



Thank you for joining us – the  
webinar will start shortly

## Reasons to be cheerful:

*Exploring potential big-ticket drivers of future longevity improvements*

October 21<sup>st</sup>, 2021

11am ET / 4pm GMT



[linkedin.com/company/club-vita](https://www.linkedin.com/company/club-vita)



[@ClubVita](https://twitter.com/ClubVita)

# Reasons to be cheerful:

*Exploring potential big-ticket drivers of future longevity improvements*



**Chair:**

Douglas Anderson  
Club Vita



**Panelists:**

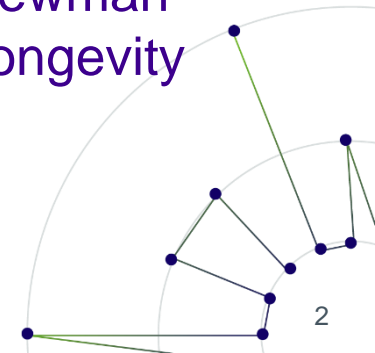
Madeleine Braun  
The Jackson Laboratory



Gemma Balmer  
Cancer Research UK

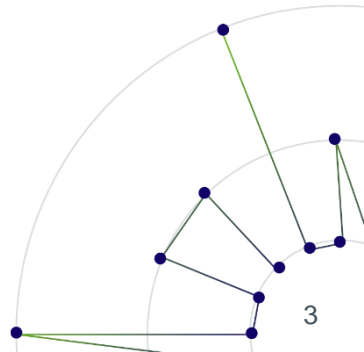


Phil Newman  
First Longevity



# Today's gameplan

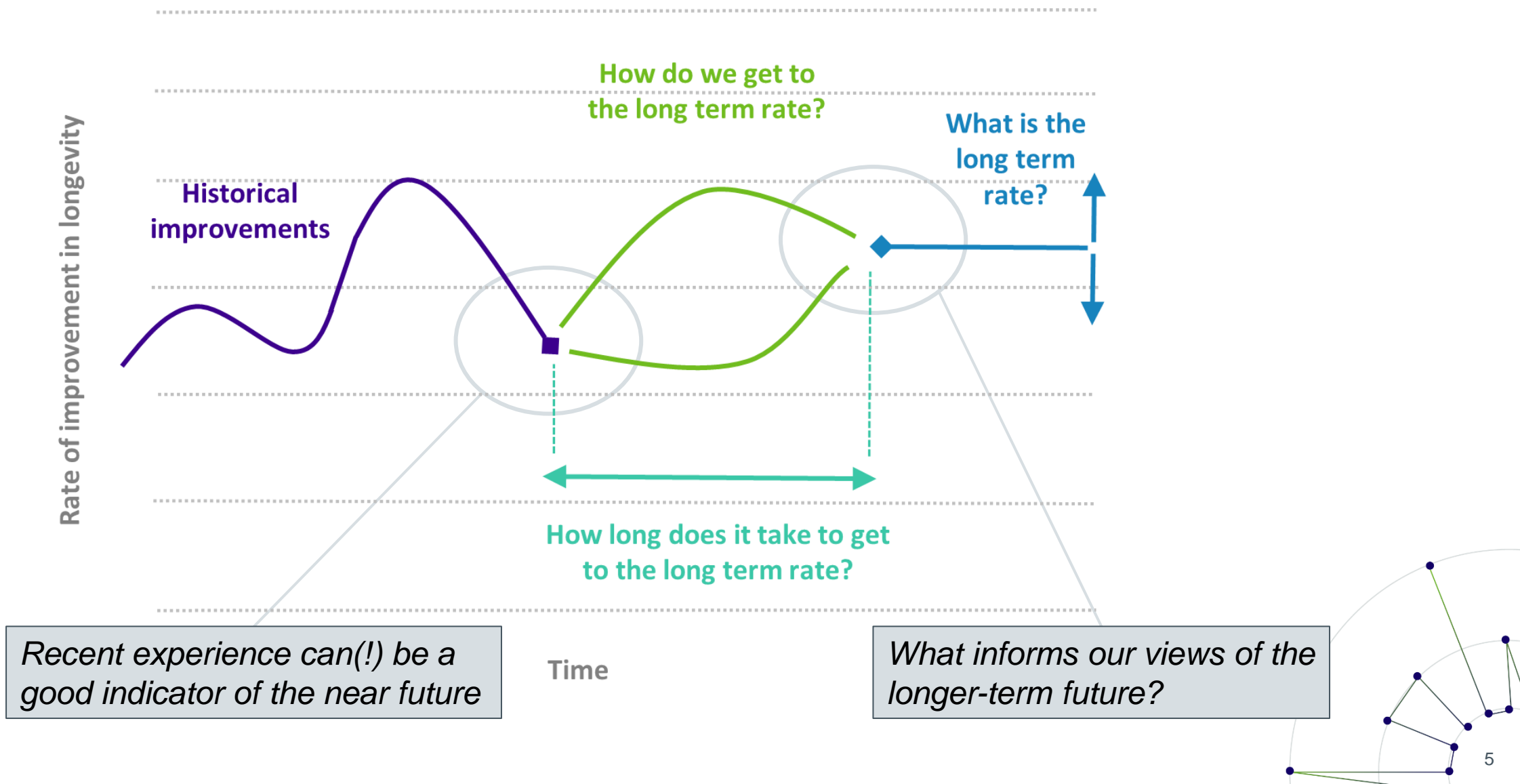
1. Why do actuaries find predicting long-term trends so tricky?
2. What's going on in the innovation pipeline?
  - *our three experts share their insights*
3. Your questions



# Why do actuaries find predicting long-term trends so tricky?

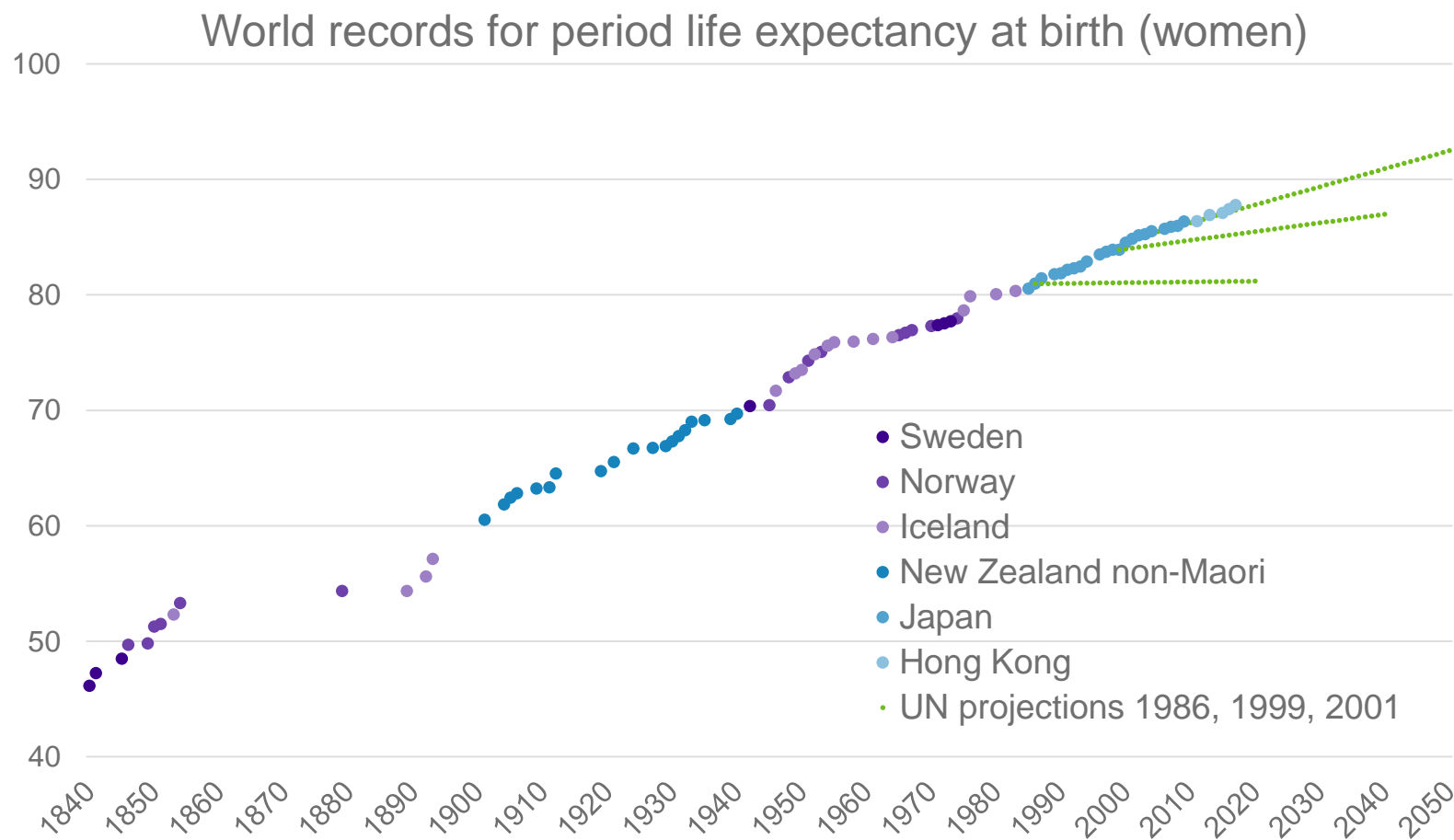
*Erik Pickett*

# Illustrative mortality future improvement rate model

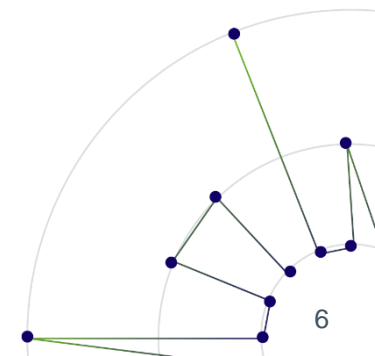




# Life expectancy progression vs projections

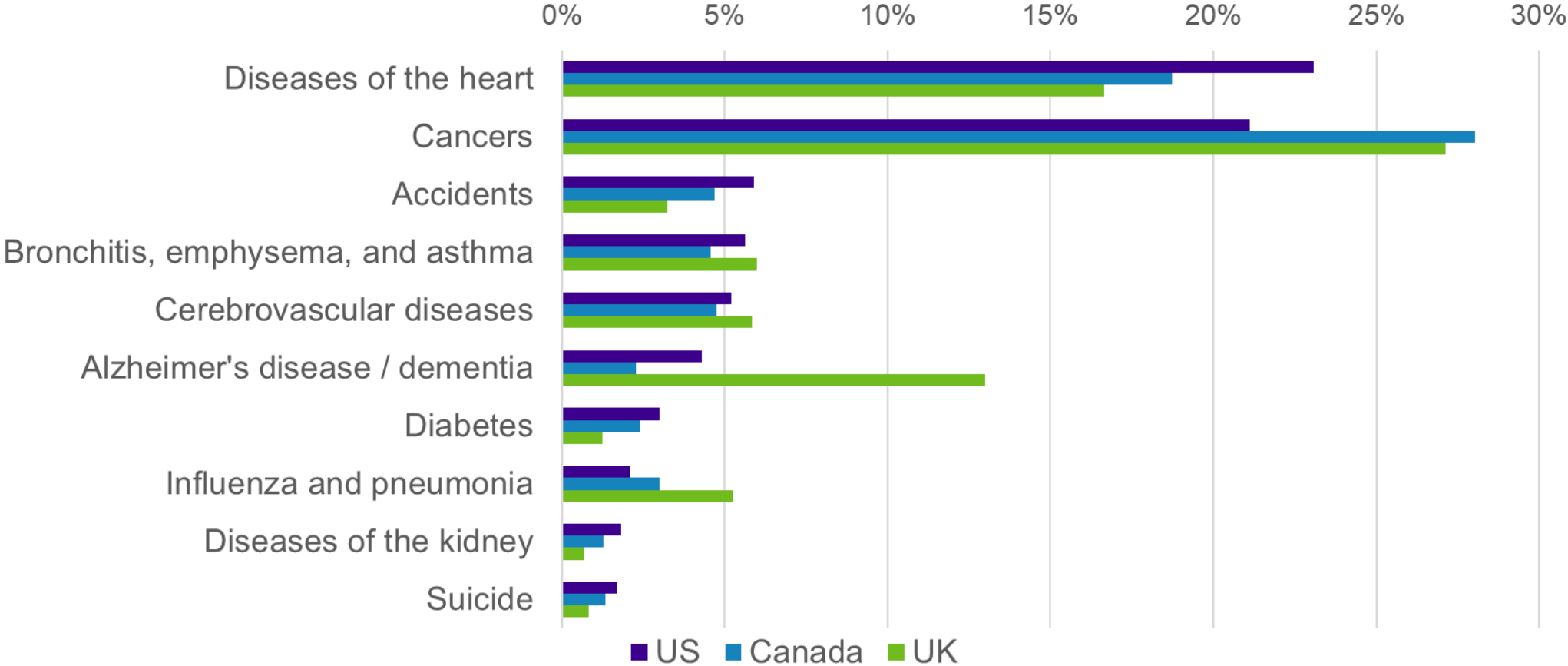


Source: Club Vita redrawing/update of the classic chart from [Broken Limits to Life Expectancy](#), Vaupel & Oeppen  
Life expectancy figures: Human Mortality Database; UN projections taken from original paper

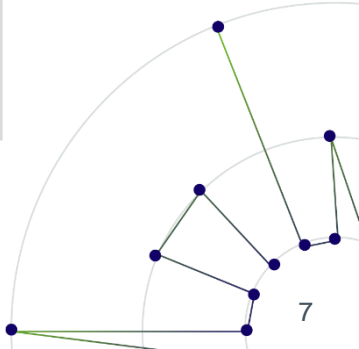


# Leading causes of death

Leading casues of death UK, US and Canada 2018



Data sources: ONS, England & Wales; NRS, Scotland; NISRA, Northern Ireland; CDC, US; Statistics Canada, Canada



# Cognitive biases

## The availability heuristic

*the over-reliance on examples that immediately come to mind when forming an opinion*



**Blog:** <https://www.clubvita.us/news-and-insights/forefront-of-your-mind-forefront-of-your-opinion>

## The myside / confirmation bias

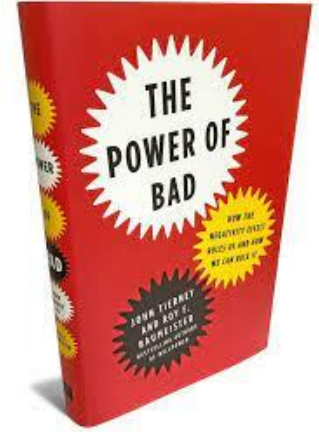
*the tendency to search more strongly for evidence that supports beliefs we already hold or discredits opposing views*

"... but we've always done it that way!"

