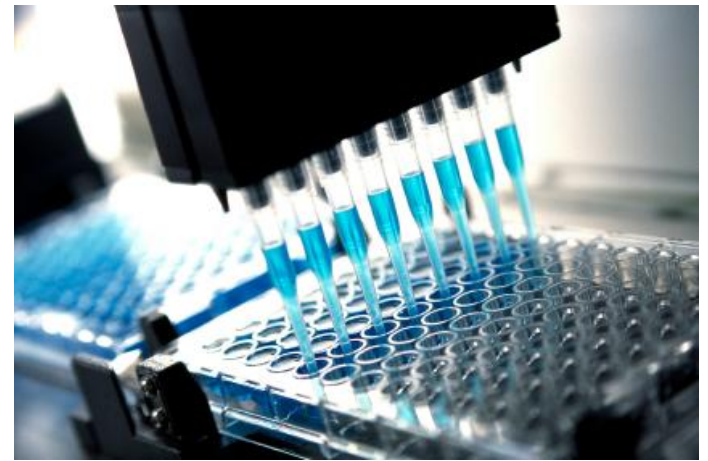


From the Bench to the Bedside: the Challenge of Bringing an Innovative Diagnostic Test to the Market



LIFE LENGTH



Fundación General CSIC



FUNDACIÓN



fundación para el
conocimiento
madrid

Empresas que diseñan el futuro

The thesis behind the creation of Life Length

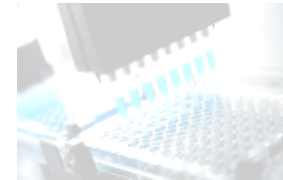
- Life span has increased by over 30 years since WWII; in next 30 years, people will routinely live to more than 100 years
- But there is an increasing gap between life span and “health span” – the period in which individuals live with their physical and mental capabilities largely intact
- Chronic “silent” age-related diseases (the big ones cancer, cardiovascular, neurogenerative diseases) are now the biggest problem we face as individuals and societally; ending health and life span

The thesis behind the creation of Life Length

- All these diseases, and many more share in common one thing, they are rarely developed by young people and are “age-related” diseases
- Underlying all these diseases is a fundamental component of human biology –and indeed of all living things – telomeres
- Huge investments are now being made to “cure aging” and the future of serious preventive and personalized medicine has arrived
- Life Length is perfectly positioned at the forefront of a global trend by individuals seeking to live longer, healthier lives as the world leader in this key component of human biology

Key facts

- Life Length - the world's leading healthcare diagnostic company for telomere measurement and testing



Corporate clients (B2B)

Academic studies with universities and research centers (B2E)

For individuals and doctors in preventive and personalized medicine through distribution partnerships with major diagnostic laboratories worldwide (B2C)

Potential annual market size estimated to be more than \$3 billion

Key facts

- Life Length's business plan is focused on building major barriers to entry to protect its global leadership position in this field
- Most important early stage healthcare / diagnostic company in Spain. The Company was recipient of three awards in 2013:

Best new technology company in Spain – award given by leading Spanish business newspaper *Expansión* – June 2013

