Synopsis of Original Research Paper

Signal transduction involved in the regulation of cellcell junction and differentiation in keratinocytes : Involvement of calcium signaling in pemphigus IgG induced acantholysis

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The signal transduction involved in the regulation of cell-cell contacts is supposed to play an important role in kertinocyte differentiation. To elucidate signaling mechanisms to regulate keratinocyte functions, we employed pemphigus vulgaris (PV), which is a bullous disease caused by disruption of desmosomes (a cell-cell junction), as a model. In this disease, autoantibodies bind to the desmosomal junctional proteins, so that cell-cell detachment is induced. However, no precise mechanism for this phenomenon after the antibodies bind to the antigen has been known.

In this study, the effects of PV-IgG on the intracellular concentrations of Ca^{++} and inositol 1,4,5-tris-phospate and secretion of plasminogen activator (PA) were studied in cultured keratinocytes. PV-IgG caused inrecases in these second messengers and PA secretion, which were inhibited with phospholipase C (PLC) inhibitor; U73122. These results may suggest that PLC and Ca^{++} singnaling pathway is involved in cell-cell detachment in PV.