New Treatment for a Life-Threatening Lung Disease

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Original title: Effect of Hepatocyte growth factor on regulatory T cells in bleomycin injured rat lung

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Summary

Idiopathic pulmonary fibrosis (IPF) is a complex disease with a high mortality rate. There is currently no cure, as the precise cause of this disease is unknown (idiopathic).

Immune cells play an important role in the progress of the disease. For this reason, Fabian Blank and his research team are investigating whether immune cells can be treated with gene and cell therapy. This would be a new therapeutic approach in the treatment of IPF.

Dr. Fabian Blank, lead applicant for the present study

Background – A New Therapeutic Approach

Idiopathic pulmonary fibrosis (IPF) is an aggressive lung disease that is often fatal. It is characterized by a thickening of the connective tissue in the lungs, which makes breathing increasingly difficult. The disease remains untreatable.

Immune cells play a central role in the emergence and progress of IPF. Therefore, it would be logical to develop new therapies which target the immune cells in the lungs.

Objectives and Methods – Natural Protein as a Medication

Hepatocyte Growth Factor (HGF) is a wellknown and effective means of combating the alteration of connective tissue (fibrosis). This protein helps to naturally regenerate tissue and heal wounds.

In this project, the researchers aim to find genetic and cellbased therapies that target immune cells. This should promote the repair and regeneration of fibrotic lungs.

In order to test these new therapeutic approaches, an established rat model for pulmonary fibrosis will be used. Liposome carriers (transport vehicles for HGF) will be used for the gene therapy and genetically modified T lymphocytes (specific defence cells) will be used for the cell therapy.

Significance – Simple, Cheap and with Limited Side Effects

If it works, this new method of therapy will offer a promising approach to personalised, cellbased treatment of IPF.

The therapy will be economic and easy to use. Additionally, there are no adverse drug reactions, as is currently the case with traditional medication.

Length of the Project

This project will begin in October 2018 and is expected to last two years.

	Amount	
Total research budget	CHF	250'000
Grants promised/received by third parties	CHF	0
Grants pending from third parties	CHF	0
Grants being sought from the Swiss Lung Association	CHF	250'000
Amount to be acquired by researchers	CHF	72'000
Contribution from Research Fund of the Lung Association	CHF	60'000
Donations required from third parties	**CHF**	**118'000**