TECH

3 of the biggest biotech breakthroughs of the 2010s explored by Ron Bauer

Here are three of several biotech breakthroughs from the 2010s that have — and will continue — to shape our world in the years and decades ahead.

by Chris Smith March 4, 2020

Image: ZME Science

The 2010s was a watershed decade for biotech breakthroughs. Below are three of the most transformative, momentous and promising discoveries according to Ron Bauer, the Founder of Theseus Capital, a principal investor and family office investment vehicle focused on the life sciences and technology sectors.

A Self-Replicating, Synthetic Life Form

In 2010, researchers at the J. Craig Venter Institute (JCVI) in Rockville, Maryland, and San Diego, California, introduced the world to a discovery that seemed less rooted in biology, and more in science fiction: *Mycoplasma laboratorium*, the first self-replicating, synthetic life form. This artificial species of bacterium was built using a computer and injected onto a synthetic chromosome inside a yeast cell, which in turn enabled the cell to generate proteins and create new cells.

Commented Ron Bauer, whose firm Theseus Capital works closely with top scientists and entrepreneurs, and has long-standing relationships with leading law, accounting, institutional brokerage, and investment banking firms: Based on their earlier work, in 2016. Dr. Venter and his team subsequently created the world's first bacterial cell known as JCVI-syn3.0. This series of developments has astonishing potential in multiple applications such as industrial biotech and medical research.

The CRISPR/Cas9 Gene Editing Technique

Introduced in 2013, the CRISPR/Cas9 technique enables medical researchers and geneticists to precisely alter sections of a genome by adding, removing or changing targeted sections of a DNA sequence. First, a guide RNA binds to the targeted sequence. Then, an enzyme called Cas9 binds to the guide RNA. This enzyme essentially functions as a kind of molecular scissor that cuts both strands of the targeted sequence. The body responds by attempting to repair

strands of the targeted sequence. The body responds by attempting to repair the damaged DNA, at which time changes (i.e. mutation) can be introduced to one or multiple genes.

Since the introduction of the CRISPR/Cas9, there has been and remains an important focus on the ethical implications of this revolutionary technology. Yet with this in mind, the profoundly positive implications cannot be underestimated, and its life-saving potential must be explored. For example, in 2019 a woman in Mississippi with sickle cell anemia became the world's first person to be treated by the CRISPR/Cas9 technique. While it is too early to draw any conclusions, her doctors are tremendously excited and suggest that if things develop as early signs suggest, it will give patients around the world a chance for a healthier and longer life.

A Cure for Hepatitis C

In 2017, the U.S. Food and Drug Administration made an immensely significant announcement that millions of people in America and around the world afflicted with hepatitis C thought they would never have the opportunity to hear in their lifetimes: a drug treatment called MAVYRET had been approved that could reverse the debilitating and potentially fatal liver disease in as little as eight weeks.

Created by biopharmaceutical company AbbVie Inc., MAVYRET combines two drugs to treat the hepatitis C virus: glecaprevir and pibrentasvir. Glecaprevir is an inhibitor of the protease HCV NS3/A4, and pibrentasvir is an inhibitor of protease HCV NS5A. In patients without cirrhosis, MAVYRET has been shown to reduce the hepatitis C virus in the body to an undetectable level.

According to Ron Bauer: MAVYRET remains a game-changer for the millions of people around the world — including approximately 3.4 million Americans — who are chronically infected with HCV. Approval of the drug was supported by clinical data that evaluated more than 2,300 patients in 27 countries.

Ron Bauer on Looking Ahead

The above are just three of several biotech breakthroughs from the 2010s that have — and will continue — to shape our world in the years and decades ahead.

Concluded Ron Bauer: We are still just scratching the surface, and every new discovery and innovation in the life sciences field opens up a world of

possibilities to make our lives and our world better, smarter, safer, and more enriching and enabling.

Have any thoughts on this? Let us know down below in the comments or carry the discussion over to our Twitter or Facebook.

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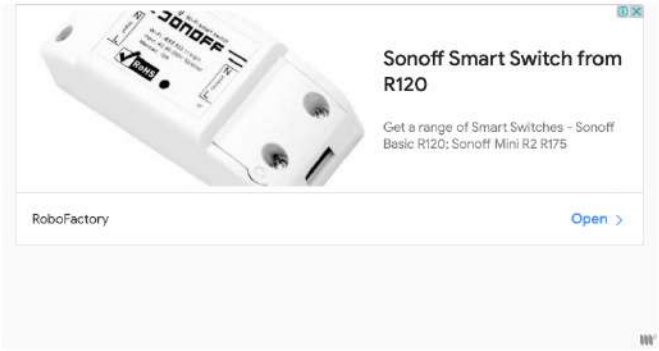
Chris has been blogging since the early days of the internet. He primarily focuses on topics related to tech, business, marketing, and pretty much anything else that revolves around tech. When he's not writing, you can find him noodling around on a guitar or cooking up a mean storm for friends and family.



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