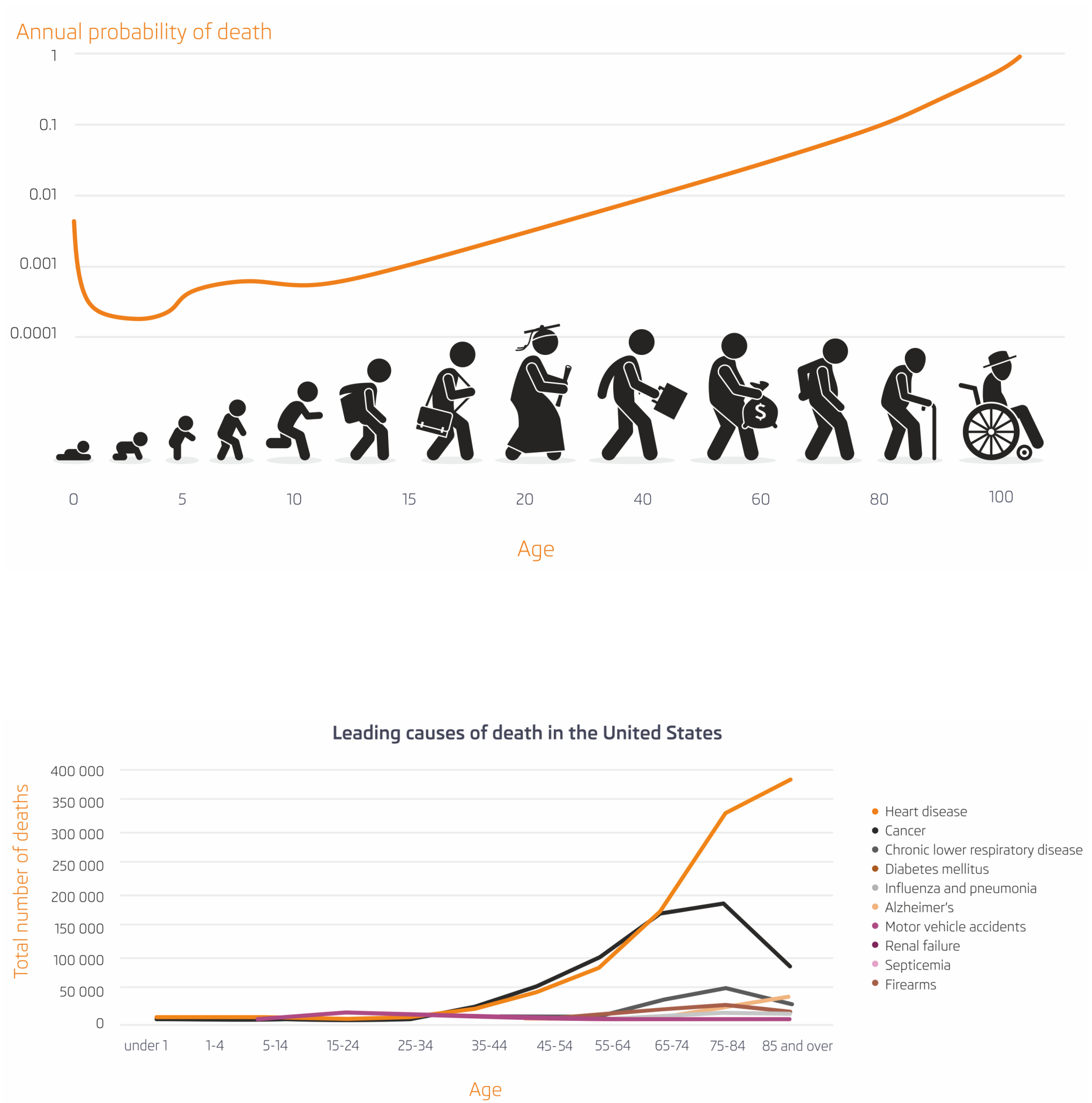


The Problem: Aging

Biological aging causes our mortality risk to increase exponentially with age. It is also the reason why our chances of developing cancer or heart disease skyrocket after age 45.



