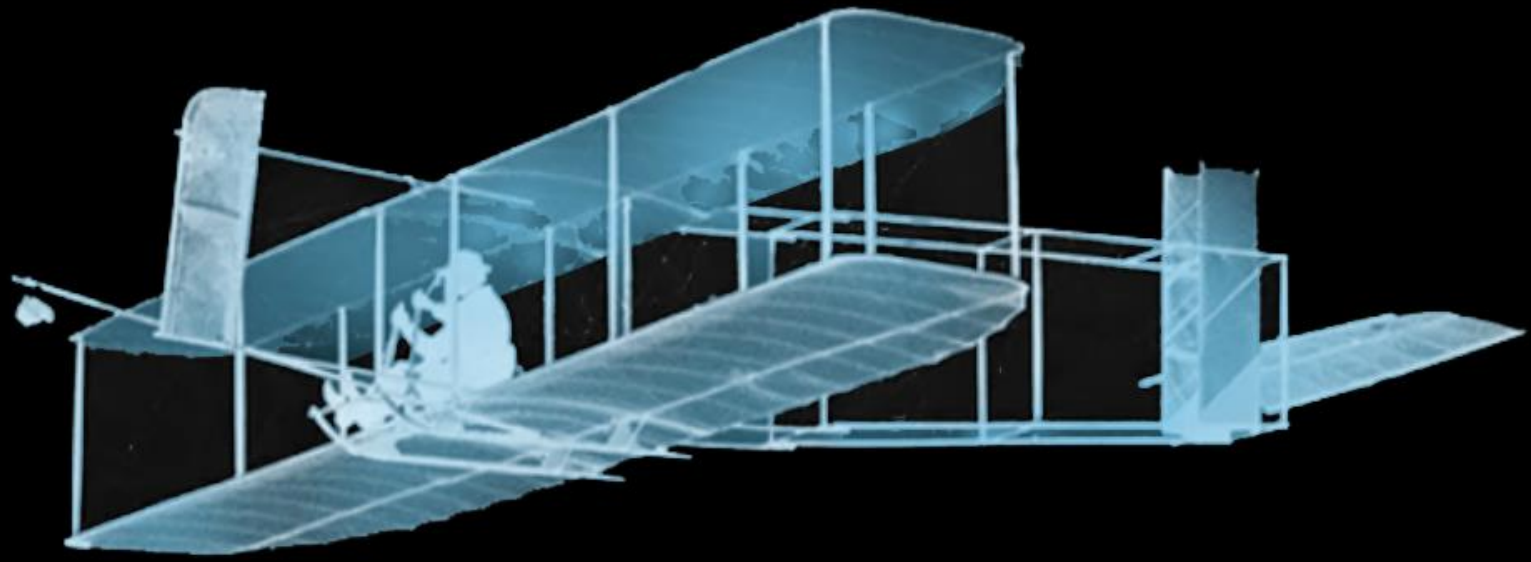
4,000,000,000 years

Shortgevity

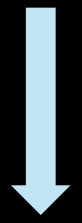
Slowing decline

Longevity

Reversing Aging

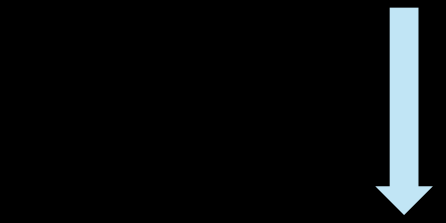


Genes



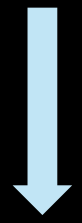
Instruments

Epigenetics



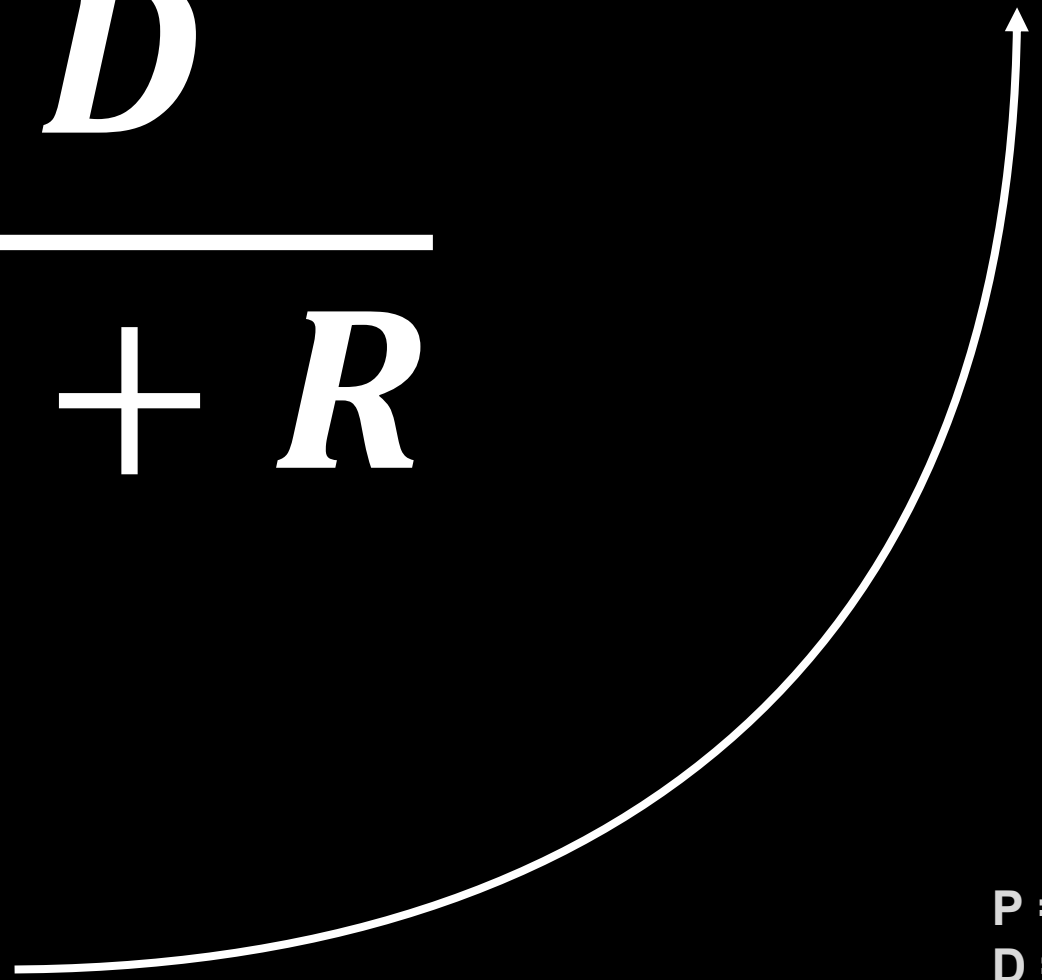
Score

Telomeres

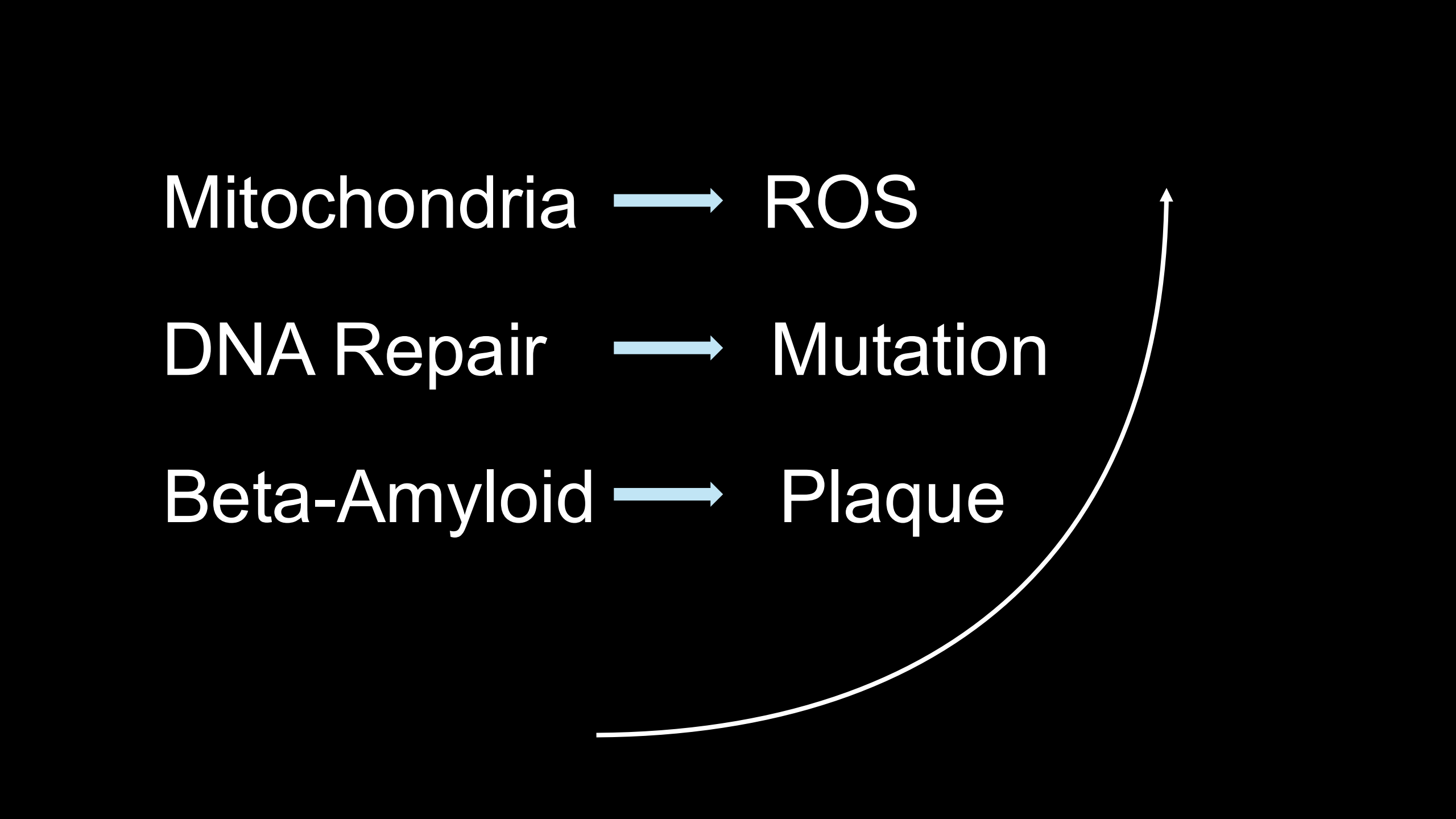


Conductor

