A Longevity Test: Science or Science Fiction?

By Editor Test *Tue, Jul 6, 2010*

After studying the genomes of centenarians in New England, two Boston University researchers say they have identified a set of genetic variants that predicts extreme longevity with 77% accuracy.

Some 15% of the population at large may have the potential to live to be 100 years old, according to recent research published in *Science* magazine by Paola Sebastiani and Thomas T. Perls of Boston University.

But most of them fail to reach that age—attained by only about one of every 6,000 members of the population—because of accidents or unhealthy living, the researchers believe.

A longevity test, though not a foolproof one, may be possible. After studying the genomes of centenarians in New England, Sebastiani and Perls say they have identified a set of genetic variants that predicts extreme longevity with 77% accuracy.

Sebastiani found that 150 genetic variants were associated with extreme longevity. She then looked at a different sample of centenarians from those involved in her study and found that more than three quarters possessed many of the 150 genetic variants she had already identified. The other centenarians had few or none of the protective variants, suggesting that there are many more yet to find.

The centenarians had just as many disease-associated variants as shorter-lived mortals, so their special inheritance must be genes that protect against disease, the researchers said. If true, that could complicate attempts to predict someone's susceptibility to disease based on disease-causing variants in that person's genome, without considering his or her protective genes.

Only a limited number of favorable genes may be essential for reaching age 100, according to Nir Barzilai of Albert Einstein College of Medicine. Enhancing those genes might provide protect against all the diseases of old age. "This is the next step to make us all healthy," he said.