While science does not yet fully know how to stop or

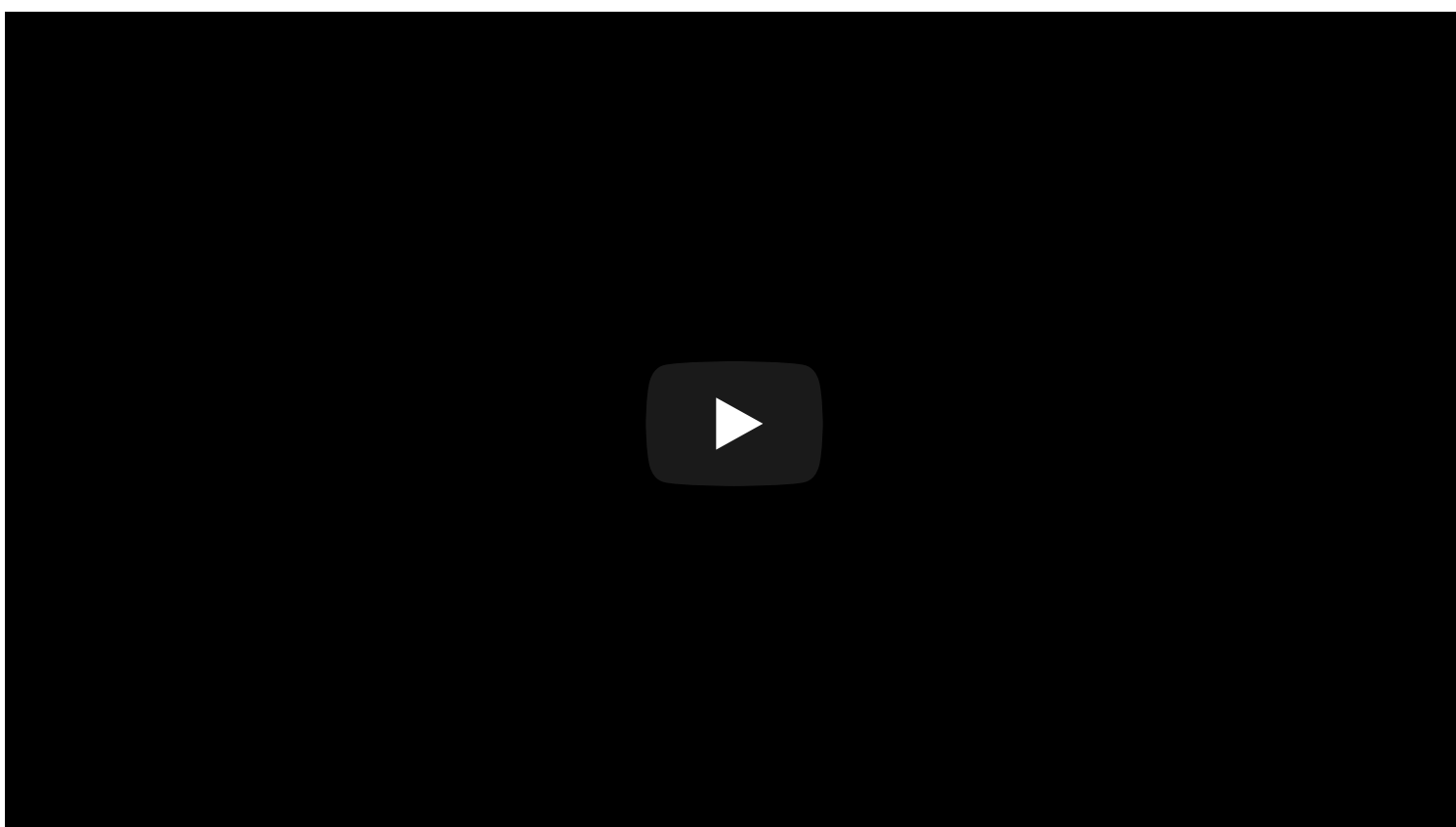
reverse aging, recent developments in the field of epigenetic reprogramming hold great promise as rejuvenating therapies.

