State-of-Art in Proteomics-Based Epidermis Safety Testing for Surfactants: Insights from the Institute of Biomedical Chemistry

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In recent years, much progress has been made in the development, validation, regulatory acceptance and implementation of non-animal predictive approaches for skin hazards assessment. Identifying model cells proteomes is promising for elucidating the protein networks that dictate their respective contributions to biological processes and potential hazards. I will present the available model objects and congruent proteomic methods for the prediction of human skin hazards. In the Laboratory of Protein Biochemistry and Pathology of the Institute of Biomedical Chemistry (IBMC) we had considerable experience studying the cytotoxicity of widely used surfactants using the HaCaT keratinocytes as a model of human epidermal cells. The original sample preparation and data processing approaches such as 1DE-gel concentration and comparative proteoinformatics were developed to reveal candidate proteins and/or pathways characterising the non-obvious impact of chemicals on cells. This report shows that the field of non-animal approaches for skin hazard assessment has evolved greatly in last years and presents the corresponding insights and achievements from IBMC.