**Blog:** <https://www.clubvita.us/news-and-insights/the-myside-bias-why-is-it-so-hard-to-change-our-minds>

## The negativity effect

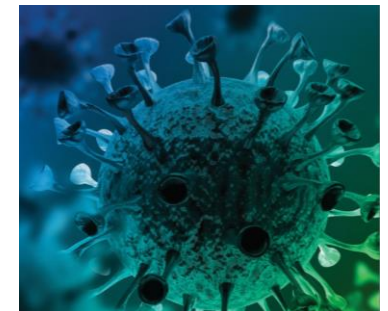
*a propensity for stronger reactions to negative events than positive events*



**Blog:** <https://www.clubvita.us/news-and-insights/the-negativity-effect-how-many-wrongs-make-a-right>

## The recency bias

*placing disproportionate importance on recent events*





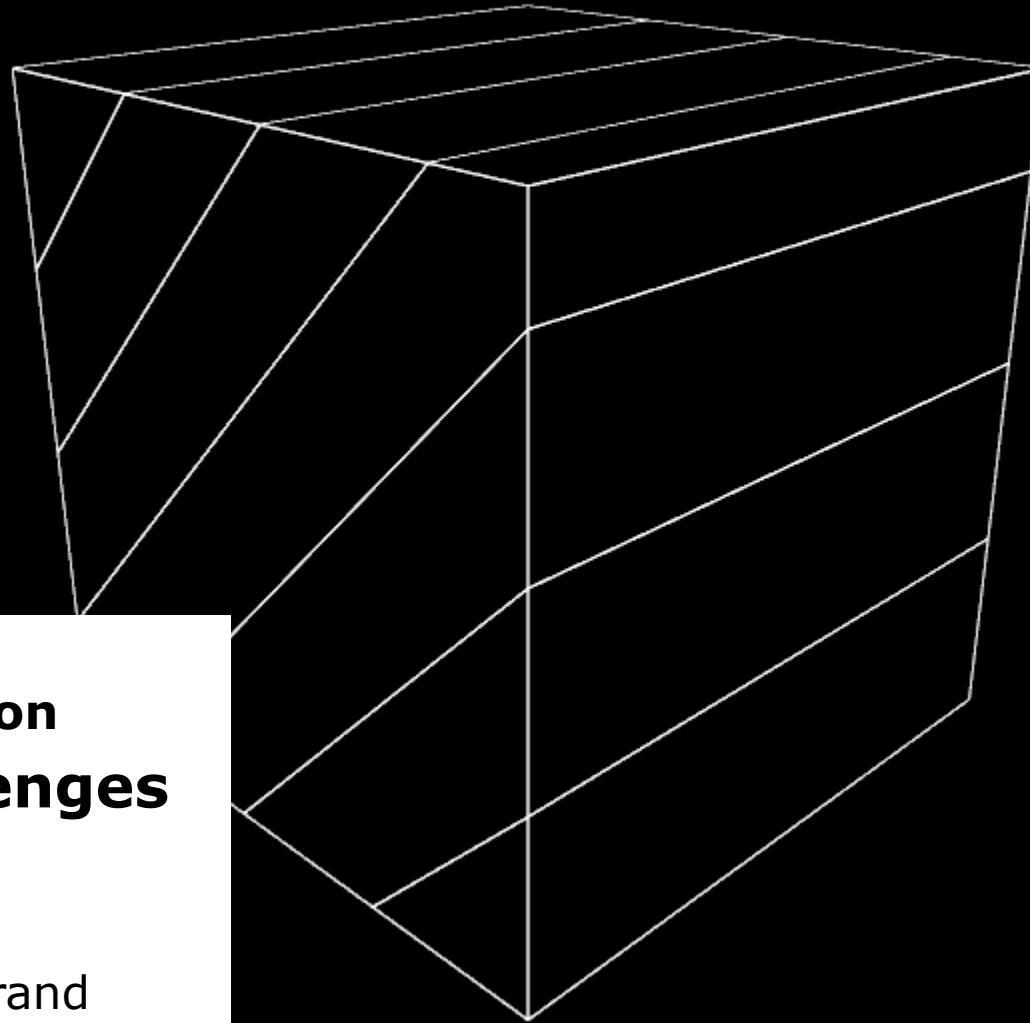
What's going on  
in the innovation pipeline?

21 Oct 2021

## **Club Vita Panel Discussion Cancer Grand Challenges**

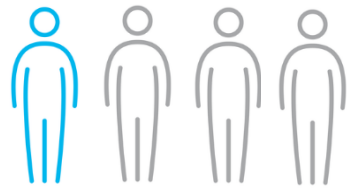
Gemma Balmer-Kemp

Head of Research, Cancer Grand  
Challenges

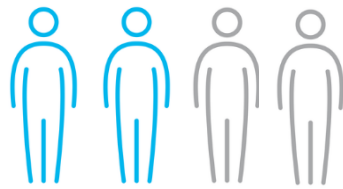


# OUR VISION: TO BRING FORWARD THE DAY WHEN ALL CANCERS ARE CURED

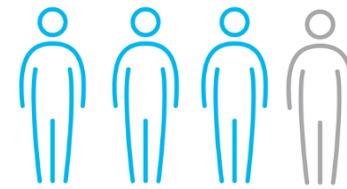
Our ambition is to see 3 in 4 people surviving cancer by 2034



1970



2010



IN THE NEXT  
20 YEARS

Over the last 40 years, cancer survival rates in the UK have doubled – in the 1970s just a quarter of people survived, today that figure is half

We want to accelerate progress and see three quarters of patients surviving the disease within the next 20 years

# WE ARE FOCUSING OUR RESEARCH INVESTMENTS TO ACHIEVE THIS AMBITION



Early detection  
research



Basic understanding  
of cancer



Therapeutic  
innovation



Cancers of  
substantial  
unmet need



Cancer  
prevention



Precision  
medicine



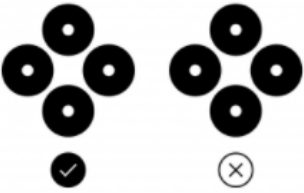
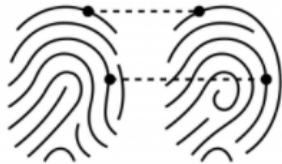
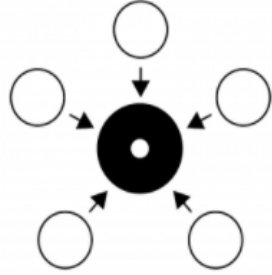
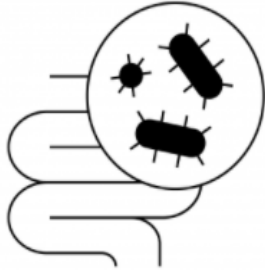
Together we will beat cancer

***We will solve cancer's toughest challenges by daring the very best to come together, think differently and propel each other to perform right at the edge of impossible***

- Cancer Grand Challenges is a new approach to global cancer research landscape. We believe our approach is unique to anything else happening in cancer research currently.
- Cancer Grand Challenges:
  - Focuses on solving the ***tough, stubborn problems*** that have been intractable to date. Our approach is to support transformative research;
  - Harnesses ***the power of scientific collaboration***. We support multidisciplinary teams that can make advances that individuals cannot make on their own;
  - Is ***global and inclusive***. Our approach is to go beyond institutional and national boundaries to engage and unite the world's best researchers, bringing an urgency to solving tough challenges.

**Harnessing  
the power of  
discovery to  
tackle  
cancer's most  
complex  
challenges**

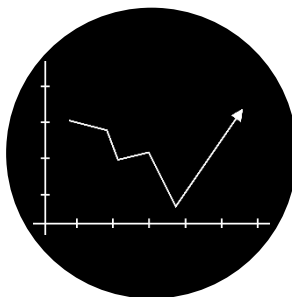


			
<p>FOCUS:</p> <p><b>Lethal versus non-lethal cancers</b></p> <hr/> <p>ACTIVE TEAMS:</p> <p><b>PRECISION</b></p> <p><a href="#">View challenge</a></p>	<p>FOCUS:</p> <p><b>Unusual mutation patterns</b></p> <hr/> <p>ACTIVE TEAMS:</p> <p><b>MUTOGRAPHS</b></p> <p><a href="#">View challenge</a></p>	<p>FOCUS:</p> <p><b>Cancer causes</b></p> <hr/> <p>ACTIVE TEAMS:</p> <p><b>STORMING CANCER</b></p> <p><a href="#">View challenge</a></p>	<p>FOCUS:</p> <p><b>Microbiota</b></p> <hr/> <p>ACTIVE TEAMS:</p> <p><b>OPTIMISTICCC</b></p> <p><a href="#">View challenge</a></p>

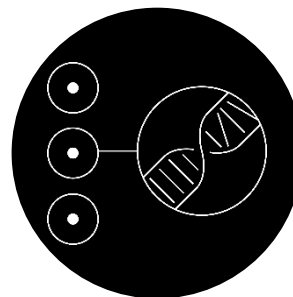
**CHALLENGES**

## Embarking upon a new era of discovery

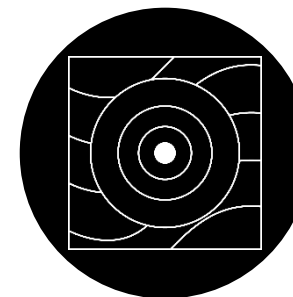
By daring the very best to come together and think differently, we aim to make the radical progress against cancer the world urgently needs.



**Cachexia**  
Understand and reverse cachexia and declining performance status in cancer patients



**Normal phenotypes**  
Understand how cells and tissues maintain 'normal' phenotypes whilst harbouring oncogenic mutations and how they transition to become a tumour



**Inflammation**  
Determine how inflammation causes cancer

**Cancer  
Grand  
Challenges:  
driving  
progress  
through  
global  
collaboration**

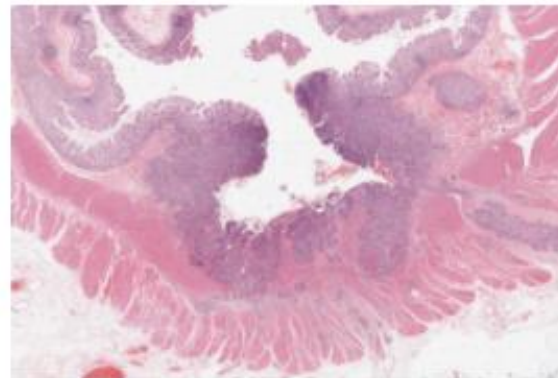
## **New findings, old ideas: reviving a decades-old view on the causes of cancer**

Surprising discoveries from the Mutographs team challenge the classical view that all carcinogens directly cause mutations and suggest that non-mutagenic agents play a greater role in tumour promotion than originally thought.



News

Could the size of fat cells around DCIS breast lesions predict risk of future invasive cancer?

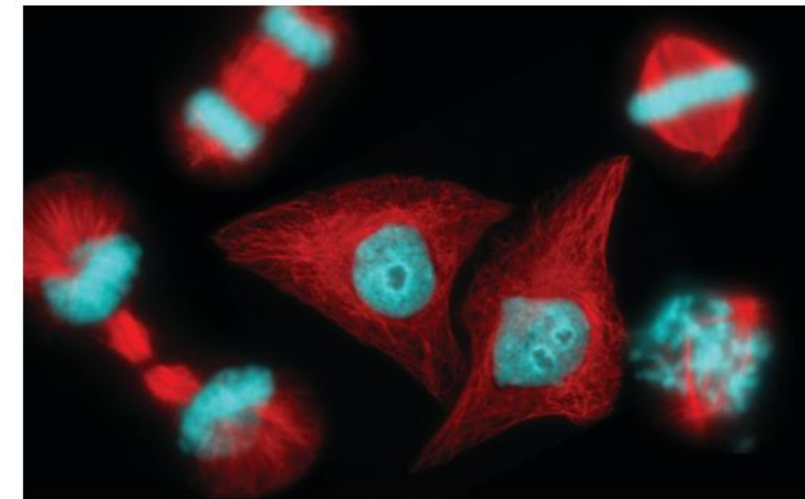


News

The microbiome: a biomarker for colorectal cancer?

News

## **New thinking on the process of ageing**



Members of the Mutographs team challenge the current theory of ageing, revealing that healthy cells can tolerate many more mutations than previously assumed. What causes us to age? A popular current model of ageing – the somatic...

