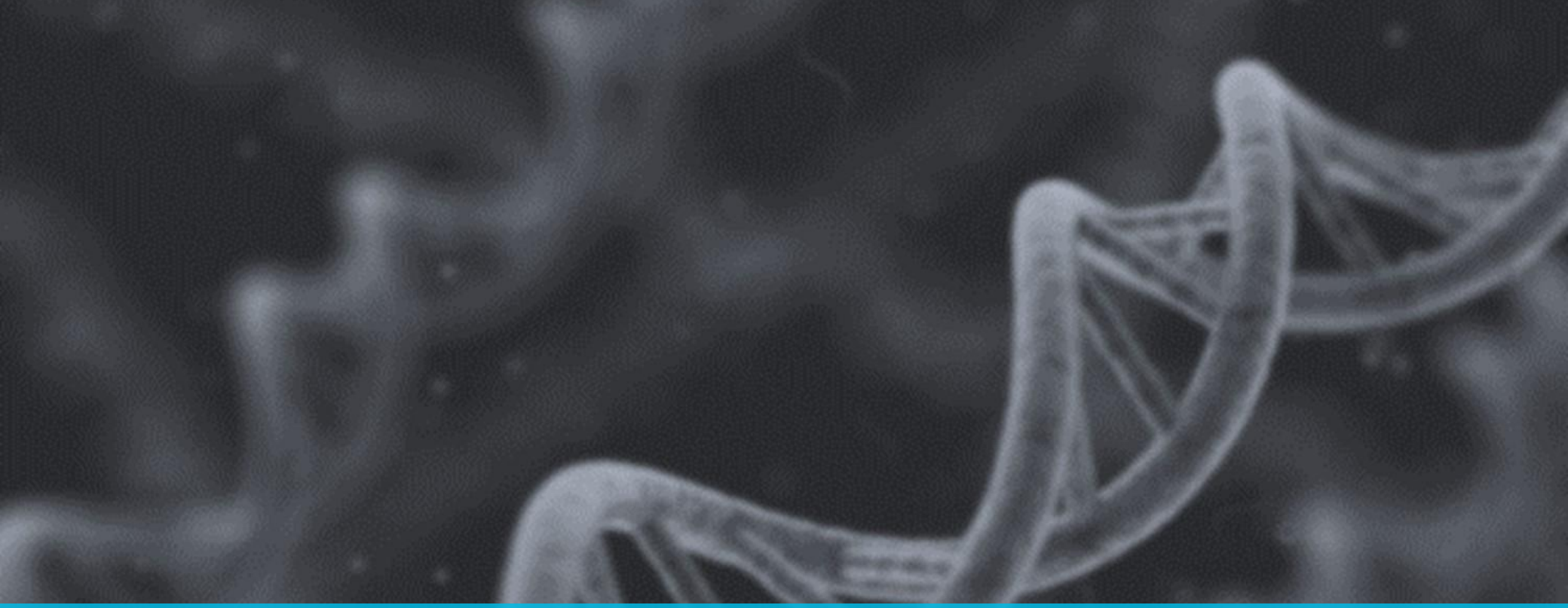

2016

Module I: **Clinical** Presentation on **Telomere** Testing

LIFE LENGTH

Index

Life Length, the world leader in providing **telomere diagnostics** and **telomerase activity** measurements, is pleased to provide this introductory presentation about the clinical value and utility of telomere testing with the TAT.

