

Generation and analyses of transgenic mice for the overexpressed matrix metalloproteinase (MMP) -9 in the skin

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The skin surrounding the whole body maintains the homeostasis by the tissue metabolism both in the normal status and in the inflammatory conditions. Among many species of matrix metalloproteinase (MMP), two kinds of gelatinase, MMP-2 and MMP-9 are known to cleave not only denatured collagen, named as gelatin, but also other not a few matrix components such as fibronectin, elastin, and type IV and VII collagens and pro-form of cytokines including tumor necrosis factor (TNF)- α and transforming growth factor (TGF)- β to be activated. In comparison with MMP-2, MMP-9 is known to be induced in the case of inflammatory stimuli and plays important roles for such tissue metabolism including tumor invasion, blister formation, dermatitis, apoptosis by ultraviolet irradiation, and keratinization. For example, MMP-9 null mice reportedly show no blister formation on the experimental model of bullous pemphigoid and they also manifest very low level of keratinization on the squamous cell carcinoma. This study was aimed to determine the effects of overexpression of MMP-9 in the skin.