

COVID-19 Biomedical Research Update 8

Science is Winning

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Prepared by Front Range PharmaLogic & West Slope PharmaLogic

Friends:

While Colorado battles the devastating effects of the COVID-19 crisis—including this month's intense resurgence of the virus, to levels that surpass the first wave last spring—we thought it beneficial to stay updated on the efforts underway to find treatments and cures.

The following summary is culled from a range of sources from the U.S. bioscience industry and major news outlets along with government and university institutions.

Major Breakthroughs

Nine-plus months after the World Health Organization (WHO) declared an international pandemic (on Jan. 30, 2020), the urgent work to find potential vaccines appears to be paying off. Viable vaccine candidates are emerging.

The focus is on three efforts in particular:

✓ Pfizer/BioNTech

Pfizer and its German partner BioNTech this week announced preliminary results that suggested their vaccine is more than 90 percent effective. This is a remarkable result. The FDA had set a target of 50 percent effectiveness.

The results come from a trial that involved 44,000 people. Half received the vaccine; half received a placebo. To date, only 94 participants in the study have developed COVID-19—and it's not yet known how many of those 94 study participants were given the placebo. (As a point of comparison, typical influenza vaccines are 40-to-60 percent effective).

During a national webinar on Thursday, Nov. 12, Pfizer Chief Patient Officer Dara Richardson-Heron said the company has already developed a detailed, logistical plan for distributing the vaccine, which will include keeping the vaccine at extremely cold temperatures. If the U.S. government grants emergency use authorization soon, Pfizer expects to produce 50 million doses this year and 1.4 billion doses in 2021. Richardson-Heron emphasized that no corners were cut, and all safety measures were rigorously pursued throughout the development of the vaccine.

Richardson-Heron emphasized that 42 percent of those involved in the global clinical trial (and 30 percent of those involved in the United States) were from diverse backgrounds.

It's worth noting that Pfizer did not accept federal funding to develop or manufacture the vaccine (unlike Moderna and AstraZeneca). Pfizer, however, did sign a \$1.95 billion deal to deliver 100 million doses to the United States.

The Pfizer/BioNTech vaccine uses a genetic molecule called RNA to cause our cells to make a viral protein. Immune systems then encounter the protein and make antibodies and immune cells that can recognize the protein quickly and deliver a swift attack.

Pfizer news release [here](#).

✓ Moderna

Moderna is in late-stage trials with an RNA vaccine of its own and expects to announce the vaccine's efficacy by the end of November. Moderna's clinical trial involves 30,000 participants. The company says it will release all study data when it announces the results and has said that 37 percent of study participants were from minority communities. CNBC story [here](#).

✓ Eli-Lilly

The Food and Drug Administration announced on Monday this week (Nov. 10) that it gave emergency use authorization for a drug developed by Eli Lilly that is designed to prevent people with mild to moderate COVID-19 from getting sicker. The drug, a variety of medication called a monoclonal antibody, will be available to people 65 or older or those with underlying health conditions. Monoclonal antibodies block the virus and prevent it from infecting cells. The goal is to keep them out of the hospital. Read the NPR story [here](#).

All involved in the pursuit of a vaccine note that it will take "many shots on goal" to quell the pandemic. More than nine months after the World Health Organization (WHO) declared an international pandemic (on Jan. 30, 2020), the work continues at a furious pace among a wide range of companies. There are many dashboards tracking these efforts. For consistency's sake, we have been keeping up with the data provided by the [Milken Institute](#).

- 234 vaccine candidates are now in the research pipeline. (On April 10 that number was 79). Of those 234, 11 are in Phase III clinical trials.
- 319 treatment candidates—designed to reduce symptoms of the disease—are being studied. (On April 10 that number was 116).

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