



Turn Biotechnologies

On A Quest to Turn Back Time on Age-Related Disease

Wrinkles, creaky knees, gray hair, and some moments of forgetfulness—these are the hallmarks of old age. But along with this, aging also brings a multitude of age-related illnesses. As we get older, our cells stop working and can break down leading to conditions like heart disease, arthritis, cancer, and neurodegenerative disorders. In fact, nearly 100,000 deaths per day occur due to aging-related diseases. While there's no magic potion to completely reverse the aging process, some pioneering companies are relentlessly working to find a way to beat the ailments and decline that often come with age. One such prominent biotechnology company that is developing longevity solutions to undo many of the effects of aging by restoring cells' youthful vigor to repair damage caused by the aging process is Turn Biotechnologies.

“Simply put, we do not believe the discomfort and impairments associated with aging should be considered inevitable. Rather, we believe age-related conditions can be treated like a disease. We also believe our therapies have the potential to treat

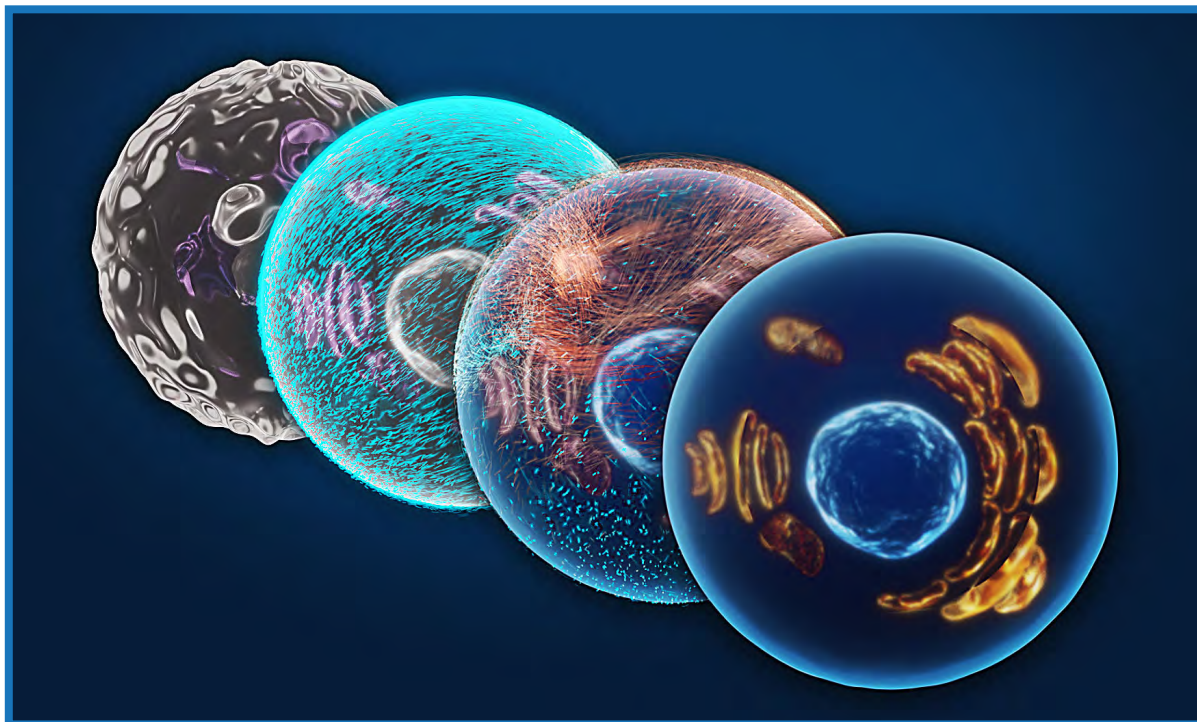


Anja Krammer
CEO

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life-shortening diseases of aging, effectively extending healthy life,” opines Anja Krammer, the CEO at Turn Biotechnologies.