[Read the full article](#)

**Thank you!**

## **More information**

Check out our website:  
[cancergrandchallenges.org](https://cancergrandchallenges.org)

Subscribe to our newsletter (via website  
or emailing us)

Contact us:

- [info@cancergrandchallenges.org](mailto:info@cancergrandchallenges.org)

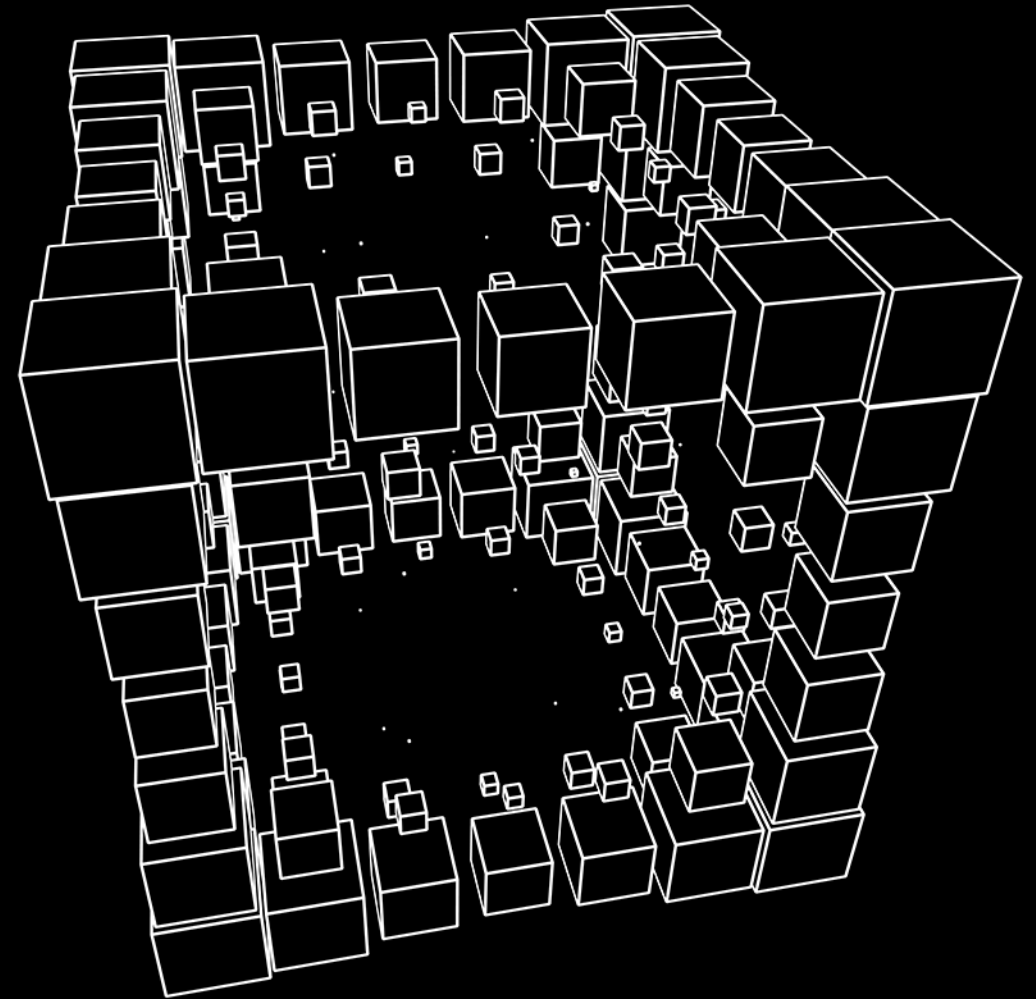
Follow us on social media:



@CancerGrand



Cancer Grand Challenges



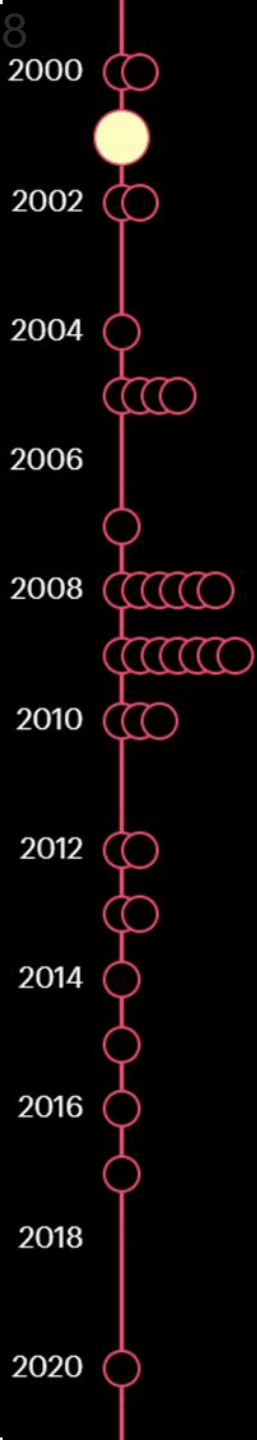




The Jackson Laboratory, a nonprofit biomedical research institution, discovers precise genomic solutions for disease and empowers the global biomedical community in the shared quest to improve human health.





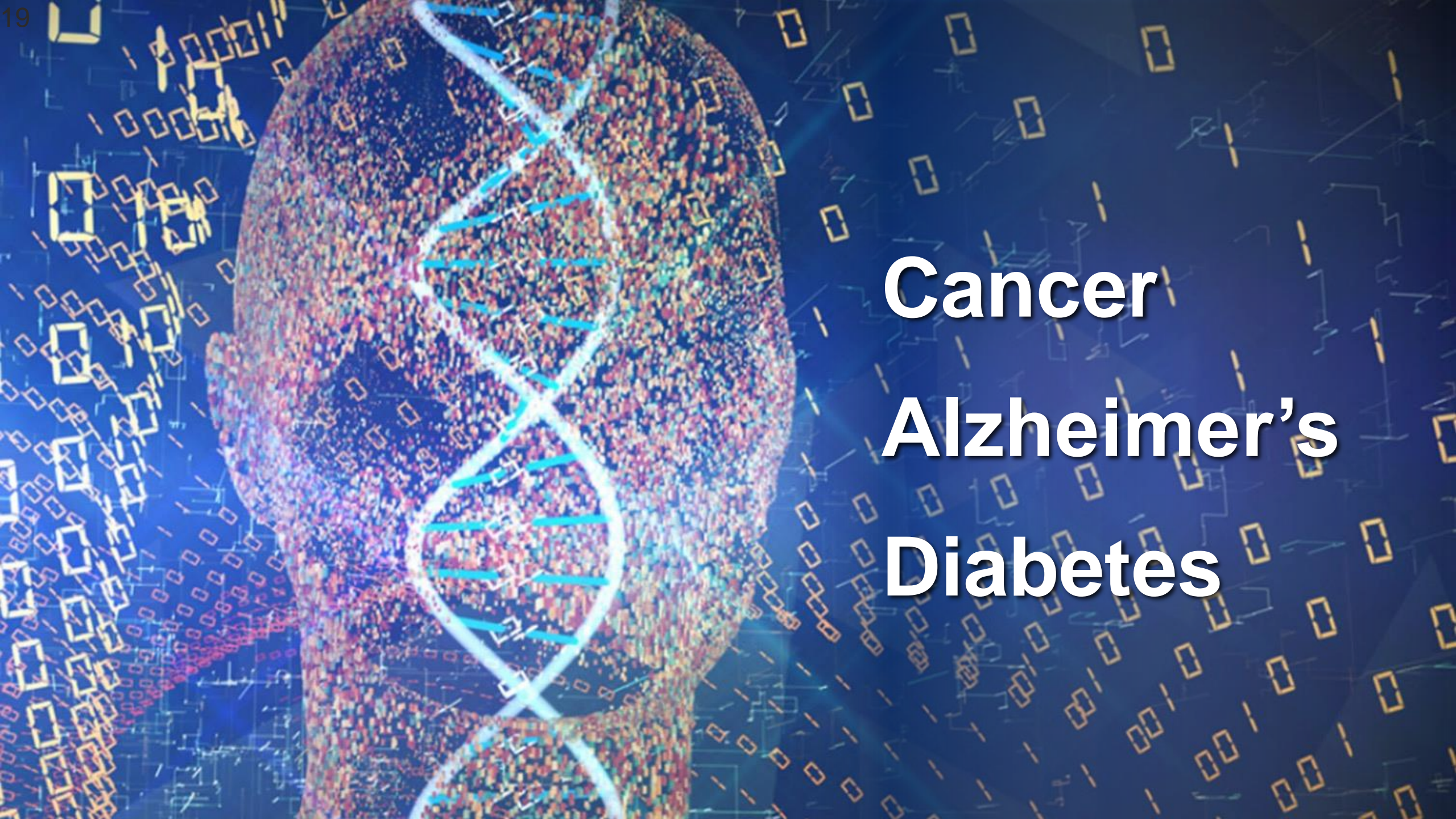


Milestone 1 2001

# The Human Genome Project







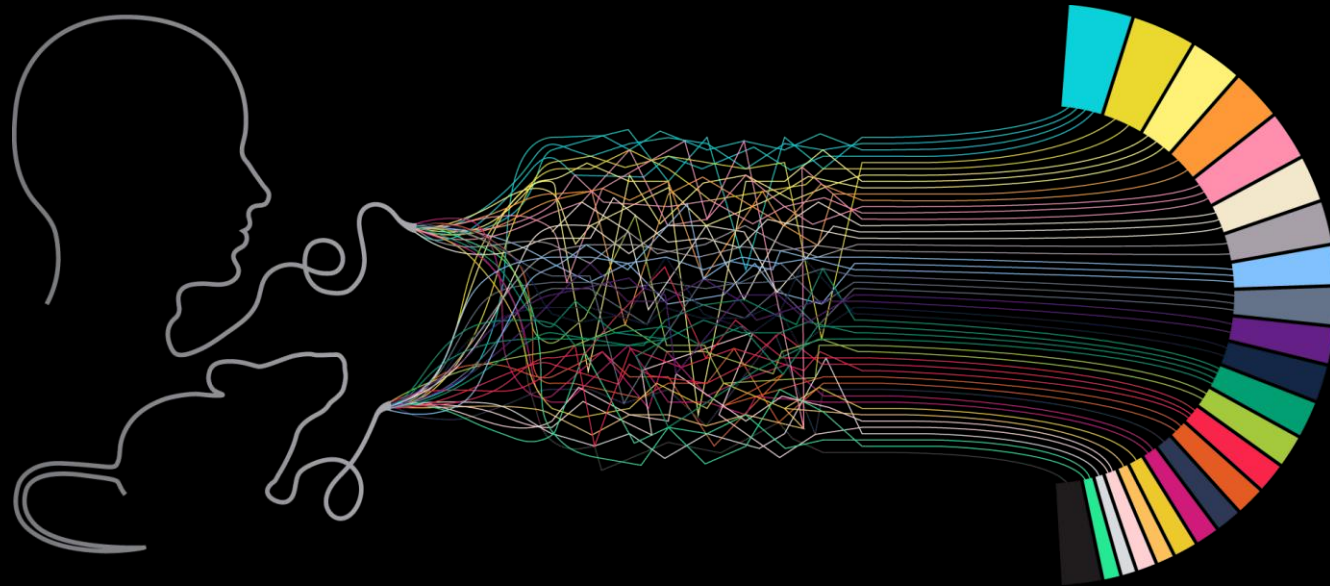
**Cancer**  
**Alzheimer's**  
**Diabetes**

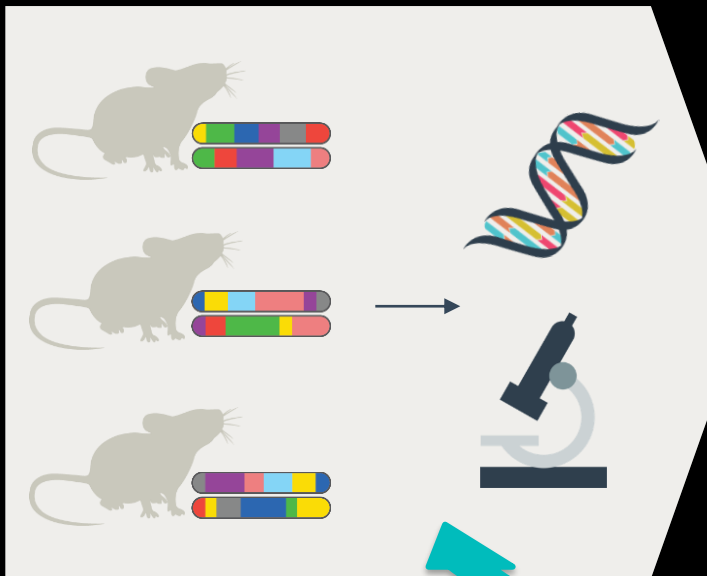
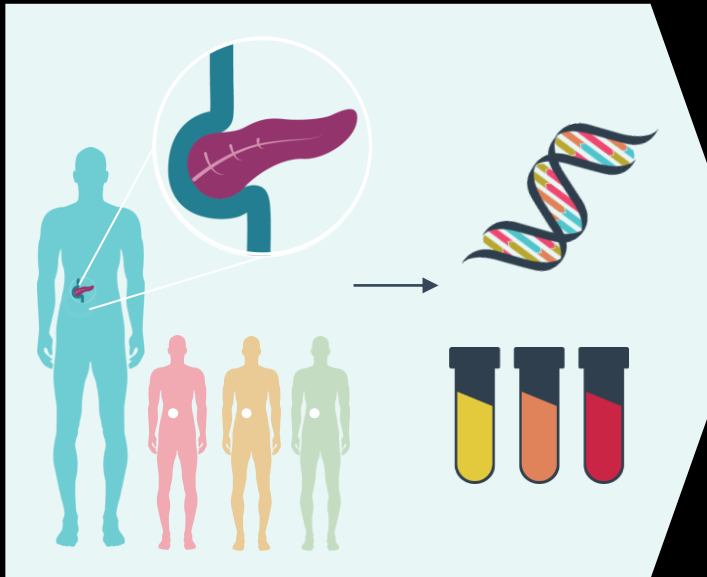


