

## CRYOOGEL – NEW CRYOPRESERVATION MATRIX

An innovative hydrogel developed for cryopreservation with low toxicity and high preservation efficiency

### APPLICATIONS

- Reproduction (medical and veterinary)
- Cell therapy
- Biobanking
- Research tool (rare and sensitive cells)

### DEVELOPMENT PHASE

Optimized hydrogel for slow-freezing or vitrification

In vitro experiments on oocytes (vitrification), cord blood hematopoietic progenitors (slow freezing) and sensitive cells to demonstrate the viability and functionality of the cryopreserved cells

### INTELLECTUAL PROPERTY

PCT patent application WO2013107797  
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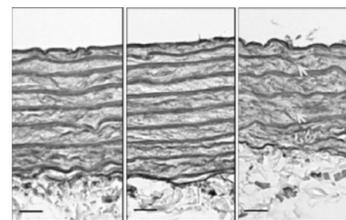
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- Cryopreservation ■ Hydrogel ■ Biobanking ■ Slow-freezing ■ Vitrification ■ Additive ■ Cryopreservative agents ■ Oocytes ■ Sperm ■ Sensitive cells ■ Cord blood stem cells

### PRESENTATION

The long-term cryopreservation of cells and tissues is a crucial challenge, in particular for reproduction and cell therapy, but the current cryopreservation additives are not totally safe and efficient. The challenge of cryopreserving cells is their limited resistance to freezing and thawing. In particular, the formation of ice both inside and outside the cells will alter both their cellular structures and their biochemical equilibrium. Cryopreservation agents have been developed to reduce the formation of ice during freezing. However, most of these agents have shown toxicity at high concentrations and moderate efficacy depending on the applications.

The present offer proposes an optimized biocompatible polysaccharide hydrogel adaptable to numerous cryopreservation applications and techniques. Its raw materials are already validated for pharmaceutical use. Preliminary data shows an **absence of toxicity and the efficacy for cryopreservation of oocytes, embryos, endothelial cells, tissues, hematopoietic progenitors with slow freezing**. Recently, the physico-chemical properties of the hydrogel have been defined as well as the most appropriate compositions and granularities in function of cells and cryopreservation techniques. In vitro experiments are ongoing on oocytes, cord blood hematopoietic progenitors and other sensitive cells to demonstrate the viability and functionality of the cryopreserved cells. This new product, CryoOgel, will reduce or even eliminate the need for the current toxic agents and proposes a new way to handle cryopreservation.



Ultrastructure of rat aortic tissue preserved with the standard cryopreservation additive (left) or the proposed hydrogel (center) as compared to no preservation agent (right) © A Pellé et al.

### COMPETITIVE ADVANTAGES

- Biocompatible
- Applicable to gametes, stem cells, sensitive cells and tissues
- Do not penetrate the cells
- Applicable for both slow freezing and vitrification
- Easy separation from cells by dispersion
- Made from pharmaceutical grade compound