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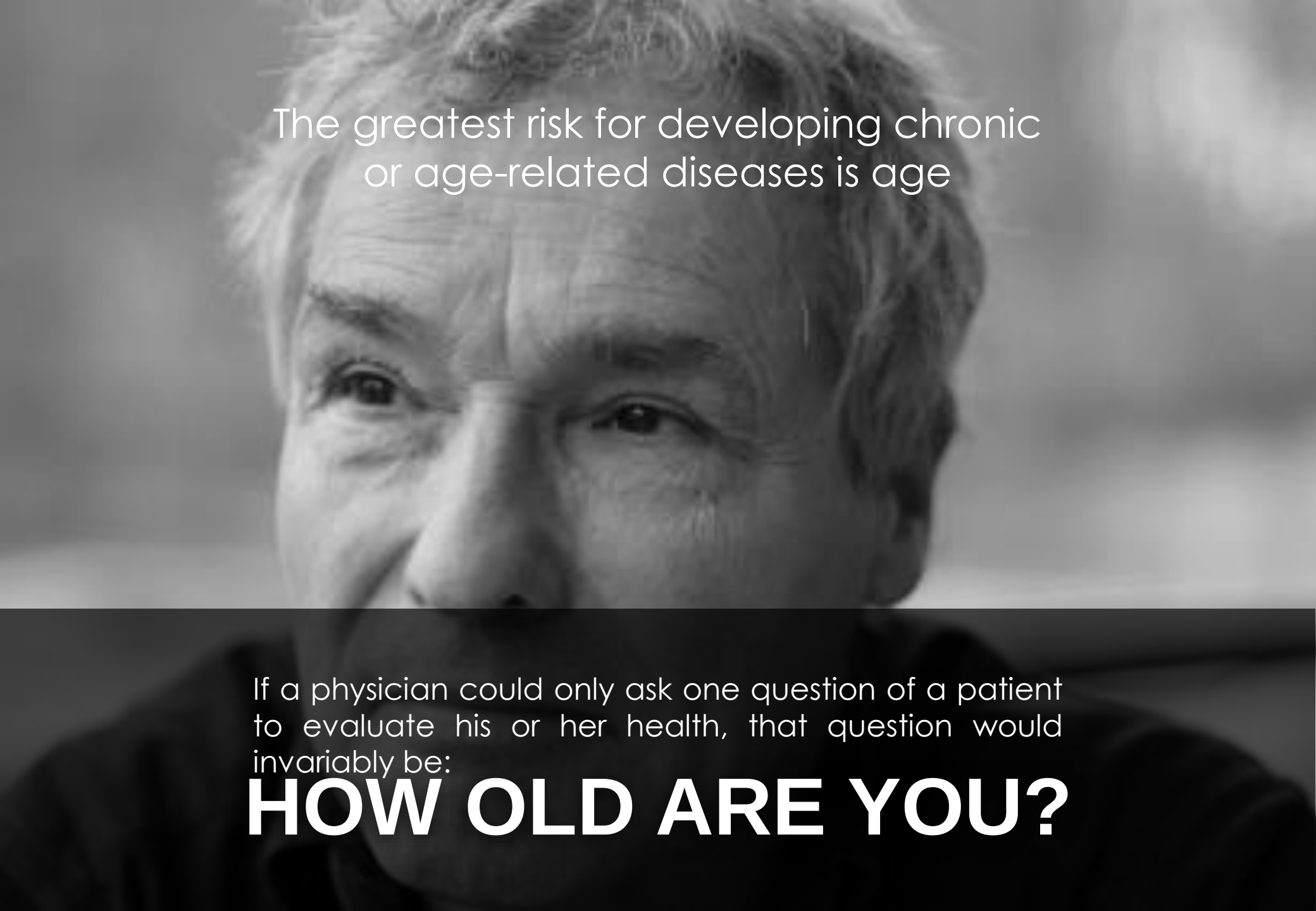
Aging: a heterogeneous process



The greatest risk for developing chronic or age-related diseases is age

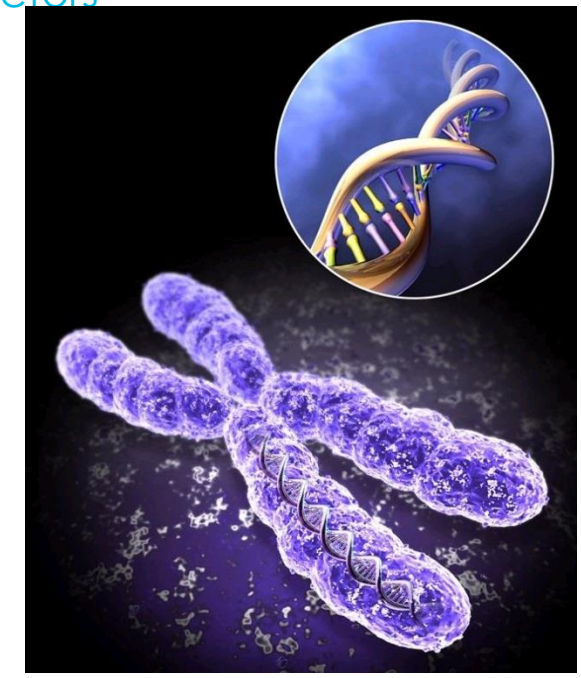
If a physician could only ask one question of a patient to evaluate his or her health, that question would invariably be:

HOW OLD ARE YOU?

