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## REVIEW

# Cryopreservation of mammalian sperm: what we ask them to survive

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Techniques for freezing bull sperm developed over the past 40 years have not yielded protocols for preserving sperm from other species. Recent advances in our understanding of cell membrane structure function and metabolism now permit alternative modes of investigation. These data will allow development of unique studies which should have a higher probability of yielding successful protocols for sperm from other species. In this review the authors will: (1) provide a general overview of cryopreservation; (2) review emerging concepts of membrane structure and the relationship of membrane composition to water and cryoprotectant movement; (3) emphasize how these parameters affect cell volume and surface areas; (4) focus attention on the concept that cryoprotectants will alter membrane structure and function in addition to their well-recognized effects on bulk solvent; and (5) emphasize the effect of the processing protocol on metabolic balance. These concepts are reintroduced in the context of the established and successful protocol for freezing bull sperm to illustrate the molecular responses that may be necessary to survive a freeze-thaw cycle.

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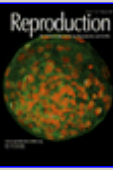
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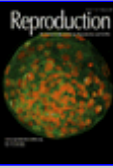
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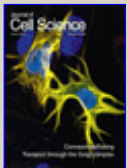
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