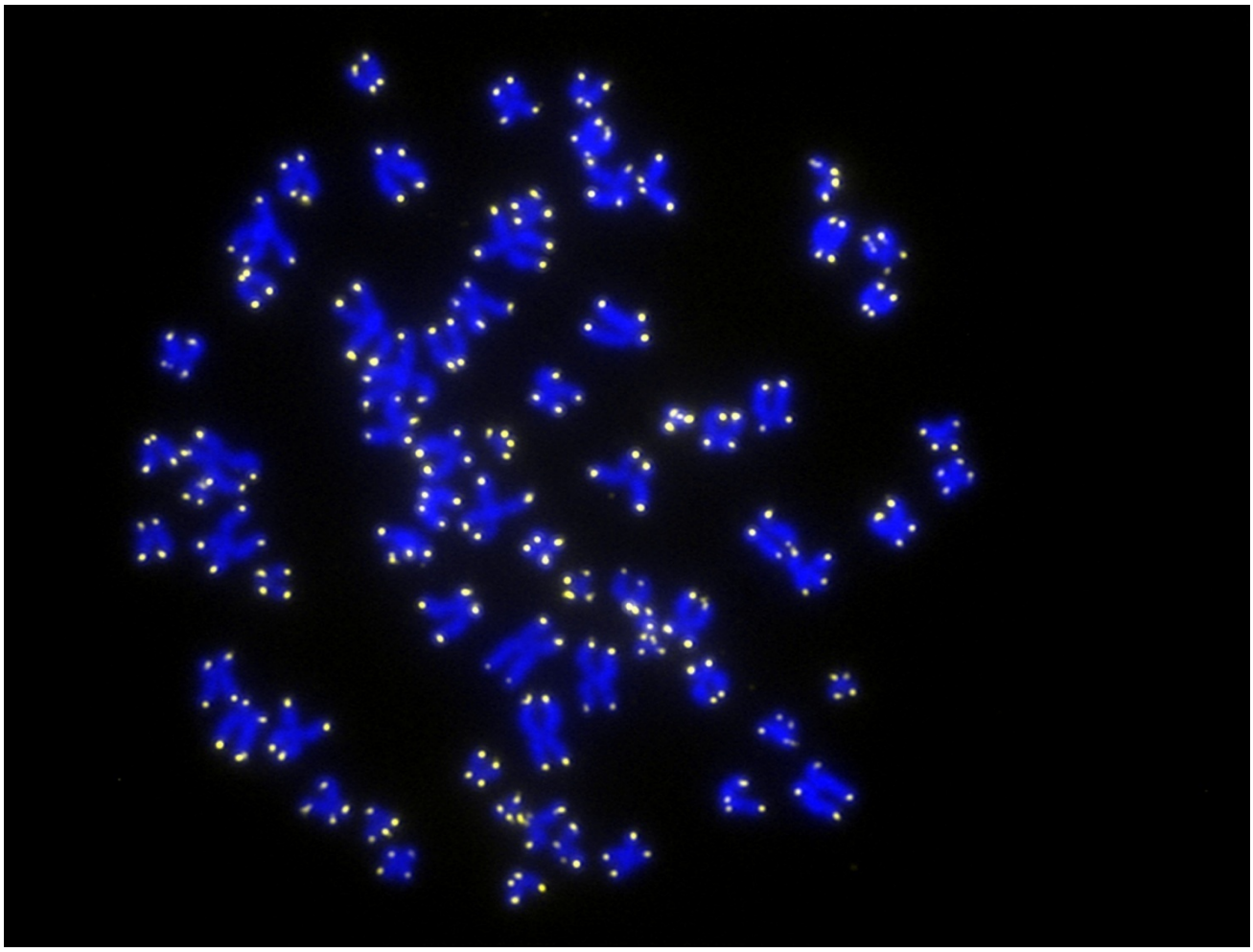


Human telomeres are the fluorescent tips at the end of the blue chromosomes.

Photo: Courtesy of **Life Length**.

