

[Eur J Dermatol](#). 2016 Aug 1;26(4):350-60. doi: 10.1684/ejd.2016.2782.

## **Aging decreases collagen IV expression in vivo in the dermo-epidermal junction and in vitro in dermal fibroblasts: possible involvement of TGF- $\beta$ 1.**

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#### **Abstract**

Collagen IV is a major component of the dermo-epidermal junction (DEJ). To study expression of collagen IV upon aging in the DEJ and dermal fibroblasts isolated from the same patients. A model of senescent fibroblasts was developed in order to identify biological compounds that might restore the level of collagen IV. Skin fragments of women (30 to 70 years old) were collected. Localisation of collagen IV expression in the DEJ was studied by immunofluorescence. Fibroblast collagen IV expression was studied by real-time PCR, ELISA, and western blotting. Premature senescence was simulated by exposing fibroblasts to subcytotoxic H<sub>2</sub>O<sub>2</sub> concentrations. Collagen IV decreased in the DEJ and fibroblasts relative to age. TGF- $\beta$ 1 treatment significantly increased collagen IV gene and protein expression in fibroblasts and restored expression in the model of senescence. Addition of TGF- $\beta$ 1-neutralizing antibody to fibroblast cultures decreased collagen IV expression. Taken together, the results suggest that the decrease in collagen IV in the DEJ, relative to age, could be due to a decrease in collagen IV expression by senescent dermal fibroblasts and may involve TGF- $\beta$ 1 signalling.