Q&A on the future of versatile mRNA-based vaccine development

Robert Langer, ScD, is the David H. Koch Institute professor at MIT and a co-founder of Moderna, the pharmaceutical company behind a COVID-19 mRNA vaccine. In this Q&A, he tells us about the present and future of these versatile vaccines.

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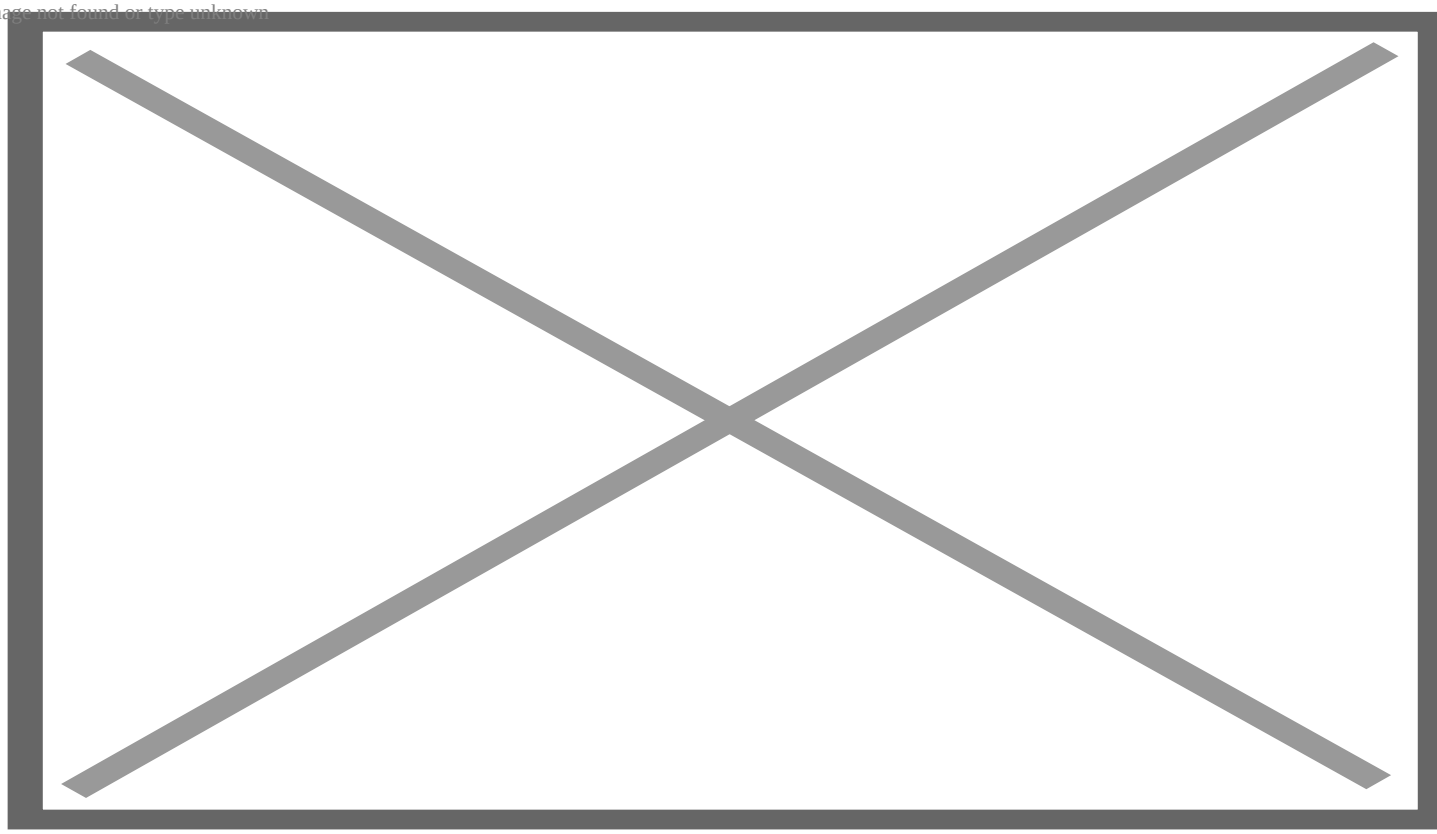

Dr. Robert Langer is the most cited engineer in history, and the 3rd most cited individual in any field. Credit: Wikimedia Commons

GEN: The technology behind mRNA vaccines has been available for decades, but it was only with the pandemic that we first saw a publicly available mRNA vaccine. Why didn't this happen sooner?

Langer: While it is true that over the last thirty years hundreds of scientists have worked on developing mRNA vaccines and therapeutics, real breakthroughs in making an effective and commercially viable mRNA vaccine were greatly accelerated by the COVID-19 pandemic. It's important to realize that Moderna and others like BioNtech and Curevac were in clinical trials for multiple different vaccines and therapeutics at the time the COVID-19 crisis started in late 2019/early 2020.

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Moderna mRNA vaccines are already in the works to reduce the health risks of latent viruses like Epstein-Barr virus (EBV) and cytomegalovirus (CMV) and to tackle additional areas of unmet need, including an all-in-one mRNA vaccine to treat COVID-19, seasonal flu, and respiratory syncytial virus (RSV). Additionally, Moderna plans to develop mRNA vaccines to help patients beat Herpes simplex virus (HSV), MS, cancer, and HIV once and for all.