

## Telomerase reverses ageing in skin model

In the United States, scientists from Geron Corp., Xgene Corp. and Stanford University School of Medicine report that the telomerase gene restored the ability of ageing human fibroblasts to form normal skin structures in a model of tissue formation. The proliferative capacity and expression profiles of senescent cells incorporating telomerase resembled young skin cells.

Skin is composed of keratinocytes, which form the upper epidermal layer, and fibroblasts, which form the underlying dermal structures. These layers are connected by a tight junctional membrane. Fibroblasts aged *in vitro* lost the ability to form junctions with young human keratinocytes when the two cells were put into a mouse model of tissue formation. This condition occurs in the elderly as increased skin frailty and sub-epidermal blistering.

According to researchers, the introduction of telomerase increased the proliferative capacity of the ageing fibroblasts and restored their ability to reconstitute normal human skin structures in the model system. In addition, microarray analysis indicated that senescent fibroblasts with added telomerase displayed expression patterns resembling younger fibroblasts. Specifically, genes normally down-regulated in ageing fibroblasts – like collagen I and III – were expressed, while several markers associated with the destruction of dermal matrix and inflammatory processes, normally over-expressed in ageing tissue, were repressed.

Researchers have therefore concluded that telomerase not only confers replicative immortality to skin fibroblasts, but also prevents or reverses the loss of biological function associated with ageing cells. *Contact: Mr. Calvin B. Harley, Geron Corp., 230 Constitution Dr., Menlo Park, CA 94025, the United States. Tel: +1 (650) 4737 700/(800) 7823 279; Fax: +1 (650) 4737 701. (Website: <http://www.bioresearchonline.com>)*