A26: A Novel Approach to Investigate Laminin-Integrin Interaction in vivo

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Laminins are constitutive components of basement membranes. Among laminin receptors, integrins play critical roles. Since there are several laminin receptors other than integrins and there are several integrin isoforms for laminins, it is difficult to investigate the laminin-integrin interaction specifically in vivo by generating laminin or integrin knockout animals. To overcome these difficulties, we have developed a novel approach to investigate the laminin-integrin interaction in vivo.

In our previous studies, we demonstrated that the C-terminally located Glu residue in the laminin gamma subunit is indispensable for the interaction with integrins but not with non-integrin receptors. We therefore generated a knock-in animal (Lam\textsubscript{c1EQ}) in which this critical Glu residue in gamma chain was substituted with Gln to specifically inactivate the integrin binding ability of laminin.

Lam\textsubscript{c1EQAQ} homozygotes are early embryonic lethal; blastocyst was formed and implantation occurred, but homozygous embryos developed poorly.

These results indicate that the laminin-integrin interaction is indispensable for early embryonic development and that the knock-in strategy we have developed is effective in dissecting the laminin-integrin interaction in vivo.