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The search for eternal life



Photography by Alessandro Gandolfi

parallelzero



“In the twenty-first century,” writes Yuval Noah Harari in *Homo Deus*, “humans are likely to make a serious bid for immortality [...] A small but growing number of scientists and intellectuals have posited that the most important challenge facing modern science is to overcome death and achieve the promise of eternal youth”.

Can man really become immortal? Few truly believe it, and so research has focused instead on cryo-conservation, man-machine hybridisation and mind downloads. The majority of scientists agree, however, that average life spans will extend to up to 120 years of age and that our health will improve considerably, thanks in particular to the enormous progress being made in the sectors of bioengineering, nanomedicine, genetics and artificial intelligence.

Research into longevity has already become a billion-dollar business.



Ancona, Italy

A woman is trying Hocatt, a cabin that combines ozone, oxygen and carbon dioxide and is capable – according to its manufacturer – of slowing down the signs of aging. The cabin is inside the “RNA (Room No Ageing)” designed by HSign and Andrea Rosettani.



Sunnyvale, USA

Scientists from Rubedo Life Science at work. Rubedo is a company set up with the goal of combatting aging by eliminating senescent cells from human tissue.



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), newborn mice for experiments. The FLI is the first German institute dedicated to biomedical and genetic research in the field of longevity.



Moscow, Russia

Biochemist and transhumanist Aubrey de Grey, co-founder of SENS (Strategies for Engineered Negligible Senescence), a foundation that researches therapies capable of treating the aging process.



London, England

Dr Tapan Patel, director of the PHI Clinic, prepares to inject a patient with hyaluronic acid. The PHI is one of the most exclusive cosmetic clinics in the United Kingdom: it is here that affluent British women come to try and combat the signs of aging.



Segrate, Italy

A 3D printout of a skull created by biomedical engineering company Skorpion Medical. 3D printing is particularly useful for creating orthopaedic and orthodontic implants, for the three-dimensional reconstruction of skeletal structures and for duplicating anatomical structures.



New York, USA

The offices of Elysium Health, an anti-aging firm that produces and distributes Basis, a pill that contains particular proteins intended to boost longevity. Creator of the pill is Leonard Guarente, company partner and professor at MIT.



New York, USA

A jar of Basis "anti-aging" pills. The active ingredients are (Nicotinamide Riboside) and Pterostilbene (an antioxidant found in cranberries).



Okinawa, Giappone

Makoto Suzuki, director of the Okinawa Research Center for Longevity Science. Professor Suzuki was among the first to study the one of the world's most important Blue Zones, the island of Okinawa in Japan.



Ogimi, Japan

In the Gulf of Shioya, on the island of Okinawa, during the Ungami Festival the men go out in boats for the ritual of giving thanks to the Sea God. Ogimi is known as the "village of longevity" due the large proportion of centenarians that live there.



Novato, USA

The Buck Institute for Research on Aging, researcher Kenny Wilson observes fruit flies used to study the mechanisms of aging and metabolism.



Tsukuba, Japan

Hal, a therapeutic exoskeleton by the company Cyberdyne. Hal Therapy provides “medical treatment for the functional improvement of patients with cerebral and muscular problems as well as those of the nervous system – including spinal lesions – and cerebral embolisms”.



Moscow, Russia

Alexey Samykin, one of the coordinators of the transhumanist movement in the capital, in front of a cryo-conservation container for bodies at the premises of one of the Russian company KrioRus's two facilities near Moscow.



Silicon Valley, USA

View of Silicon Valley, the location that boasts the world's highest concentration of biotech companies and start-ups dedicated to fighting aging in order to achieve the age-old dream of discovering the source of eternal youth.



Tokyo, Japan

A cryo-sauna at the Cryomed Clinic. The so-called “cold therapy” transforms liquid nitrogen into a cloud of cold air, enabling the acceleration of the metabolism, strengthening of the immune system and a slowing down of tissue aging.



Tokyo, Japan

University of Tokyo, JSK – Jouhou System Kougaku Laboratory: a student at work on Kengoro, the most advanced humanoid robot in existence (centre).



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), eggs of the turquoise killifish (*Nothobranchius furzeri*). This small African freshwater fish, which has an average lifespan no longer than a few months, is often the subject of longevity studies.



Stockport, England,

Lab technician Steve Hoyland in the room storing the DNA samples of more than 500 thousand volunteers at the UK Biobank, the largest and oldest biological archive of its kind in the United Kingdom. The Biobank is involved in research into the relationship between the development of diseases and genetic predisposition.



Stockport, England

At the UK Biobank, an anonymous donor undergoes checks before providing a DNA sample. The UK Biobank is the largest and oldest biological archive of its kind in the United Kingdom.



San Francisco, USA

Laura Deming is the Head of the Longevity Fund, a 37 million-dollar investment fund that invests in companies that “enable us to live longer and in better health”. Laura was nominated one of Forbes magazine’s “30 under 30” in 2015.



London, England

Artificial eyes from the beginning of the twentieth century on display at the Science Museum. During the First World War around 22 thousand similar prosthetics were supplied to British hospitals.



