

## Insulin-producing cells' mitochondria may represent useful therapeutic target in type 2 diabetes

Published on January 7, 2016 at 1:35 AM

Factors in the blood from calorie-restricted rats can modify energy-producing mitochondria within the insulin-producing cells that regulate blood sugar levels, new research shows. This has a positive impact on glucose-stimulated insulin secretion and protects cells from fatty acid and glucose toxicity.

The findings suggest that insulin-producing cells' mitochondria may be altered by signals independent of the body's fuel levels and may represent a useful therapeutic target in type 2 diabetes. Additionally, identifying these blood factors may open even more targetable interventions against the disease.

"Our findings support the concept that the impact of diet on insulin secreting cells is mediated by signals traveling through the blood rather than the nutrients and metabolites themselves. These signals may be generated elsewhere in other organs such as fat tissue, liver, brain or even the immune cells," said Dr. Orian Shirihai, co-author of *The FEBS Journal* study. "Our findings also suggest that at least in part the beneficial effect of reducing caloric intake is mediated by the appearance of a protective signal rather than the elimination of a harmful one. This study describes an experimental system through which such signals can be identified and characterized with the hope that in the future it can potentially be mimicked using a small compound."

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Source:

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