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Ã¢â?¬Å?We no longer need to endure the ravages of ageingÃ¢â?¬Â•

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Gero, a longevity biotech physics-enabled biotechnology company from Singapore is creating therapeutics against chronic diseases with a mission to slow down human ageing itself. Gero's machine-learning platform possesses the unique capability to identify potential therapeutic targets for fibrotic diseases by analysing extensive human-based datasets. These discoveries could potentially reshape the landscape of anti-ageing research. In January 2023, the American pharmaceutical giant Pfizer entered the longevity field by collaborating with Gero. Maxim Kholin, Founder of Gero, takes us through the exciting science of anti-ageing/longevity and why it is no longer confined to the realm of science fiction.



What technologies is Gero using to solve ageing?

To my knowledge, we are the only company that is using physics to model biology this way. For example, consider how we approach this. People can predict the trajectory of planetary movement, much like how we analyse vast medical datasets, such as electronic medical records. We discern patterns in the data, akin to predicting future states using equations of motion, and anticipate how a patient's condition may change after therapy, similar to how Gmail suggests sentence completions as you type. Our internal projects are focused on addressing the challenge of ageing, including partial rejuvenation and halting the ageing process. Furthermore, we're actively seeking new rounds of investment to advance anti-ageing therapies and undertake additional projects related to age-related diseases.

We've demonstrated that a significant portion of human ageing is irreversible, a point on which pharmaceutical companies concur. We assist them in identifying new targets for therapies. Our technology platform allows us to differentiate between the

irreversible effects of ageing and reversible disease phenotypes, potentially pinpointing the most promising therapeutic targets, as exemplified in our collaboration with the pharmaceutical company, Pfizer.

Ageing seems to be the pet peeve of tech billionaires. Why are the super-rich investing in this area?

In brief, we no longer need to endure the ravages of ageing. Some wealthy individuals possess the intelligence to grasp this fact and the resources to tackle this problem. They are driven by a desire to safeguard their health and longevity and, hopefully, change the world for the better. Ageing inflicts numerous detrimental effects, too numerous to enumerate comprehensively here.

Allow me to highlight a few: Ageing serves as the primary catalyst for age-related diseases such as strokes, adult cancers, and Alzheimer's. As we age, our risk of developing chronic illnesses and succumbing to them doubles approximately every eight years throughout most of our lives. Most age-related diseases remain incurable and lead to death. Preventing these conditions is a prudent strategy.

When people receive a cancer diagnosis, for instance, they often fight desperately to prolong their lives, even though the bulk of healthcare expenditures occur in the final years of life, culminating in inevitable mortality. The notion of halting ageing is akin to preemptively addressing the spectre of future cancer, dramatically reducing the likelihood of developing cancer and other chronic ailments by preserving one's health in a youthful state for as long as possible.

Ageing compromises our physical and mental health, including cognitive functioning. It hampers personal and societal progress, particularly in our increasingly complex world, where substantial time is required for learning before one can contribute significantly beyond existing knowledge. Nobel laureates, for example, tend to make their groundbreaking discoveries around the age of 44, after dedicating decades to learning and research.

However, by the time they reach the pinnacle of their scientific achievements, many of their physical and mental faculties are already in decline. Imagine the contributions of individuals like Einstein, Korolev, or Steve Jobs if they had enjoyed an additional 20 healthy and productive years. Our civilisation might have advanced even further in exploring multiple planets.

Menopause constraints women in designing their lives as they wish, subject to the relentless ticking of biological clocks. Ageing, in short, is unpleasant and painful. It is only natural to seek liberation from it. Hence, investing in anti-ageing research and therapies is one of wealth's wisest, most responsible, and beneficial uses. However, it remains a tragedy and a shame that these investments pale in comparison to spending on luxuries and entertainment, among other less vital pursuits. This critique extends not only to the super-rich but to anyone with the means to invest or spend on endeavours less valuable than their health and that of their loved ones.

Furthermore, we should demand increased government funding for research aimed at combating ageing and age-related diseases, as ageing affects us all. Let us not solely burden the super-rich with this responsibility; everyone can contribute through financial means, political action, activism, and various other avenues. Each day, approximately 150,000 people succumb to ageing and age-related diseases, making ageing a leading cause of death. Now that you understand the cost of delaying progress in halting ageing by just one day, what justification can there be?

In light of the irreversible nature of a significant portion of human ageing, how does your company navigate the challenges and opportunities associated with developing anti-ageing therapies? Are there specific areas within the ageing process where your technology platform has shown particularly promising results?

The existence of a model that accounts for the irreversible nature of a significant portion of human ageing is Gero's unique competitive advantage. Therefore, we use the model both for the development of anti-ageing drugs and for age-related diseases. Our model has helped to understand that under the brand of 'ageing,' there are at least two completely different processes: AGEING Ã¢â??â?? 1, Frailty - it occurs in late-life ageing. It can be reversed. Therapeutic intervention can provide up to 10 years of health span. The longevity industry and Gero's first drug fall into this category. We have demonstrated very good results in rejuvenating mice in two independent laboratories, including the laboratory at the National University of Singapore. We have a therapeutic agent and interest from a leading global pharmaceutical company in this project.

AGEING Ã¢â??â?? 2- 'Thermodynamic'/ true ageing - This is a whole-life process. It's irreversible in a practical sense, but it can be stopped, and this would give a multifold extension of health span and life span. Gero’s ambition is to stop ageing.

For these two different types of ageing, different biomarkers have already been developed that allow us to quickly determine whether a drug is working. There is a list of diseases that can be associated with each type of ageing.

What are your thoughts on the APAC longevity industry?

APAC includes many countries with the highest life expectancy in the world. Therefore, I believe that the realisation of the necessity and commercial attractiveness of developing radical therapies against ageing will quickly come to both businesses and governments, especially in these countries, where the proportion of the ageing population is high and will suffer first if there is no significant intervention in the ageing process. We are open to collaboration with governments, investors, and the industry from APAC.

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