Such therapies could provide decades of life extension, and that is why we are embarking on a journey to translate them from the lab to the clinic.

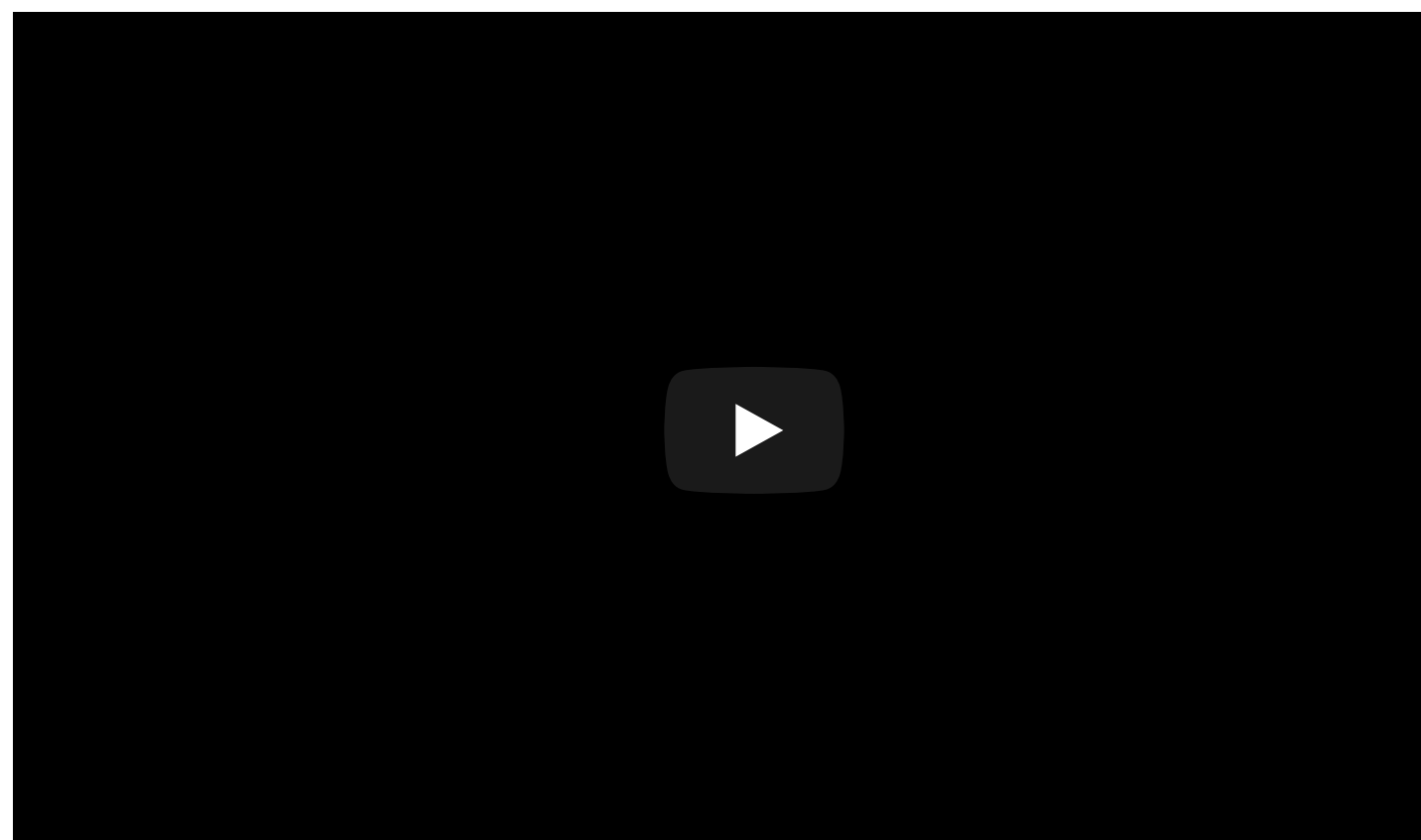
Our ultimate goal is a therapy for humans, but we also plan on also developing a life extension therapy for pets.