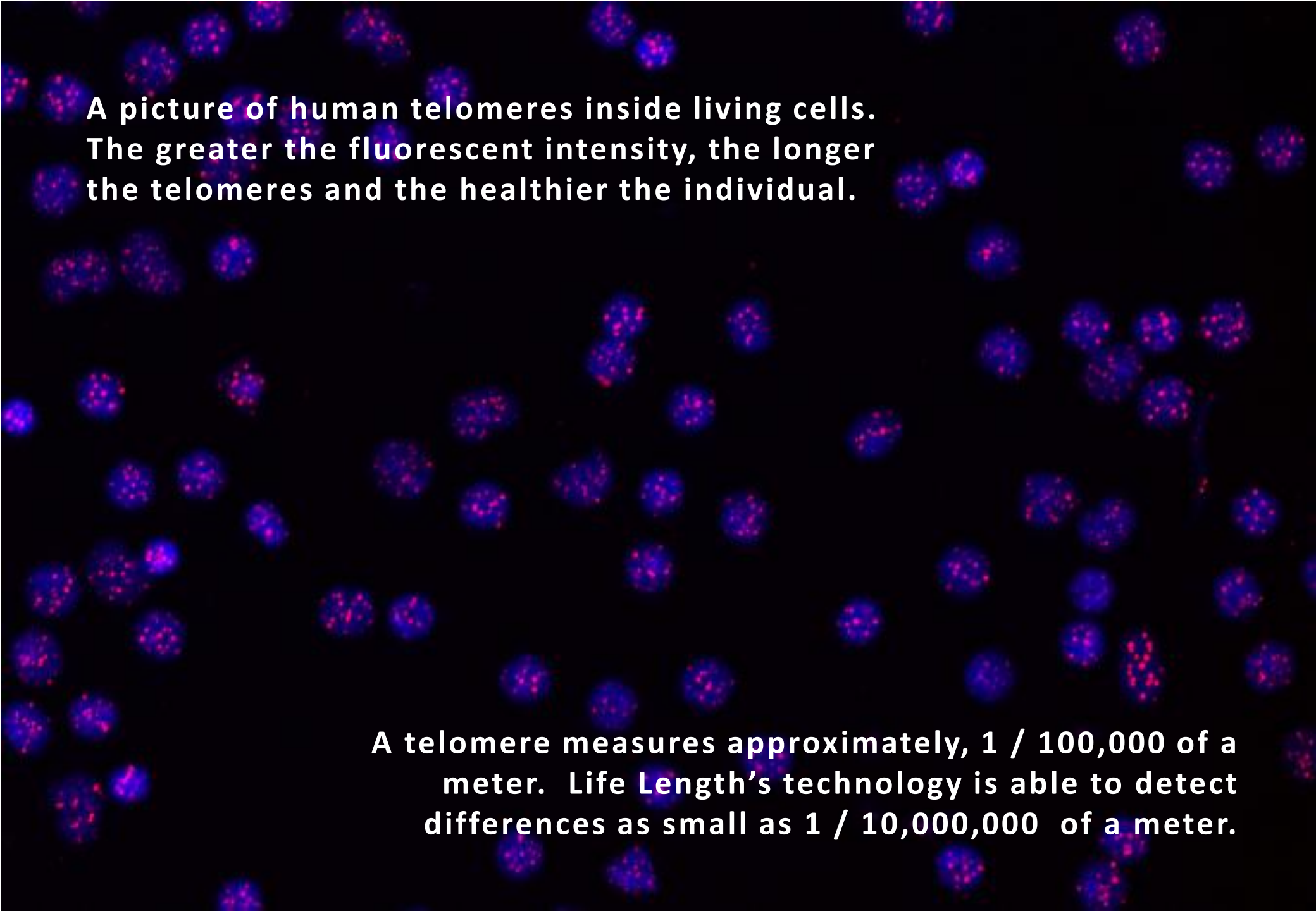
Expansión

Best company for technological innovation in the Community of Madrid – award given by the Fundación Madri+d – October 2013

fundación
madri+d

Best investment opportunity – award given by Spanish Business Angels competition in which more than 130 companies competed – November 2013

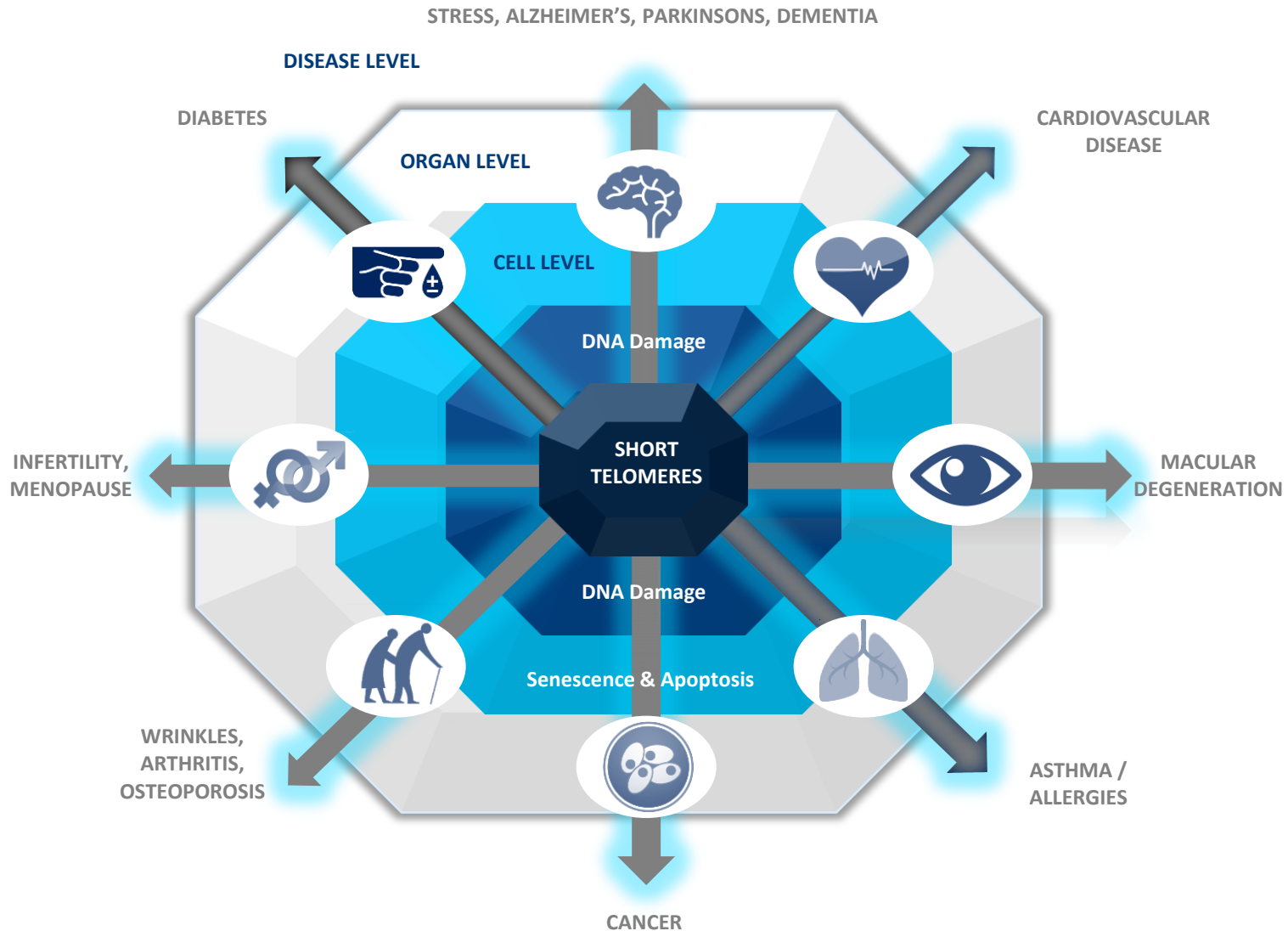
AEBAN
ASOCIACION ESPAÑOLA
BUSINESS ANGELS