Capture and understand the genetic complexity  
of any disease

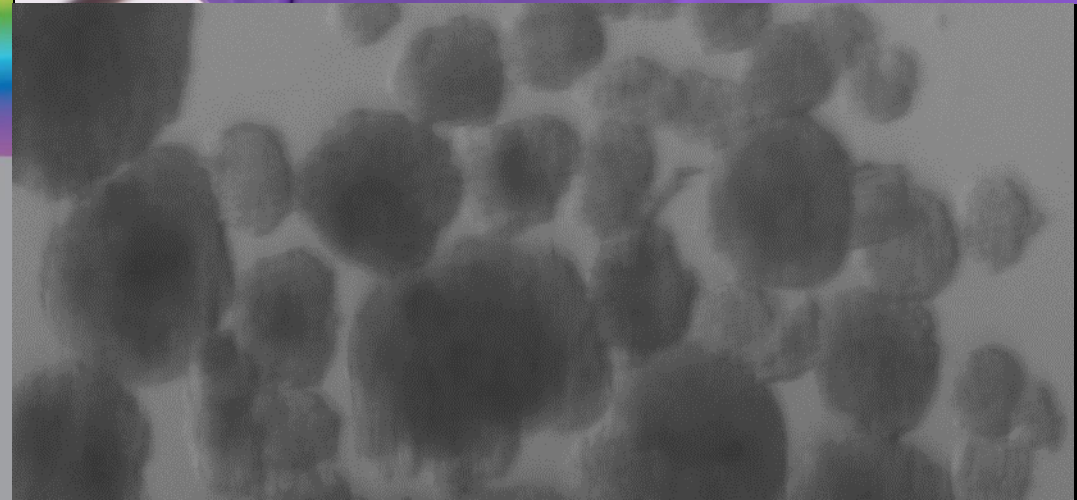
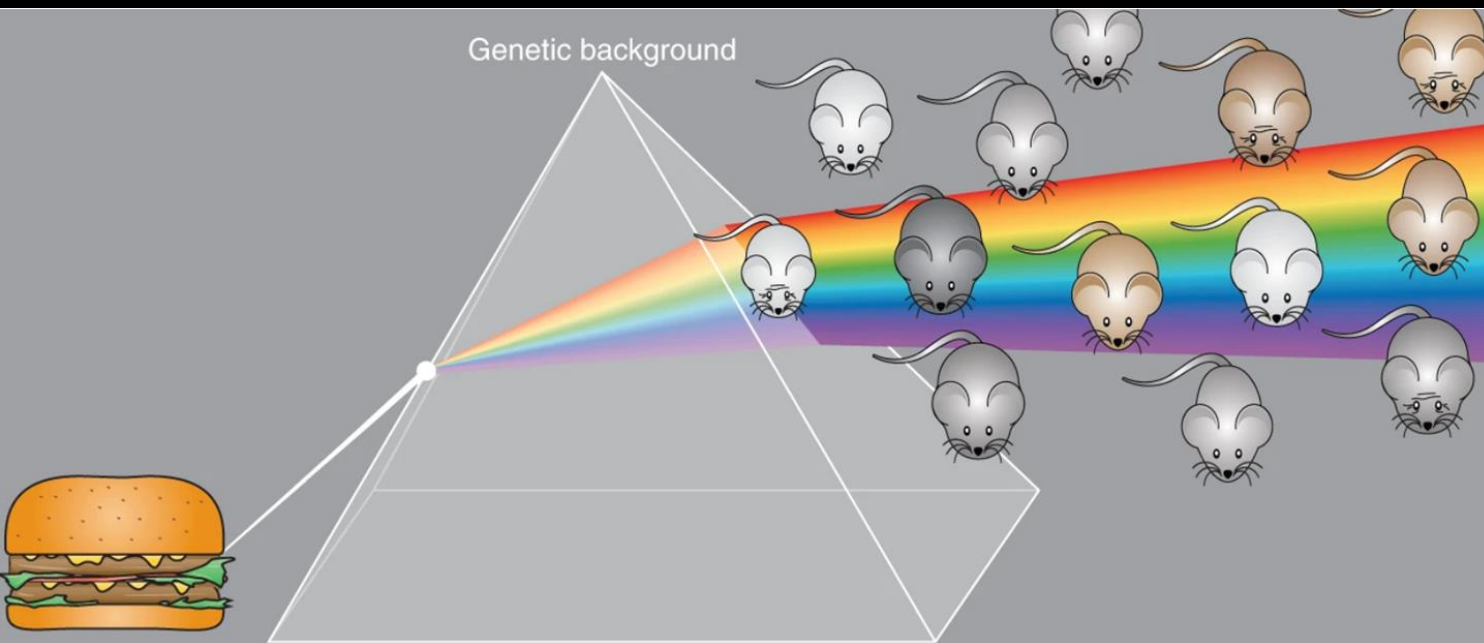
to predict its outcomes, identify unique  
vulnerabilities, and craft new cures.

# *Predictive Biology*



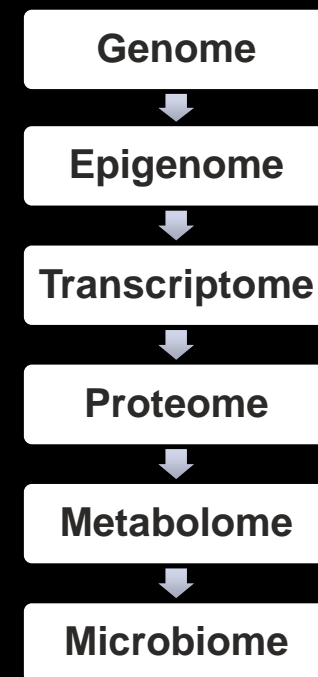
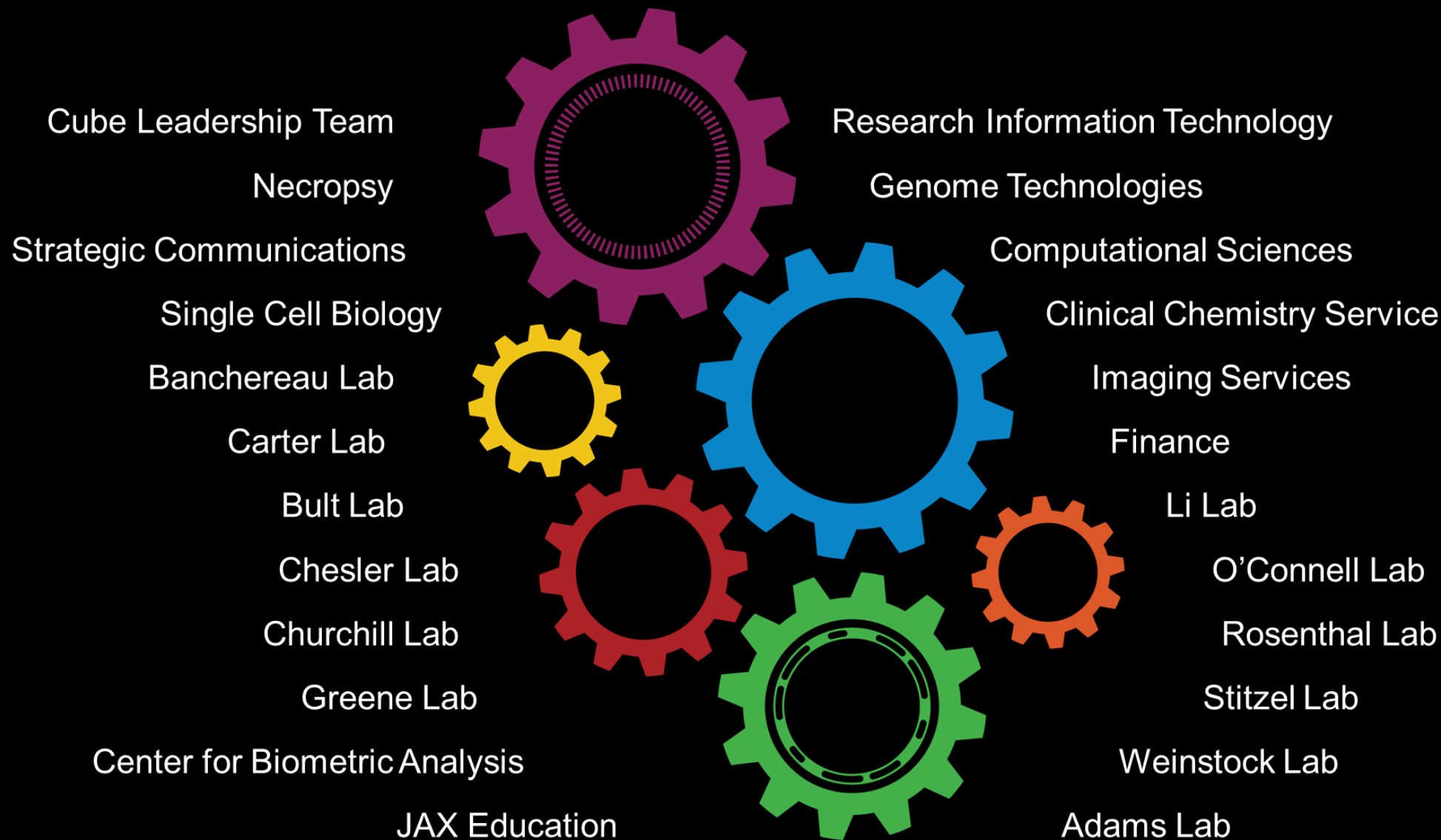


Genetically diverse  
populations  
Ideal, tractable models  
Accelerated lifespan





# 175+ JAX People + 12 Labs





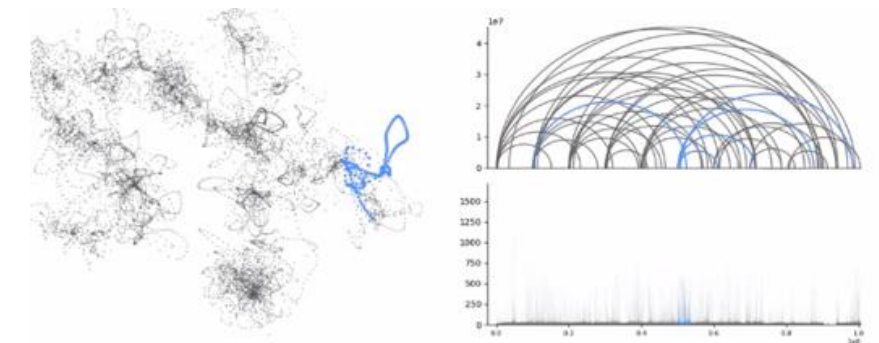
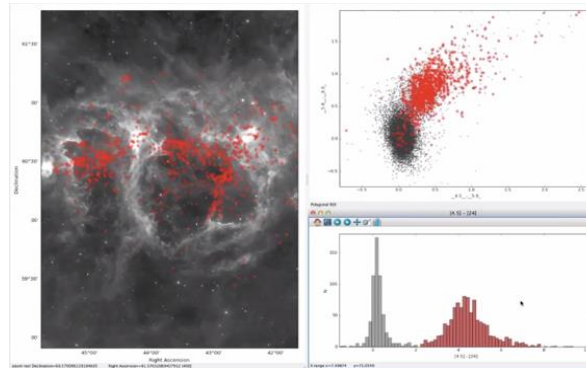
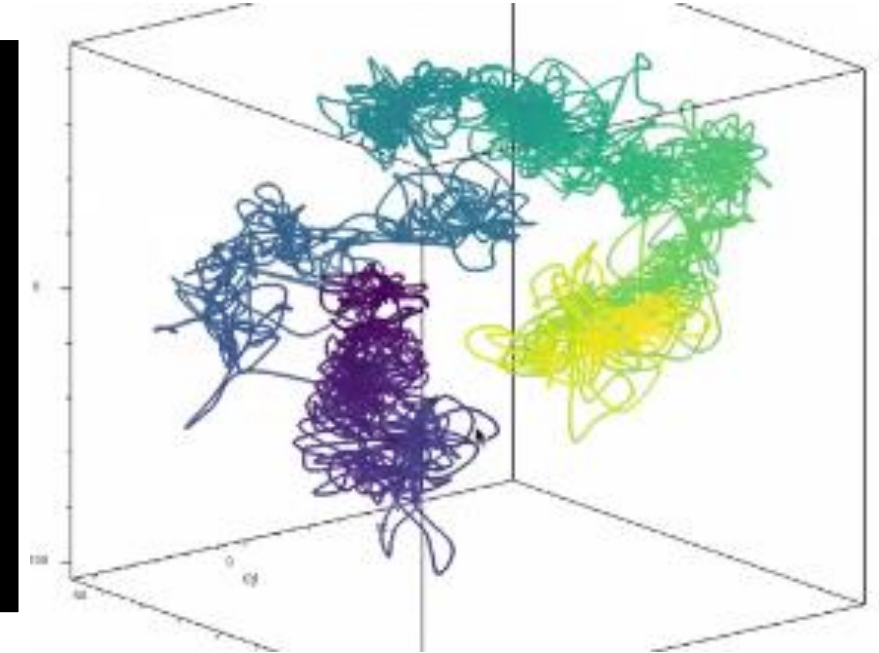
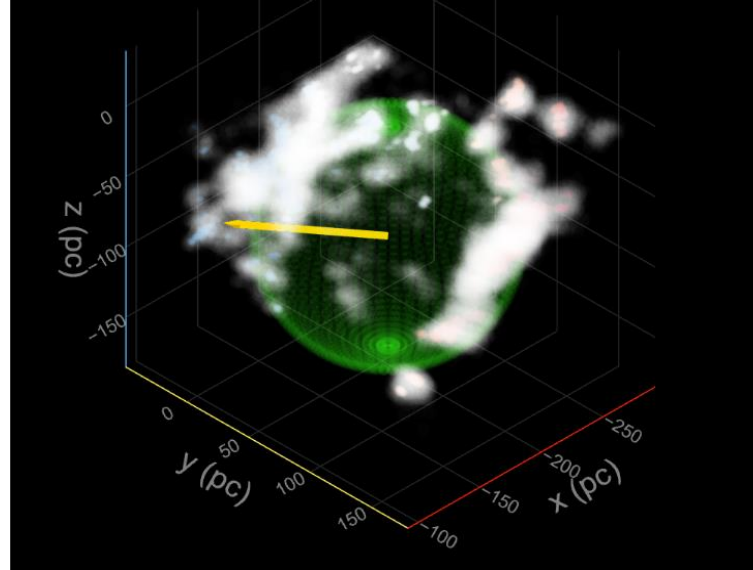
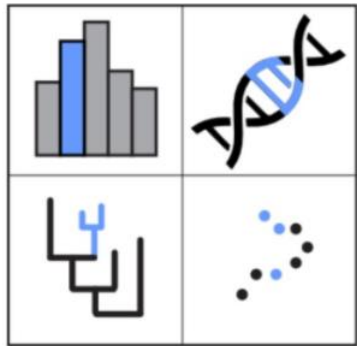