Aging is a highly heterogeneous process

- Why do some people age astonishing well, maintaining a more youthful appearance and impeccable health, while others develop health problems early in life?
- The factors that influence on this are enormously complex, dynamic and interactive but can be summarized in three main categories:

1. Genetic inheritance
2. Environmental factors
3. Lifestyle factors



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What are telomeres and why are they important?

What are telomeres?

Telomeres are the protective caps at the end of chromosomes which play a very significant role in the aging process

Telomeres of a young cell

Telomeres of an aging cell

Short telomeres are a contributing factor to virtually all age-related diseases

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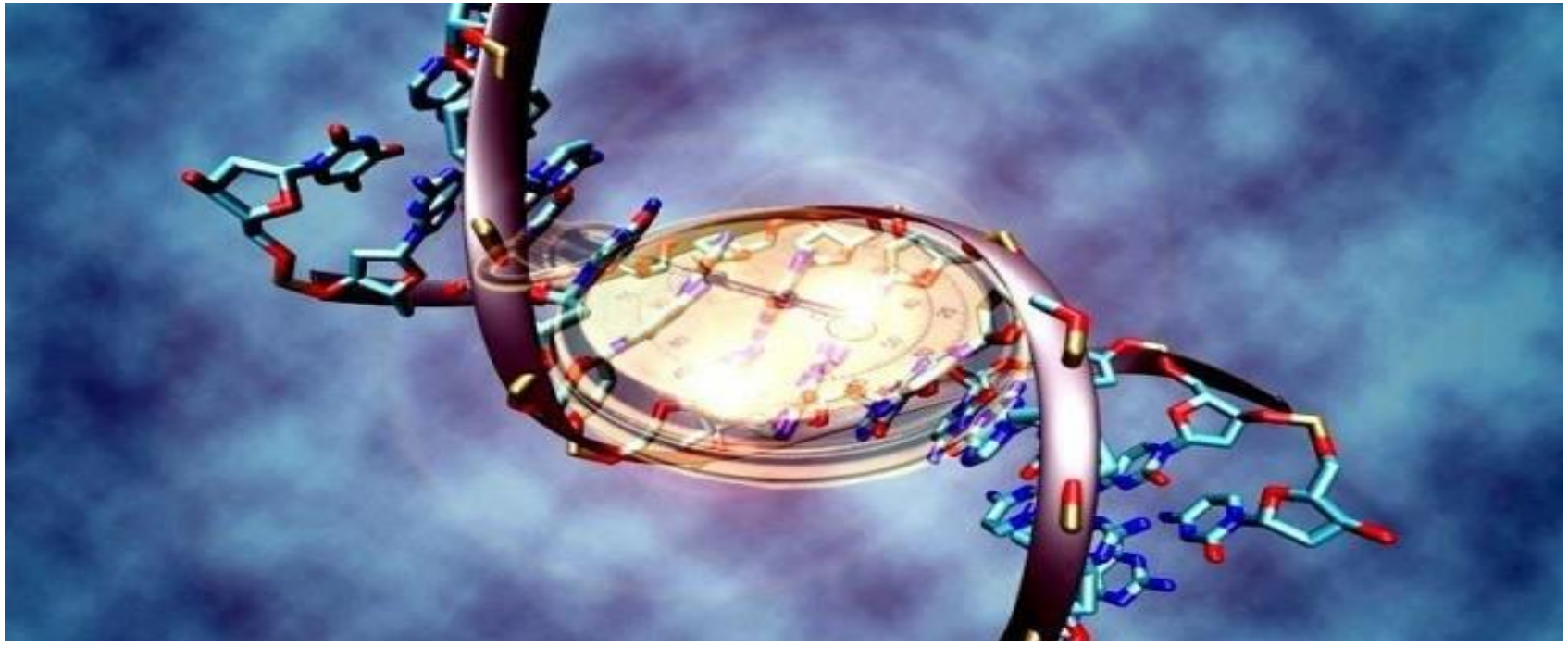
Telomeres: the biological clock

- Telomeres, as a fundamental mechanism that regulate and control cellular viability, are a global reflection of how an individual is aging



Telomere length reflects biological age, a more meaningful indicator than chronological age, and is a more accurate "read out" of the true aging process

