Little People Avoid Cancer, Diabetes

QUITO, Ecuador - Jaime Guevara-Aguirre got the surprise of his life while traveling through the mountains of his native Ecuador in 1987. One remote village he visited was populated by dozens of little people. The surprises kept on coming as Guevara-Aguirre, a doctor, investigated their health.

The little villagers have Laron syndrome, a rare genetic condition that stunts human growth. They are not indigenous (native to the region). They are descendants of European Jews who fled Spain and Portugal during the Spanish Inquisition in the 1490s. As those descendents intermarried over the years, the condition became more common among them. Only about 300 people in the world have Laron syndrome, and 100 of them live in the mountains of Ecuador.

Not long after Guevara-Aguirre began studying the little villagers, something stood out in the data. Few of them suffered from cancer, and none of them had diabetes - not even the obese ones. Obesity is a significant risk factor for type 2 diabetes. To find out why the villagers were so robust, Guevara-Aguirre sought the help of Valter Longo, a researcher at the University of Southern California.

The genetic mutation at the root of Laron syndrome suppresses the body's ability to produce insulin-like growth factor (IGF-1). It's IGF-1 that makes kids grow. Longo believes that the low levels of IGF-1 in people who have the syndrome protect them against cancer and diabetes.

In a laboratory study, Longo exposed human cells growing in a dish to a chemical that could damage their DNA. At the same time, he added blood drawn from the villagers. The blood protected most of the cells from DNA damage. It also prompted the few cells that incurred DNA damage to self-destruct. DNA damage is key to the development of cancer.

The human body needs some IGF-1 for the sake of the heart. But higher levels of it may increase the risk of cancer and diabetes, says Longo. A drug that lowers IGF-1 levels is currently used to treat abnormal growth of the hands, feet, and face. The drug, says Longo, might one day find its way into treatments for cancer.

Jaime Guevara-Aguirre and some of the little people from Ecuador who took part in his research