

Injury specific gene marking to follow the wound healing process under the injured epidermis specific gene recombination

Kenzo Takahashi

Department of Dermatology, Kyoto University Graduate School of Medicine

Injury to the skin tissue elicits a repair response aimed at restoring the epithelial continuity, which is essential to a normal skin barrier function. Epidermal keratinocytes at the wound edge are recruited for the re-epithelialization of the wound site. However, the mechanism of the re-epithelialization is not easily understood compared with the simple epithelia. While the migration of keratinocytes occurs in the form of a stratified sheet, the relative contribution and ultimate fate of progenitor and differentiating keratinocytes during this vital process remains unclear. In this study, we use the transgenic technology to induce the wound specific gene recombination. We prepared two kinds of the transgenes to introduce the injured epidermis specific gene expression at the suprabasal keratinocytes, one for the wound specific expression of the cre recombinase and the other for the expression of the marker proteins. We used the double transgenic mice to trace the migration of the suprabasal keratinocytes activated at the wound edge. By this transgenic work we might be able to conclude the long term question, whether the suprabasal keratinocytes could recover the mitogenic property and migrate into the ulcerative surface or not.