In fact, entering the animal health market is our first commercialization milestone due to its lower regulatory barriers.

Our mission



Why Age?



Why Die?

Our science

In 2006, in a Nobel prize winning work, Shinya Yamanaka has shown that a cell can be returned back to a pluripotent state using OSKM transcription factors. Moreover, old cells also experienced considerable rejuvenation while undergoing this transition. Luckily, this turned out to be a gradual process, and in December 2016, Belmonte et al. demonstrated that we can use these factors to rejuvenate not just cells but entire organisms: using weekly OSKM induction, they managed to prolong lifespan of progeric mice by up to 50%.

These results underlie our working hypothesis that aging can be rolled back by periodic induction of certain transcription factors (e.g. OSKM). Our project is aimed at validating this hypothesis and then translating it into a safe therapy that produces sizable, noticeable rejuvenation. In short, we strive to develop an *epigenetic rejuvenation gene therapy of aging*.

As the most optimal strategy for going forward we see a step-by-step, iterative improvement of the already proven approach (induction of OSKM factors with doxycycline; such OSKM cassette can be delivered into the body using a lentiviral carrier available on the market today) and parallel development of an ideal therapy (maximally safe and effective rejuvenating factors activated by a unique, inert, patentable agent).

Therefore, the research stage can be subdivided into 3 parallel projects: (1) developing an optimal dosing regimen using OSKM factors, (2) revisiting Yamanaka's original 24 factors to find better candidates, and (3) creating the best patentable delivery vehicle. As soon as these projects produce the first lead candidate with minimally acceptable proven lifespan extension in mice, we can begin moving it through the standard FDA/EMA drug approval pathway.

Scientific Overview

WP coming soon

Key Deliverables



Step 1

Market availability of pets with OSKM genes inducible by doxycycline (2-3 years)

Step 2

Minimally acceptable therapy for adult pets (3-4 years)



Step 3

Ability to start human clinical trials of a minimally acceptable human therapy (the IND filing stage in the FDA, 5-6 years)



Our team

We espouse a minimalist philosophy and intend to keep our core team — and hence our burn rate — as small as possible. We will outsource all experimental work to reputable world-class CROs. This will also allow us to run multiple experiments in parallel to maximize our pace.





Yuri Deigin, MBA

CEO

Yuri is a serial entrepreneur, an expert in drug development and venture investments in biotechnology and pharmaceuticals.

Yuri brings almost a decade of drug discovery and development experience from his previous role in a biotech startup where he oversaw research and development of original medicines aimed at treating diseases like Alzheimer's and rheumatoid arthritis. Yuri has a track record of not only raising over \$20 million for his previous ventures but also initiating and overseeing 4 clinical trials and several pre-clinical studies, including studies in transgenic mice. He also has experience in pharmaceutical product launch, promotion, manufacturing and supply chain management.

Since 2013 Yuri also serves as a vice-president of the non-profit Foundation "Science for Life Extension" whose goal is the popularization of the fight against age-related diseases. To further this cause, Yuri frequently blogs, speaks, writes op-ed pieces, and participates in various TV and radio shows.

Yuri holds a B.Sc. from the University of Toronto and an M.B.A. from Columbia Business School.

[LinkedIn](#)



Ariel Feinerman, BSc Candidate

Scientific Team Member

Ariel is a polymath. He started his carrier as an entomologist and studied systematics, morphology and ecology of Stoneflies (Plecoptera). He even went on several field expeditions, including one in the Caucasus Mountains.



Valeria Kogan, PhD Candidate

Senior Investigator

Valeria is an expert in biological information science who has been working in the field of aging research for the last 5 years.

Valeria has been deeply involved in the investigation of fundamental mechanisms that drive the aging process. She has coauthored a number of scientific papers on the topic.

