

Collagen's role in skin cancer

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Credit: Kome (Flickr)

Type VII collagen is an important protein that helps hold the skin together. Patients with a severe skin condition known as recessive dystrophic epidermolysis bullosa (RDEB) have genetic mutations that lead to reductions in type VII collagen, causing blistering following minor trauma.

Young adults with RDEB go on to develop aggressive, [squamous cell carcinoma](#), a type of [skin](#) cancer which is fatal in two thirds by the age of 45.

The study, published in the *Journal of the National Cancer Institute*, now shows that in both RDEB scarred skin and RDEB tumours, type VII collagen is an important regulator of blood vessel formation – a major mechanism in tumour development.

This study is important for patients with RDEB as it suggests that using non-mutated type VII collagen as a treatment may reverse [abnormal blood vessel](#) formation, and potentially prevent tumour development.

Lead researcher Professor Edel O'Toole from the Blizard Institute at QMUL said: "In addition to the potential benefits for RDEB patients, we now know that type VII collagen may play an important role in suppressing tumour formation in skin. This may also be relevant in other organs where type VII collagen is present, such as bowel and oral mucosa."

The researchers grew skin cancer cells in the lab and engineered them to have a loss of type VII collagen. They then built 3D cellular models from human squamous cell carcinoma cells and observed the number of blood vessels that developed.

The team found that that loss of type VII collagen in cell lines and tumours from patients led to increased [blood vessel formation](#). Their findings were then confirmed in skin tumours from RDEB patients and the general population.

More information: V. L. Martins et al. Suppression of TGF and Angiogenesis by Type VII Collagen in Cutaneous SCC , *Journal of the National Cancer Institute* (2015). [DOI: 10.1093/jnci/djv293](https://doi.org/10.1093/jnci/djv293)

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