

Keratinocyte migration activated by synthetic peptide containing syndecan binding site within laminin-5 α 3LG4 domain

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Laminin α 3 chain, a functional key subunit of laminin-5, contains a large globular module (G module) at its C-terminus, which consists of a tandem repeat of five homologous LG modules (LG1~5). Here, we show that a recombinant α 3LG4 and synthetic peptides containing syndecan binding motif within LG4 (A3G756) induced keratinocytes motility and a MMP-9 expression in keratinocytes. The A3G756-induced cell motility was inhibited by an MMP-9 inhibitor and a neutralizing antibody of MMP-9, indicating the cell motility was dependent on an MMP-9 activity. In addition, the A3G756-induced cell migration was also abolished by the presence of p38MAPK inhibitor, but not by Erk MAPK inhibitor. Neutralizing antibody to integrin α 5 as well as β 1 could inhibit A3G756-induced cell migration. These data showed that syndecan binding with laminin-5 α 3LG4 module induced keratinocyte migration, which was mediated by a set of molecules such as MMP-9, p38MAPK, and integrin α 5 β 1. These results suggest that the interaction between laminin and syndecan may have a significant role in reepithelialization at wound healing.