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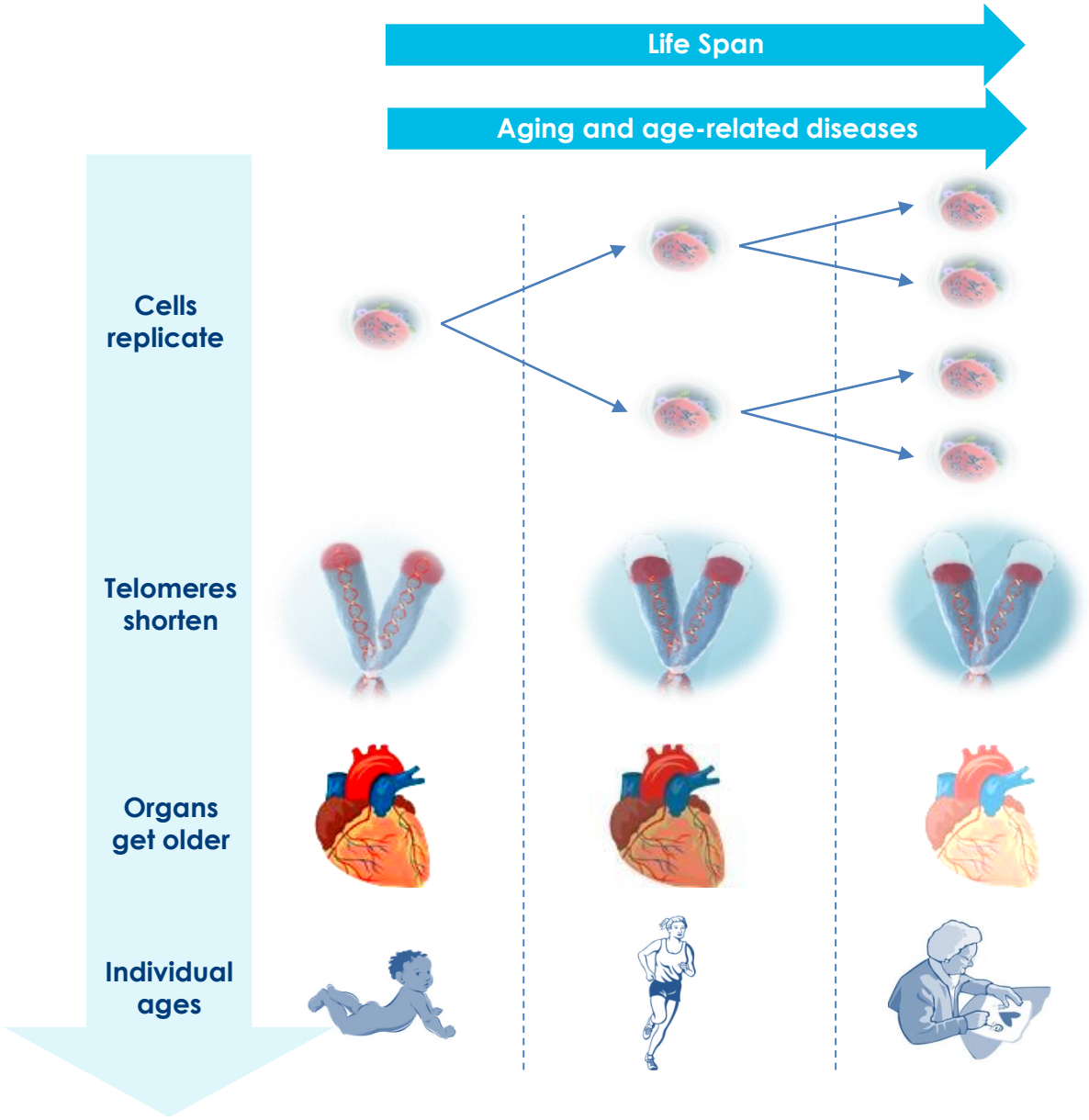
Telomere length is one of the most critical biomarkers for human aging