Berlin, Germany

Gemäldegalerie: a girl looks at the celebrated painting *The Fountain of Youth* (1546) by Lucas Cranach the Elder. During the medieval and classical periods there was a widely held view that bathing in some special springs could endow the power to remain young.



Novato, USA

At the Buck Institute for Research on Aging, fruit flies, which are often used in the study of longevity and metabolism, are stored.



San Francisco, USA

Elderly ladies exercise at the San Francisco Senior Center. Together with diet, regular physical activity is considered by experts to be an indispensable ingredient for a healthy and long life.



Tokyo, Japan

Miraikan, The National Museum of Emerging Science and Innovation: a close-up of Alter, a robot on display at the museum. Some believe that in the future, it will be possible to completely “download” our minds into humanoids similar to this one, and therefore, by overcoming the physical limits imposed by the human body, it will be possible to live forever.



Tokyo, Japan

Miraikan, The National Museum of Emerging Science and Innovation: ASIMO (acronym of Advanced Step in Innovative MObility) a display for the public.



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), the rooms where laboratory mice are stored. The FLI is the first German institute dedicated to biomedical and genetic research in the field of longevity.



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), working with planaria, a type of flatworm with a reproductive system that is often studied, as it is capable of regenerating a new individual from a small fragment (up to 1/279th) of its own body. The FLI is the first German institute dedicated to biomedical and genetic research in the field of longevity.



Novato, USA

Judith Campisi, bio-gerontologist at the Buck Institute and doyen of longevity studies, she is known for her research into how senescent cells influence ageing and tumours.

Novato, USA

The Buck Institute for Research on Aging is a biomedical research institute that studies aging and age-related diseases.



Milan, Italy

Spazio Ventura XV at the Real Bodies exhibition, a section dedicated to cryo-conservation: a simulation of a body inside one of the cryocontainers of the Russian company KrioRus.



San Francisco, USA

The laboratories of Calico, acronym for California Life Company, a biotech company belonging to Google with that aim of combatting aging and age-related diseases.



Moscow, Russia

An X-ray of a hand that has a microchip implanted: one of the first forms of man-machine hybridisation and, according to the transhumanist movement, a step towards achieving immortality.



Ogimi, Japan

100-year-old Haru Miyagi at home in Ogimi, on the island of Okinawa. Haru lives alone, she has a son who works in Tokyo and she is a widow. Her husband died during the Second World War. In Japan Ogimi is known as the “village of longevity” for its high percentage of centenarians.



Ogimi, Japan

Chouju-zen, a longevity dish. In Japan Ogimi is known as the “village of longevity” for its high percentage of centenarians.



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), the laboratories conserving examples of turquoise killifish (*Nothobranchius furzeri*). The average lifespan of this small African freshwater fish is just a few months and it is often the subject of longevity studies.



Jena, Germany

Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), zebrafish (*Danio rerio*), small freshwater fish with an extremely high regenerative capacity and a genome very similar to that of humans: for this reason is the subject of longevity studies. The FLI is the first German institute dedicated to biomedical and genetic research in the field of longevity.



San Mateo, USA

Part-time partner at the startup accelerator Y Combinator, businessman and scientist Joe Betts-Lacroix is co-founder and technical director of Vium, a digital platform for translational medical research into the development of new pharmaceutical products.

Segrate, Italy

A 3D printout of a hand made by the biomedical engineering company Skorpion Medical. 3D printing is particularly useful for creating orthopaedic and orthodontic implants, the three dimensional reconstruction of skeleton structures and for duplicating anatomical structures.



Stockport, England

DNA samples conserved at the UK Biobank, the largest (with more than 500 thousand donors) and oldest biological archive of its kind in the United Kingdom. It also carries out research into the relationship between the development of diseases and genetic predisposition.



London, England

At the Science Museum a man visits the section "Who am I", dedicated to how new technologies are changing science (and longevity).



Pieve Emanuele, Italy

Two medical students at the Simulation Lab with a robot-patient created by Humanitas University: an extremely realistic scenario but one with zero risks, enabling the students to train for every type of emergency.