A fluorescence microscopy image showing numerous cells. Each cell contains a bright blue nucleus and several distinct, glowing red spots representing telomeres. The background is black.

**A picture of human telomeres inside living cells.
The greater the fluorescent intensity, the longer
the telomeres and the healthier the individual.**

**A telomere measures approximately, 1 / 100,000 of a
meter. Life Length's technology is able to detect
differences as small as 1 / 10,000,000 of a meter.**

Telomeres play a central role in the development of age-related diseases; nearly 18,000 published scientific and medical articles have demonstrated this



What is Life Length?

- Life Length - world's leading healthcare diagnostic in **telomere biology**
- **Spin-off** of the prestigious Spanish National Cancer Research Institute (CNIO)
- Telomere length - the most accurate indicator of cellular aging and **best approach to estimating biological age**
- **Approximately €28 million investment** to date since technology development by government to current stage
- Life Length holds the **exclusive worldwide rights** to the commercial exploitation of the technology in exchange for royalties
- Currently 25 employees but more than 1,500 people working with Life Length **in over 20 countries** worldwide



MATLIN|ASSOCIATES

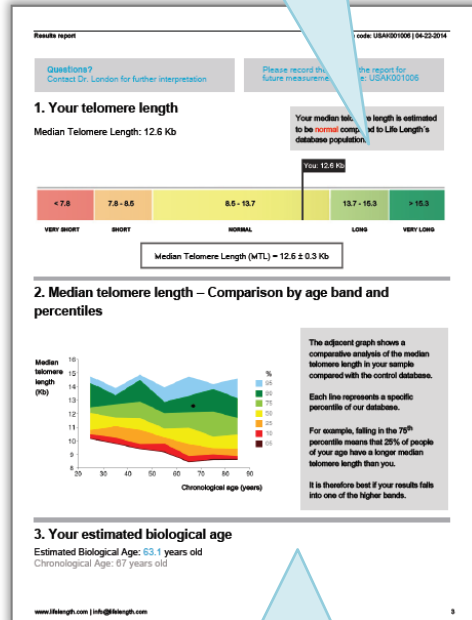


Who are Life Length's clients?

Technology	The broadest portfolio of accurate, scalable technologies to measure telomeres in the world		
Value	General health/biological indicator & biomarker	Innovative tool to test the efficacy and safety of compounds and products	
Business lines	INDIVIDUALS	CORPORATE AND INSTITUTIONS	
Clients	Clinical Analyses <i>(laboratories / hospitals)</i>	Product Development <i>(R&D departments)</i>	Scientific and Academic Research
	<ul style="list-style-type: none">• Individuals• Doctors• Clinics• Hospitals	<ul style="list-style-type: none">• Pharmaceutical / Biotech• Nutraceuticals and supplements• Skin care & cosmetics• Food and nutrition• Animal health	<ul style="list-style-type: none">• Oncology• Cardiology• CNS / Neurology• Infertility• Other diseases (Diabetes, CKD, AIDS etc.)

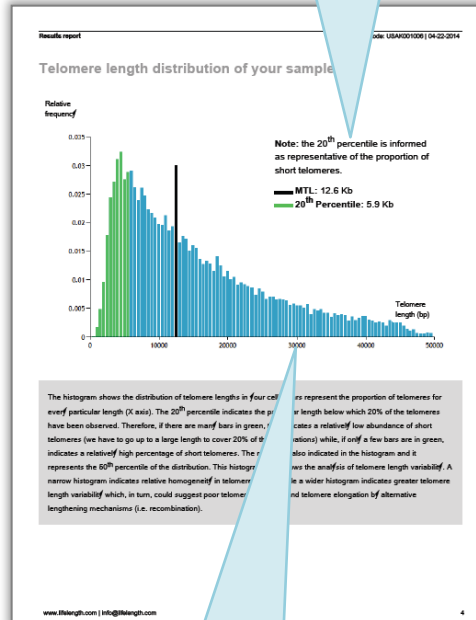
Example of telomere length analysis report - Individuals

