

P001 Lipoprotein receptor-related protein 1 serves as binding partner to localize secreted cathepsin B to the surface of migrating HaCaT keratinocytes

Stefanie Dannenmann¹, Heiko Büth¹, Maren Rehders¹, Raluca Ostafe¹, Claus Pietrzik², Petra Boukamp³, and Klaudia Brix¹

¹ School of Engineering and Science, IUB / Jacobs University Bremen, Campus Ring 6, 28759 Bremen, Germany; ²Institut für Physiologische Chemie und Pathobiochemie, Universität Mainz, Germany; ³Deutsches Krebsforschungszentrum, Heidelberg, Germany

Previously we showed that the lysosomal cysteine peptidase cathepsin B is secreted from migrating keratinocytes in a proteolytically active form. Subsequently, cathepsin B re-associates with the plasma membrane to facilitate keratinocyte migration during regeneration from wounding. This study was performed to test, whether annexin-II heterotetramer or lipoprotein receptor-related protein 1 at the plasma membrane of migrating keratinocytes serve as receptor of extracellularly occurring cathepsin B. Immunofluorescence analysis of HaCaT keratinocytes demonstrated that cathepsin B did not colocalize with p11 and p36 of annexin-II heterotetramer complexes. In contrast, plasma membranes of migrating keratinocytes were characterized by regions of colocalization of cathepsin B and lipoprotein receptor-related protein 1, and receptor associated protein competed with cathepsin B for its binding. We conclude that keratinocytes utilize the basally located scavenger receptor lipoprotein receptor-related protein 1 to recruit secreted cathepsin B to pericellular regions for focalized extracellular matrix remodelling.