

Bypassing the insulin highway

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An immune cell known as a neutrophil releases a protein that can suppress glucose production in the liver –without targeting insulin, researchers have found.

Neutrophils, a type of white blood cell, produce special immune proteins called defensins which seem to have a connection with glucose levels. During bacterial infection, defensin production can increase dramatically, a rise that frequently results in hypoglycemia. In addition, many patients with type II diabetes have decreased defensin levels.

To study this connection further, Wenhong Cao and colleagues tested the effects of human defensin HNP-1 on both isolated cells and rodent models. Treating liver cells with HNP-1 suppressed the expression of several glucose-producing genes and decreased cellular glucose levels, but did not activate or alter the expression of the insulin receptor at all. This inhibition extended to animals, as HNP-1 reduced blood glucose levels in both normal mice and diabetic rats.

These findings provide some more information linking the immune system and metabolism, and also offer a new avenue to target diabetics who do not respond well to traditional insulin-based treatments.

Source: American Society for Biochemistry and Molecular Biology

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