

Single low-magnitude electric pulse successfully fights inflammation

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The Feinstein Institute for Medical Research, the research arm of the North Shore-LIJ Health System, and SetPoint Medical Inc., a biomedical technology company, today released the results of research on the therapeutic potential of vagus nerve stimulation. In a paper published by Bioelectronic Medicine, Kevin J. Tracey, MD, and his colleagues at the Feinstein Institute, explore how low-level electrical stimulation interacts with the body's nerves to reduce inflammation, a fundamental goal of bioelectronic medicine.

Prior to this study, it was not understood which vagus nerve fiber types were responsible for reducing the body's inflammatory activity. The paper's findings indicate that activation of either motor or sensory vagus nerve bundles can diminish inflammation.

"Identifying the exact role of the different nerve bundles in the inflammatory reflex bolsters our understanding of the relationship between the central nervous system and the vagus nerve," said Dr. Kevin J. Tracey, president and CEO of the Feinstein Institute. "Furthermore, we now know that stimulating the vagus nerve for as little as half a millisecond is enough to inhibit [tumor necrosis factor](#) (TNF) production."

After establishing the neural bundles activated in vagus nerve stimulation, the researchers found that only low-intensity, short-duration, electric pulses were needed to reduce the production of inflammation-inducing cytokines. Repetition of the pulses did not increase the success

of the treatment in this experiment indicating that a single stimulating pulse is potentially sufficient.

"Seeing successful results with low-level electrical current is a significant finding," said Yaakov Levine, PhD, senior research scientist, SetPoint Medical. "This indicates the potential for limited side effects, as well as promise for device miniaturization, both of which will be important to bringing vagus [nerve stimulation](#) into the mainstream."

Provided by North Shore-Long Island Jewish Health System

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