Life Length is a new company founded in September 2010 with the objective of commercializing the Telomere Analysis Technology (TAT) developed by Dr. Maria Blasco at the Spanish National Cancer Research Centre (CNIO).

Life Length has been founded by Dr. María Blasco, Matlin Associates and the Botín Foundation, Spain's leading private foundation in terms of both investment and the far-reaching impact of its programs in support of technology transfer in life sciences which it has been supporting for many years. For more information about the Botín Foundation, please click: www.fundacionbotin.org.

This technology comprises different established protocols that allow the determination of telomere length at the individual level, both from cellular (blood) and tissue samples. **Life Length** has entered into an exclusive license agreement with the CNIO and is the first company in the world able to offer these services. Dr. Maria Blasco is the Chief Scientific Advisor of **Life Length**.

Our vision is to be the world's leader service provider in telomere length assessment related to health status and diseases.

Life Length's Telomere Analysis Technology (TAT) is the most valuable, versatile and scalable technology in the market. While some companies offer mean telomere length analyses, **Life Length** is the only company in the world able to offer a highly scalable technology to measure percentage of short telomeres in individual cells from both blood and tissue samples, which is the relevant indicator of telomere dysfunction and cellular aging.

- Assessment Value: **Life Length** is the only company in the world able to measure percentage of short telomeres in individual cells, which is the relevant indicator of cellular aging, rather than mean telomere length more info
- Versatility: **Life Length** is the only company in the world able to measure telomeres from both blood and tissue samples more info
- Scalability: **Life Length** offers a highly scalable technology that allows multiple sample processing in a short period of time more info

Life Length is the world leader service provider in telomere length assessment related to aging and diseases, and currently offers three lines of service: diagnostics, product development and research.

- Clinical Evaluation: Clinical evaluation services provided by **Life Length** help laboratories, medical companies and public institutions to determine and compare the degree of aging of individuals, cells, and selected human populations and to adopt new valuable biomarkers in several fields such as aging and age-related diseases, infertility or oncology.
- Product Development: **Life Length** is the perfect partner for product development, helping companies to test and develop more efficient and healthier products in a wide range of industries such as pharma, consumer health and consumer products.

- Research: Academic institutions and research centers can boost their scientific studies by incorporating **Life Length's** innovative technology as a technical tool within their lines of investigation.

FAQ

What are telomeres?

Telomeres are the ends of chromosomes, which have an essential role in protecting their integrity. They are analogous to the plastic caps at the end of shoe laces which keep the laces from unraveling.

Telomeres are formed by tandem repeats of a DNA sequence, which is conserved throughout evolution (TTAGGG in vertebrates) and associated proteins (the so-called telomere-binding proteins or "shelterins"). The function of telomeres is to protect chromosome ends from DNA repair and degradation activities, therefore, ensuring the proper functionality and viability of cells.

What is telomerase?

Telomerase is an enzyme which is able to maintain telomeres and repair short telomeres by re-elongating them. To this end, telomerase add telomeric repeats de novo to the chromosome ends. In non-pathological conditions telomerase is expressed associated to pluripotency (early stages of embryo development), as well as in certain adult stem cell compartments. Telomerase is also highly expressed in pathological conditions, such as cancer, where it sustains the immortal growth of cancer cells. Healthy cells usually produce little or no telomerase and, as a consequence of this, they progressively shorten their telomeres associated to successive cycles of cell division, until they reach a critically short length which triggers cell death or an irreversible cell arrest known as replicative senescence (also known as the Hayflick limit).

Why are telomeres important?

The length of telomeres at a given age is one of the best molecular markers of the degree of aging of an organism and therefore can be used to estimate the biological age of an organism. Telomeres are progressively eroded with increasing organismal age as the consequence of cumulative cycles of cell division to regenerate tissues. This occurs both in differentiated cells as well as in the stem cell compartments, and has been demonstrated to impair the ability of stem cells to regenerate tissues when needed. There is strong genetic evidence from genetically modified mouse models that demonstrates that accumulation of critically short telomeres is sufficient to cause organismal aging and that interventions that decrease the rate of telomere shortening with age, such as forced expression of the telomere-synthetizing enzyme telomerase, is also sufficient to delay aging and increase longevity.

