Emodin suppresses inflammatory pro-fibrogenic reaction by ocular fibroblasts

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Purpose. To examine if emodin, a constituent of an herbal medicine, Inchin-ko-to, has a therapeutic effect on ocular surface fibrotic disease, we conducted in vitro and in vivo experiments. Anti-proinflammatory or profibrogenic effect of emodin was assessed by using human subconjunctival fibroblasts. The cells are considered to be responsible for inflammatory fibrosis in eye conjunctiva in local allergic/autoimmune disorders, i.e., vernal or atopic conjunctivitis or Stevens-Johnson's syndrome. Its therapeutic effects in vivo was evaluated in mouse ocular surface scarring model produced by an alkali burn.

Methods. Cell proliferation, migration and expression of a-smooth muscle actin (aSMA) were assayed with a colorimetric assay, scratch wound assay, immunocytochemistry. The eye was histologically examined.

Results. Emodin suppressed allergic/autoimmune disorders, i.e., vernal or atopic coinjunctivitis by an alkali burn. Methods. Cell proliferation, migration and expression of aSMA were assayed with a colorimetric assay, scratch wound assay, immunocytochemistry. The eye was histologically examined.

Conclusions. These findings indicate that IL-7 is involved in ECM production in subconjunctival fibroblasts activated by exogenous TGFb1. IL-7 may be effective in preventing undesirable scar formation during healing following filtration surgery.