One-page-summary results



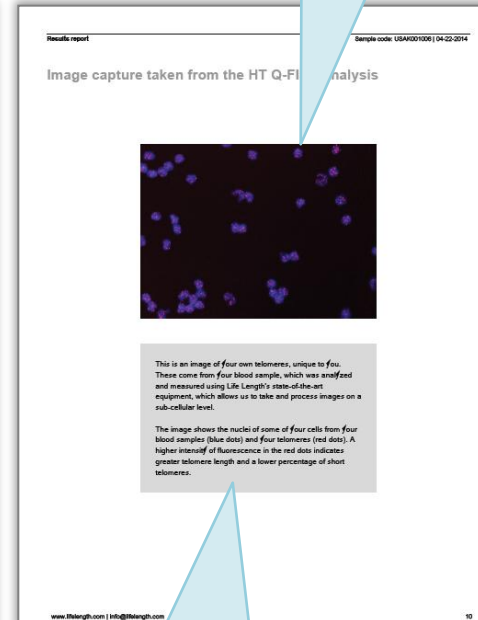
Clean-attractive format

Quantitative information



Visual information

Real image of the telomeres analyzed



Explanation text boxes for each graph

FAQs

About telomeres in general

What are chromosomes?

Chromosomes are highly condensed rods of Deoxyribonucleic Acid (DNA), the genetic material which contains the building blocks of life. DNA carries a specific code that gives instructions to our body on how to grow, develop and function. The instructions are organized into units called genes. Chromosomes serve as the storage for this important material, periodically dividing along with cells and replicating to make copies of the DNA they contain. Chromosomes are also very important in sexual reproduction, as they allow an organism to pass genetic material on to descendants. In organisms with cell nuclei, known as eukaryotes, chromosomes are found inside the nucleus. Most of these organisms have a set of chromosomes which come in pairs. In structural cells, each cell retains a complete set of chromosomes, in what is known as diploid form, referring to the fact the chromosomes contain two copies of each gene. In cells for sexual reproduction like eggs or sperm, each cell only has half of the parent organism's genetic material, stored in haploid form, ensuring that each parent passes down one copy of its genes.

What are telomeres?

Telomeres are the ends of chromosomes, which have an essential role in protecting their integrity in the process of cellular replication. One common analogy is that they are like the plastic caps at the end of shoelaces which keep the laces from unraveling. Telomeres are formed by tandem repeats of a DNA sequence, which is highly conserved (TTAGGG in vertebrates) and associated proteins (the so-called telomere-binding proteins or "shelterins"). The function of telomeres is to protect chromosome ends from chromosome fusions and degradation, therefore, ensuring the proper functionality and viability of cells.

The report contains highly valuable information for doctors and medical institutions, but is also readily understandable and insightful for the individual who takes the test

Note: Complete report is not shown here

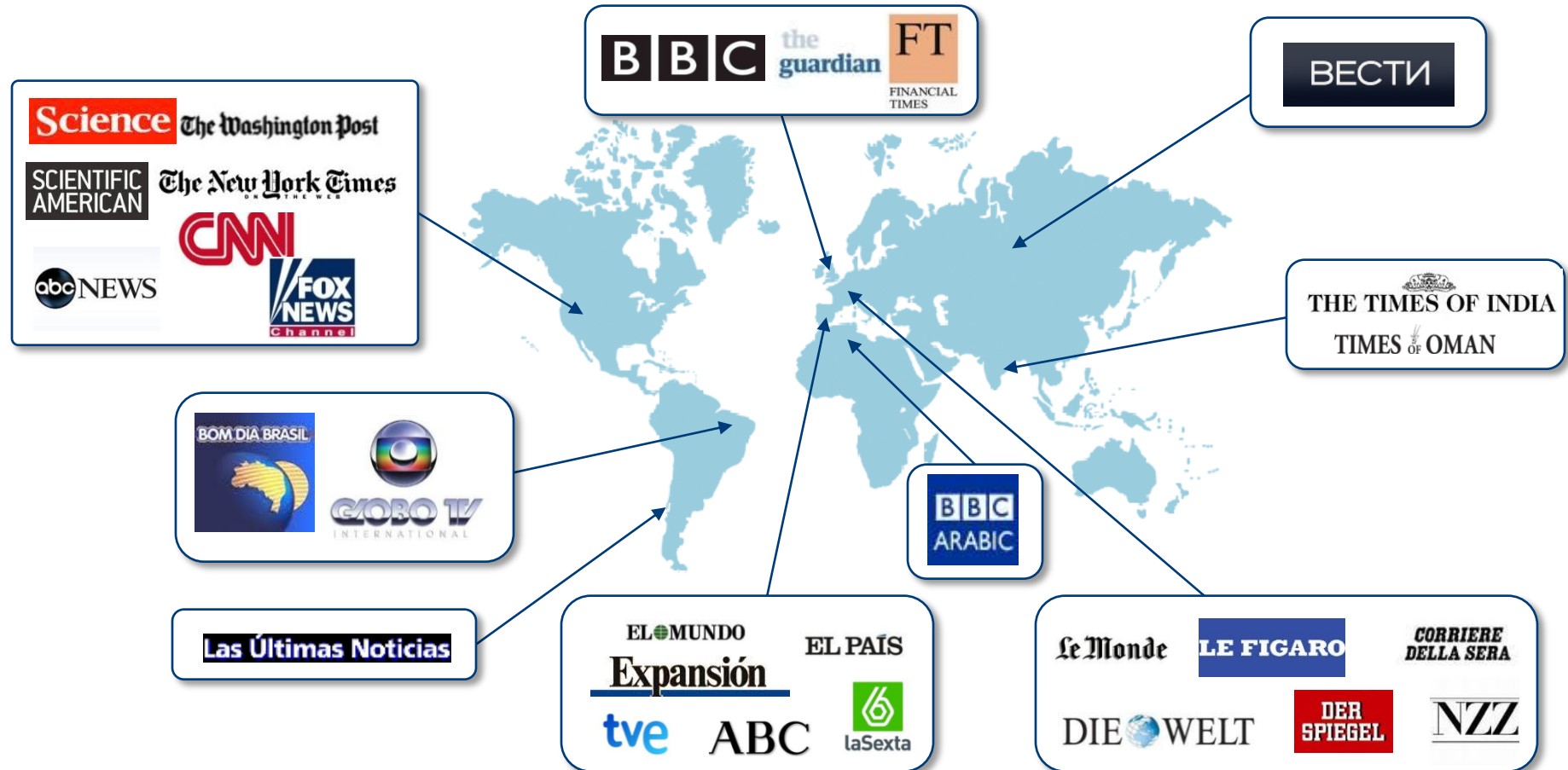
How our TAT is being used by doctors in clinical medicine

