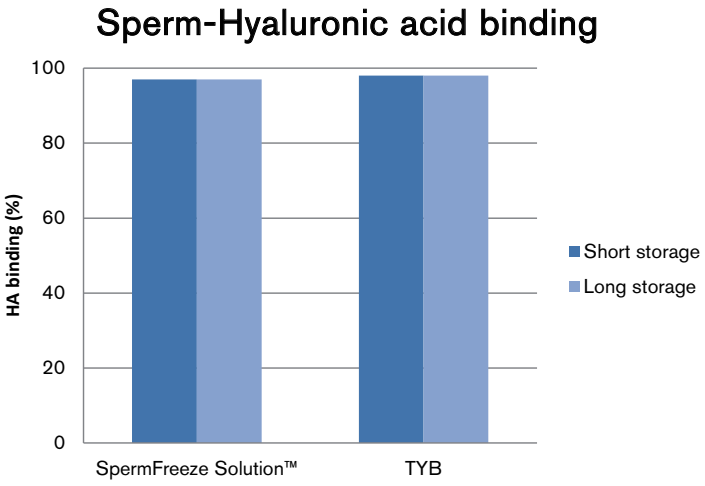

Figure 2. Sperm-Hyaluronic acid binding in thawed sperm was comparable for SpermFreeze Solution™ and Test Yolk Buffer.

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DNA integrity

The most important parameter regarding sperm contribution and early embryo support is DNA integrity. Sperm cryopreservation and thawing may adversely affect sperm DNA integrity. In the present study there was a decline in sperm that exhibited high DNA integrity. However, there were no significant differences between the sperm fractions processed with SpermFreeze Solution™ or TYB in either the short term or long term study (Figure 3).

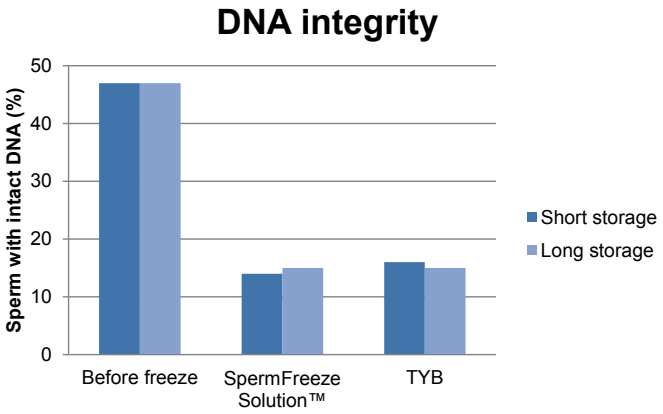

Figure 3. No significant difference in DNA integrity is seen when comparing SpermFreeze Solution™ and Test Yolk Buffer.

Study 2

Post-thaw motility

Statistical analysis showed that SpermFreeze Solution™ did not show a significant difference in post- thaw sperm motility compared to the control medium, TYB.

Manufacturer	Product	Post thaw motility compared to control
Vitrolife	SpermFreeze Solution™	→
ORIGIO	CryoSperm™	→
Cook Medica	Sydney IVF Sperm Cryo Buffer	↓
FertiPro	SpermFreeze™	↓
Kitazato BioPharma	Sperm Freeze	↓
Cryos International	SpermCryo™ All-round	↓

Table 1. Post-thaw motility compared to Test Yolk Buffer.

Conclusions

SpermFreeze Solution™ without egg yolk performs just as well as a yolk containing medium and is free from undefined substances. It is from a safety perspective recommended to use SpermFreeze Solution™ and to avoid using products containing animal derived components.

REFERENCE

1. Tekcan M., et al. A new cryomedia without animal components for fertility preservation in men: motility and various attributes affecting paternal contribution of sperm. ASRM 2011 P-337. 2. Tanabe S et al. Comparative Investigation of Sperm Cryopreservation Medium. ASPIRE 2012 P-15.

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