

# Salmonella-based oral vaccine a promising therapy for preventing type 1 diabetes

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A combined vaccine therapy including live Salmonella is a safe and effective way to prevent diabetes in mice and may point to future human therapies, a new study finds. The results will be on Sunday, April 3, at ENDO 2016, the annual meeting of the Endocrine Society, in Boston.

The causes of Type 1 diabetes are not fully known. In most cases, the body's [immune system](#) attacks and destroys the part of the pancreas that produces insulin, which results in loss of metabolic control and high [blood sugar levels](#). Earlier studies have investigated inhibiting all immunity in Type 1 diabetes and have shown good short-term results, but also serious side-effects.

"The current standard of care is to treat the symptom, [high blood sugar levels](#) and its consequences, without addressing the underlying autoimmunity," said lead study author Mohamed I. Husseiny Elsayed, PhD, assistant research professor at the Beckman Research Institute of City of Hope in Duarte, CA. "Previous studies have hinted that immunotherapies given in the right way with the right dose and probably as a combination therapy could be effective to treat people with diabetes, and we have now found evidence to this effect in a mouse model."

The vaccine uses Salmonella typhimurium bacteria in combination with other small regulatory proteins called cytokines and a low dose of an immunosuppressive drug called Anti-CD3. Working together, the vaccine re-balances the immune system and prevents the attack on the

insulin-producing cells.

In this study, researchers showed that the vaccine prevented diabetes in non-obese diabetic mice and restored normal glucose tolerance.

"Type 1 diabetes is an autoimmune disease, meaning that the underlying problem is with the immune system," said Elsayed. "This vaccine is a very safe and effective targeted immunotherapy and we believe it's a great place to start in the development of a vaccine to stop Type 1 [diabetes](#)."

Provided by The Endocrine Society

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