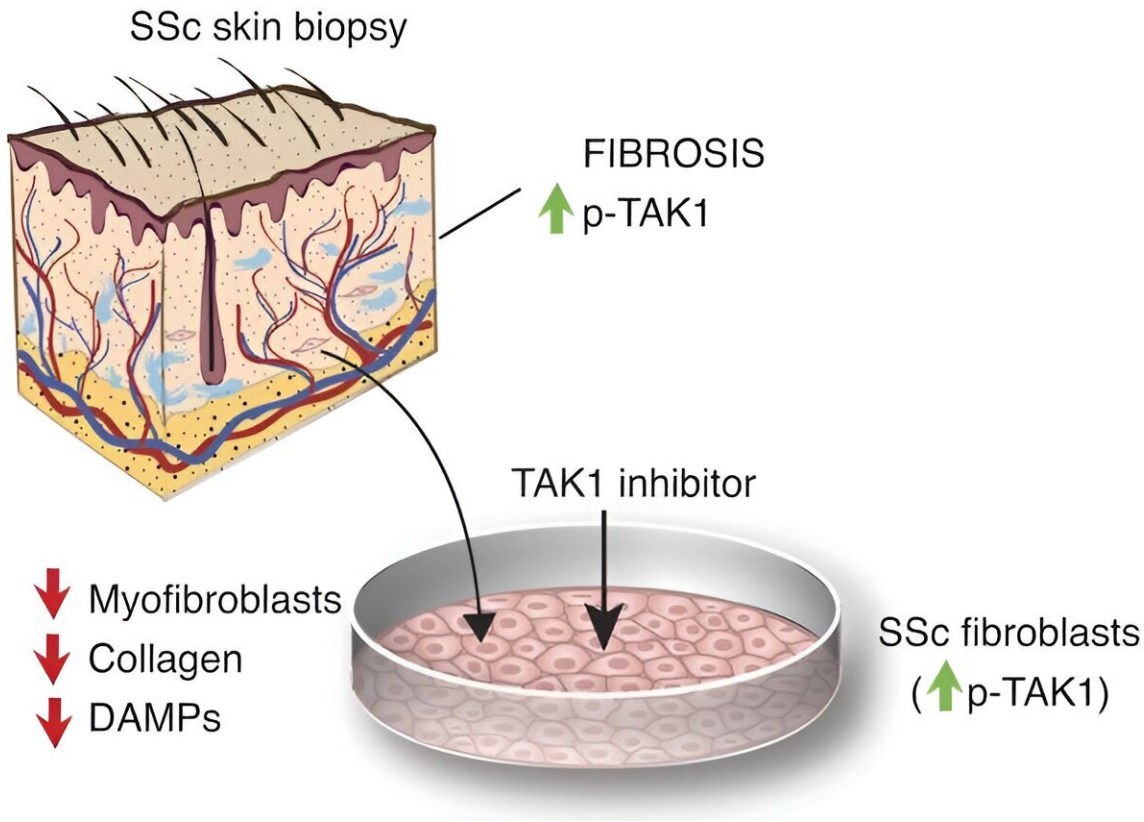
Targeting TAK1 protein to treat systemic sclerosis

July 28 2023, by Valerie Goodwin



Credit: *JCI Insight* (2023). DOI: 10.1172/jci.insight.165358

Systemic sclerosis is the scaring of multiple organs within the body resulting in difficulty in functioning for these organs. The disease can become deadly if the organ scaring isn't treated properly.

Researchers at the University of Michigan Health System have identified a protein in the disease that may be a new target for treatment.

In the study titled "Pharmacological inhibition of TAK1 prevents and induces regression of experimental organ fibrosis," published in *JCI Insight*, a team of researchers from the John Varga, M.D. lab identified that blocking the TAK1 protein using a new drug called HS-276 can stop the production of collogen that causes scar-forming cells in systemic sclerosis.

"HS-276 significantly reduced the expression of collagen, and fibrotic disease associated molecular patterns including Fibronectin EDA and Tenascin-C in SSc explanted fibroblasts," said Swarna Bale, first author of the study.

"The reduced TAK1 activation in SSc skin biopsies suggested that, if it can be further thoroughly investigated, this can be a leading anti-fibrotic drug molecule."

HS-276 showed reduced collagen levels in mice as well as a reduction in progression of systemic sclerosis. This was evidenced from reduced levels of TAK1 activation as well as reducing fibrotic disease associated molecular patterns including Fibronectin EDA and Tenascin-C.

This drug has been studied with arthritis in the past and has been effective in treating collagen-induced arthritis.

The next step is to begin testing the efficiency of the HS-276 drug in genetic mice models and investigating the reproducibility of the antifibrotic effects of the drug in the mice models used.

More information: Swarna Bale et al, Pharmacological inhibition of TAK1 prevents and induces regression of experimental organ fibrosis,

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