Linking vascular inflammation to obesity and atherosclerosis

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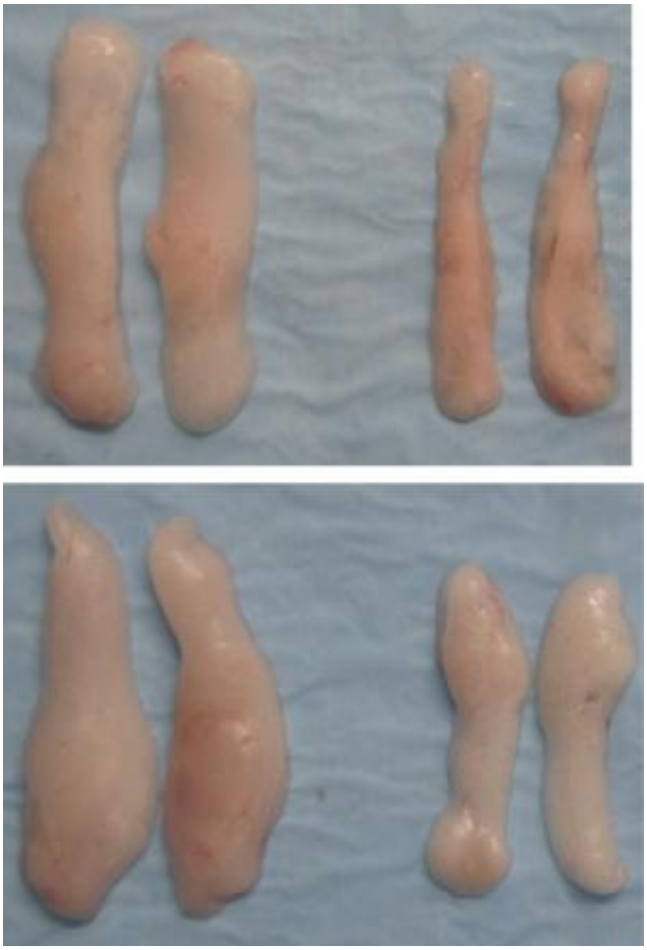

New research reveals that IKKβ inhibitors reduce diet-induced obesity. These images show that fat mass is significantly decreased in mice treated with IKKβ inhibitors (right) compared with a control group (left). Credit: Sui et al., 2014

A study in *The Journal of Experimental Medicine* shows that IκB kinase β (IKKβ) functions in smooth muscle cells to regulate vascular inflammatory responses and atherosclerosis development.

Inflammatory responses are the driving force of atherosclerosis, a process that involves the hardening and thickening of artery walls due to excess fatty deposits. IKKβ is a central coordinator of inflammatory responses that has been implicated in vascular diseases, but its role in atherosclerosis has been unclear.

Now, Changcheng Zhou and colleagues from the University of Kentucky show that deficiency of IKKβ in smooth muscle cells decreases vascular inflammation and atherosclerosis development in mice. Surprisingly, the lack of IKKβ also blocks the differentiation of fat cells and causes an accumulation of body fat precursor cells, thus protecting the animals from diet-induced obesity. These novel findings suggest that the kinase acts as a regulator of fat cell differentiation. The use of IKKβ inhibitors may therefore provide an innovative treatment for atherosclerosis, obesity, and metabolic disorders.

More information: Sui, Y., et al. 2014. J. Exp. Med. DOI: 10.1084/jem.20131281

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