



Health Technology Review	
Technology Ref.:	HTA22007
Technology Name:	Stem Cell Cryopreservation Technology
Approvals by International Bodies:	-
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Agent in UAE:	Burjeel
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Short Description of the Technology:	Cryopreservation is a process of using low temperatures to preserve cells and tissues for future use. This technique involves cooling cells to very low temperatures (-80°C to -196°C) and suspending their cellular metabolism, which preserves the cells for an indefinite amount of time. When water within cells freezes, the ice formation can cause a solute imbalance and damage the cellular structure. By using proper techniques and a freezing medium containing the right cryoprotectants and additives, researchers can maximize the post-thaw viability of cells for cell culture.
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Health Technology Assessment Team Recommendation:	Approve
Summary of Review:	
<p>The Technology for Cryopreservation is well known technology used years ago, it's a process that preserves organelles, cells, tissues, or any other biological constructs by cooling the samples to very low temperatures. One of the important application of cryopreservation is in the freezing and storage of hematopoietic stem cells, which are found in the bone marrow and peripheral blood. In autologous bone-marrow rescue, hematopoietic stem cells are collected from a patient's bone marrow prior to treatment with high-dose chemotherapy. Cryopreservation is also used to freeze and store human embryos and sperm.</p>	
Advantages	Disadvantages
Freezing cells greatly extends their shelf life and allows for more rigorous quality controls and testing, resulting in improved safety of HSC therapy.	Optimal cryopreservation of HSCs requires the consideration of several factors, including composition of the cryoprotectant solution, cell concentration, freezing rate, and storage temperatures
The technology helps in Preserving established and quality-controlled cell lines for future use.	The cryopreservation of HSCs poses several challenges, most notably a decline in cell viability after thawing and adverse reactions in patients due to cryoprotectants used
The technology is a source of backup cells in the case of contamination or loss of the patient culture such in cancer patients.	Expensive cost

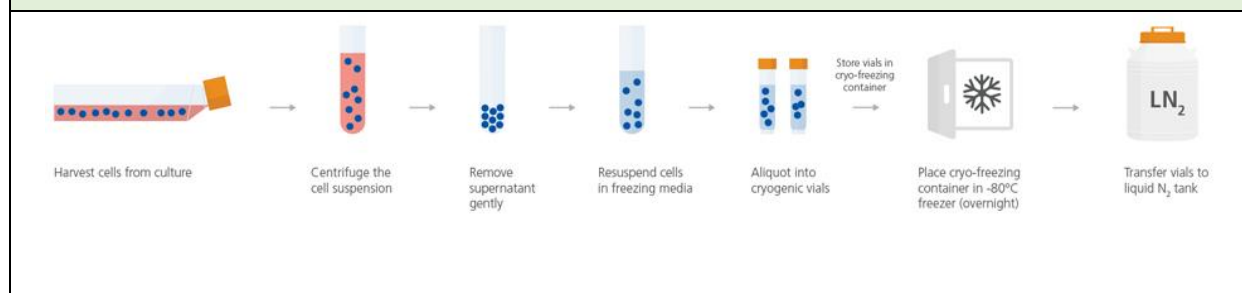
The technology helps in Prevention of changes in cellular genetics due to continuous growth and cell passaging	
Cryopreservation of HSCs allows for more effective treatment of patient, it restore the healthy cells to be reused again after the chemo therapies or other cancer treatments	

We recommend an **approval of using this technology** with the following conditions:

1. Using the technology by the authorized healthcare providers for (HSCT) & Cord Blood and Stem Cell Center.
2. Compliance with DOH standards for DOH STANDARD FOR CENTER OF EXCELLENCE IN HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) SERVICES FOR ADULTS AND PEDIATRICS
3. Establishing a proper quality monitoring process and reporting of any adverse events or unwarranted consequences including safety issues of employees.
4. Provision of regular updates and reports about the product to DOH upon request.
5. Any other documents or information requested regarding the product and cost to finalize the approval process.

Moreover, DOH has the right to stop the product at any stage if deemed necessary, initial conditions and any subsequent conditions must be satisfied before obtaining final approval. Failure to do so will reflect in provoking the approval.

Technology Image





Population, setting and intended user for Technology “Stem Cell Cryopreservation Technology”

- **Population/ Intended User;**
 - Patients that are eligible for HEMATOPOIETIC STEM CELL TRANSPLANTATION
- **To be performed by:**
 - Consultant Clinical Hematology
 - Consultant Medical Oncology
- **Clinical Setting:**
 - Centers for HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) SERVICES FOR ADULTS AND PEDIATRICS
- **Condition of use:**
 - for Leukemia and other conditions that require stem cell transplantation.
- **Exclusion criteria:**
 - Other conflicting medical issues