At Youthereum Genetics Valeria is focusing on the intricacies of epigenetic regulation and on mechanics of cellular reprogramming.

Valeria holds an M.Sc. degree in applied mathematics from the Moscow Institute of Physics and Technology and is presently working on her Ph.D. in bioinformatics from a joint program between Ariel University in Israel and Roswell Park Cancer Institute, USA.

[LinkedIn](#)



Sergei Mozgov, PhD

Scientific Team Member

Sergei is a bioinformatician and an IT engineer. He came to the bioinformatics field from the world of IT automation. He is a specialist in processing, management and analysis of Next Generation Sequencing data.



Ivan Molodtsov, PhD Candidate

Scientific Team Member

Ivan is a specialist in biological data mining with extensive experience in the research of aging and age-related diseases.

Ivan has several years of work experience in the field of longevity research and has a firm grasp on the current state of the art of life extension developments. Ivan's scientific interests lie in the area of epigenetic effects on human disease and epigenetic approaches to rejuvenating therapy.

At Youthereum Genetics Ivan is involved in experimental study design and deep data analysis of experimental outcomes.

Ivan holds an M.Sc. degree in applied mathematics from the Moscow Institute of Physics and Technology and is presently working on his Ph.D. in microbiology from N.F. Gamaleya Scientific Research Institute of Epidemiology and Microbiology.



Ilya Bizin, PhD

Scientific Team Member

Ilya is an expert in distributed control systems, high-throughput sequencing data processing, and automatic gene primer design.

For the past several years he has been working on the investigation of hereditary cancer-

Then Ariel switched fields and became a software engineer. He designed several projects, including a framework for interactive multimedia books.

In 2014 Ariel enrolled in the Physics Department of Saint Petersburg State University where is presently studying physics and pursuing a research interest in medical nanomachines as potential drug delivery vehicles. His engineering expertise is a definite asset in this research area.

Ariel believes that only an interdisciplinary approach can help us win the war against aging. So in 2015-2016 Ariel also worked at the Laboratory of Plant Genetic Engineering and Laboratory of Physiological Genetics at Saint Petersburg State University. There he studied PCR, Real-time PCR, DNA Extraction, DNA Gel Electrophoresis, and genetic engineering techniques.

Ariel also participated in a yeast genome screening study that aimed to develop new toxicology tests and was involved in toxicity and biological activity testing using several bacterial strains.

[LinkedIn](#)

Sergei pays particular attention to computational complexity of analytical algorithms in order to ensure optimal use of computational resources for genomic data analysis. Finally, he is an evangelist of FAIR principles in science (Findability, Accessibility, Interoperability, and Reusability).

Sergei considers the process of aging as a scourge and thinks that humanity is very close to a scientific understanding of this process. He fully believes that we must all fight against aging, since it is a disease that kills us and our loved ones.

Sergei holds an M.Sc. degree in computer science and Ph.D. in automation from the Orel State Technical University, Russia.

[LinkedIn](#)

related polymorphisms in the Department of Bioinformatics of Peter the Great St. Petersburg Polytechnic University.

Ilya is extremely interested in mechanisms of aging synchronization observed in parabiosis, and is intrigued by the similarity of these processes to control systems engineering.

Ilya has also amassed a great deal of knowledge on the role of hypothalamus in aging and has developed several experimental protocols to test a number of possible rejuvenating interventions that target the hypothalamus or its potential aging synchronization mechanisms. This is Ilya's primary area of focus at Youthereum Genetics

Ilya holds a Ph.D. in engineering sciences from the Orel State Technical University.

Our advisors

A scientific project could never overstock on expertise and bright thinkers. We are privileged to have such a world-class team of advisors.



