

P044 Deletion of integrin $\alpha 3\beta 1$ in skin promotes wound healing
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Laminin-332 (Ln-332) binding integrins $\alpha 3\beta 1$ and $\alpha 6\beta 4$ are abundantly expressed in basal epidermal keratinocytes. Whereas $\alpha 6\beta 4$ is crucial for the maintenance of skin integrity, the role of $\alpha 3\beta 1$ in adult skin is unclear, since $\alpha 3$ -null mice die perinatally from severe kidney and lung defects. Therefore, we generated *Ltg* $\alpha 3^{flox/flox}$; K14-Cre mice that lack the $\alpha 3$ subunit specifically in skin. These mice display inflamed and fragile skin areas, microblistering between the epidermis and the dermis, and duplication of the basement membrane (BM), whereas hemidesmosome formation is unaffected. *In vivo* wound healing experiments revealed faster wound closure in the knockout mice than in their wild-type counterparts, whereas proliferation, integrin distribution and deposition of BM proteins were unaltered. *In vitro* assays with keratinocytes isolated from *Ltg* $\alpha 3^{flox/flox}$ mice in which $\alpha 3$ was deleted by Cre-recombinase demonstrated increased polarization, directional migration and velocity in $\alpha 3(-)$ cells, while reconstitution of these cells with the human integrin $\alpha 3$ subunit reversed the effects. Cell spreading assays, experiments with blocking antibodies and immunoprecipitations showed that synthesis and deposition of Ln-332 were normal, and that cell spreading on Ln-332 in $\alpha 3$ -null cells is rescued by increased surface expression of $\alpha 6\beta 1$. Taken together, we conclude that deletion of integrin $\alpha 3$ in skin promotes cell migration. Probably, wound healing in the presence of $\alpha 3\beta 1$ occurs in a more coordinated manner to ensure proper attachment of the migrating epidermis to the newly formed BM.