

The tablet of youth

April 23 2013, by Heather Jacobs, Australia Unlimited

At TEDxSydney 2013 the Professor of Genetics at Harvard Medical School shares a new concept about why we age and how it should be possible to develop medicines to reverse it.

"There are many [molecules](#) we know now of that can slow down aspects of ageing in mice. The question is no longer an 'if', but a 'when'," says Sinclair. "Most likely, people in the future will take a cocktail of molecules that can slow ageing and prevent common age-related diseases."

The new class of superdrug – from the man who discovered [resveratrol](#), a [plant compound](#) found in [red wine](#), as an anti-ageing molecule – could possibly see people living decades longer.

"We're not sure how much longer people will live but in mice these molecules prevent many diseases of old age, including diabetes, cancer and [heart disease](#)," he says. "The molecules were initially discovered by studying a [longevity](#) gene in [yeast cells](#) called SIR2. The new molecules that target the human SIR2 are hundreds of times more potent than these original molecules. These are in early stage [clinical trials](#), so it will be at least a few years before they are on the market."

Sinclair's preoccupation with ageing is driven by the belief that this knowledge can be used to prevent and treat both rare and [common diseases](#), helping people live healthier, disease-free lives. His work at Harvard and at a new lab established at the University of New South Wales, focuses on genes and small molecules that mimic exercise and

[calorie restriction](#), a diet that slows the pace of ageing in animals.

He says: "Ageing is the root cause of most major diseases. By addressing the root causes of these diseases we should be able to have a large impact on [human health](#). Am I playing God? Absolutely not. I'm no different than other researchers looking for ways to make people healthier for longer. It's proven that the healthier you make people, the less burden they are on society."

Not content to stay in the lab, Sinclair has also founded four biotechnology companies. These are Sirtris, which treats age-related diseases and was sold to GlaxoSmithKline for a reported US\$720 million in 2008; OvaScience, which aims to improve female reproductive health and IVF; Cobhar to treat type 2 diabetes; and Genocea, which develops vaccines against malaria, chlamydia, tuberculosis, pneumonia, and cancer.

You could say it's in his genes; Sinclair's parents are trained biochemists and growing up in St. Ives, in the northern suburbs of Sydney, his parents would talk about their work at the dinner table. He enrolled in a Bachelor of Science at the University of New South Wales. Doing bench research in molecular biology in the lab of Professor Ian Dawes at UNSW, a molecular biologist and geneticist, was a turning point.

"You couldn't drag me out of the lab after that," he says.

He received the Commonwealth Prize for his PhD research in Molecular Genetics. Sinclair then moved to the US to work as a postdoctoral researcher at the Massachusetts Institute of Technology with Professor Leonard Guarente, an American biologist renowned for his research on life extension.

It was here that he discovered why yeast cells grow old – their DNA is

unstable –leading him to be headhunted by Harvard Medical School in 1999. He was 29 years old at the time, one of the youngest ever, and has been there ever since, becoming a tenured Professor. In 2005 he co-founded Harvard's Glenn Laboratories for Aging Research and serves as their Co-Director. He is also a Professor at the Lowy Cancer Centre at the University of New South Wales.

"The thing I love about Harvard is being able to tackle almost any scientific problem because a world leader is likely to be within walking distance," he says.

He may now spend his days solving the most fundamental questions of life, but Sinclair has fond memories of the lifestyle he had growing up in Australia.

"My parents' house was on the edge of a forested gully. There were many native animals and I went into the bush most days. I think this closeness to nature had a big influence on me," he says. "Because I am Australian, I was able to aim high without worrying about the consequences. I would ask myself, 'What's the worst that can happen to me if I fail while in the US?' I get to go home. I can live with that. Things didn't turn out that way, but I was never scared to take on risky projects."

Source: [Australia Unlimited](#) / CC Creative Commons

Citation: The tablet of youth (2013, April 23) retrieved 1 May 2024 from <https://medicalxpress.com/news/2013-04-tablet-youth.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--