

# TITLE: IMPROVEMENTS FOR PERFORMING AND FACILITATING THE RECOVERY AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

## FIELD OF INTEREST

Biotechnology (Hematopoietic stem cell transplantation)

## CLINICAL NEED

Hematopoietic stem cell transplantation (HSCT) is the most used cell therapy currently. HSCT is the recommended treatment for several life-threatening conditions such as leukemia, rare blood cell diseases, aplastic anemia, and to restore the hematopoietic system after bone marrow ablating chemotherapy or irradiation therapy. Among others, main bottlenecks of HSCT are HSC donor shortage and HSCT failure by infusing a reduce number of donor HSC. Different approaches have been addressed to solve these problems, such as using different sources of HSCs (bone marrow, cord blood, mobilized peripheral blood, amniotic fluid or placental cord), generating engraftable HSCs from embryonic cells, and expanding HSCs ex vivo. Recent evidences indicate that estrogen is involved in regulating the proliferation and lineage commitment of hematopoietic stem cells. Despite these evidences, the complete role of different estrogens in the regulation of hematopoietic progenitors and their underlying mechanism is unclear. So, a comprehensive study on the role of the estrogens in the HSC regulation is essential to be able to develop the clinical potential of these hormones.

## DESCRIPTION OF THE INVENTION

Researchers propose a method to enhance hematopoietic reconstitution and recovery after hematopoietic stem cell transplantation which is based on the administration of estrogens to the subject that has undergone the transplantation, because estrogens induced an increment in the percentage of hematopoietic cells derived from transplanted donor cells in the recipient.

## TECHNOLOGY KEYWORDS

HSCT, estrogens, HSCs, cell therapy, transplantation.

## IPR STATUS

Patent application number: EP18382779.9. and PCT/EP2019/079945.

Applicants: CIEMAT, CIBER and IIS-FJD.

## TYPE AND ROLE OF PARTNER

Looking for commercial partners interested in licensing.

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