Aubrey de Grey, PhD



Eugene Baranov, PhD



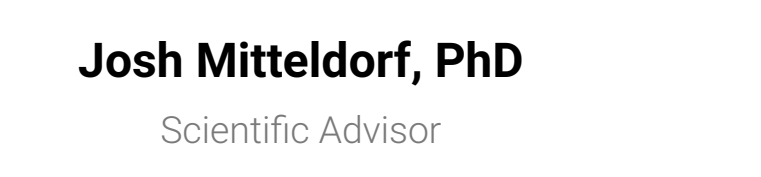
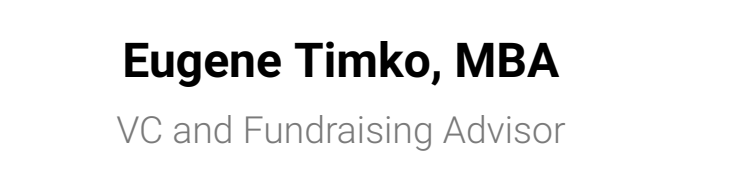
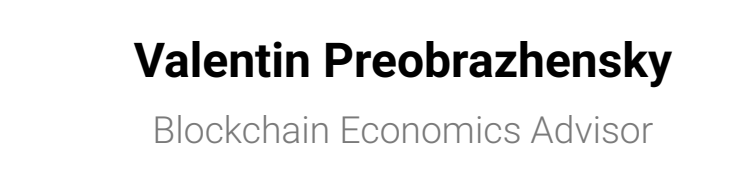