Thus, therapeutic strategies based on telomerase activation are envisioned as

potentially important for the treatment or cure of age-related diseases.

Telomeres and telomerase are also relevant for cancer biology. More than 95% of all types of tumors activate telomerase during their formation in order to achieve immortality. Telomerase is, therefore, considered necessary to sustain cancer growth. Therapies aimed to inhibit telomerase activity are currently tested in clinical trials of various types of human tumors.

What is the difference between average telomere length and short telomeres and why is this important?

Telomere length is heterogeneous within a single cell nucleus, so that each chromosome end has a different length of telomeric repeats (there are 4 telomeres per chromosome and 23 pairs of chromosomes per cell). Average telomere length is the mean length of all telomeres considered together, usually within a population of cells (not even per individual cell). However, scientific evidence shows that it is the short telomeres that are responsible for causing aging and disease. This is because critically short telomeres inflict permanent and deleterious damage to the cell, unless they are repaired by telomerase. Therefore, to be able to evaluate whether telomeres are prematurely short for a given chronological age is necessary to use techniques that allow quantification of the abundance of short telomeres. Just measuring average telomere length of a population of cells is not sufficient to “diagnose” premature telomere shortening. The technology commercialized by Life Length is based on its ability to measure the percentage of critically short telomeres.

What is the relationship between biological age and chronological age that we can learn from our telomeres?

Not all individuals age at the same speed even though they may have the same chronological age. Therefore, it is important to have molecular markers (other than chronological age) that can estimate the degree of aging of an organism. This information may be useful to anticipate premature development of certain age-related diseases and to try to minimize this risk with a change life style (obesity, smoking have been shown to lead to accelerated telomere loss), to follow more closely our telomere dynamics over the years, or to benefit from potential telomere activators. Mounting evidence suggests that the length of telomeres is a good indicator of the degree of aging of an organism

Why do I need to know my biological age?

First, it is an excellent indicator of overall general health. Second, by knowing our biological age, it permits us to obtain a better understanding of the life-style habits that impact aging and affords us the opportunity to make appropriate changes. Third, as physicians and the medical community become more comfortable with Life Length’s telomere testing, it will allow for more personalized medicine as doctors treat patients increasingly taking into consideration their biological age.

Key People at Life Length

María Blasco, Ph.D. Chief Scientific Advisor

Dr. María Blasco is the Director of the Molecular Oncology Programme and Leader of the Telomeres and Telomerase Group at the Spanish National Cancer Research Centre in Madrid. Her research in telomeres and telomerase began at Cold Spring Harbor Laboratory (New York) where she joined C.W. Greider (Nobel Prize 2009) as a Postdoctoral Fellow. Back in Spain, first at the Spanish National Biotechnology Centre and then at the Spanish National Cancer Research Centre, Dr. Blasco's research team continued to make key contributions to the telomere and telomerase field, including first demonstration of the ant-aging activity of telomerase, the discovery of telomeric RNA's and the importance of telomerase activity and telomere rejuvenation during nuclear reprogramming.

Dr. Blasco's team has also made important technological advances by developing highly sensitive high throughput techniques to measure telomere length as well as the presence of very short telomeres in blood samples and tissue samples.

Dr. Blasco has received the Swiss Bridge Award for Research in Cancer, the Josef Steiner Cancer Research Award, the EMBO Gold Medal, the Carmen and Severo Ochoa Foundation Award for Molecular Biology, the Rey Jaime I Basic Research Award, the Körber European Science Award,the Alberto Sols Award in Biomedical Research, and the National Award on Biology "Ramon y Cajal". She serves on the Editorial Board of several scientific journals and has been an elected EMBO Member since 2000 and a Member of the Academia Europaea since 2006. She was appointed to EMBO Council in 2008. Dr. Maria A. Blasco has authored more than 130 original papers and made major contributions to the field of telomeres and telomerase and the role they play in ageing, cancer and stem cell biology

