Researchers identify genes that are key to keeping blood vessels healthy

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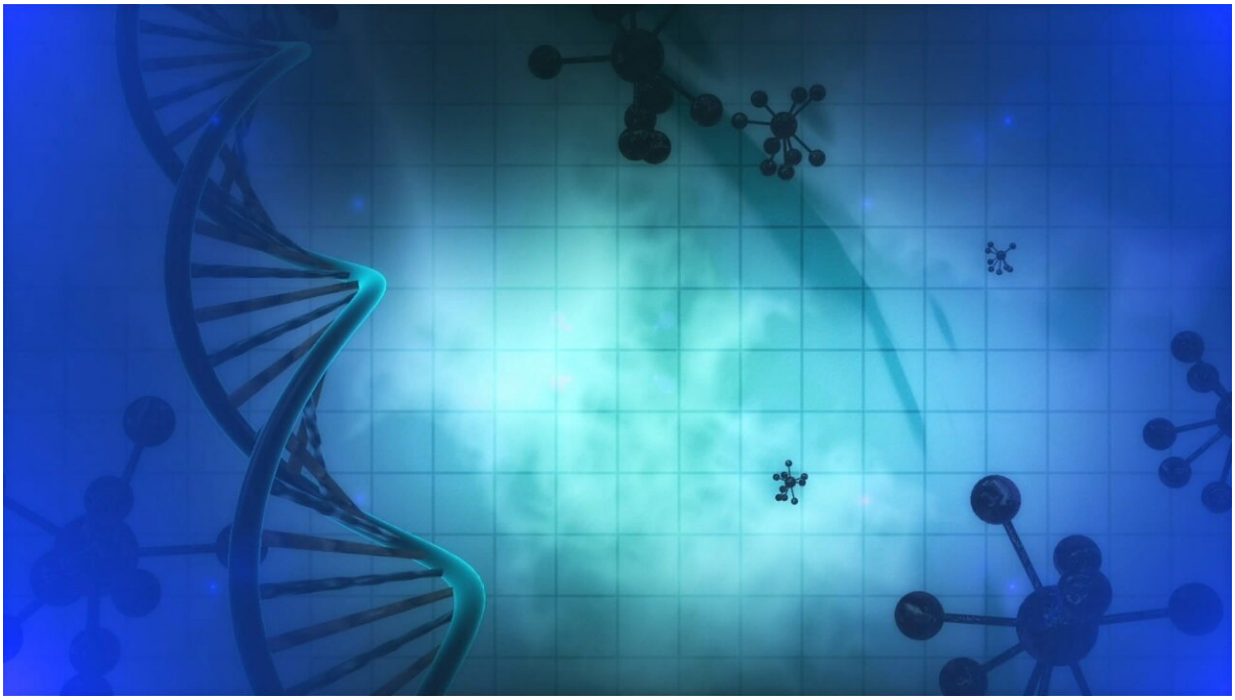

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What keeps our blood vessels viable, allowing them to do the vital work of transporting blood to and from the heart? Yale researchers have identified two genes that are central to this critical function.

The research team did experiments with mice lacking the genes, known as ERK1 and ERK2, in cells lining blood vessels. Without the genes,

which send signals that trigger cell survival, the vessels began to disintegrate. The researchers also applied machine learning to identify molecular pathways that kept blood vessels normal. They observed that the impact of removing ERK1/2 led to an increase in blood pressure, scarring, and kidney failure—findings that are similar to common cardiovascular complications reported by people treated with anti-cancer therapies that target blood vessels to kill tumors.

The findings illuminate the role of these genes, and could inform strategies to develop future therapies for cancer and other conditions. The study, led by Yale Cardiovascular Research Center, was published in the *Journal of Experimental Medicine*.

More information: Nicolas Ricard et al. Endothelial ERK1/2 signaling maintains integrity of the quiescent endothelium, *The Journal of Experimental Medicine* (2019). DOI: 10.1084/jem.20182151

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