

# More evidence suggests type 2 diabetes is an inflammatory disease

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As people's waistlines increase, so does the incidence of type 2 diabetes. Now scientists have a better understanding of exactly what happens in the body that leads up to type 2 diabetes, and what likely causes some of the complications related to the disease. Specifically, scientists from Denmark have found that in mice, macrophages, a specific type of immune cell, invade the diabetic pancreatic tissue during the early stages of the disease. Then, these inflammatory cells produce a large amount of pro-inflammatory proteins, called cytokines, which directly contribute to the elimination of insulin-producing beta cells in the pancreas, resulting in diabetes. This discovery was published in the January 2014 issue of the *Journal of Leukocyte Biology*.

"The study may provide novel insights allowing development of tailor-made anti-inflammatory based therapies reducing the burden of type 2 patients," said Alexander Rosendahl, Ph.D., a researcher involved in the work from the Department of Diabetes Complication Biology at Novo Nordisk A/S, in Malov, Denmark. "These novel treatments may prove to complement existing therapies such as insulin and GLP-1 analogues."

To make their discovery scientists compared [obese mice](#) that spontaneously developed diabetes to healthy mice. The mice were followed from a young age when the obese mice only showed early diabetes, to an age where they displayed systemic complication in multiple organs. Presence of macrophages around the [beta cells](#) in the pancreas and in the spleen was evaluated by state-of-the-art flow cytometric technology allowing evaluation on a single cell level. At both

the early and late stages, the [diabetic mice](#) showed significant modulations compared to healthy mice.

"The more researchers learn about obesity and [type 2 diabetes](#), the more it appears that inflammation plays a critical role in the progression and severity of these conditions," said John Wherry, Ph.D., Deputy Editor of the *Journal of Leukocyte Biology*. "This study sheds light on how a key inflammatory cell is connected to disease and what might go wrong when someone has type 2 [diabetes](#). The knowledge gained from such studies offers hope that new immune-based therapies could be developed to mitigate the severity of such diseases."

**More information:** *J. Leukoc. Biol.* January 2014 95:149-160; [DOI: 10.1189/jlb.0213075](#)

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