COLLECTIVE INTELLIGENCE

San Francisco Dispatch: STAT Breakthrough Summit 2023

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Medical and tech breakthroughs abounded at the STAT Breakthrough Summit in San Francisco: studies investigating potential links between bacteria and Alzheimer's, helmets that could bring MRI scans into the home, discoveries around the future of CRISPR. The participants on stage – doctors, scientists, venture capitalists and more – were a testament to what can be achieved if we bring distinct parts of the system together in novel ways.

Those in attendance saw the summit's unique ability to bring together these viewpoints, and how working collaboratively to break down barriers between the disparate parts of the US healthcare system benefits human health.

What to know from the summit

Repurposing generic drugs to save lives

University of Pennsylvania Medicine Immunologist Dr. David Fajgenbaum – who about a decade ago was dying from Castleman's disease – a rare inflammatory illness that impacts the lymph nodes – gave a stunning presentation on how repurposing a generic immunosuppressant drug allowed him to find the cure that saved his own life. Fajgenbaum discovered a cure by using the drug sirolimus, typically used to prevent organ rejection following kidney transplants.

Fajgenbaum recently founded the organization Every Cure, whose AI-enabled platform works to identify potential matches between the 3,000 FDA-approved drugs and the 12,000 "orphan diseases" – conditions without known treatments. Every Cure is able to repurpose generics because it's a nonprofit with no commercial interest in any one drug succeeding over another. This also means that the organization doesn't have commercial incentives to keep its data private, so its platform will be open to all.

Fajgenbaum's presentation emphasized the life-saving benefits of incentivized collaboration – as he put it, "How many drugs are sitting in your neighborhood CVS that could be a treatment for you or a loved one that we just don't know yet?". Health tech companies should be asking themselves what other barriers can be broken in the healthcare industry to create similar impact.

The future of CRISPR

UC Berkeley Professor and President of the Innovative Genomics Institute Jennifer Doudna – one of the few women in history to receive the Nobel Prize in Chemistry – shared reflections on the future of CRISPR, a technology she invented that's used to selectively modify the DNA of living organisms. CRISPR

is dramatically changing the course of disease treatment, and her focus today is on addressing its future applications as well as how to ensure that these gene editing treatments will reach patients given their astronomically high cost.

That question will be front-and-center later this year when the US Food and Drug Administration potentially approves a CRISPR treatment for sickle cell disease – a condition that affects the shape of red blood cells which are responsible for carrying oxygen across the body. There is a drug currently in development that alleviates the crippling pain caused by the disease. However, the treatment is expected to cost more than $2 million. As for the next frontier of CRISPR, Doudna is focused on an effort to use the technology on modifying microbial communities, such as the ones in the microbiomes of cows, which could significantly reduce greenhouse gas emissions.

Doudna pointed out that when CRISPR debuted ten years ago, it was in a scientific paper that hardly anyone noticed. The progress the technology has made since and its potential future uses show the power of applying new treatments to disease spaces and major societal challenges where progress has been acutely needed.

Predictions on what will be the biggest company in the world in 2050

Co-Founder and Managing Director of Arch Venture Partners Bob Nelsen gave his prediction that the future of medicine is in cellular rejuvenation and anti-aging treatments. In a packed room, Nelson shared his views that the biggest company in the world in 2025 will be a biotech company that is experimenting with slowing the human aging process within our organs by restoring cell health. Nelson – one of the biotech world's most successful venture capitalists – was an early cautionary voice on the pandemic, so his crystal ball has proven effective in the past.

The biology that allows scientists to make cells younger is very new but holds real promise, and could come to define the future of the industry if progress continues. As Nelsen described it, there are two paradigms in healthcare: "treating people with disease and fixing these ailments, and on the other hand, turning back the clock and resetting time." Nelson is a firm believer that biotech will someday be bigger than the pharmaceutical industry.

As the health minds of the day sparred on how to take risks and push boundaries to advance human health overlooking the San Francisco Bay, it was impossible not to leave the Breakthrough Summit without optimism for the future about the nexus between health and tech.

To continue the conversation

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