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## Pentaisomaltose- a promising new cryoprotectant

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Cell and tissue therapy for medical and scientific use has during the past decades expanded extensively and hold promises for being an important platform for future treatment modalities. A major feature and pre-requisite for several cell products, both autologous and allogeneic off-the shelf, is the possibility of safe and efficient cryopreservation during production/treatment.

Successful cryopreservation requires effective cryoprotectants (CPAs). Classical and CPAs like glycerol and especially dimethyl sulfoxide (DMSO) have been widely used. However, the well-established side-effects and undesirable cellular effects of e.g. DMSO, has led to an increasing demand from health care professionals, patients and authorities for a reduction in the concentration of CPAs like DMSO and/or the development of safe and effective alternatives. Most development in the past decades has focused on optimizing freeze media, by combining existing CPAs and optimizing the carrier media, but new alternative CPAs have not been introduced.

Pentaisomaltose, a low-molecular-weight carbohydrate, is a new and promising CPA. Our work during the past years has proven that pentaisomaltose can replace DMSO for cryopreservation of hematopoietic stem cells and, also to significantly reduce the required concentration of DMSO needed for successful cryopreservation of other cell types (ASC, T-Cells). Pentaisomaltose, thus, could prove a promising new addition to the CPA repertoire, solving some of the problems faced by the field today.

### Biography

Jesper Dyrendom Svalgaard is MSc, PhD and research fellow in the stem cell facility, at the Department of Clinical Immunology, Rigshospitalet, University of Copenhagen. In his research Jesper D Svalgaard is focusing on the development and testing of alternative cryoprotectants for cryopreservation of hematopoietic stem cells products and other cell types. Lately, part of his research interests has been testing how to reduce the DMSO concentration in mesenchymal stem cells and T cells.

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