Epithelial cells and keratins

Prof. Thomas M. Magin

Epithelia protect the body against dehydration, microbial infection and mechanical stress and can self-renew. Many of these functions depend on the keratin cytoskeleton. Point mutations in epidermal keratin genes cause several disorders including epidermolysis bullosa simplex, characterized by cytoskeletal collapse into cytosolic aggregates, altered cell adhesion and signalling.

As no molecular therapy for these conditions is available, one aspect of our research addresses molecular disease mechanisms to develop therapy approaches. We found that the co-chaperone CHIP can remove mutant aggregated keratins in a cell culture model of EBS, leading to a novel treatment concept of EBS, based on targeting proteins that degrade/refold mutant keratins. This will allow development of cell-permeable small molecules suitable for local or systemic application.

Keywords

- Epithelial Cells
- Keratins
- Stem Cells

Selected references

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