- To assess and help treat the **risk of developing heart disease** which can potentially detect CVD in advance of traditional diagnostic tests
- For **assessing cancer risk – particularly breast, ovarian/uterine, prostate, skin and certain other cancers**
- To diagnosis and help treat potential **infertility problems** in women
- For diagnosing people who may be at greater risk of **developing metabolic diseases including Diabetes Type 2**
- For assessing and to help treat the **risk of developing arthritis and osteoporosis**
- For assessing the **risk of developing CNS (Central Nervous System) diseases including dementia, Parkinson's and Alzheimer's**
- As an **indicator of overall stress and how you cope with stress**

How our TAT is being used by doctors in clinical medicine

- And as a general assessment, especially used on an annual basis, **in proactive and preventive medicine and check-ups** to follow your rate of aging and the risk of developing major age-related diseases
- And to **take appropriate steps in each case to minimize the risks of developing these diseases** and see the beneficial effects of having a healthy life-style which will contribute to help slowing the aging process therefore contribute towards longevity and health span

Life Length has achieved an unprecedented level of global recognition in the media



Life Length has been featured prominently in cover articles in many of the world's most prestigious newspapers and magazines



Life Length currently operates in 13 languages; the only diagnostic lab in the world that does so

LIFE LENGTH ДЛЯ ЧАСТНЫХ ЛИЦ



• 우리는 개개인과 세포의 노화 정도, 그리고 선천적 인구의 인구를 확인하고 비교하는 연구실, 의학 기업 및 공공 기관을 돕고 있으며, 노화 및 노화 관련 질환, 돌연이나 종양 등 여러 분야에서 가치있는 새로운 바이오 마커를 채택하도록 돕고 있습니다.

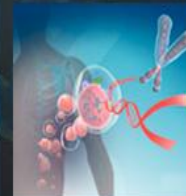


• 우리 회사는 제약 회사, 소비자 건강이나 소비자 제품을 산업의 넓은 범위에 걸쳐보다 효율적이고 건강한 제품을 테스트하고 개발하는 데 돕고 있으며, 제품 개발을 위한 완벽한 파트너입니다.



• 교육 기관 및 연구 센터에서는 자신의 라인에서 보충 분석 도구로 우리의 혁신적인 기술을 통합하여 과학적 연구를 더욱 발전시킬 수 있습니다.

قياس الحياة للعالم



اهمية القسيم طرفي (التيلومير)

التيلومير هي هياكل متخصصة في نهايات الصيغيات (الكروموسومات) التي تجميعهم في الاندماج والتدهور. وهذه الطريقة تضمن بقاء الخلية. ولكن فقدان شريط الخافض النووي، يحدث نتيجة طبيعية لتكرار الحمض النووي الطبيعي (...)

[اقرأ المزيد]

لماذا تعتبر تقنية Life Length متفوقة

Life Length هي الشركة الوحيدة القادرة على قياس التسمية المتنامية للتيلوميرات قصيرة ...