1. In any living organism, aging is the result of the decrease in the number and/or function of cells

2. Every time cells replicate, telomeres shorten until they reach a point where the cells can no longer divide properly

3. Cells with such short telomeres usually become senescent or enter apoptosis, and eventually die

4. Therefore, telomere length is a crucial biomarker providing insight into understanding organismal aging



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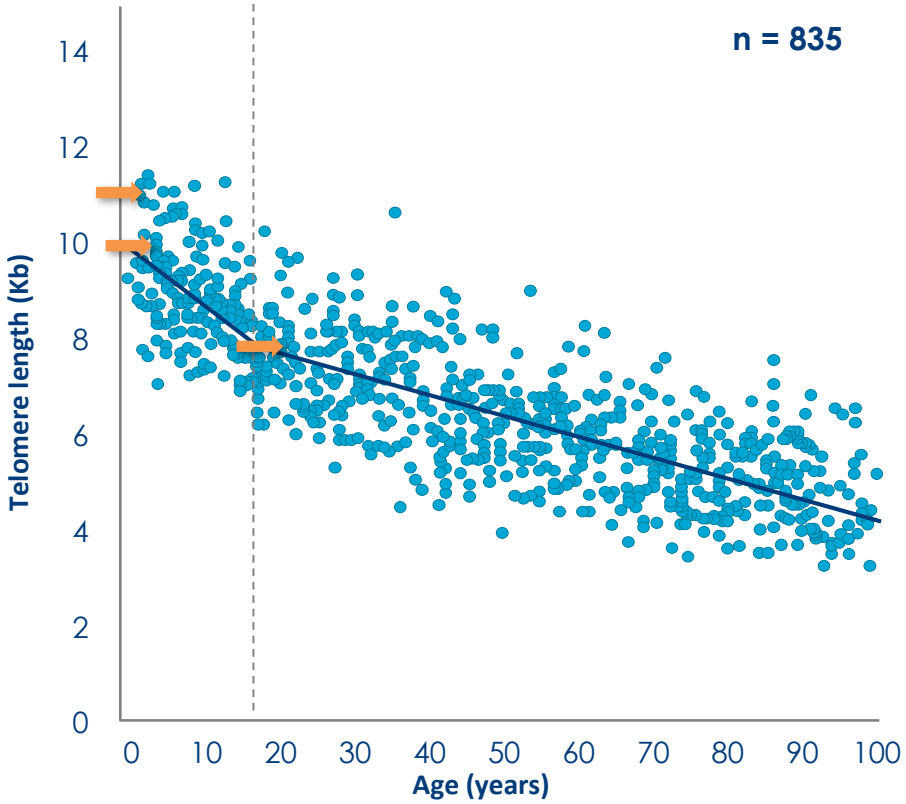
Telomere length is highly heterogeneous among individuals as well as in the rate of attrition



