



RACE AGAINST THE AGEING CLOCK

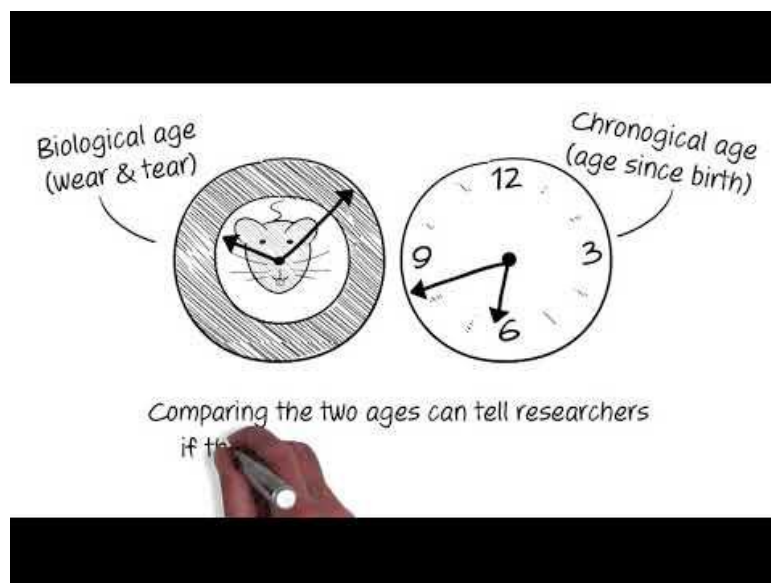
Come with us on a journey towards healthier ageing

Although time passes the same for everyone, some of us age more quickly than others. Recently researchers found a way to study the rate of ageing and it's called the epigenetic clock - the timer that measures biological wear and tear as we age. At the Babraham Institute our researchers showed that mice also have an epigenetic clock and they're using this to understand the biology of ageing. In Race Against the Ageing Clock you'll find out more about your biological age and how it compares to your chronological age - the amount of time that has passed since you were born. Living a healthy active lifestyle can slow the clock, helping you to live healthier for longer, but some things can make your clock tick faster.

Discover how our researchers make sense of ageing in biology and find out more about our lifelong Race Against the Ageing Clock through these activities and videos, all suited to 15+ year olds.

Introducing the Race Against the Ageing Clock

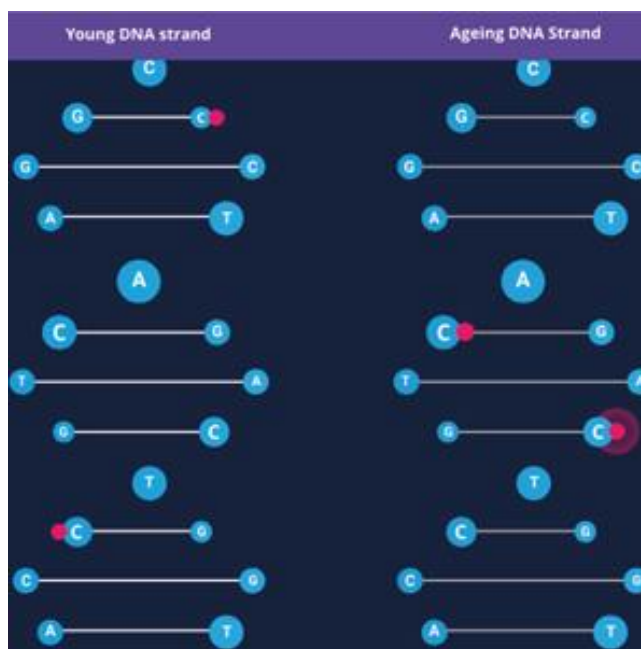
The following [video](#) introduces the research and shows what had been discovered at the time of first presenting at the Royal Society Summer Science Exhibition in 2018.



Can you rewind your Ageing Clock?

Now that you have heard about the research, why not put that knowledge into practice and play our [online game](#)?

Here you must match the epigenetic marks on your DNA with those on a 'younger' strand and lower your epigenetic age. This game further explores the relationship between methylation and demethylation of DNA and how such epigenetic markers can affect a person's biological age.



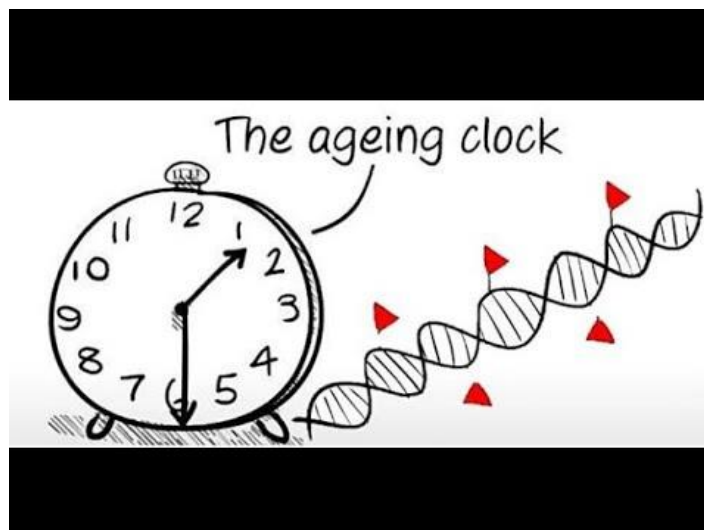
Where the research is going

Studying the epigenetic clock will help to advance ageing research and allow us to better understand how various factors influence ageing. Ageing is a long term and hard to measure process, particularly as it manifests differently across different parts of the body and in different people.