طول الحياة للأفراد تريد أن تعرف عمرك البيولوجي



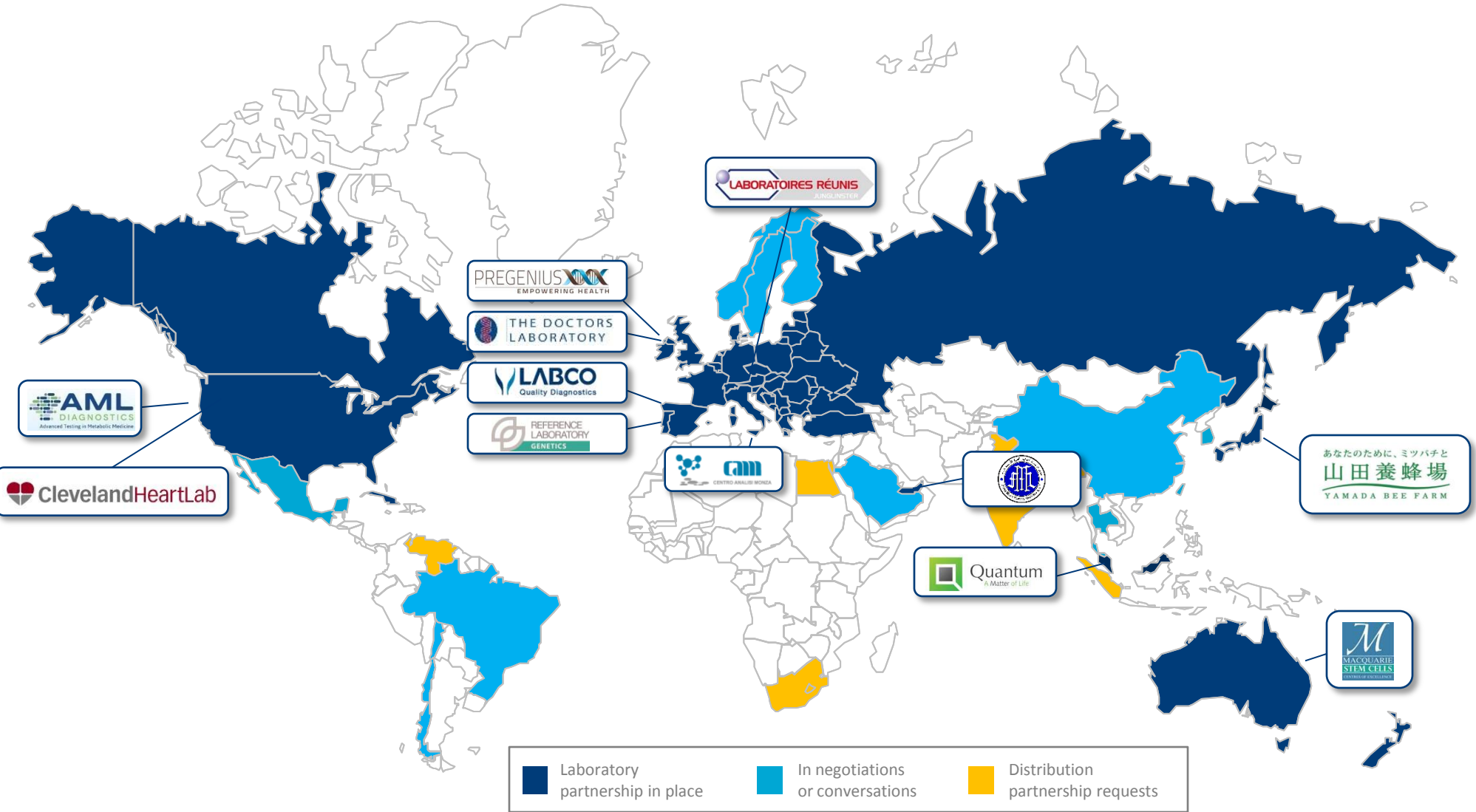
[اقرأ المزيد]

愿景



MÖCHTEN SIE IHR
BIOLOGISCHES ALTER WISSEN?

Life Length already has 13 major lab partners and is selling in more than 20 countries from the U.S. to Russia to Japan and Australia



Life Length is rapidly becoming the gold standard for clinical and academic telomere research

BRAINAGE



Environmental influences in prenatal life have a major impact on brain aging and age-associated brain disorders

