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PRESS RELEASE

Fraunhofer project FibroPaths®: enabling rapid and safe development of antifibrotic drugs

Therapeutic modulation of organ fibrosis in biochip format

(Dresden, 06/29/2022) More than 100 million individuals worldwide suffer from organ fibrosis, a pathological proliferation of connective tissue in an organ, such as the lung, heart and liver. Hardly any causal treatments are available to date. The unmet medical need is partly due to the fact that the existing disease models for fibrosis research are insufficient and little predictive. Coordinated by the Fraunhofer Institute for Toxicology and Experimental Medicine ITEM, four Fraunhofer institutes have joined forces in the FibroPaths® project aimed at enabling rapid and safe development of antifibrotic drugs.

Organ fibroses are progressive diseases caused by a variety of triggers, including infection, autoimmune diseases, ischemia, exposure to toxic substances, and profibrotic metabolic conditions. They develop over a long period of time. As a result, the transferability and extrapolation of nonclinical data to humans poses a problem: The available in-vitro and ex-vivo methods do not provide a sufficient time frame for studying fibrosis and the results obtained in animal models are difficult to translate to the fibrotic processes actually taking place in humans. Moreover, a combination of imaging, molecular, and functional parameters to characterize organ fibrosis has not yet been established.

FibroPaths® is taking on these challenges. To this end, the institutes Fraunhofer ITEM, Fraunhofer IWS, Fraunhofer MEVIS and Fraunhofer IMW have teamed up. Their aim is to develop a novel system for preclinical testing of antifibrotic candidate drugs. It will be based on a standardized and automated biochip that includes human tissue and is thus closer to the real situation in humans. In addition, it will help avoid animal experiments in the sense of the 3Rs principle (replace, reduce, refine animal testing). The aim is that the innovative biochip will allow extensive structural, molecular and functional characterization of fibrotic processes. Furthermore, the project will include comprehensive functional and molecular data analyses using AI-assisted methods, and the establishment of a corresponding database.

With the FibroPaths® project, receiving Fraunhofer-internal funding until mid-2025, the Fraunhofer-Gesellschaft wants to help ensure that promising antifibrotic drug candidates are identified at a very early stage of development and taking into account

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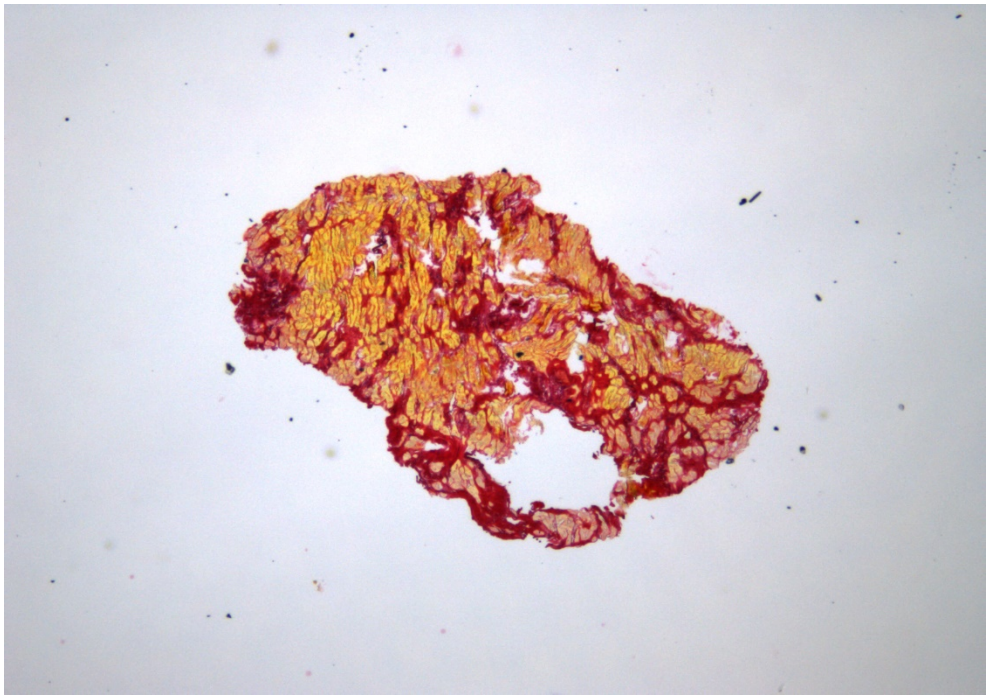
the 3R principles, i.e. not as late as during or after the first clinical trials and thus at a late and expensive development phase.

More information about FibroPaths® offers the website
https://www.item.fraunhofer.de/en/r-d-expertise/cardiopulmonary-research/project-fibropaths.html



Histology of a human heart slice with more than 40 percent fibrotic area; collagen accumulations as a sign of fibrosis are colored red.
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