

## **A New Lab To Better Understand Wound Healing Through Skin Models**

**Since 2019, Elisabeth Hofmann has been working with the team at COREMED, JOANNEUM RESEARCH's Cooperative Centre for Regenerative Medicine, to establish its own laboratory. The molecular biologist managed the conversion and implementation of the infrastructure. Now the COREMED team can offer an expanded research spectrum for questions related to wound healing. This is interesting for the pharmaceutical and medtech industry. COREMED offers preclinical and clinical research as well as interdisciplinary R&D services.**

Currently, about 1 to 4 % of people in the western world suffer from chronic wounds. In Austria, it is estimated that between 200,000 and 300,000 people suffer from chronic wounds. It is expected that the number will increase significantly in the coming years, which is why COREMED is researching various approaches to better heal chronic wounds. Elisabeth Hofmann is a molecular biologist and has been working at JOANNEUM RESEARCH for 3 years. Since 2019, in addition to her daily research agendas, the laboratory manager and deputy research group leader has been busy expanding the research centre's infrastructure to provide a space for new methods for researching wound healing. "The necessary renovation work had just begun, everything was going according to plan, when 'Corona' threw everything into disarray. Deliveries of laboratory equipment and consumables suddenly slowed down or stopped altogether. There were a few hurdles to overcome due to the pandemic, but now we can offer a top-equipped research laboratory," Hofmann says happily. Research is being conducted on healing processes of wounds caused by burns, for example, and especially on chronic wounds caused by various factors, such as poor blood circulation, diabetes mellitus or high blood pressure.

The processes of wound healing and the efficacy of substances are researched using models, which were as well developed at the centre tailored to the research question. On the one hand, it is possible to investigate processes of skin reactions in fresh explants (ex vivo). On the other hand, experiments can be carried out in three-dimensional in vitro models, which consist of at least a dermal and epidermal part. "In the cell culture laboratory, in addition to cultivating ex vivo tissue, we can grow 3-

dimensional skin models. This is of great advantage because it means we are not dependent on tissue donations," explains Hofmann.

**The infrastructure offer:**

Cell culture laboratory: In addition to classical cell culture, 3-dimensional skin models can also be grown and ex vivo tissue cultivated.

Imaging-System: Fluorescence staining of cells, cell counts, live cell imaging, migration assays ("autoscratcher" for standardised scratch assays in 96-well format) Multimode-Platereader: ELISAs, Enzym-Assays, Lumineszenz-Assays und Fluoreszenz-Assays

Real-time qPCR: Analyses (e.g. gene expression analyses) in 384-well format

**JOANNEUM RESEARCH** develops solutions and technologies for a broad range of industries and public agencies and is engaged in top applied research at an international level. Optimally embedded in the national and international innovation network our staff develops innovations in the three thematic areas of information and production technologies, human technology and medicine, society and sustainability.

**COREMED** – Cooperative Centre for Regenerative Medicine incorporates basic medical research as well as pre-clinical and clinical research in regenerative medicine, in particular in skin regeneration and acts in close coordination and cooperation with the Medical University of Graz.

**Contact:**

Dr Elisabeth Hofmann

Telefon: +43 316 876-6004

E-Mail: [elisabeth.hofmann@joanneum.at](mailto:elisabeth.hofmann@joanneum.at)

JOANNEUM RESEARCH Forschungsgesellschaft mbH  
COREMED – Cooperative Centre for Regenerative Medicine  
Stiftingtalstraße 2  
8010 Graz