EUROBATS



Study on 8,000 identical twins to identify predictors of aging

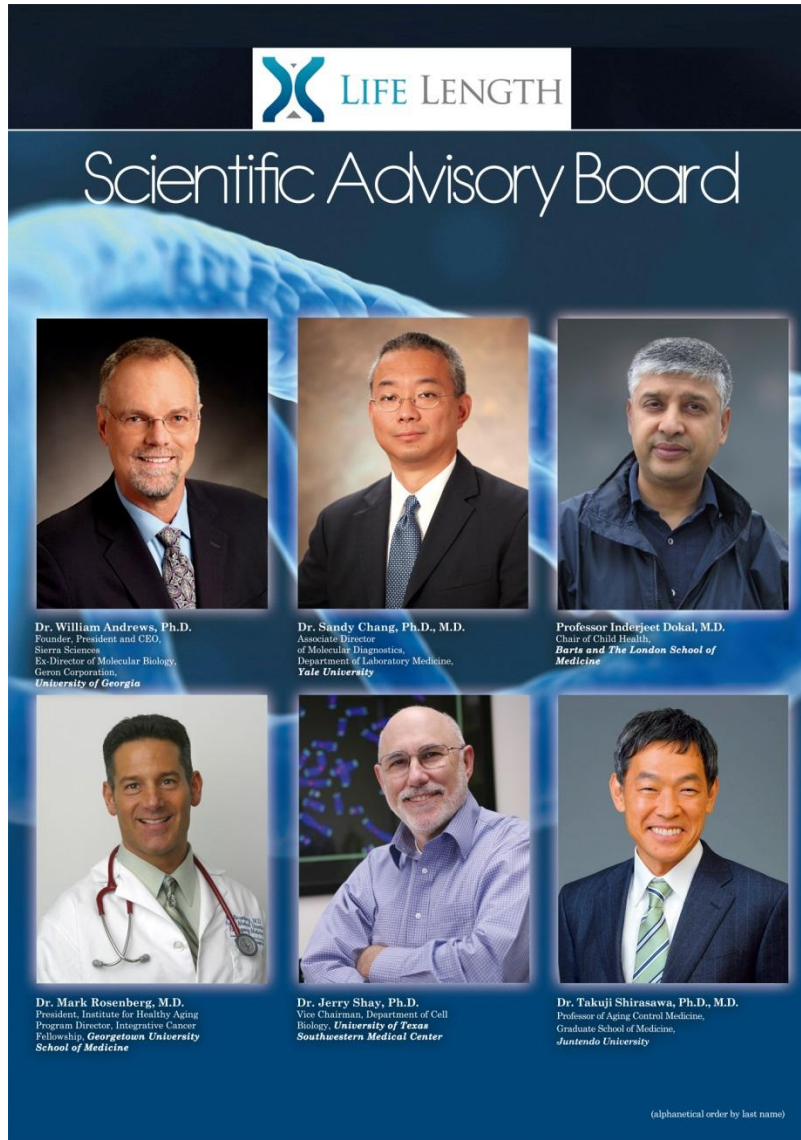
FRAILOMIC



Utility of omic-based biomarkers in characterizing older individuals at risk for frailty, its progression to disability and general consequences to health and well-being

We are also conducting numerous studies for corporate clients with nutraceutical products and which want to evaluate their impact on telomeres

Life Length has world-class Scientific Advisory Board demonstrating the quality and importance of its science and technology



The poster features the Life Length logo at the top, followed by the title "Scientific Advisory Board". Below the title are six portraits of advisors arranged in two rows of three. Each portrait is accompanied by the advisor's name, degree, and affiliation. The background of the poster is a blue, abstract, molecular-like structure.

Life LENGTH

Scientific Advisory Board

Dr. William Andrews, Ph.D.
Founder, President and CEO,
Sierra Sciences
Ex-Director of Molecular Biology,
Genm Corporation,
University of Georgia

Dr. Sandy Chang, Ph.D., M.D.
Associate Director
of Molecular Diagnostics,
Department of Laboratory Medicine,
Yale University

Professor Indrajit Dokal, M.D.
Chair of Child Health,
Barts and The London School of
Medicine

Dr. Mark Rosenberg, M.D.
President, Institute for Healthy Aging
Program Director, Integrative Cancer
Fellowship, Georgetown University
School of Medicine

Dr. Jerry Shay, Ph.D.
Vice Chairman, Department of Cell
Biology, University of Texas
Southwestern Medical Center

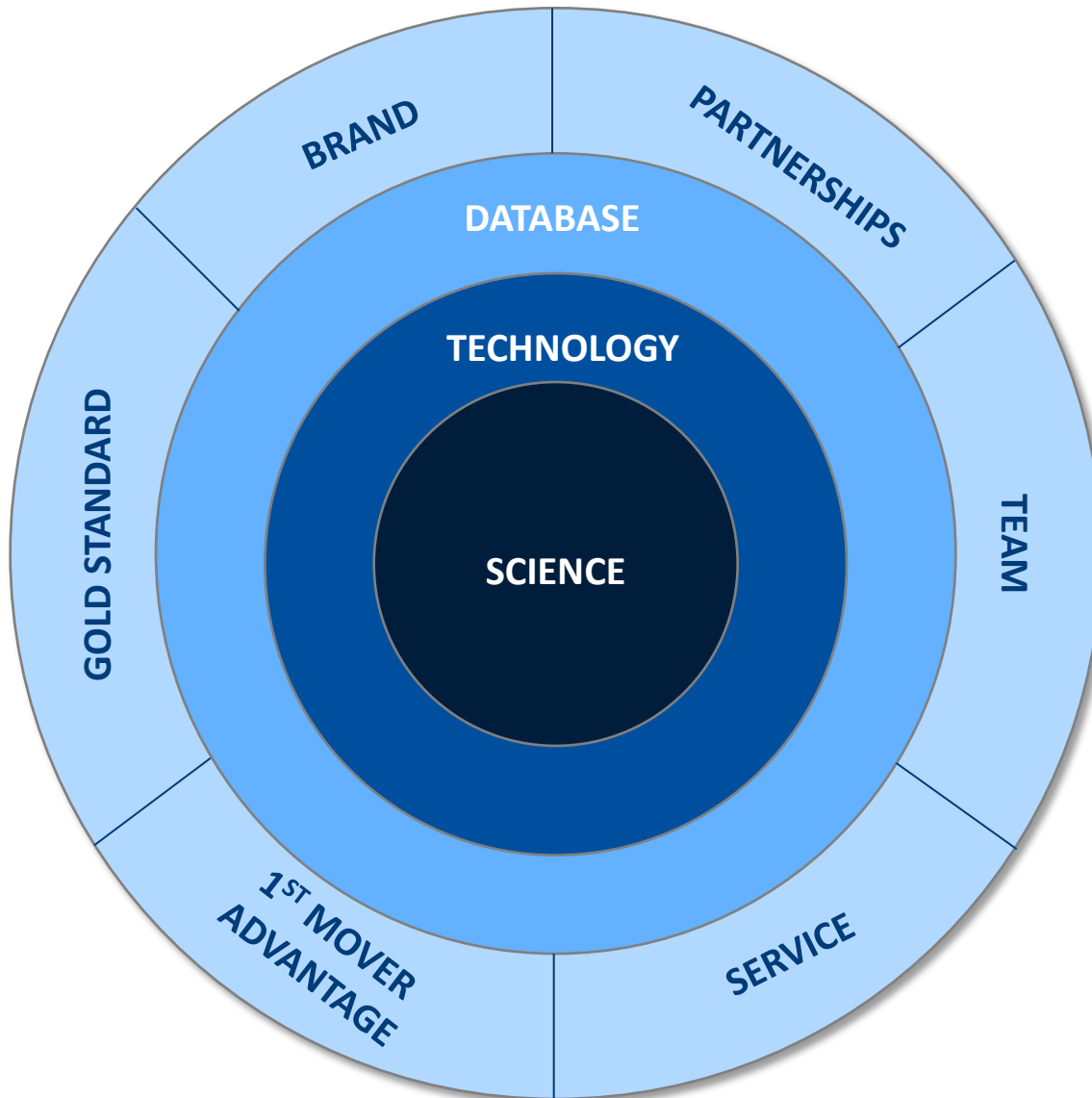
Dr. Takuji Shirasawa, Ph.D., M.D.
Professor of Aging Control Medicine,
Graduate School of Medicine,
Juntendo University

