

Enzyme protects against obesity-related heart disease

8 June 2018, by Sanjay Mishra

Saturated fats found in high-fat diets increase the risk of heart failure. Now Manisha Gupte, PhD, Hind Lal, PhD, and colleagues show that the presence of an enzyme called GSK-3beta in the heart is crucial to protect against obesity-related cardiac dysfunction.

To better understand the role of GSK-3beta, the scientists generated mice in which the gene for the enzyme was "knocked out" in heart cells. When fed a high-fat diet, the [knockout mice](#) developed severe heart disease compared to normal controls even though there was no difference in obesity.

On a normal diet, the related enzyme GSK-3alpha compensated for the absence of GSK-3beta in the knockout mice. On a high-fat diet, however, this protection was lost. The absence of GSK-3beta led to excessive accumulation of beta-catenin, a signaling molecule associated with heart abnormalities.

These findings, published recently in the *International Journal of Cardiology*, point to the potential adverse cardiac consequences of chronic GSK-3 inhibition.

More information: Manisha Gupte et al. Cardiomyocyte-specific deletion of GSK-3? leads to cardiac dysfunction in a diet induced obesity model, *International Journal of Cardiology* (2018). [DOI: 10.1016/j.ijcard.2018.01.013](https://doi.org/10.1016/j.ijcard.2018.01.013)

Provided by Vanderbilt University

APA citation: Enzyme protects against obesity-related heart disease (2018, June 8) retrieved 16 September 2022 from <https://medicalxpress.com/news/2018-06-enzyme-obesity-related-heart-disease.html>

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