

## **Analysis of elastic fiber formation and the cell functions of tropoelastin on the skin.**

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Elastin (ELN) is an insoluble extracellular matrix protein and the core protein of the elastic fibers that provide elasticity to elastic tissues such as arterial, lungs, skin and ligaments. It is secreted from cells as a soluble protein of approximately 70-kDa referred to the extracellular space as tropoelastin.

The purpose of this study was to investigate the elastic fiber assembly in human skin fibroblast cells on two- or three-dimensional culture. We demonstrated elastic fiber assembly on the neonatal normal human dermal fibroblast cells (NHDF-Neo) or the adult normal human dermal fibroblast cells (NHDF-Ad) Immunofluorescence staining showed that NHDF-Ad is difficult to make elastic fiber in contrast to NHDF-Neo in two-dimensional culture resulting from the activity of tropoelastin degradation is high. Furthermore, the formation of cross-linking amino acid in NHDF-neo significantly increased by the addition of recombinant human tropoelastin (HTE). On the other hand, it was not able to observe the elastic fiber assembly on NHDF-Neo in three-dimensional culture. In addition, it revealed the gel greater contraction in the presence of HTE.

Taken together, these observations contributed to the clarification of mechanisms of elastic fiber assembly on the dermal fibroblast cells in two- or three-dimensional culture.