Jerry Shay, Ph.D. Scientific Advisor

Dr. Jerry W. Shay is the Vice Chairman of the Department of Cell Biology at The University of Texas Southwestern Medical Center in Dallas, Associate Director of the Harold Simmon's Comprehensive Cancer Center, and holds the Southland Corporation Distinguished Chair in Aging and Cancer Research. He is also the Director of the Cancer Biology Graduate Program. Throughout his career, Dr. Shay has been interested in the relationships between aging and cancer. His seminal work on the relationships of telomerase to aging and cancer has received much international recognition. He received the AlliedSignal Award, the American Association of Aging Hayflick Award, and the Ted Nash Foundation Award. Dr. Shay was also named an Ellison Medical Foundation Senior Scholar. Dr. Shay was placed in the Institute for Scientific Investigations as one of the most highly cited scientists in the field of "Molecular Biology and Genetics". Science Watch placed Dr. Shay into the Doctors of the Decade list and he was ranked as one the most cited authors in the area of General Biomedicine.

Stephen J. Matlin, Chief Executive Officer

Stephen Matlin is Chief Executive Officer of Life Length. Mr. Matlin brings over twenty years experience as a senior executive, investment banker and entrepreneur to the Company. Mr. Matlin is the founder and Managing Partner of the corporate finance and strategy consultancy firm, Matlin Associates, which acted as the advisor in all of the work prior to creation of Life Length on behalf of the other shareholders, the Botín Foundation and Dr. Blasco.

Prior to starting Matlin Associates, Mr. Matlin worked in investment banking on Wall Street with Lehman Brothers and Rothschild, in strategy consultancy and as an entrepreneur and senior executive in the hospitality industry. Mr. Matlin is a graduate of the Harvard Business School where he obtained his MBA with honors and holds an undergraduate degree, cum laude with honors, from Dartmouth College.