Alexander Polinsky, PhD



Andrei Gudkov, PhD, DSc

Scientific Advisor	Scientific Advisor	Scientific and R&D Advisor	Scientific Advisor
<p>Aubrey is the most prominent biogerontologist and a "spiritual leader" of the worldwide life extension movement.</p> <p>He is the Chief Science Officer of SENS Research Foundation, a California-based 501(c)(3) charity dedicated to combating the aging process. Aubrey is also Editor-in-Chief of <i>Rejuvenation Research</i>, the world's highest-impact peer-reviewed journal focused on intervention in aging. He is a Fellow of both the Gerontological Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organisations.</p> <p>Like many modern gerontologists, Aubrey had begun his career in computer science before switching to biogerontology in the mid-1990s. His research interests encompass the characterisation of all the accumulating and eventually pathogenic molecular and cellular side-effects of metabolism ("damage") that constitute mammalian aging and the design of interventions to repair and/or obviate that damage. He has developed a possibly comprehensive plan for such repair, termed <i>Strategies for Engineered Negligible Senescence</i> (SENS), which breaks aging down into seven major classes of damage and identifies detailed approaches to addressing each one. A key aspect of SENS is that it can potentially extend healthy lifespan without limit, even though these repair processes will probably never be perfect, as the repair only needs to approach perfection rapidly enough to keep the overall level of damage below pathogenic levels. Aubrey has termed this required rate of improvement of repair therapies <i>"longevity escape velocity"</i>. He describes his approach in detail in his book <i>Ending Aging: The Rejuvenation Breakthroughs That Could Reverse Human Aging in Our Lifetime</i>.</p> <p>While Aubrey does not subscribe to the programmed theory of aging, he believes that epigenetic rejuvenation can potentially provide us with a meaningful lifespan extension. In his view, the ability to rejuvenate the aged body by reactivating early-life pathways does not in any way conflict with the idea that aging is unprogrammed and results from the gaps in our anti-aging machinery rather than the presence of actively pro-aging machinery.</p> <p>Aubrey holds a B.A. and a Ph.D. from the University of Cambridge.</p> <p>LinkedIn</p>	<p>Eugene has over 20 years of experience in cancer research and over 15 years in other biotech areas.</p> <p>He is an innovator in the fields of stem cell research, physical chemistry and biophysical methods <i>in vivo</i> and holds five U.S. patents for his inventions. He has published over 60 papers in highly-ranked scientific journals such as Cell, Cancer Cell and Proceedings of the National Academy of Sciences of the USA (PNAS).</p> <p>Eugene has been an educator at several international universities. He was also a consultant for several U.S. companies specializing in cancer research, nutrition and cosmetics.</p> <p>Eugene has been overseeing a number of preclinical and clinical studies internationally, as well as technology transfer for a major stem cell company since 2005 in the areas of testing efficacy and safety of biologically active compounds; various types of stem cells and their derived products in diverse types of pathologies and in regenerative medicine.</p>	<p>Alexander has had an illustrious career in biotech and pharmaceutical industries. He has firsthand experience of multiple roles in the drug development process: as a researcher, entrepreneur and an investor.</p> <p>In 2009 he co-founded Everon Biosciences, Inc. and OncoTartis, Inc. Today he still serves as President and Chief Executive Officer of both companies. Prior to that Alexander served as Managing Partner of Maxwell Biotech Venture Fund.</p> <p>Alexander was a co-founder of the Alanex Corporation and served as its CSO until it was acquired by Agouron Pharmaceuticals in 1997. After Agouron was acquired by Pfizer in 2000, Alexander became Vice President, Head of Discovery Technologies, at the Pfizer La Jolla Labs. In 2006, he moved into Pfizer Global Research Technology where he led the development of Pfizer External Research Network and Pharma Incubator concepts at Pfizer Global Research Technology. In 2007, he established The Pfizer Incubator (TPI) and served as its CEO. He left Pfizer in 2008 to pursue various entrepreneurial interests and founded 3 biotech companies.</p> <p>In 2009 Alexander joined Maxwell Biotech Venture Fund as its Managing Partner. He also served as the Vice Chairman of Cleveland BioLabs, Inc. until April 14, 2015. He has been a Director of AtheroNova Inc. since October 13, 2010. He presently serves as a Director of Gowan Company.</p> <p>Alexander has been a faculty member at Moscow University for 5 years studying the mechanisms of action of synthetic vaccines. He was also a visiting scientist at University of California at San Diego where he worked on developing new methods for computer-aided drug design.</p> <p>Alexander holds a Ph.D. in Physical Chemistry from Moscow State University, Russia and has had post-doctoral training at the Institute for Biochemistry of the Russian Academy of Science.</p> <p>LinkedIn</p>	<p>Andrei is a world-renowned cancer and longevity researcher.</p> <p>He works at Roswell Park Cancer Institute where he serves as a Senior Vice President for Basic Research, a Chair of the Department of Cell Stress Biology, and a member of the senior leadership team for National Cancer Institute (NCI) Cancer Center Support Grant. At Roswell Park, Andrei is leading the Cell Stress Biology program in DNA damage and repair, photodynamic therapy, thermal and hypoxic stress and immune modulation.</p> <p>Previously Andrei worked at the Lerner Research Institute, Cleveland Clinic Foundation where he served as a chairman of the Department of Molecular Genetics and as a professor of biochemistry at Case Western University. He has authored or co-authored 135 scientific articles and holds 27 patents.</p> <p>Andrei holds a Ph.D. in Experimental Oncology from the Cancer Research Center and a Doctor of Science (D.Sc.) degree in Molecular Biology from the Moscow State University.</p> <p>LinkedIn</p>



