

PRESERVATION METHOD FOR CORD BLOOD UNITS THAT OPTIMIZES DIFFERENTIATION AND ENGRAFTMENT POTENCY

Partnership and/or Licensing Opportunities



Donnons
au sang
le pouvoir
de soigner

Cord blood has proved for many years to be an important source of hematopoietic stem and progenitor cells for allogeneic transplantation, and more recently its interest has revived through regenerative medicine and the use of cord blood-derived cells (mononuclear, regulatory T cells, stem cells...) for indications such as type 1 diabetes, hypoplastic left heart syndrome, hearing and vision loss, all in clinical studies. The good preservation of cord blood cells between collection and its processing and cryopreservation at the cord-blood bank is critical for graft potency, that relies on functional stem and progenitor cell content. Longer times of preservation could be instrumental in case of collections before a weekend or a need to ship overseas for particular HLA phenotypes. EFS proposes an method to preserve cord blood cells in optimized conditions for grafting for up to 72h at 4°C before cryopreservation.

INVENTION

An innovative method combining optimized microenvironment and an experimental device allowing the preservation for at least 72 hours at 4°C of cord blood cells

KEYWORDS

Cord Blood Unit (CBU), cell conservation and preservation, cell transplantation, regenerative medicine, hematopoietic stem and progenitor cells.

DESCRIPTION

Method that includes a gas-impermeable bag and a medium that improves CBU storage efficiency by 1) providing better nutritive and biochemical microenvironment to stem and progenitor cells and 2) preventing hyperoxygenation and CO₂ leak.

APPLICATIONS

Better preservation of CBUs compared to routine storage protocol:

- Better functional capacities of stem cells (ie hematopoietic reconstitution capacity)
- Better capacity of ex vivo expansion of CD34+ cells and graft capacity after storage period
- Better commitment of progenitors (ie colony formation, ex vivo expansion)
- Positive impact of this method is still present after cryopreservation (freezing → storage at -196°C → thawing)
- Clinical-scale kit, preclinical proof-of-concept through all steps of preparation (volume reduction, freezing and thawing).

ADVANTAGES

- CBU transportation and storage in view of transplantation, or regenerative medicine upon induced differentiation

REFERENCES

[Jean Chevalyre et al. Stem Cells and Development, 2014](#)

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INTELLECTUAL PROPERTY

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