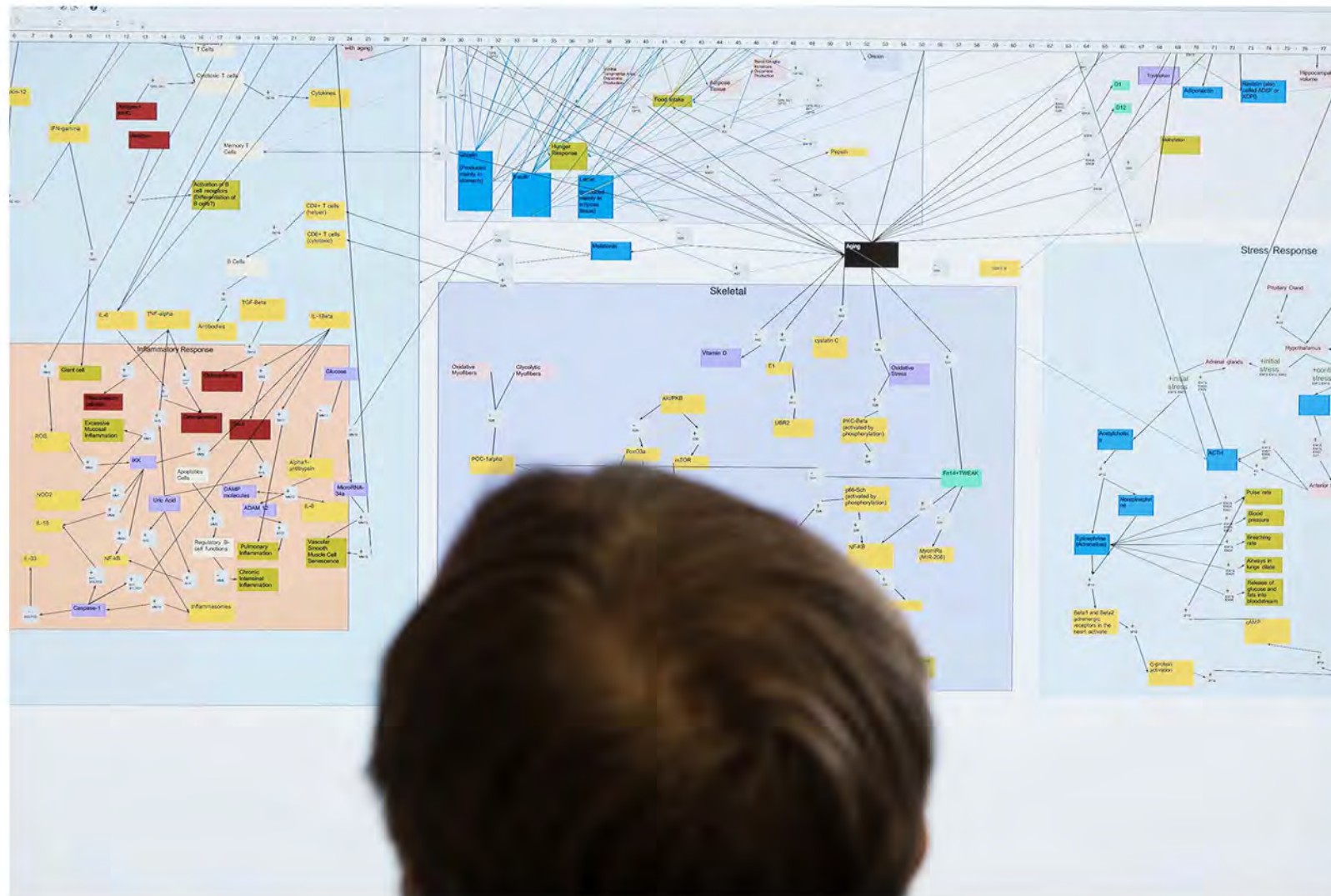
Milan, Italy

Spazio Ventura XV, at the Real Bodies Exhibition, a section dedicated to the ancient Egyptian process of embalming bodies.



San Leandro, USA

A bag of Hydroxyethyl starch, used in the preparation of corpses at the premises of Trans Time Inc., a cryo-conservation company.



Berkeley, USA

University of California: Steven A. Garan, Director of Bioinformatics at the Center for Research & Education on Aging (CREA), studies a complex diagram relating to longevity.

Tokyo, Japan

Miraikan, The National Museum of Emerging Science and Innovation: Otonaroid, an android robot on display at the museum. Some believe that in the future it will be possible to “download” our minds to a humanoid such as this and, therefore, overcome the physical limits imposed by the human body, and potentially live forever.



Milan, Italy

At the European Institute of Oncology, urologist Ottavio De Cobelli uses the “Da Vinci” surgical robot system, to perform an operation remotely.



Rome, Italy

Palazzo delle Esposizioni, at the Human+ exhibition curated by the Science Gallery Dublin, on display is Leonardo sogna le nuvole (2014), a kinetic sculpture by Donato Piccolo (Gallerie Mazzoli) that reproduces the face of Leonardo da Vinci's Guerriero.



Milan, Italy

Spazio Ventura XV, two plastinated bodies at the Real Bodies Exhibition. The process of plastination, invented by German anatomist Gunther von Hagens, enables the conservation of the human body through the replacement of the liquids with silicon polymers.



London, England

British Museum, a mummified man from the Roman period (after 30 A.D). In ancient Egypt death was not represented as the end of life but as a transitional phase, aided by particular rituals, towards eternal life.



Moscow, Russia

The metaphorical gateway to eternity: the entrance to the storage facility of the company KrioRus, where bodies are cryo-conserved.

The scientists who cry immortality are like the boy who cried wolf: sooner or later, the wolf actually comes. Hence even if we don't achieve immortality in our lifetime, the war against death is still likely to be the flagship project of the coming century.

Yuval Noah Harari, Homo Deus

p a r a l l e l o z e r o

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