

# AN INNOVATIVE APPROACH FOR THE TREATMENT AND PREVENTION OF GRAFT VERSUS HOST DISEASE AND CYTOKINE RELEASE SYNDROME

The curative efficacy of allogeneic hematopoietic cells transplantation is considerably reduced by Graft-versus-Host Disease (GvHD) which causes significant mortality and morbidity.

GvHD represents a pathology for which immunosuppression approaches like corticosteroids remain to this day the first line of treatment. However, the corticosteroid therapy is associated with many iatrogenic complications and the prognosis of GvHD is poor in case of non response to this treatment.

Therefore, there is a significant need for alternative treatments of GvHD avoiding such side effects.

EFS research team has developed a new innovative treatment for the GvHD by administration of High-Density Lipoproteins (HDL) allowing the modulation of lipid metabolism and the improvement of immune-reconstitution with less toxicity.

## INVENTION:

EFS invention relates to repeated administration of HDL for the prevention or the treatment of GvHD or Cytokine Release Syndrome (CRS).

## KEYWORDS:

GvHD, CRS, HDL, lipopolysaccharide (LPS), hematopoietic transplantation

## DESCRIPTION:

LPS is largely studied in the pathophysiology of GvHD. LPS from gram-negative bacteria is supposed to cross the intestinal mucosa by translocating in case of weakness of body's natural barriers. LPS translocation causes the maturation of antigen presenting cells and thereby the activation of cytotoxic T lymphocytes and GvHD launching.

EFS researchers have found that the repeated administration of HDL neutralises LPS effects in the context of GvHD, reduces the maturation of antigen-presenting cells and decreases activation of GvHD effector cells and thereby decreases the occurrence and severity of acute GvHD. Furthermore, EFS preliminary results on CRS in vivo model showed that HDL administration reduced the production of proinflammatory cytokines in recipient mice (plasma and liver).

Therefore the repeated administration of HDL, allows to prevent and treat GvHD and CRS without impacting the post-graft immune reconstitution neither toxic effects.

## ADVANTAGES:

- Anti-inflammatory effects
- Limiting the use of immunosuppressors
- Without impact on the immune reconstitution of the graft

## APPLICATIONS:

Prevention and treatment of GvHD and CRS

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