Three new vaccines produce an immune response to the new coronavirus. Two of the vaccines — one from China's CanSino Biologics and the other from a collaboration between Oxford University and Astrazeneca — use an altered adenovirus that mimics the coronavirus and, when injected in humans, triggers the creation of antibodies against it. The third, from Pfizer and German biotech BioNTech, relies on messenger RNA (mRNA) that synthesizes a crucial part of the coronavirus called the receptor-binding domain. They join US biotechnology company Moderna, which last week published evidence that its mRNA-based vaccine provoked immune responses in its early-stage trial. Next comes the all-important large phase III trials that will show whether these vaccines actually protect people from the new coronavirus. "What this means is that each of these vaccines is worth taking all the way through to a phase III study," said vaccine researcher Peter Jay Hotez.

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