

Master thesis

Extraction and analysis of anti-microbial peptides through stripping of skin stratum corneum via sequential removal using tape stripes

Motivation

The Comprehensive Center for Inflammatory Medicine at the UKSH Lübeck treats and investigates chronic inflammatory diseases. As the leading institute of the precision medicine cluster it is investigating new examination and therapy strategies with the aim to develop a personalized medicine. This includes innovative non-invasive procedures on patients with atopic dermatitis or psoriasis. A non-invasive method is tape stripping. Anti-microbial peptides can be isolated from sampled stripes and subsequently analyzed. On the basis of the obtained data new therapy specific biomarkers, as well as biomarkers correlating with severity of disease can be identified.

Aim

Aim of the work is to develop a standardized isolation and analysis procedure for anti-microbial peptides via tape stripping. To achieve this goal appropriate conditions for optimal isolation of anti-microbial peptides from tape strips have to be identified in a first step. Subsequently, a peptide optimized analysis via ELISA is required to perform a disease specific analysis. Obtained data will provide information about treatment specific cellular processes.

Content

- Final standardization of tape stripping procedure
- Optimization of anti-microbial peptide extraction
- Analysis and interpretation via (multiplex-)ELISA

Requirements

- Motivation and joy on experiments
- Interest in chronic inflammatory skin diseases and personalized medicine
- Basic knowledge of molecular biology methods
- Knowledge about cellular processes
- Structured and dedicated working, independent and within a team

Questions

For any further questions please contact Dr. rer. nat. Henner Zirpel (henner.zirpel@uksh.de)