

Antidiabetic action of natural fatty acid derivatives not confirmed

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A research collaboration between the healthcare company Sanofi and Johannes Gutenberg University Mainz (JGU) has investigated the antidiabetic action of certain natural fatty acids, so-called FAHFAs, which U.S. scientists reported in 2014. Elevated levels of 5-PAHSA and 9-PAHSA were found in mice which overexpressed the glucose transporter Glut4. This transporter is controlled by insulin and causes the uptake of blood glucose into muscle cells. It had been reported that both PAHSA isomers occur in food and are also produced by human cells. Diabetics have lower blood levels of these compounds than healthy individuals. When mice were fed with a FAHFA-enriched diet, their blood glucose levels were found to decrease and insulin was released.

These results, published in a prominent journal, caused a stir among scientists, as they suggested a new point of attack in the fight against a widespread disease. Chemists under the guidance of Professor Till Opatz from Mainz University synthesized the stereoisomers of 5- and 9-PAHSA and sent them to their colleagues at Sanofi in Frankfurt for biological testing. In some of the tests, rudimentary metabolic changes could be detected, but the overall effect of the compounds was sobering—none of these molecules achieved positive effects on clearly defined endpoints in metabolism.

The results of the researchers from Frankfurt and Mainz recently appeared in *Cell Metabolism*. Now, the German scientists hope for a constructive discussion on the discrepancy between both studies resulting in a better understanding of the disease models. The current publication

demonstrates the successful collaboration between a university and a research-active healthcare company in a highly relevant area of basic research in biomedicine. It underlines the importance of verification of scientific results and their disclosure.

More information: Mark M. Yore et al, Discovery of a Class of Endogenous Mammalian Lipids with Anti-Diabetic and Anti-inflammatory Effects, *Cell* (2014). [DOI: 10.1016/j.cell.2014.09.035](https://doi.org/10.1016/j.cell.2014.09.035)

Elsa Pflimlin et al. Acute and Repeated Treatment with 5-PAHSA or 9-PAHSA Isomers Does Not Improve Glucose Control in Mice, *Cell Metabolism* (2018). [DOI: 10.1016/j.cmet.2018.05.028](https://doi.org/10.1016/j.cmet.2018.05.028)

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