When you're studying such a slow process, how do you test an anti-ageing drug in the timescale of a clinical trial? The epigenetic clock could help to provide an answer; a way to reliably measure the rate of ageing over shorter timescales. With more work, the clock could make it possible to measure biological changes while having confidence that the results reliably relate to the ageing process.



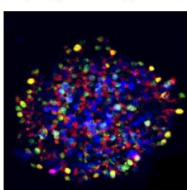
In research, the epigenetic clock makes it possible to rapidly discover whether a particular diet or drug impacts the rate of ageing in a laboratory animal without waiting for that animal to reach advanced age. This makes experiments faster and more humane.

Over the last few years the research has progressed considerably. Check out the [following presentation](#) from one of our researchers, Diljeet Gill, recorded during an hour long public event held in August 2020. Here Diljeet brings us up to speed with the Ageing Clock research before answering questions from our public audience watching along at the time.



Explore the Race Against the Ageing Clock further

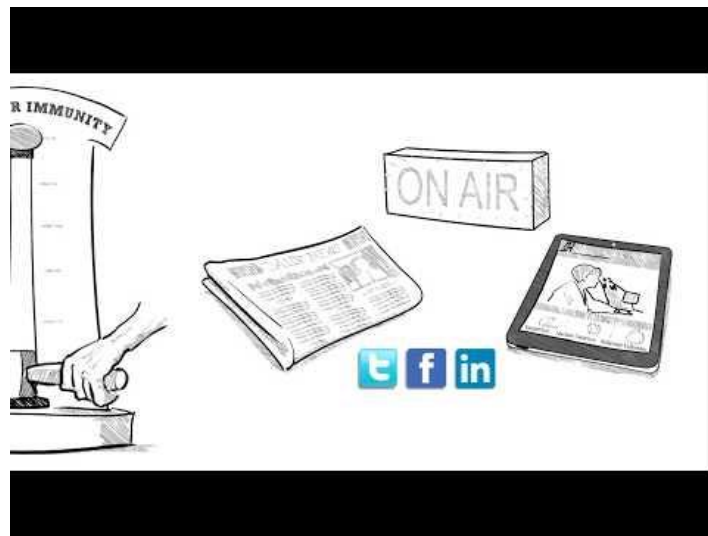
You can Race Against the Ageing Clock in school or at home with our [educational resources](#). See how we study worms to understand human ageing, how our ageing clock model works in mice, and discover what stem cells could do for the future of medicine. There are a range of lesson plans, activities, and presentations all available to download for use at home or at school.

	<p>Discovering Epigenetics - Ageing in C. Elegans</p> <p>This lesson will introduce students to the idea of using <i>Caenorhabditis Elegans</i> nematode worms to understand aspects of human biology (ageing) by comparing the appearance and behaviour of young and old worms raised under different conditions.</p>	<p>Downloads: Lesson plan (Word) Presentation (PowerPoint) Fact sheet (Word) Activity sheet (pdf) Online worm video (YouTube)</p>
 <p>RACE AGAINST THE AGEING CLOCK</p>	<p>Race Against the Ageing Clock</p> <p>This lesson will introduce students to epigenetics, the difference between biological and chronological age, the role of epigenetics in ageing and how different factors can influence the 'speed of ageing'.</p>	<p>Downloads: Lesson plan (Word) Presentation (PowerPoint) Fact sheet (Word) Mouse cards (pdf) Video (for blue card) Video (for orange card) Video (for purple card)</p>
	<p>Reprogramming adult stem cells</p> <p>This lesson will introduce students to stem cells and how adult cells can be reprogrammed to create induced pluripotent stem cells.</p>	<p>Downloads: Lesson plan (Word) Quiz sheet (pdf) Answers (Word)</p>

Discover more from the Babraham Institute

The Babraham Institute is a world leading biological sciences research institute based in the village of Babraham in Cambridgeshire, UK. The Institute's research aims to better understand biological mechanisms underpinning human development, immune response, and the ageing process in order to promote improvements in lifelong health and wellbeing with impact upon jobs and wealth.

You can find out more about our wider research by visiting [our website](#) and by watching the following [short video](#):



We'd love to hear your feedback on our resources and answer any questions you might now have on our science! Please email any comments, questions or thoughts to PE@babraham.ac.uk.