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NATIVE HUMAN INTERFERON ALPHA AS A POTENT ANTI-FIBROTIC FACTOR: IN VITRO STUDY

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Aim: To compare in vitro effectiveness of native human interferon alpha to recombinant human interferon alpha in the proliferation, differentiation and collagen synthesis of human dermal fibroblasts

Methods: Primary culture of normal human adult dermal fibroblasts was treated with either native or recombinant interferon alpha. Measurement of cell viability and proliferation was done by the MTT assay. To further characterise the antifibrotic activity of nhIFN- α we investigated the effect of both IFN- α s on fibroblasts stimulated with pro-fibrotic cytokines. Therefore HDFs were incubated with TGF or IL4. Procollagen type I mRNA and alpha-SMA expression was measured by semiquantitative RT-PCR.

Results: shows that nhIFN- α more pronouncedly affects HDFs' viability than rhIFN- α and exerts a stronger reduction in procollagen type I mRNA synthesis.

Both interferons antagonize the effect of exogenous TGF-beta and IL-4 but effect was statistically more significant in a nhIFN- α group.

Discussion: Interferon alpha inhibits fibroblast proliferation, differentiation into myofibroblasts and extracellular matrix synthesis which are key events during the process of scarring. In contrary, overexpression of profibrotic cytokines like TGF- β 1 and IL-4 is believed to contribute to the excessive scarring. Here we confirmed that rhIFN- α , containing only one subtype of IFN- α , inhibits, in vitro, some crucial steps in normal and hypertrophic scar formation. Unlike recombinant human IFN- α (rhIFN- α), a native human IFN- α (nhIFN- α) consists of several IFN- α subtypes and traces of other cytokines produced by the Sendai virus-stimulated human leukocytes. According to the findings of our investigation nhIFN- α , due to the synergism between those cytokines, has better antifibrotic effect than rhIFN- α and has a better future perspective in management of abnormal wound healing.