

'Elixir of life': Can epigenetic reprogramming help us live longer and healthier?

[Juan Carlos] Izpisúa Belmonte can rejuvenate aging, dying animals. He can rewind time. But just as quickly as he blows my mind, he puts a damper on the excitement. So potent was the rejuvenating treatment used on the mice that they either died after three or four days from cell malfunction or developed tumors that killed them later. An overdose of youth, you could call it.

The powerful tool that the researchers applied to the mouse is called "reprogramming." It's a way to reset the body's so-called epigenetic marks: chemical switches in a cell that determine which of its genes are turned on and which are off. ... Izpisúa Belmonte is in a vanguard of scientists who want to apply reprogramming to whole animals and, if they can control it precisely, to human bodies.

Izpisúa Belmonte believes epigenetic reprogramming may prove to be an "elixir of life" that will extend human life span significantly. Life expectancy has increased more than twofold in the developed world over the past two centuries. ... But there is a limit to how long anyone lives, which Izpisúa Belmonte says is because our bodies wear down through inevitable decay and deterioration. "Aging," he writes, "is nothing other than molecular aberrations that occur at the cellular level."

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