

Victoria Zotter
Public Relations and Event Management

Medical University of Graz
Neue Stiftingtalstraße 6
8010 Graz

victoria.zotter@medunigraz.at

Press release
For immediate release

**New approach for pulmonary fibrosis: Graz research team tests innovative substance
Diethyl succinate as a possible therapeutic for previously incurable pulmonary disease**

Graz, November 27, 2025: Idiopathic pulmonary fibrosis (IPF) is a rare yet particularly severe chronic pulmonary disease. The lungs become increasingly scarred, which greatly limits the gas exchange that is essential to life. Those affected suffer from greater shortness of breath. The average life expectancy after diagnosis is three to four years. A Medical University of Graz research team is investigating the substance diethyl succinate (DES) for the first time. Initial findings from a mouse model and human lung tissue show that it may be possible to reduce pathological connective tissue proliferation in the lung.

Alarming disease with limited treatment options

In idiopathic pulmonary fibrosis, the fine supporting tissue in the lung becomes increasingly scarred and hard so that the lung loses its elasticity and breathing becomes more and more difficult. "Idiopathic" means that the exact cause of the disease remains unknown and it has not been triggered by another disease. Older people are the most frequently affected. Because the disease is incurable, the current aim of treatment is to alleviate symptoms and slow down its progression. Thomas Bärnthaler's research team has obtained promising results with diethyl succinate (DES), the modified form of a natural metabolic product: "Our observations up to now have indicated that diethyl succinate has antifibrotic effects. We might be able to open up a completely new approach to the treatment of pulmonary fibrosis," explains project leader Thomas Bärnthaler.

New approach: focus on diethyl succinate

The Graz research team was able to show that DES might be able to reduce the amount of pathological changes in the lung and thus slow down the progression of the disease. The scientists are now testing the best way to administer DES—for example, as a pill, inhalation or injection. In parallel, they are investigating which cells and mechanisms in the body are influenced by the substance and whether it might even be possible to reverse existing fibrosis. "Not only do we want to find out whether DES works but we also want to understand exactly how it works. This knowledge is critical to paving the way for clinical trials," says Bärnthaler.

First study of this kind worldwide

The project which is sponsored by the FWF is the first in the world to investigate DES in connection with pulmonary fibrosis. The findings should provide the basis for future clinical

trials. "Our goal is to develop new therapies for pulmonary fibrosis—because the current options are simply not enough," emphasizes Bärnthaler.

Key information on the project

Project title: "Diethylsuccinate as a novel therapeutic for idiopathic pulmonary fibrosis"

Duration: 1/11/2025–31/10/2029

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Funding amount: € 459,047.20

Further information on research at Med Uni Graz:

<https://pharmakologie.medunigraz.at/forschung>

Further information and contact:

Thomas Bärnthaler, PhD

Division of Pharmacology

Otto Loewi Research Center

Medical University of Graz

Tel.: +43 316 385 74106

thomas.baernthaler@medunigraz.at

Profile: Thomas Bärnthaler

Thomas Bärnthaler is the head of the Molecular Pharmacology in Pulmonary Diseases research unit in the Division of Pharmacology at the Medical University of Graz. His scientific focus is novel therapeutics for severe pulmonary diseases such as idiopathic pulmonary fibrosis. Previous research projects have already examined cellular energy metabolism. Disturbances in these processes can significantly influence the course of IPF. His current project is the first in which he investigates the substance diethyl succinate and its possible antifibrotic effect.