Mass General scientists gain insight into how a TB vaccine may reverse diabetes

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MGH is studying the potential of a tuberculosis vaccine to reverse Type 1 diabetes.

these cells is important because Type 1 diabetes occurs when the immune system mistakenly attacks insulin-secreting islets in the pancreas. Tregs have the ability to halt this aberrant behavior, but effective methods for modulating their activity have yet to be found.

BCG may prove to be the answer, Faustman believes. Her team discovered that repeat vaccination seems to permanently switch on key Treg genes, according to a statement. The approach may prove effective not just in Type 1 diabetes, but also in other autoimmune disorders, such as multiple sclerosis.

BCG is a live, weakened version of Mycobacterium, which causes TB in cows. It is approved not just as a TB vaccine, but also as a bladder cancer treatment that works by prompting an immune response to tumors. In previous mouse studies and a phase 1 trial in people, Faustman’s team showed that BCG raises levels of an immune system modulator, tumor necrosis factor. In the phase 1 trial, they observed that BCG produced a slight revival of insulin secretion.

Faustman’s team is now completing enrollment of a phase 2 trial of BCG in patients with Type 1 diabetes, she said.
in an email to FierceBiotechResearch. The research has generated significant interest from funding sources, largely because BCG has been on the market for a century and is available in generic form—making it potentially inexpensive remedy for a disease that affects an estimated 3 million Americans. MGH has raised $20 million of the $25 million it needs to complete the phase 2, Faustman said.

Among the biggest supporters of the research is retired Chrysler CEO Lee Iacocca, who has been providing funding to MGH through its Iacocca Family Foundation. The auto magnate’s wife, Mary, died of complication from diabetes.

“There is definitely continuing support from the Iacocca Foundation and other nonprofit foundations interested in generic drug development to lower healthcare costs,” Faustman said.

The phase 2 trial of BCG in diabetes will enroll 150 adult patients and run for 5 years. MGH plans to publish long-term data from the phase 1 trial later this year.