Researchers discover mechanism of insulin production that can lead to better treatment for diabetes

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This is Dr. Yuval Dor of the Hebrew University of Jerusalem, a researcher on genetic aspects of insulin production. Credit: Hebrew University photo by Yoram Aschheim

How a specific gene within the pancreas affects secretion of insulin has been discovered by researchers from the Hebrew University of Jerusalem, in collaboration with Japanese and American universities. Their work opens the way for a new understanding of possible paths to battle diabetes and diabetes-related health problems, which are on the rise all over the world.

Blood glucose levels are tightly regulated by secretion of insulin from beta cells in the pancreas. Defective insulin secretion results in poorly regulated blood glucose levels and diabetes.

The work of the multi-national research team explored the role of LKB1, a gene involved in many cellular functions, whose role in the pancreas was not examined before. Specifically, they studied the implications of beta cell-specific loss of the LKB1 gene, using a mouse model system. They were able to show that eliminating this gene from beta cells causes the production and secretion of more insulin than normal beta cells, resulting in an enhanced response to increases in blood glucose levels.

The findings have potentially great implications for those suffering from diabetes (excessive blood sugar) due to insufficient production of insulin in the pancreas.

Since it was shown that LKB1 negatively regulates both insulin content and secretion, the way has now been opened to possible development of a novel therapy that would limit the presence of this gene in pancreas beta cells, thus enhancing insulin secretion.

These findings were published recently in the journal Cell Metabolism.

Source: The Hebrew University of Jerusalem

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