Source: Aubert et al., Plos Genetics, 2012

Shorter telomeres correlate with increased age and disease risk

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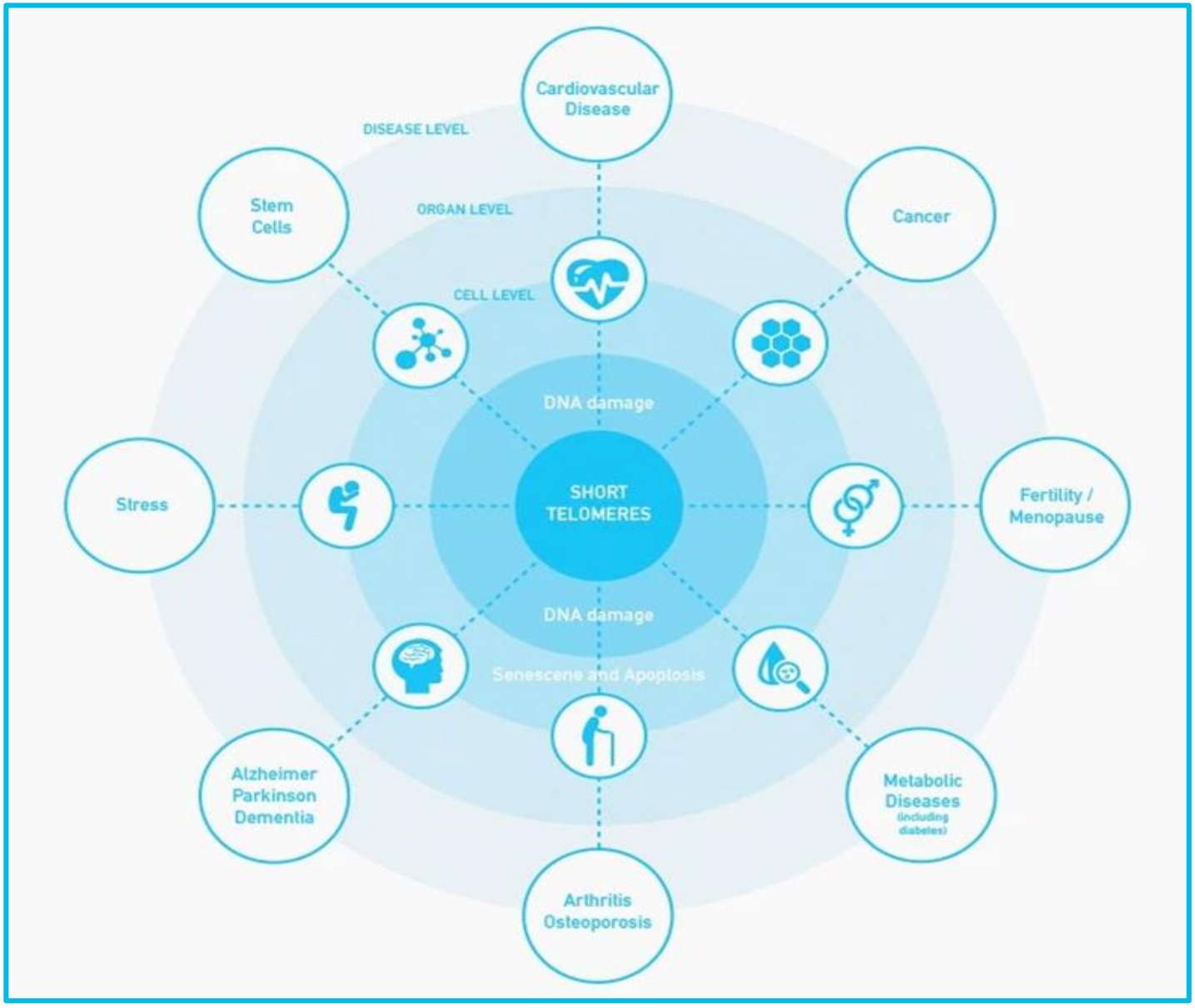
Telomere Analysis Technology
Clinical Applications

Clinical Applications



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An invaluable tool for your medical practice

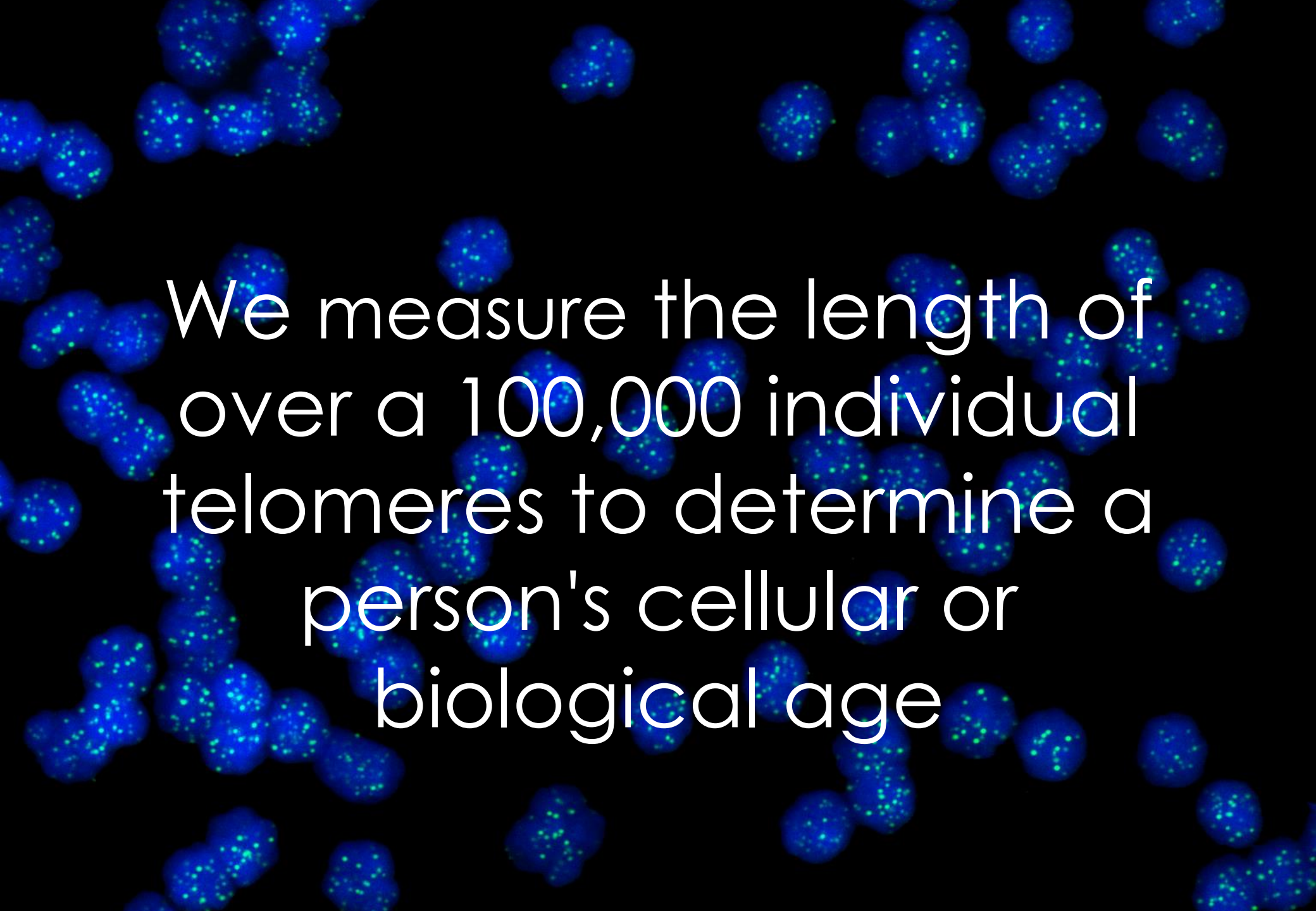
To risk stratify patients and identify individuals with accelerated biological aging

