Technology Offer

Semaphorin 5A as potential biomarker for graft vs. host disease

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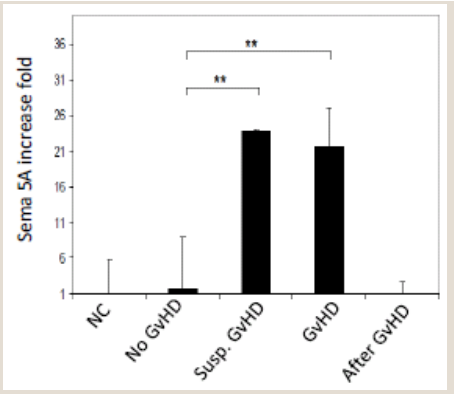
A Company of the Life-Science Foundation for the Promotion of Science and Research

Challenge

Graft versus host disease (GvHD) occurs in about 50% of all patients who received hematopoietic stem cell therapy for leukemia or lymphoma. During the course of the disease the T cells of the donor mount an immunologic attack against the recipient's body causing damage to skin, liver and intestine. At an early stage the clinical symptoms of GvHD resemble those of a skin rash, which can occur as an allergic reaction to the drugs the patients need to take during therapy. While skin rashes can easily be treated, GvHD requires systemic immunosuppressive treatment which can have severe side effects. Before treatment is started it is therefore essential to have a confirmed diagnosis of GvHD which up to date is exclusively based on organ biopsies. For this reason researchers are currently focussing on finding reliable serum biomarkers that can be used to establish the diagnosis of GvHD and to monitor the clinical course of this disease.



Sema 5A mRNA levels in healthy controls, transplant patients without GvHD, with suspected or confirmed GvHD and free of GvHD for at least 6 months.

Technology

Semaphorins are known to act as inhibitory signal molecules during axonal growth. Surprisingly, Semaphorin 5A mRNA levels were found to be increased up to 20fold in blood samples of patients with confirmed or suspected GvHD as compared to healthy subjects who did not undergo stem cell therapy. In contrast, Semaphorin 5A mRNA levels of patients who had been diagnosed with GvHD but were GvHD-free for more than 6 months were comparable to those of healthy subjects. Furthermore, unpublished *in vitro* experiments suggest a role for Semaphorin 5A in activating cells of the immune system. Semaphorin 5A blood levels may therefore be developed as a biomarker for GvHD.

Commercial Opportunity

In-licensing or co-development of a diagnostic assay based on patient blood samples.

Developmental Status

Proof-of-principle tests have been conducted on blood samples from healthy controls as well as a total of 60 patients with the following characteristics: patients who received hematopoietic stem cell therapy but did never show signs of GvHD, patients who were suspected to have GvHD, patients with confirmed GvHD, and patients cured from GvHD.

Patent Situation

A European patent application has been submitted in 2010.

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