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Bovine embryo cryopreservation in a chemically defined medium

A. Østergaard^{1,2}, L. Gavin-Plagne^{1,3}, M. Guedes Teixeira¹, S. Buff¹, T. Joly^{1,4}

¹UPSP ICE, VetAgro Sup, Marcy L'Etoile, France

²Gènes Diffusion, Douai, France

³IMV Technologies, L'Aigle, France

⁴ISARA Lyon, France

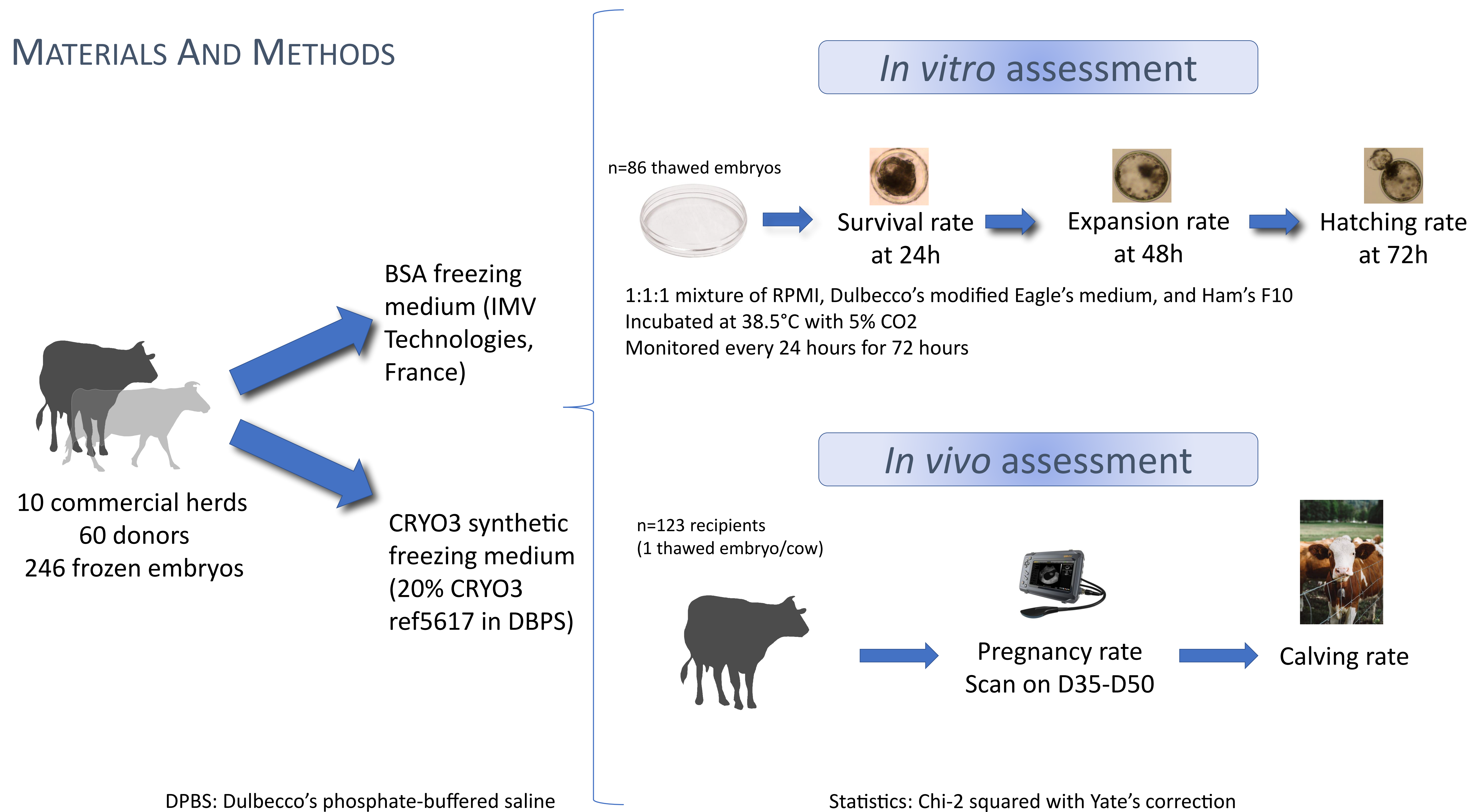
☎ +33 6 21 75 77 04 ✉ ostergaard@genepro-inc.com



CONTEXT AND OBJECTIVE

Embryo cryopreservation media often contain an animal-derived component, such as bovine serum albumin (BSA) or fetal calf serum. However, the industry is faced with the issue of composition variability between batches and, most importantly, the risk of pathogen transmission. The aim of this study was to compare the effectiveness of two embryo cryopreservation ethylene glycol–based media: IMV’s freezing medium with BSA (IMV Technologies) and a chemically defined medium containing STEMALPHA.CRYO3, called CRYO3 (Ref 5617, Stem Alpha). CRYO3 is produced according to EU good manufacturing practice, ensuring the composition and quality of the product.

MATERIALS AND METHODS



RESULTS

In vitro assessment

	Embryos thawed	Survival rate (24h)	Expansion rate (48h)	Hatching rate (72h)
BSA	44	50% ^a (n=22)	14% ^c (n=6)	18% ^c (n=8)
CRYO3	42	74% ^b (n=31)	38% ^d (n=16)	40% ^d (n=17)

Within columns, superscript with different letters are significantly different (p <0.05)

In vivo assessment

	Recipients	Pregnancy rate	Calving rate
BSA	64	63% ^{ns} (n=40)	55% ^{ns} (n=35)
CRYO3	59	73% ^{ns} (n=43)	64% ^{ns} (n=38)

ns= nonsignificant

The trial was conducted with different AI teams and in 10 commercial herds, thus adding robustness to the data.

CONCLUSION

This study has shown that 20% CRYO3 in DPBS can replace BSA in an ethylene glycol cryopreservation medium for *in vivo*-produced bovine embryos. Therefore, this product eliminates a sanitary risk in embryo commerce, which is a concern in an international context.