# Astrophysics + Genomics

## JAX partnership with glue solutions

Dr. Alyssa Goodman  
Center for Astrophysics |  
Harvard & Smithsonian

gluegenes



# ALZHEIMER'S

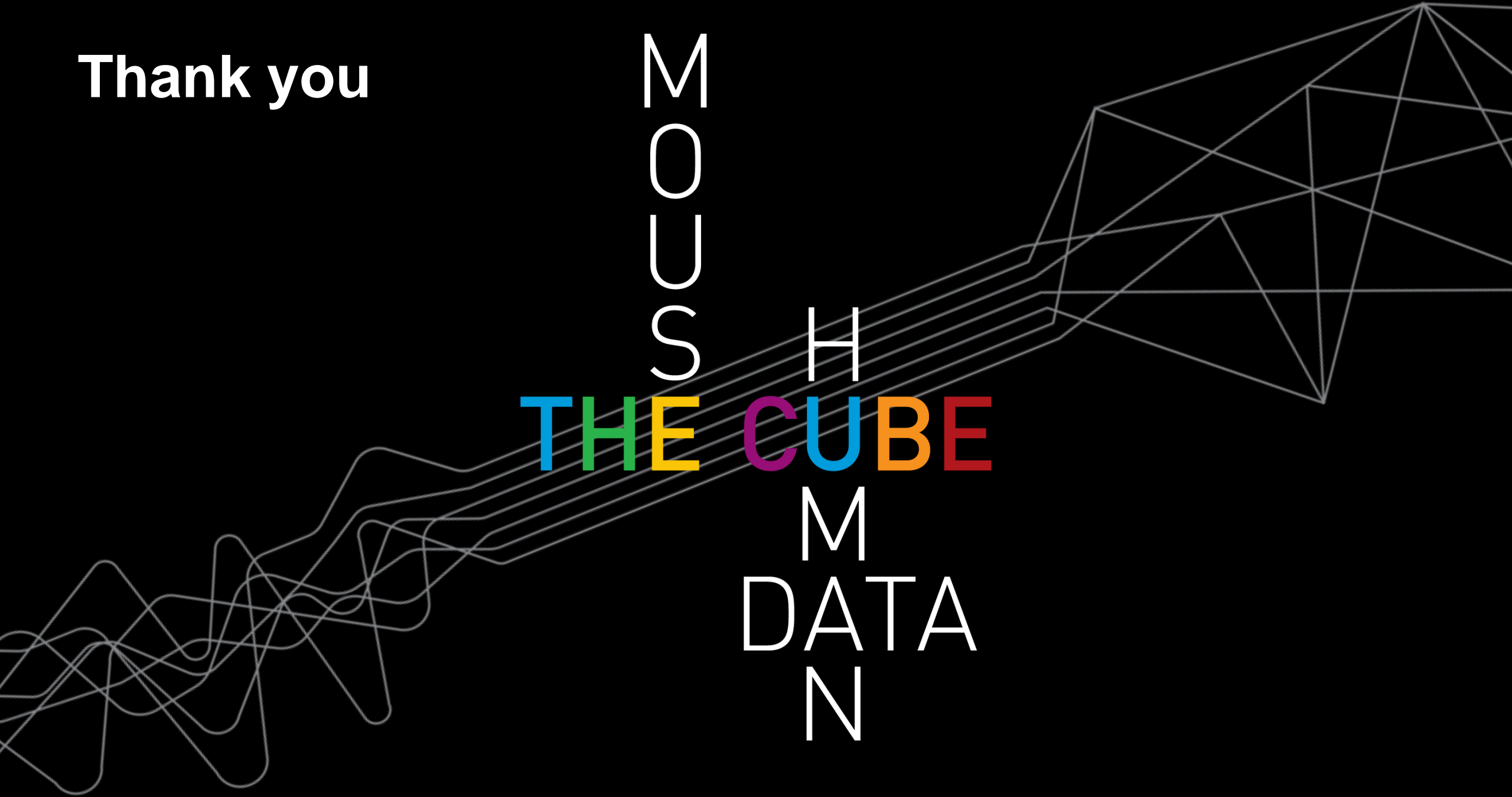
More than 40 JAX  
researchers are working  
towards finding a cure  
for Alzheimer's disease





Thank you

M  
O  
U  
S  
H  
THE CUBE  
M  
DATA  
N



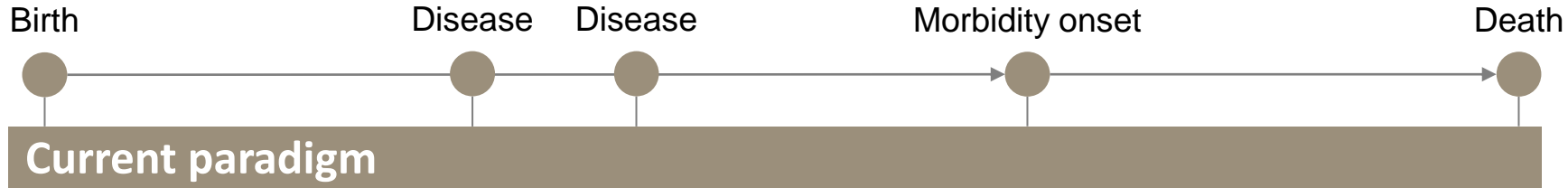


# Longevity investment activity and trends

2H21



# What is longevity?



# Is it just for billionaires?



**David A. Sinclair** ✓  
@davidasinclair

"The brave may not live forever, but the cautious do not live at all" - @richardbranson 🚀 White moves first!



 Richard Branson and David A. Sinclair

1:05 AM · Aug 16, 2021 · Twitter Web App



SECTIONS

Q

✉

**NEW YORK POST**

**SPORTS+** NEW! TRY IT FREE





OCTOBER 21, 2021

BUSINESS

**Jeff Bezos has reportedly invested in anti-aging startup Altos Labs**

By **Will Feuer**September 7, 2021 | 7:56am | Updated

SHARE THIS ARTICLE:



**MORE ON: JEFF BEZOS**

Not just lunch: Bezos, Lauren Sanchez spent the whole weekend in NYC with her ex

Jeff Bezos 'may have lied' to Congress about Amazon's business practices, reps say

William Shatner fires back at Prince William for dissing space

Amazon founder **Jeff Bezos** has reportedly invested in Altos Labs, a startup dedicated to **discovering how to reverse the aging process**.


The company was founded earlier this year and is poaching university scientists with salaries as high as \$1 million and promises that they can pursue their own research on how cells age and how to reverse that process, according to a report from **MIT Tech Review**.

Altos Labs also counts Bezos among its investors, the report said, citing people briefed by the company.


Bezos' investment office Bezos Expeditions did not return The Post's request for comment.

Bezos, 57, is currently the world's richest man with a net worth of about \$201 billion, according to Bloomberg's Billionaires Index.


**COLUMNISTS**

**Jennifer Gould**

This NYC neighborhood is making a comeback after being hit hard by COVID lockdowns


**Steve Cuzzo**

Wegmans deal signals reawakening appetite for Manhattan leases

**Charles Gasparino**

Former Merrill Lynch CEO Dave Komansky dead at 82

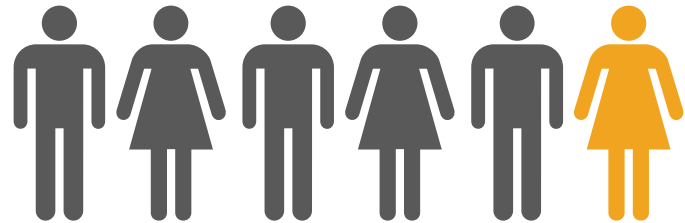
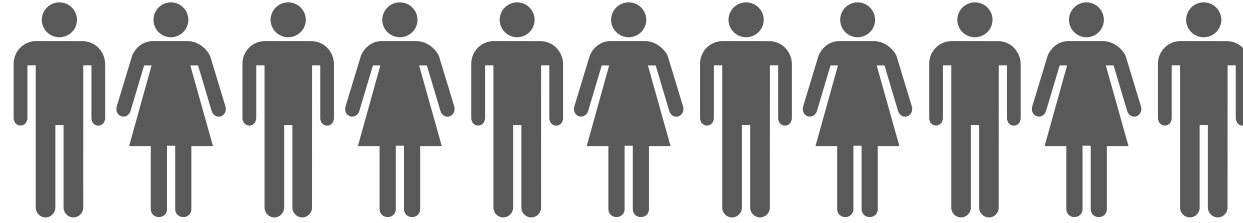
SEE ALL COLUMNISTS ▶

 Longevity**Technology**

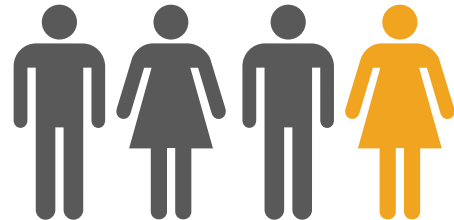
Page 30

© Copyright First Longevity Limited. All rights reserved.

# Nope

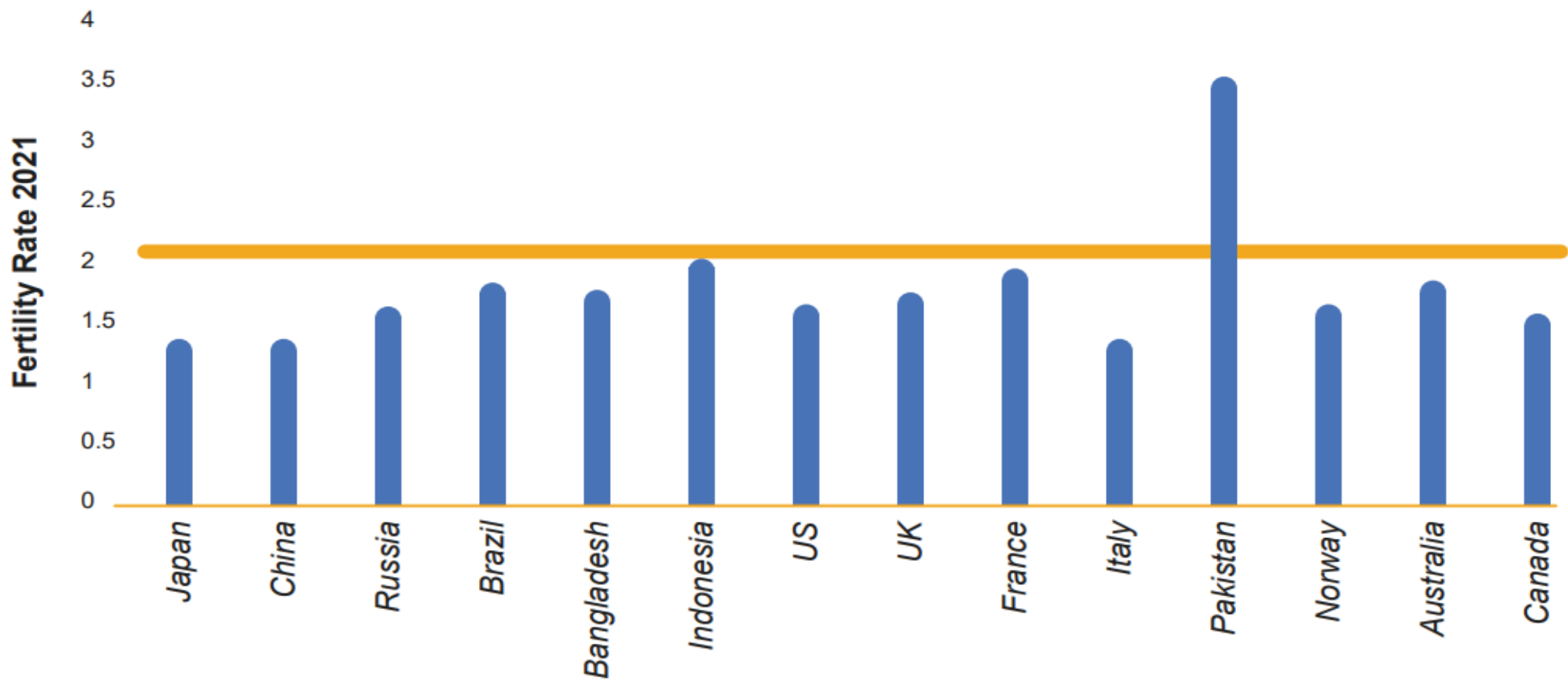


The UN estimates that by 2050:  
**1 in 6** people will be over age 65 (16%)  
up from **1 in 11** (9%) in 2019:

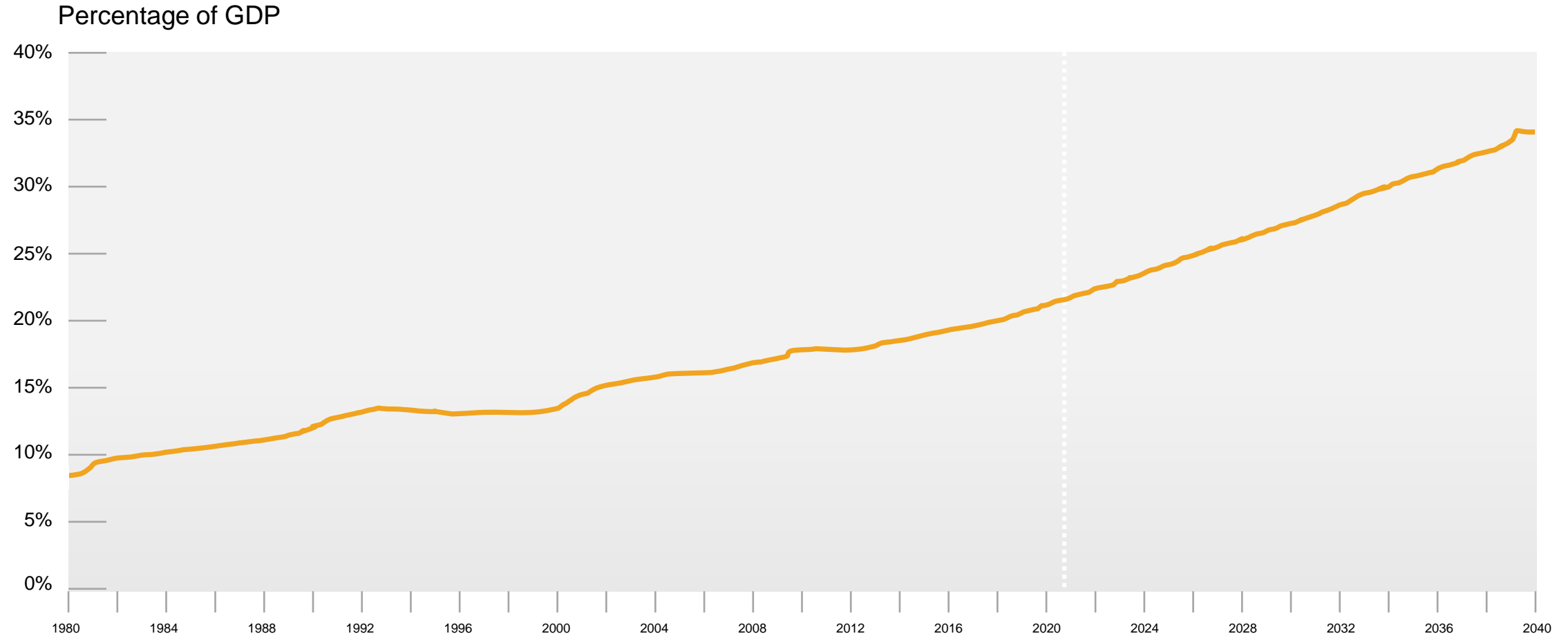


In Europe and North America, it will be  
**1 in 4** by 2050:

# Future tax earners are in decline globally

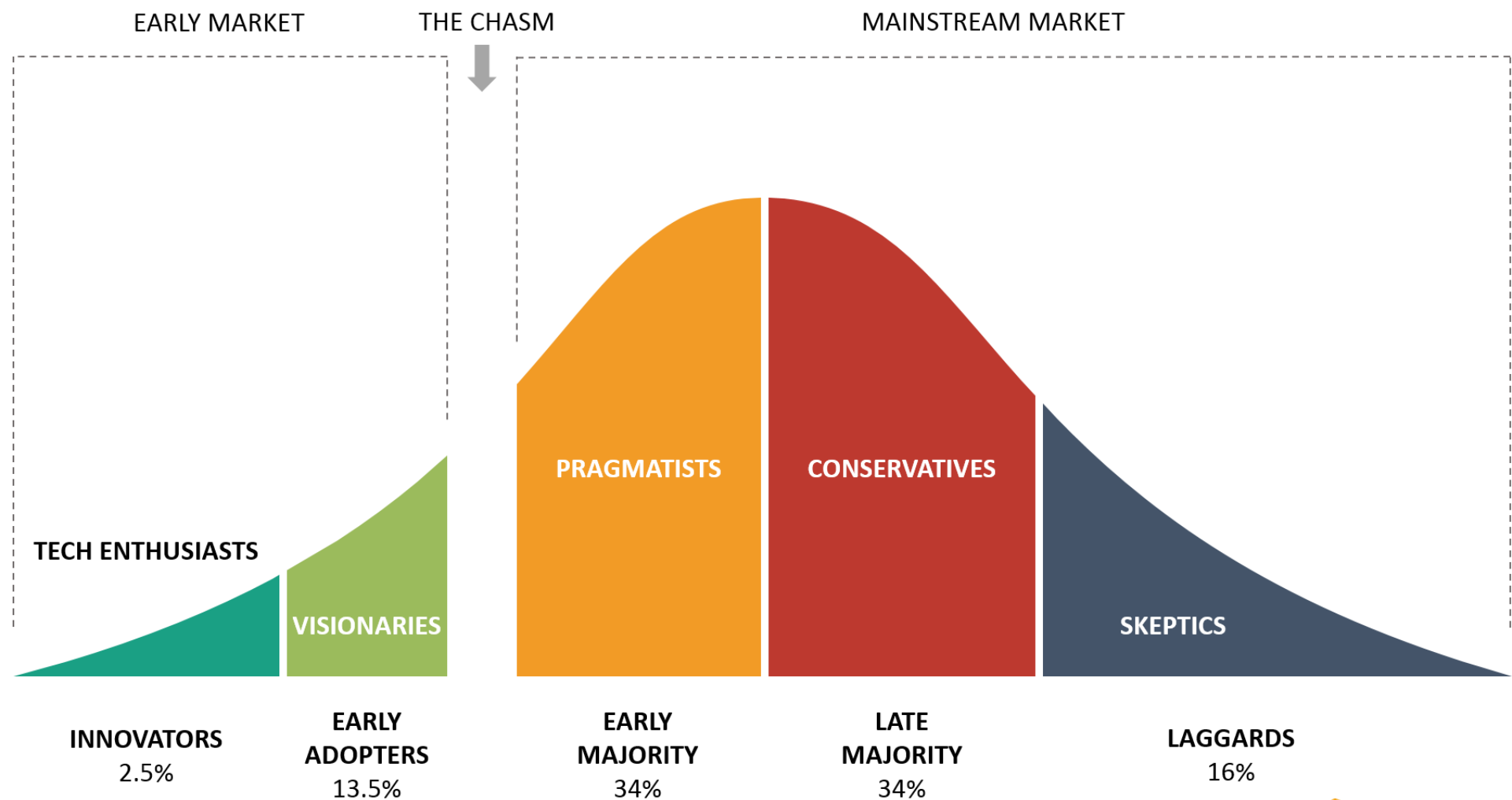


# The need for commercialised longevity is growing



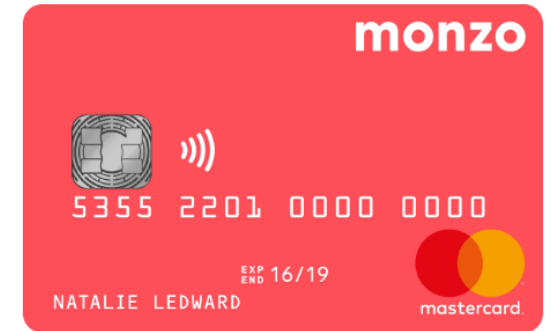
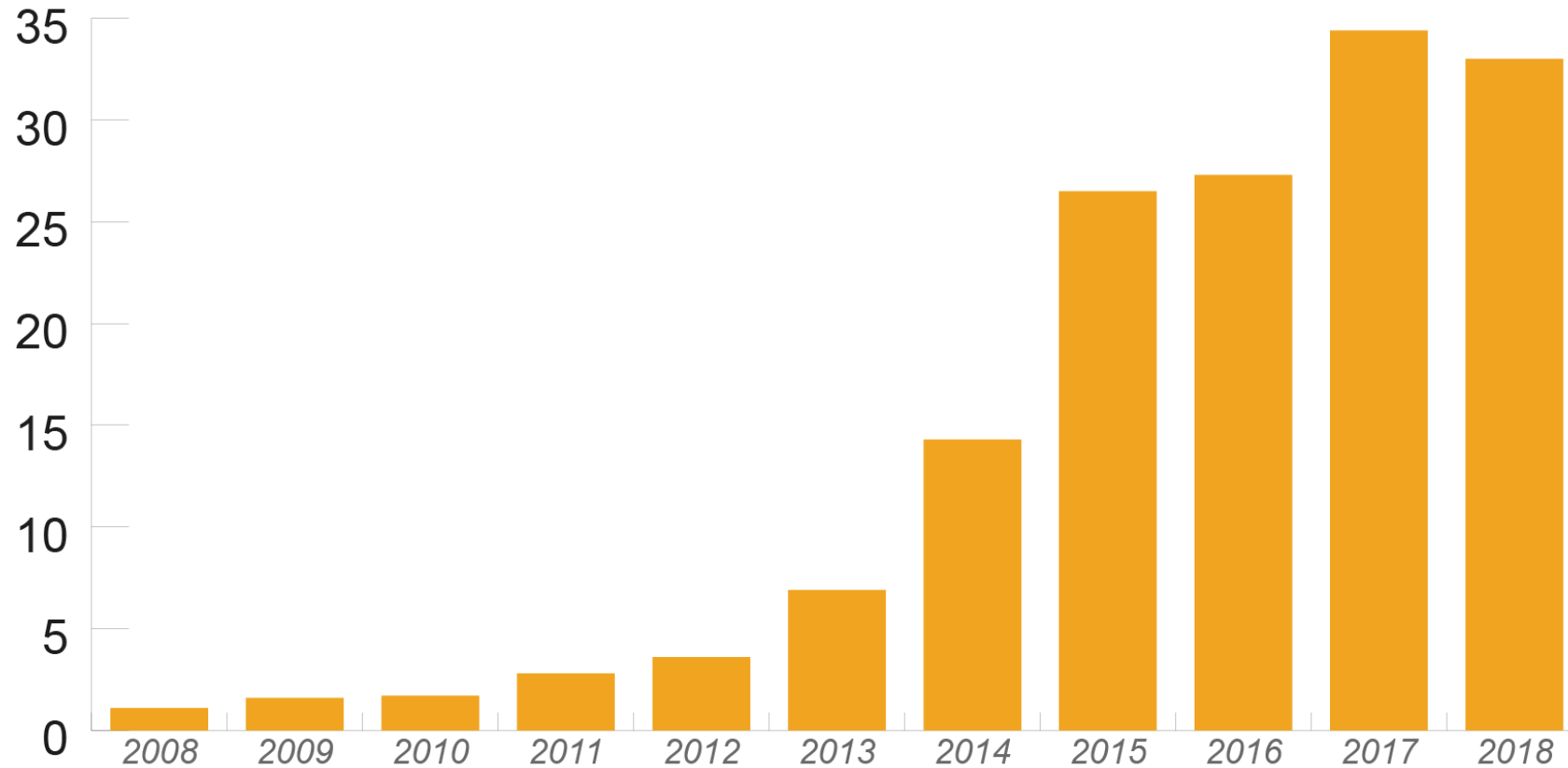
US healthcare spending will reach 34% of GDP by 2040.

# Chasm theory





# Fintech: a market growth parallel



Total value of fintech investments worldwide: 2008 to 2018 (\$B)

# Define the market, then define growth

The longevity market is still defining itself and there is a need to assist early stage companies with their market entry and success while demystifying the opportunities for investors, clinicians and consumers.