Offering Safe, Fast, and Efficient mRNA-Based ERA™ Platform

It all started with pioneering research that the three co-founders of Turn Biotechnologies were doing at Stanford University to find cures for untreatable age-related diseases. They created a unique Epigenetic Reprogramming of Aging (ERA™) technology platform, which restores the function of aged cells to their youthful vigor, reducing the effects of age-related degeneration and disease while still maintaining cellular identity. ERA rejuvenates through targeting the epigenome, a dynamic network of scaffolding proteins that control the activation or repression of gene expression. As cells age, errors accumulate in the epigenome, which leads to defects in cell function that ultimately result in tissue-level dysfunction. Changes in the epigenome also influence many of the key cellular signs of aging, but the ERA platform carefully reprograms the epigenome

to reduce these signs and restore youthful patterns of gene expression.

This mRNA-based therapy can be safely, efficiently, and rapidly tailored for a number of age-related indications due to the tight control of administration dosage and duration. “The interest that researchers, investors, and pharmaceutical companies from around the world have demonstrated in our technology and ongoing research has fueled significant growth. And the results we are achieving from ex vivo and in vivo studies just increase our enthusiasm about the ERA platform and our mission,” asserts Anja.

Addressing Unmet Medical Need

Turn’s development pipeline is immediately focused on areas that promise the greatest benefit to patients whose medical needs are clearly unmet by science today. For preclinical development, it has created three key programs — dermatology, ophthalmology, and immunology as it has shown successful delivery of its mRNA therapeutics using novel

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proprietary carrier molecules in all three and is currently performing in vivo evaluations.

In addition, the company is developing ex vivo treatment programs for dermatological and immunological indications. These therapies work to improve the potency, proliferation, and durability of excised cellular populations to greatly enhance re-transplantation in regenerative medicine and beyond. These near-term solutions promise to transform the stem cell therapeutics market, both in terms of therapeutic efficacy and availability to patients. “Published research has consistently demonstrated the efficacy of our approach. Following the initial publication introducing our ERA platform, multiple studies have validated the use of epigenetic reprogramming to rejuvenate aged cells,” affirms Anja.

Focused On Preclinical Research

Turn Biotechnologies is very much focused on preclinical research. To that end, it has built two labs to conduct its own research and supplemented those studies with partnerships involving researchers at Stanford University, other institutions, and several companies. It has been consistently growing its talent in formulation chemistry, biologics, and in vivo studies.

In addition, it has taken necessary steps to protect the intellectual property it uses to create transformational therapies. For instance, it has legally acquired the global rights for the Epigenetic Reprogramming of Age (ERA™) technology platform that its co-founders developed at Stanford University. It has also acquired the global rights for the

Artificial Niche (AN) technology that was developed by one of its co-founders. This platform can be used to isolate muscle stem cells and, when combined with ERA can restore muscle function in aged tissue.

Aspires To Improve the Quality Of Life While Fostering Partnership

When it comes to the future, Turn aspires to focus on two key aspects. First, it aims to build its future on solid accomplishments. “We will not emulate those pharmaceutical companies that build staff and infrastructure before having viable products. Of course, we will grow to properly undertake the research and development necessary to create the therapies we’re working on. But our primary focus is to develop therapies that can improve the quality of life, not to create sprawling campuses,” adds Anja.

Second, it plans to foster its partnerships with pharmaceutical companies around the world. As its ERA platform makes rapid development possible, it envisions a future in which Turn will commercialize some therapies and license the rights for other therapies to leaders within appropriate medical specialty areas. It has already taken its first steps towards this partnership culture, which it plans to announce in the coming months. “This somewhat unorthodox view of our future is built on the philosophies and experiences of our founders, who did their trailblazing work in the collegial culture of academic settings. Their collective experience demonstrates that dramatic successes can be achieved when quiet, diligent collaboration is valued over hype,” concludes Anja.