

Promethera® Biosciences S.A.
Innovative treatments for liver diseases based on allogeneic adult stem cell technology

Quote CEO



"We are developing a stem cell therapy to treat a large range of liver diseases affecting children and adults which were, until now, incurable."

Eric Halioua, CEO

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Mission

Promethera® Biosciences' mission is to discover, develop and commercialize cell therapy products to treat liver diseases in an innovative way using allogenic progenitor cells from healthy human livers.

About Promethera® Biosciences

Promethera® Biosciences is a biopharmaceutical company, spin-off of the Université Catholique de Louvain that develops innovative treatments based on allogeneic adult stem cell technology.

Promethera® Biosciences was founded in 2009 by Sopartec S.A., the technology transfer company for the Université Catholique de Louvain and Professor Etienne Sokal, a leading expert in hepatology and cell therapy. In May 2009, Eric Halioua became the Chief Executive Officer of Promethera® Biosciences.

End of October 2009, Promethera® Biosciences has completed a 5.3 million euros A-round of funding. The round has been completed by more than 4 million euros of grants and loans from the Walloon Region.

Products developed

Promethera® Biosciences' technology platform is based on a newly discovered cell type, isolated from normal human adult liver tissue: human Adult Liver-Derived Mesenchymal progenitor/Stem cell (hALDMSC). Promethera® Biosciences has developed an innovative technology to isolate and expand the progenitor cell type in order to develop two products:

- Promethera® HepaStem
- Promethera® HepaScreen.

Promethera® HepaStem is a unique therapeutic product designed to treat liver diseases by allogeneic liver injection of hALDMSC.

This product has received two orphan drug designations from the European Community for the

treatment of Crigler-Najjar syndrome and the treatment of Ornithine transcarbamylase deficiency, an urea cycle disease.

HepaStem has been injected in two patients at the Clinique Universitaire Saint-Luc.

Promethera® HepaScreen is a biotechnology tool designed for metabolic evaluation of new chemical entities.

In vitro differentiated hALDMSC express most of the hepatic markers and functions that could be used by the pharmaceutical companies to evaluate liver metabolism or toxicity of newly synthesized compounds during screening or lead compound optimization.

Technology platform & applications

Promethera® HepaStem: the somatic cell therapy product

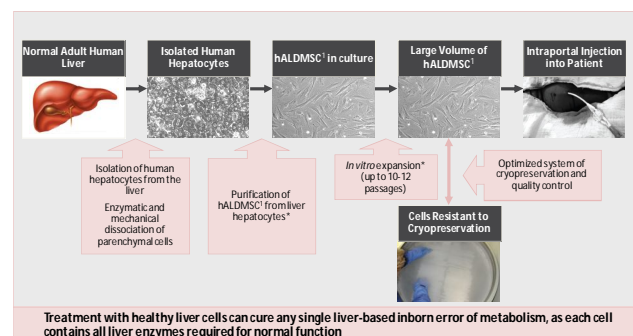
HepaStem is a cell suspension constituted of human Adult Liver-Derived Mesenchymal Progenitor/Stem Cells (hALDMSC) isolated from normal adult human liver tissue.

The Technology:

From the whole organ, a suspension predominantly constituted of parenchymal cells, is isolated by a proprietary process and further cultured *in vitro*. From this original and heterogeneous cell culture a simple and innovative method, subject of an international patent application, leads to a homogeneous stem cell population with mesenchymal and hepatocyte-like characteristics.

The active substance of hALDMSC is a homogeneous population of hepatic progenitors capable of *in vitro* expansion and *in vivo* differentiation into hepatocyte-like cells.

In a first phase, Promethera® Biosciences intends to develop Promethera® HepaStem for three indications corresponding to inborn errors of metabolism; Crigler-Najjar Syndrome, Urea Cycle disorders and Phenylketonuria, as well as for two acquired liver deficiencies: Fulminant Hepatitis and Liver Fibrosis.



Inborn errors of metabolism

There is a long list of metabolic disorders; each of them related to a single enzyme deficiency that entirely blocks a metabolic pathway and generates very severe consequences for the patient's quality of life. For this type of indication, linked to a single genetic mutation and affecting hepatic metabolism, the principal common treatment is a special restrictive diet.

The treatment we are developing is based on introducing normally functioning cells into the liver of patient who has inborn genetic mutation (mutation of one gene coding for one hepatic enzyme). As one liver cell possesses the complete panel of metabolic enzymes, it can be used for the treatment of any liver-linked enzyme deficiency.