\$800m

Rejuvenation therapies

\$27tn

Tissue/organ : Nano : AI : AgeTech : Neural ... *Fintech* : *Service*

## Global Longevity and Anti-Senescence Therapy

“The market is expected to reach around \$800 million by 2026 (Senolytic Drug Therapy, Gene Therapy, Immunotherapy and Others); By Application (Longevity, Senescence Inhibition, Cardiovascular Diseases, Neural Degenerative Diseases, Ophthalmology Disorders, and Others).” [LINK](#)

## Longevity Industry 1.0

“While, the global Longevity Economy is projected to reach \$27 Trillion in 2026, the Age-Tech segment alone will reach \$2.7 Trillion by 2025.”  
[LINK](#)

# For us, longevity companies can be:



**Prevent damage that causes aging;**

**Early identification of aging damage;**

**Treatment of damage that has occurred;**

**Reversal of damage that has occurred.**

- Atherosclerosis
- Cardiovascular disease
- Osteoporosis
- Type 2 diabetes
- Hypertension
- Alzheimer's disease

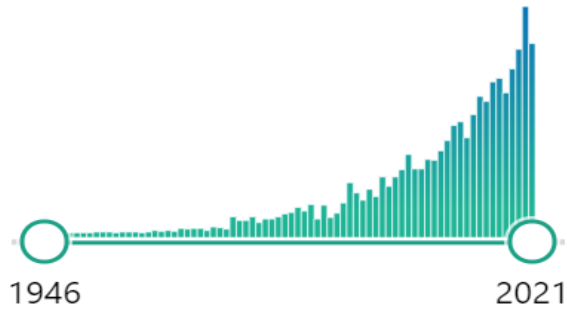


# Academic research into 'longevity' is increasing

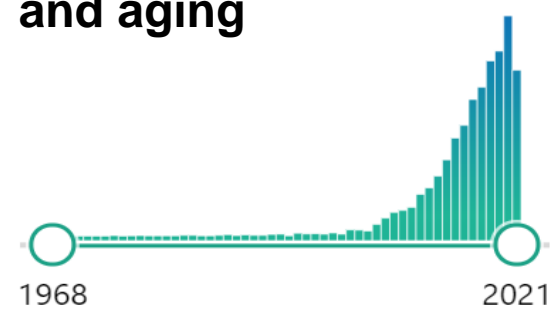


# Academic research into 'longevity' is increasing

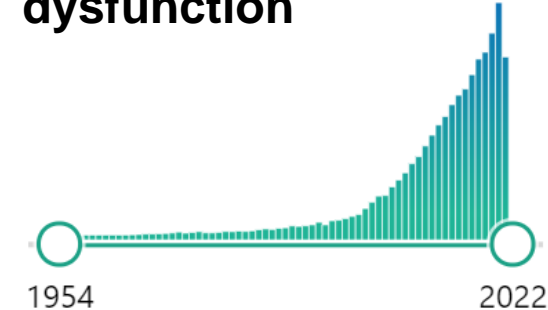
**Ovarian aging**



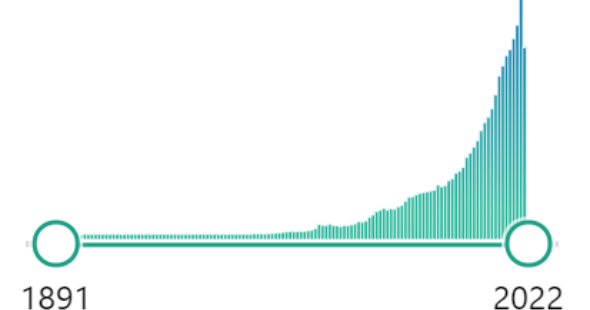
**Epigenetics and aging**



**Mitochondrial dysfunction**



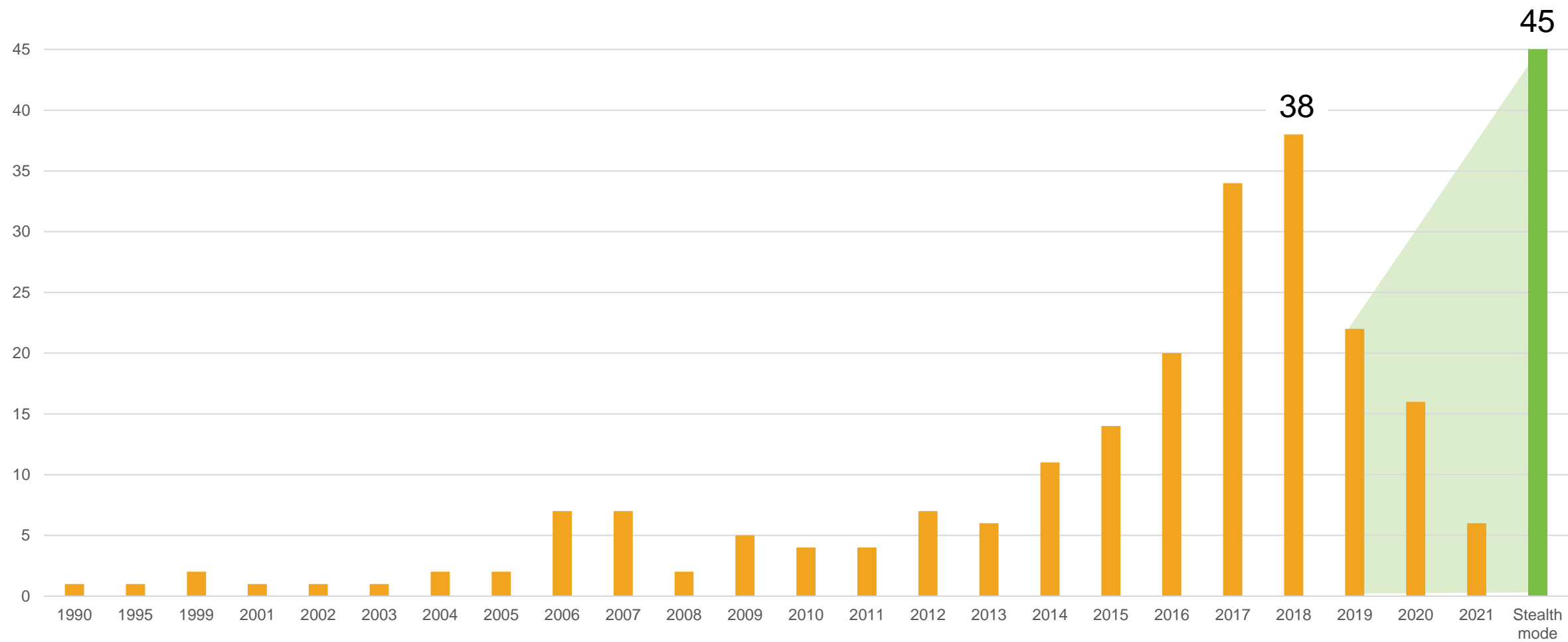
**Senescence**



**Longevity**



# Longevity companies founded

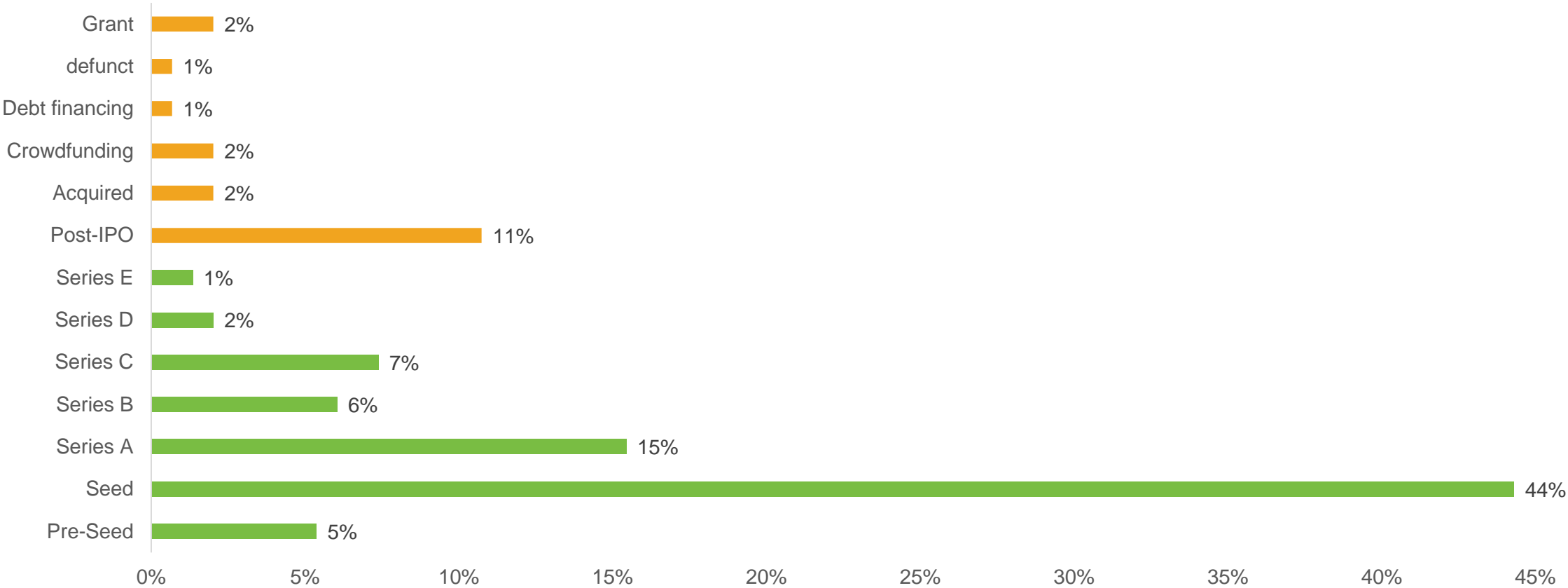


# Where are they?





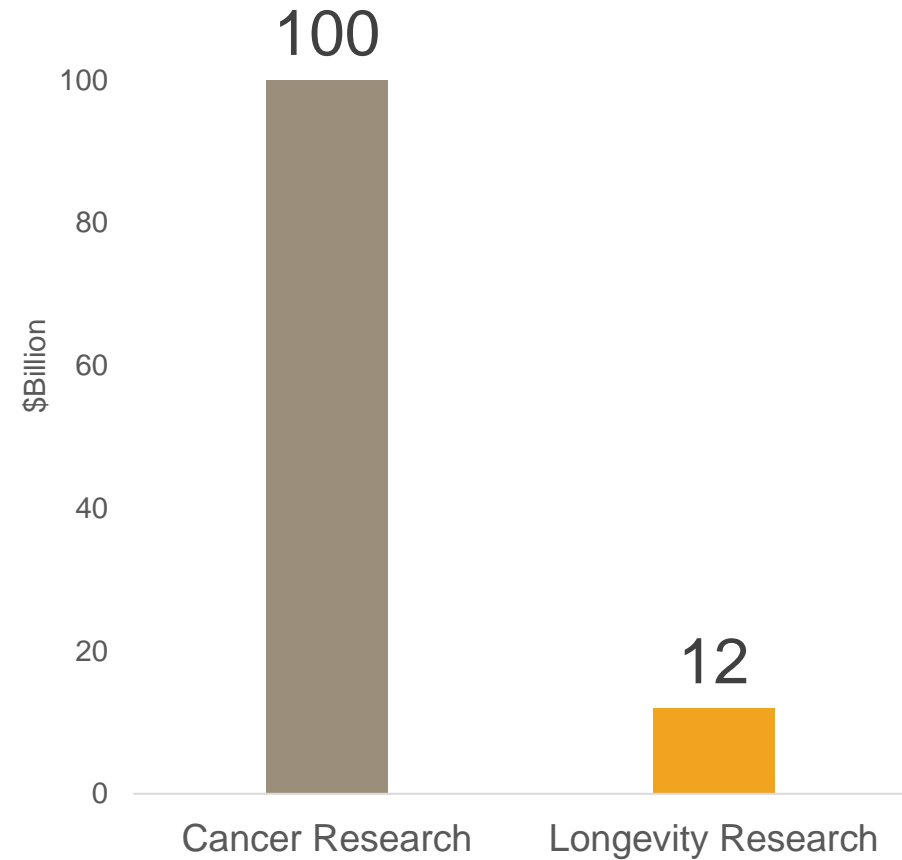
# What stage are they at?



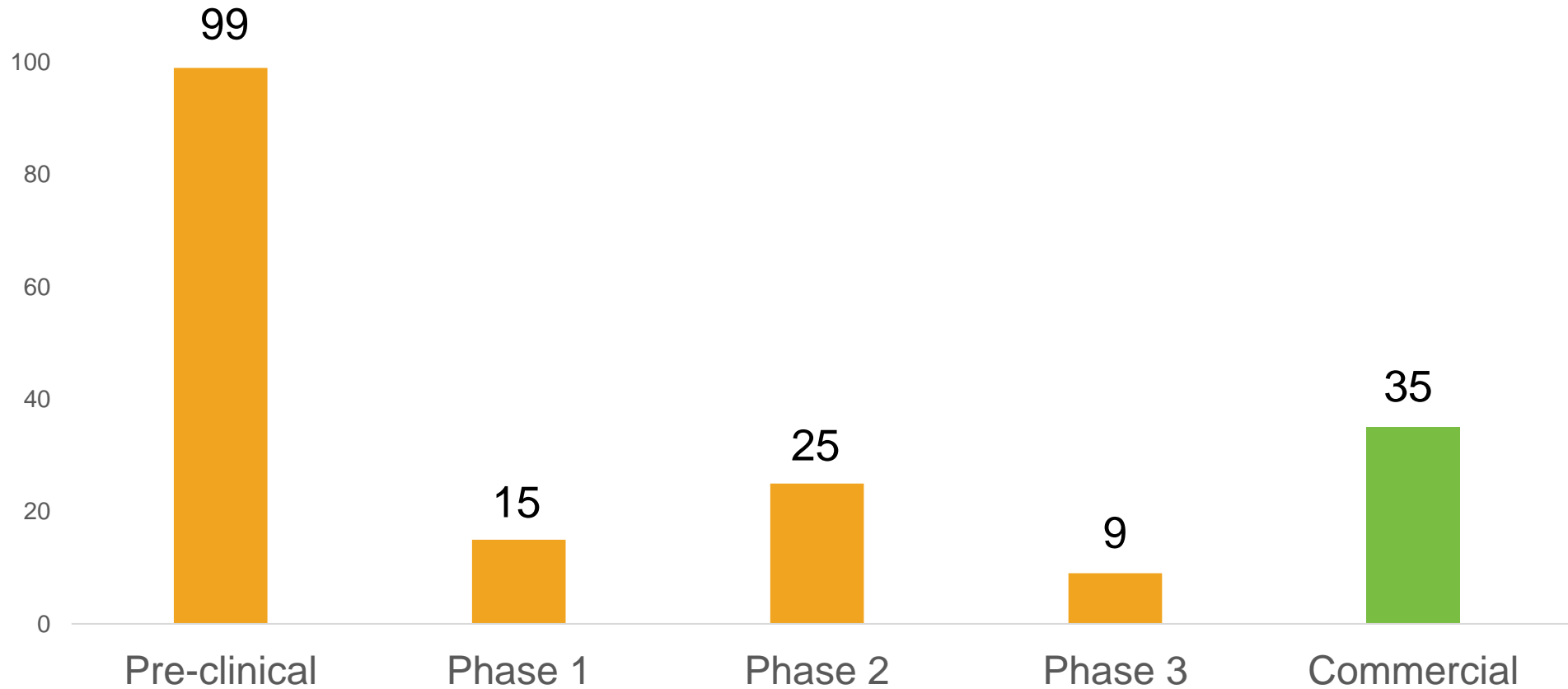
# How much has been invested so far?