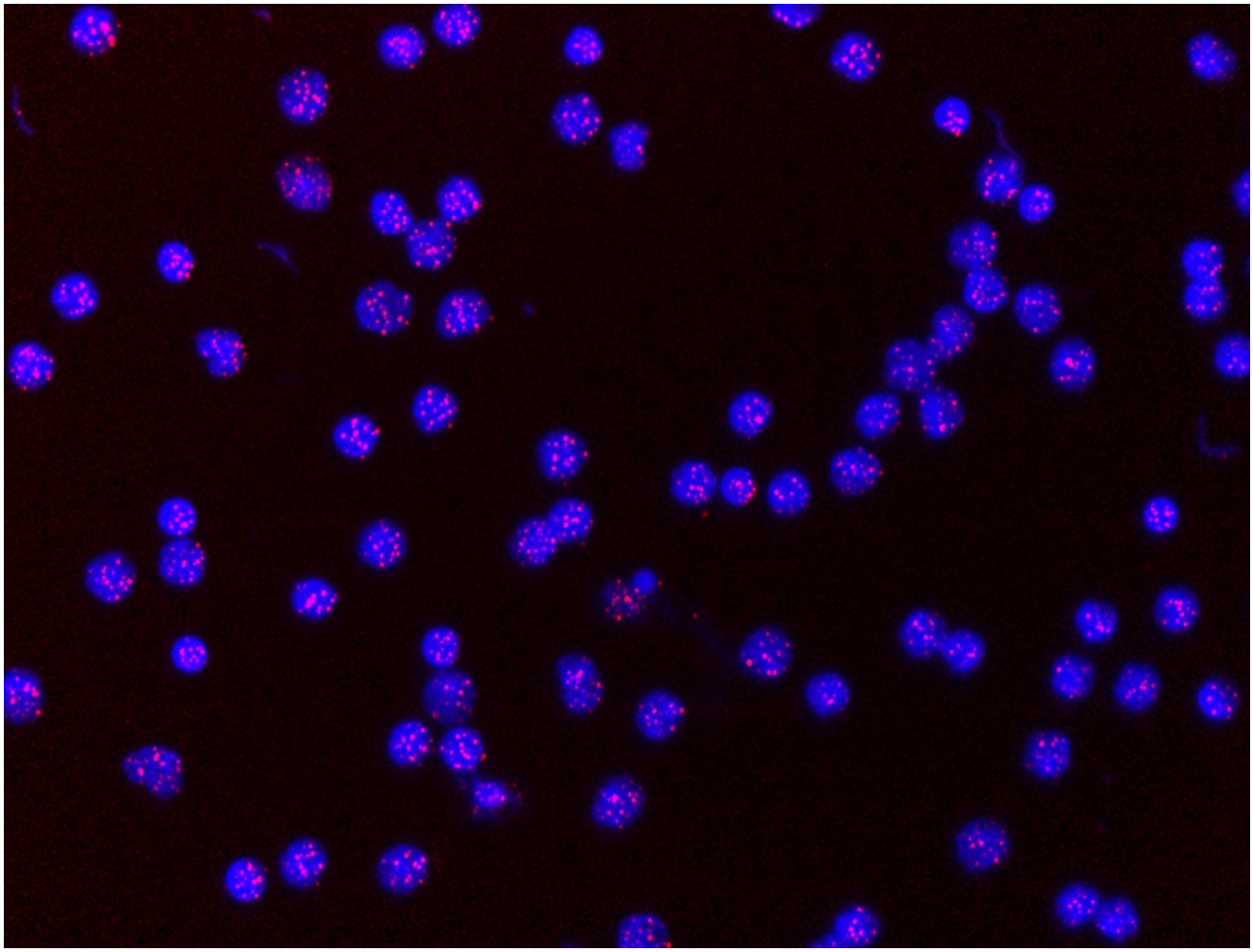
*****

Life Length, S.L.: www.lifelength.com

For more information: **Jaime de Piniés,** Piniés & Aguilar Asociados
+ 34.91.183.2101; jdepinies@pinies-aguilar.com

Select Print and Internet Media Coverage:

Date	Media	Title	Country
May, 2011	The Washington Post	Telomere test could predict how long you'll live	USA
May, 2011	Le Figaro	Un test sanguin pour savoir si l'on vieillit trop vite	France
May, 2011	The Sun	DNA test will guess life length	UK
May, 2011	The Independent	The £400 test that tells you how long you'll live	UK
May, 2011	Corriere della Sera	Il test del sangue dirà quanto invecchiate	Italia
May, 2011	Spiegel	Gute Geschäfte mit den "Zündschnüren des Todes	Germany
May, 2011	Expansión	Podemos crear organismos que no envejezcan, pero no serán inmortales	Spain
May, 2011	New York Times	A Blood Test Offers Clues to Longevity	USA
Apr, 2011	El Mundo	El test del envejecimiento	Spain
Apr, 2011	La Opinión A Coruña	El gran secreto por solo 500 euros	Spain
Apr, 2011	Pharma Market	Medir la longitud de los telómeros se puede utilizar como una manera de probar la efectividad de determinados fármacos	Spain
Apr, 2011	Science	Are Telomere Tests Ready for Prime Time?	USA
Apr, 2011	Scientific American	My, What Long Telomeres You Have	USA
Mar, 2011	Nature Reviews	Telomeric and extra-telomeric roles for telomerase and the telomerebinding proteins	USA
Feb, 2011	JBC	María Blasco: Keeping a cap on cancer and aging	USA
Feb, 2011	Diario Médico	Life Length, ejemplo traslacional en la medición de los telómeros	Spain
Feb, 2011	ABC	Longevidad: cómo medir la edad real	Spain
Nov, 2008	Cell	Telomerase reverse transcriptase delays aging in cancer-resistant mice	USA
Apr, 2008	Korber-Stiftung	Korber award goes to María Blasco	Germany



Human telomeres are the fluorescent tips at the end of the blue chromosomes.

Photo: Courtesy of **Life Length**.