To enable early intervention-lifestyle modifications to reduce stress, inflammation, oxidative damage and other inducers of accelerated telomere loss

To provide therapeutic interventions to slow or reverse telomere loss (lifestyle modifications, supplements, stem cells therapies)

To complement other testing (traditional and genetic) for the early diagnosis of disease and to take action accordingly

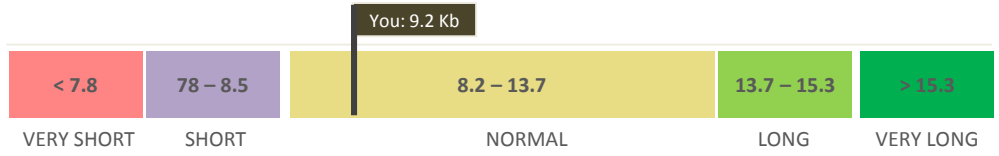
To measure longitudinally patient's biological aging over time to monitor the effectiveness of and compliance with wellness/anti-aging programs


We measure the length of over a 100,000 individual telomeres to determine a person's cellular or biological age

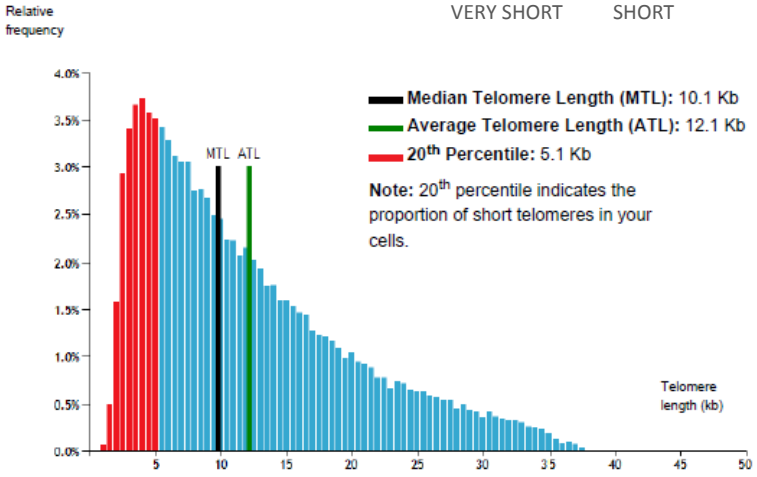
Life Length's Telomere Analysis Technology® (TAT®)