**\$12B**

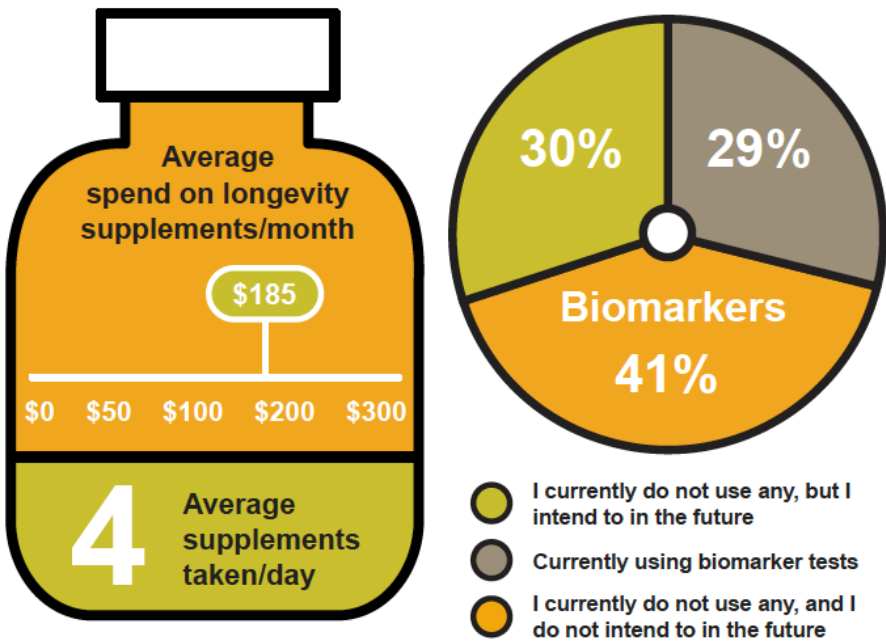
Total funding to date.



# The number of longevity clinical trials



# Will people/patients/consumers adopt?



Top 3 supplements
<ul style="list-style-type: none"><li>• Vitamin D</li><li>• NAD+ boosters</li><li>• Vitamin C</li></ul>
Top 3 reasons for supplementing
<ul style="list-style-type: none"><li>• Preventing a vitamin deficiency</li><li>• Preventing age-related diseases</li><li>• Facilitating a longer life</li></ul>



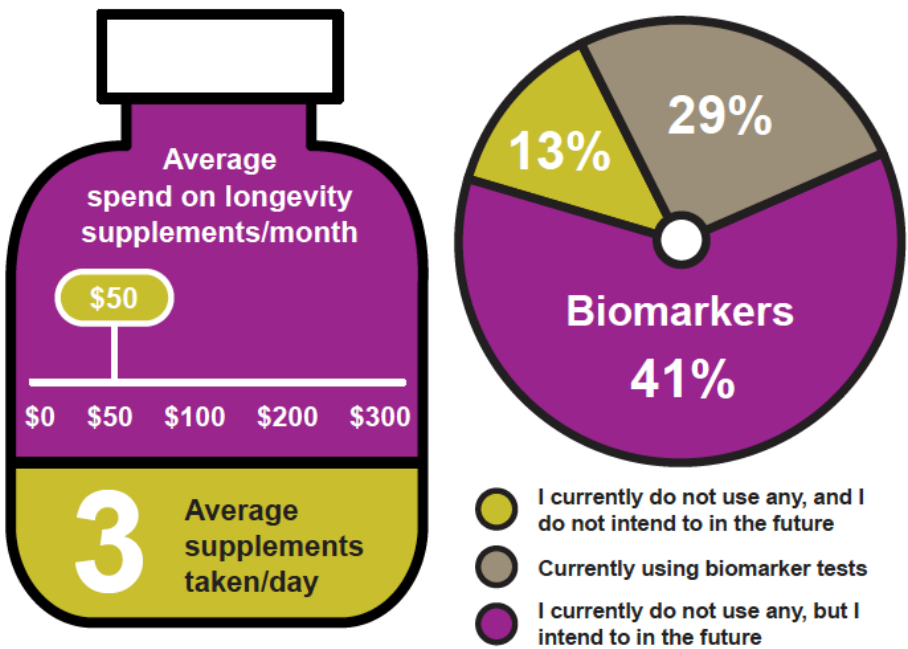
Sample size: 271



# Will people/patients/consumers adopt?



## Gen Z & Millennials



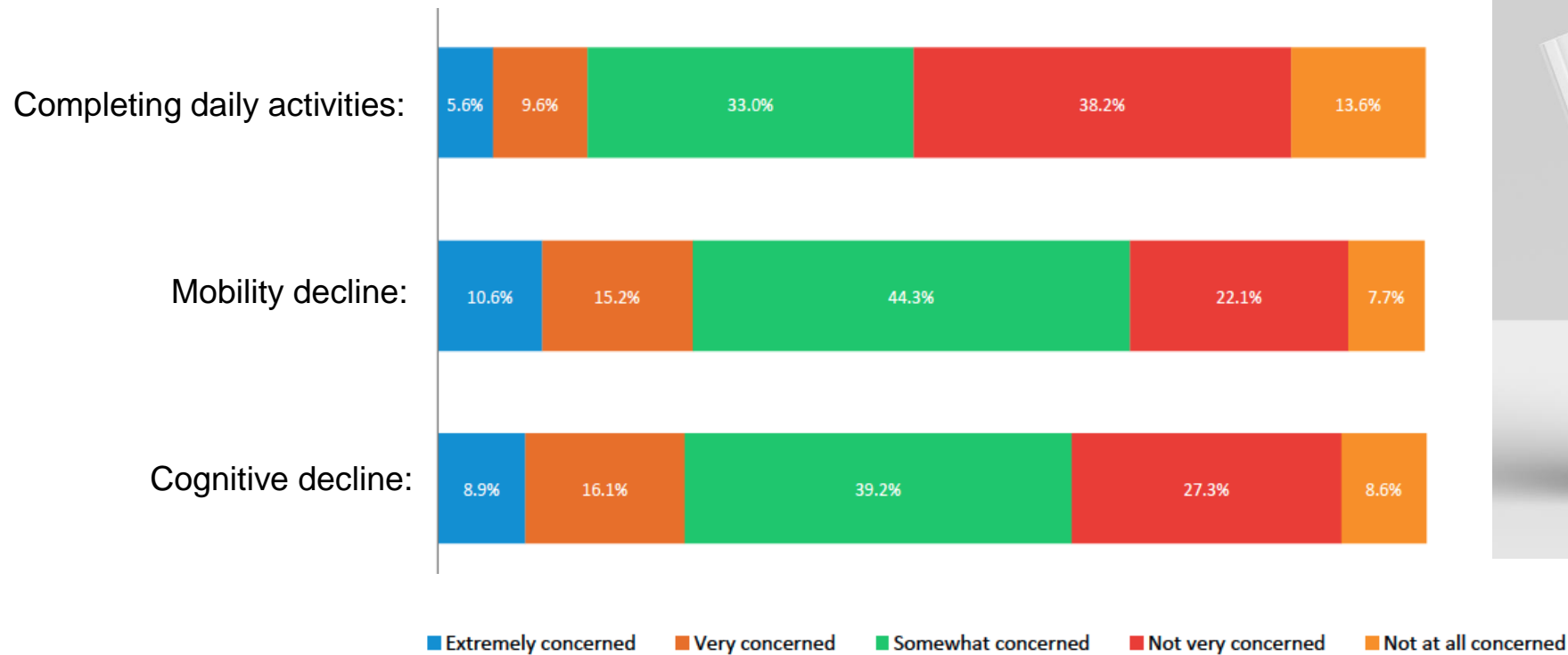
Top 3 supplements
<ul style="list-style-type: none"><li>• Vitamin D</li><li>• Magnesium</li><li>• Ashwaghandha</li></ul>
Top 3 reasons for supplementing
<ul style="list-style-type: none"><li>• Preventing a vitamin deficiency</li><li>• Preventing age-related diseases</li><li>• Enhancing skin, hair and nails</li></ul>



Sample size: 271

# Will people/patients/consumers adopt?

How concerned are you about each of the following as they relate to the possible effects of aging?



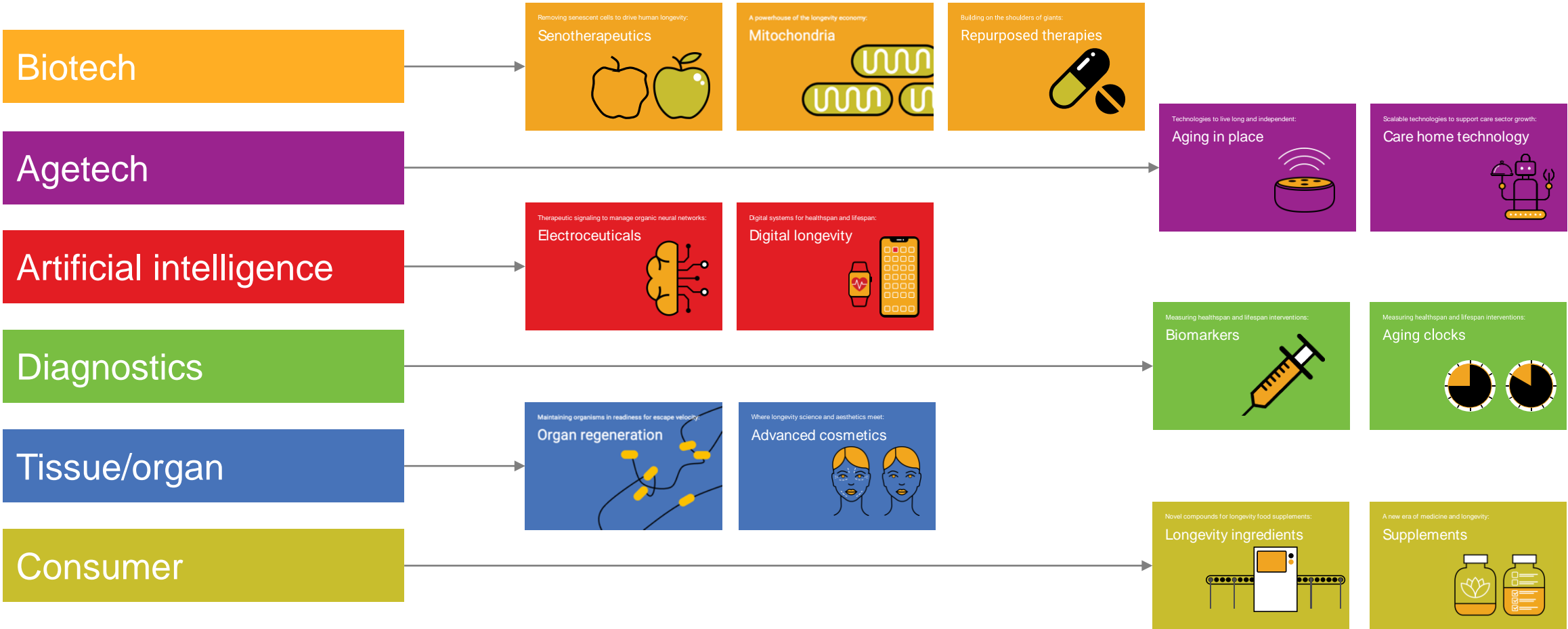
Sample size: 697

# Hot areas for longevity investment



[www.longevity.technology/analysis/](http://www.longevity.technology/analysis/)

# Hot areas for longevity investment







# Thank you!

For further information please contact:

Phil Newman  
Founder & CEO

[phil@longevity.technology](mailto:phil@longevity.technology)

+447855357884



# Dashboard of leading longevity indicators

Three  
phases:

1

Observed  
mortality

2

Observed  
morbidity

3

Future  
interventions

Duration:

Short

Medium

Long

Innovation  
required:

Quicker

Translation

Visibility

# Reasons to be cheerful:

*Exploring potential big-ticket drivers of future longevity improvements*



**Chair:**

Douglas Anderson  
Club Vita



**Panelists:**

Madeleine Braun  
The Jackson Laboratory



Gemma Balmer  
Cancer Research UK



Phil Newman  
First Longevity