(alphabetical order by last name)

Life Length advisors
include scientists from:

- Southwestern Texas Medical Center
- Yale University
- Barts and The London School of Medicine (UK)
- Juntendo University (Japan)

Life Length has established very significant barriers to entry



Medicine continues to evolve . . .

INTERNATIONAL NEW YORK TIMES

1964 Warning on Fats, Despite FDA

NEW YORK Nix on all that steak and butter and cream pastry. Instead eat plenty of fish, vegetable oils and fruit. They're better for you. They may ward off heart attacks and strokes. That's the import of a new statement by the American Heart Association, which yesterday [June 9] urged the public to change its traditional diet, so liberally laced with animal fats. The association's position runs counter to the policy of the Food and Drug Administration. The FDA's policy, formulated by unnamed medical officers, said: "The role of cholesterol in heart and artery disease has not been established."

...and there are now more than 600 scientific and medical publications regarding telomere length and cardiovascular disease ...



BMJ 2014;349:g4227 doi: 10.1136/bmj.g4227 (Published 8 July 2014)

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RESEARCH

Leucocyte telomere length and risk of cardiovascular disease: systematic review and meta-analysis



OPEN ACCESS

And the science is now moving into commercial application . . .

BUSINESS DAY

A Genetic Entrepreneur Sets His Sights on Aging and Death

By **ANDREW POLLACK** MARCH 4, 2014

J. Craig Venter is the latest wealthy entrepreneur to think he can cheat aging and death. And he hopes to do so by resorting to his first love: sequencing genomes. On Tuesday, Dr. Venter announced that he was starting a new company, Human Longevity, **which will focus on figuring out how people can live longer and healthier lives.**

Slowing aging, if it can be done, could be a way to prevent many diseases, an alternative to treating one disease a time.

“Your age is your No. 1 risk factor for almost every disease, but it’s not a disease itself,” Dr. Venter said in an interview. Still, his company will also work on treating individual diseases of aging.

Human Longevity said it had raised **\$70 million**, most of it from wealthy individuals . . .

With resources never before invested . . .

TECH 9/03/2014 @ 2:46PM 3.671 views

Google's Calico Joins AbbVie In 'Pivotal' Partnership **To Develop Anti-Aging Drugs; to invest up to \$1.5 billion**

Google's **GOOGL** +0.13% Calico biotech company is ready to begin battling age-related diseases — and ready to profit from its drugs and therapies, too. Calico (“California Longevity Company”), the independent company led by Genentech chairman Art Levinson in which Google is the main investor, said Wednesday it will join forces with North Chicago-based pharmaceutical company AbbVie to bolster the visions of Calico, **which seeks to improve human health and longevity . . .**

We hope that Life Length's unique technology will form part of this future to help us live longer, healthier lives.



TELOMERE
ANALYSIS
TECHNOLOGY™

Collection Kit

Know your risk™ *for chronic disease*



Know your risk.

www.clevelandheartlab.com

in partnership with



www.lifelength.com

Datos de Contacto.

Si estas interesado en colaborar con Life Length o conocer su edad biológica y como envejecer de forma más sana y lenta, por favor, contáctanos:

Por correo: info@lifelength.com

Telefono: 91 737 1298

c/ Miguel Ángel, 11 – 2º

Madrid 28010

www.lifelength.com

Muchas gracias por vuestra atención.



LIFE LENGTH

www.lifelength.com