

# **USC Published pre-clinical results of a Novel Fasting Mimicking Diet that may For the First-Time Reverse Diabetes by Reprogramming Pancreatic Cells to Restore Insulin Generation**

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Los Angeles, Calif., February 23, 2017 – A Landmark study published on Feb. 23, 2017 in the journal *Cell*, finds that providing mice or human cells with a temporary, specifically formulated Fasting Mimicking Diet (FMD™) promotes the growth of new insulin-producing pancreatic cells and reduces symptoms of type 1 and type 2 Diabetes in mice.

In type 1 and late-stage type 2 Diabetes, the pancreas loses insulin-producing beta cells, increasing instability in blood sugar levels. The study showed a remarkable reversal of Diabetes in mice placed on the FMD for four days each week. They regained healthy insulin production, reduced insulin resistance and demonstrated more stable levels of blood glucose—even for mice in the later stages of the disease.

The research revealed that genes normally active in the developing pancreases of embryonic/fetal mice are reactivated in diabetic adult mice during the cycles of fasting-mimicking and normal diets. This increases production of a protein, neurogenin-3 (Ngn3), and as a result, promotes the creation of new, healthy insulin-producing beta cells.

The researchers simulated type 1 Diabetes in mice by administering high doses of the drug Streptozotocin (STZ)—killing the insulin-producing-cells—and studied mice with type 2 Diabetes, characterized by insulin resistance and eventual loss of insulin production, which have a mutation in the gene *Lepr*. Both types of Diabetes were reversed by FMD cycles. Researchers also examined pancreatic cell cultures from human donors and found that, in cells from type 1 Diabetes patients, nutrients mimicking fasting also increased expression of the Ngn3 protein and insulin production. The results suggest that a fasting-mimicking diet could alleviate Diabetes in humans.

A growing body of evidence published by the Longevity Institute of the University of Southern California (USC), led by Professor Valter Longo, indicates that the Fasting Mimicking Diet is beneficial. Last week, a study published by the same group in *Science Translational Medicine* demonstrated that FMD reduced risks for cancer, Diabetes, heart disease and other age-related disease in human study participants who followed the FMD for just five days each month for three months. Prior studies on the diet have shown potential for alleviating symptoms of multiple sclerosis, increasing the efficacy of chemotherapy for

cancer treatments, and decreasing visceral fat.

“These findings warrant a larger FDA trial on the use of the fasting-mimicking diet to treat human Diabetes patients,” Longo said. “Hopefully, people with Diabetes could one day be treated with an FDA a fasting-mimicking diet for a few days each month—and eat a normal diet for the rest of the month—and see positive results in their ability to control their blood sugar both by producing normal levels of insulin but also by improving insulin function.”

This study was funded by National Institutes of Health/National Institute on Aging grants AG20642, AG025135 and P01 AG034906 to Longo.

L-Nutra is a leading Nutri-technology company based in Los Angeles, California. It exclusively licenses from USC FMD technologies and develops, markets and sells them for various indications aimed at increasing Healthspan, the healthy part of life. Unlike, biological and pharmaceutical drugs, L-Nutra's natural, plant based yet effective nutri-technologies mimic and enhance a systemic protectionist and healing effect induced by several consecutive days of fasting. L-Nutra has launched on September 21, 2016 the first FMD called ProLon positioned for Aging and Metabolic Health, is in phase 2 equivalent FMD trial for Chemotherapy induced side effects and, in pre-clinical trials on other chronic diseases such as Diabetes, Alzheimer's, Cardio-vascular and auto-immune diseases: [www.l-nutra.com](http://www.l-nutra.com)

ProLon will be launching in the UK in April 2017. For more information please visit [www.prolon.co.uk](http://www.prolon.co.uk)