$$P = \frac{D}{D + R}$$



P = % Damage
D = Damage Rate
R = Turnover Rate


Mitochondria → ROS
DNA Repair → Mutation
Beta-Amyloid → Plaque

1961

The Hayflick Limit

Leonard Hayflick: finite cell division

In vitro Bodnar et al.
1998
In vivo (germ) DePinho et al.
2011
2000
Ex vivo Funk et al.
2012
In vivo (somatic) Blasco et al.

Reprogramming vs Resetting

Yamanaka Reprogramming

- Teratoma risk
- Loss of cell identity

Transient hTERT

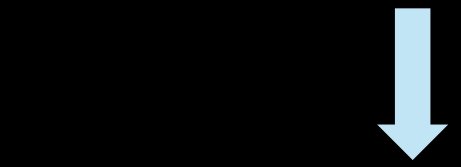
- Epigenetic reset only
- Preserved cell identity

Civilization

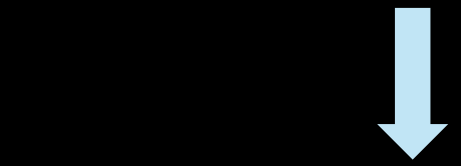
Non sibi, sed aliis

Not for yourself, but for others

mRNA / LNP / AAV



Transient hTERT



Epigenetic Reset

We will not slow aging

We will *reverse* it

REVERSAL

Science, Medicine, and a Future Beyond Aging

Michael Fossel, MD, PhD