

Life without water: Cryptobiosis of invertebrates as a model for next generation technology of biomaterials preservation

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Abstract

To date, advances in the field of tissue engineering, cell transplantation and genetic engineering have made the biological materials of different origin an important therapeutic tool in clinical medicine. Currently, cells preservation is achieved by freezing at -80°C or in liquid nitrogen. Cryopreservation technology is expensive and has considerable limits during transportation. Preservation of viable biological material in dry state under ambient temperature is considered as attractive, but yet fully achieved alternative. There are organisms which are able to survive complete water loss. Understanding of mechanisms underlying dehydration tolerance will allow the development of dry preservation technology for molecules, cells and organs, and further use of these methods in medicine, pharmacology and biotechnology.

Keywords

Cell culture, Cryptobiosis, Dehydration