Fulminant hepatitis

Fulminant hepatitis can be characterized as acute, or subacute, liver failure for which the etiology is not completely known. Liver failure could be transient if the liver is capable of regeneration. However a considerable proportion of patients require liver transplantation and not all of them survive the waiting period. Without transplantation the mortality is high (50% to 90%) due to irreversible liver damage. Two thousand to six thousands cases per year have been reported from the US and Europe and 19.000 cases have been estimated in China where the incidence rate for HCV related fulminant hepatitis was estimated to be three times higher than in the USA.

The rationale behind injecting progenitor cells to treat fulminant hepatitis is the procurement of a pool of dividing and functioning cells to promote liver regeneration.

Liver fibrosis

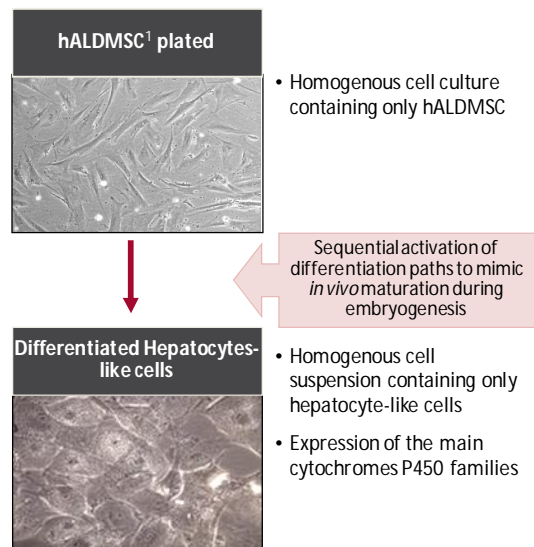
Progressive liver fibrosis occurs in chronic liver disease as a consequence of toxic (alcohol), infectious (hepatitis), metabolic or autoimmune liver injury and ultimately leads to cirrhosis.

Progenitor cell transplantation has the potential to avoid accumulation of fibrotic scars through at least two known mechanisms; an immunomodulation and/or by replenishing exhausted pools of progenitor cells.

Promethera® HepaScreen: cell model for drug metabolism & toxicity

Promethera® HepaScreen is constituted of hepatocyte-like cells derived from *in vitro* differentiated human Adult Liver-derived Progenitor Cells (hALDMPC). The Promethera® HepaScreen product will offer the biopharmaceutical industry an interesting tool for pharmaco-toxicology screening of new drugs and lead compound optimization.

The cells constitutive of Promethera® HepaScreen are the same progenitor cells as the ones constitutive of Promethera® HepaStem. The main technological difference is that, to be used for Promethera® HepaScreen, progenitor cells have to go through a maturation process *in vitro*. The method of isolation of hALDMPC and proliferation are identical but a supplementary step is added to the normal process of Promethera® HepaStem production to obtain full differentiation of progenitor cells into hepatocyte-like cells.



Partners

Promethera® Biosciences has signed several research and collaborative agreements with industrial or academic partners:

Academic Partners:

Promethera® Biosciences has entered into a research agreement with Université Catholique de Louvain and the Pediatric Hepatology and Cell Therapy Laboratory on Fulminant Hepatitis and Liver Fibrosis

Promethera® Biosciences has signed a research agreement with the University of Hasselt and Biomed on biomarkers of the Promethera® HepaStem product.

Collaborative Project:

Promethera® Biosciences is coordinator of a Collaborative project "ValoStem" which received labelization from BioWin. This project will start in January 2010 and regroups Academic partners (Faculté Notre Dame de la Paix Namur, Université Catholique de Louvain) and Industrial Partners (UCB pharma and Promethera® Biosciences).

Promethera® Biosciences also received funding from:

- The Walloon Region (DGO6)
- L'agence Wallonne de l'Exportation (AWEX)

Number of employees: 15

Management

Executive Management

Eric Halioua, Chief Executive Officer
Etienne Sokal, Chief Scientific Officer
Claude Dedry, Chief Operating Officer
Carole Monterrat, VP Business Development
Eddy Rommel, VP Preclinical Development

President of the Board of Directors:

Marc de Garidel, VP of Amgen International,
responsible for the South Region.

Investors

Founders & Management

- Pr. Etienne Sokal
- Sopartec S.A.
- Eric Halioua
- Carole Monterrat
- Mustapha Najimi

Venture Capital Funds

- Vesalius Biocapital (Lead investor)
- LRM
- Life Science Research Partner
- Vives Fund
- SRIW
- NivelInvest / Start-up SA
- Capital & Croissance/Financière Spin-off
Luxembourgeoise

Business Angels

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