- Life Length is the only company in the world able to measure the percentage of short telomeres in individual cells, which is the relevant indicator of cellular aging, rather than mean telomere length

- The TAT test is a blood test that measures the length of thousands of individual telomeres to reveal a person's cellular or biological age, the age a person shares with most people of similar physiology



Comparison of MTL against entire database (to find severe outliers)



TELOMERE ANALYSIS TECHNOLOGY

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Test requirements

- No fasting required
- We provide complete kits to our physicians
- One tube (10 ml) of blood is required
- An optional anonymous online health questionnaire may be completed for a more comprehensive report (www.lifelength-questionnaire.com)
- Results Reports are delivered via our secure Physicians Portal (www.lifelength-reports.com) in approximately 2-4 weeks, depending on country

TELOMERE ANALYSIS TECHNOLOGY

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Continue your education online

- Visit our website: www.lifelength.com
  - In our website, you will find in our "classroom" Telomeres 101 extensive educational materials, presentations and references to clinical articles by pathology.

- The three links below are videos that further explain how to use TAT test and its clinical value and applications:

(Note: these videos are in the Life Length channel of YouTube)

- For more information: Life Length Corporate Dropbox - Telomere Studies

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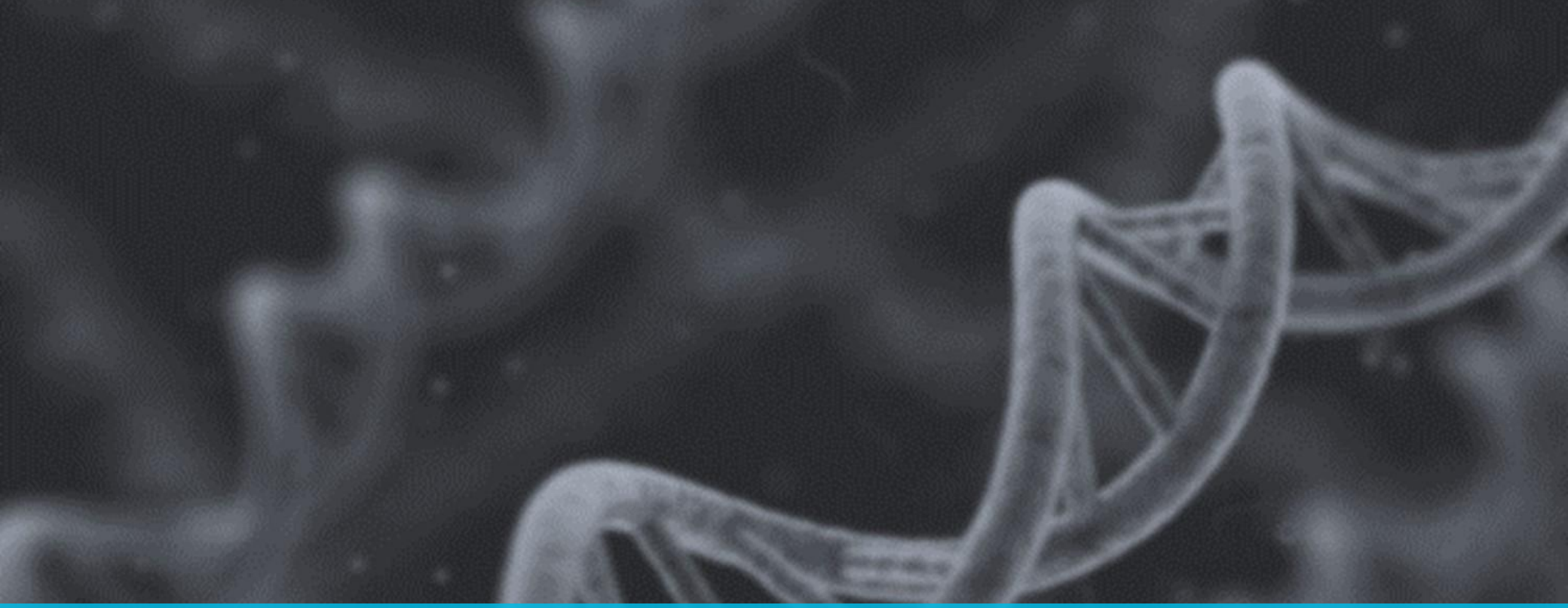

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