<div> <div>  </div> <div> Josh Mitteldorf, PhD Scientific Advisor </div> </div> <p>Josh is an evolutionary biologist, an author of several books on the mechanisms of aging, most notably Cracking the Aging Code.</p> <p>Josh is an avid proponent of programmed aging and is an author of several scientific papers that explain how programmed aging can arise as a result of natural selection acting on groups and communities.</p> <p>Josh is affiliated with the EAPS at MIT, but he works on his own. In the past, Josh has worked in astrophysics, optical design, and energy conservation. He has taught (statistics, physics, math, astronomy, and evolution) at Harvard, Berkeley, Temple, UPenn, LaSalle, and Bryn Mawr.</p> <p>Check out his page on how to live a long life, and his weekly blog on aging science.</p> <p>Josh holds a B.Sc. from Harvard University and Ph.D. from the University of Pennsylvania.</p> <p>LinkedIn</p>	<div> <div>  </div> <div> Eugene Timko, MBA VC and Fundraising Advisor </div> </div> <p>Eugene has over a decade of venture capital, corporate finance and management consulting experience.</p> <p>Eugene is a co-founder and managing partner of Xploration Capital, an international venture capital fund. Before becoming a VC investor, Eugene worked as an investment banker at Morgan Stanley. Prior to that he spent 3 years as a consultant at McKinsey and Company and also worked as a fixed income researcher at BCP Securities.</p> <p>Eugene teaches business and entrepreneurship courses at the Skolkovo Business School and is a business coach at the Skolkovo Startup Academy.</p> <p>Eugene holds an M.Sc. from the Bauman Moscow State Technical University and an M.B.A. from Columbia Business School.</p> <p>LinkedIn</p>	<div> <div>  </div> <div> Valentin Preobrazhensky Blockchain Economics Advisor </div> </div> <p>Valentin is a highly respected community builder and a financial visionary.</p> <p>He is a founder and CEO of LA Token, a blockchain asset tokenization and trading platform. Prior to that he founded a home loan marketplace Zalogo and was also in charge of operating a private hedge fund.</p> <p>Before that Valentin managed an equities portfolio at hedge funds Avega Capital and Marcuard Spectrum. He had also worked at IHS CERA, VTB and Sberbank. Valentin is also presently a director of Founder Institute.</p> <p>Valentin holds an M.A. in management from the Higher School of Economics and a M.Sc. in finance from the New Economic School.</p> <p>LinkedIn</p>	<div> <div>  </div> <div> Ilya Flyamer, PhD Candidate Scientific Advisor </div> </div> <p>Ilya is a molecular biologist specializing in epigenetic chromosomal mechanism.</p> <p>He began his scientific journey by studying chromatin organisation of Drosophila cells and then went on to develop a single-cell genome-wide method for studying spatial organization of the genome, particularly well-suited for oocytes or early embryos.</p> <p>As a result of this work, Ilya co-authored a paper on chromatin reorganization during the oocyte-to-zygote transition – and that is precisely when the epigenetic magic happens: magic which transforms a 30-year old oocyte cell into a 0-year old embryo.</p> <p>Ilya is presently pursuing his PhD at University of Edinburgh's Medical Research Council Institute of Genetics and Molecular Medicine where he is researching the spatial organization of the genome. In particular, he is investigating the role of cohesin/CTCF and polycomb proteins in organizing nuclear architecture in mouse embryonic stem cells.</p> <p>Ilya holds a B.Sc. in biology from the Moscow State University.</p> <p>LinkedIn</p>
---	--	--	---

Our philosophy

We hold as self-evident that health and well-being are basic human rights. Thus, as a service to Humanity, all therapies developed by our project will eventually be offered at a small markup to their cost — a markup just enough to cover the overhead of producing and distributing them.

Tokenomics

To raise funding for our project, we plan to issue ERC20 tokens to our backers. The tokens will represent a right to a portion of distributable earnings of Youthereum or its potential acquirer.

The tokens will be securities and we plan to abide by all applicable regulations.

Presently, two categories of therapies are anticipated: a therapy for pets (to be launched first, approximately 3-4 years after project start) and a therapy for humans, for which regulatory approval is likely to take additional 8-10 years. These therapies are anticipated to be identical except for the gene homologs in their payloads: cat therapy would have feline homologs, dog – canine, and human – well, human.

Each therapy is planned to consist of an inactive genetic payload (to be integrated into a patient only once) and a proprietary inductor to activate the rejuvenating genes (to be applied at regular intervals). For animal therapy, the genetic payload portion will be sold to licensed veterinarians.

We will do our utmost to ensure that the therapies are affordable. We aim at a price point of \$1000 for the gene delivery and \$10 for 1 dose of the inductor (weight- and species-adjusted).

For human therapy, final pricing will be determined after regulatory approval, but it is not anticipated to exceed 10x the price of the animal therapy.

Please enter your email below if you would like to be kept up to date
on our most important developments:

Keep me updated

Contact us

E-mail: info@youthereum.io

Join our Facebook page:



