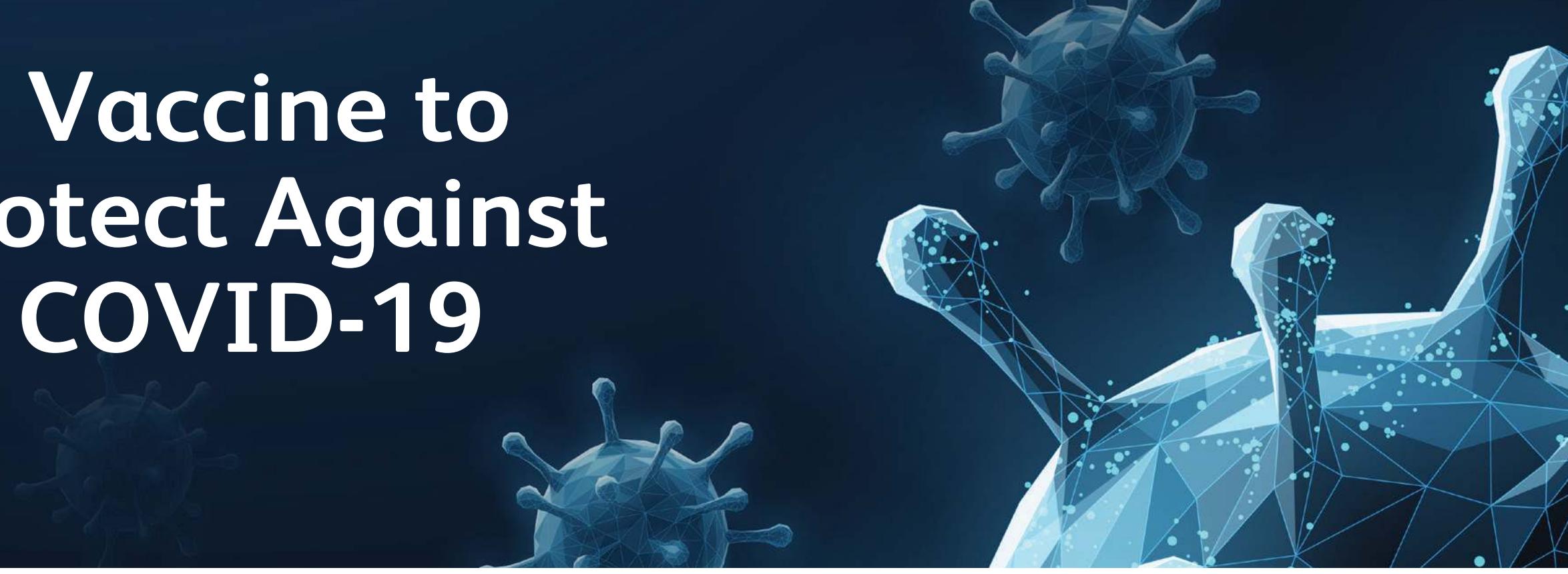


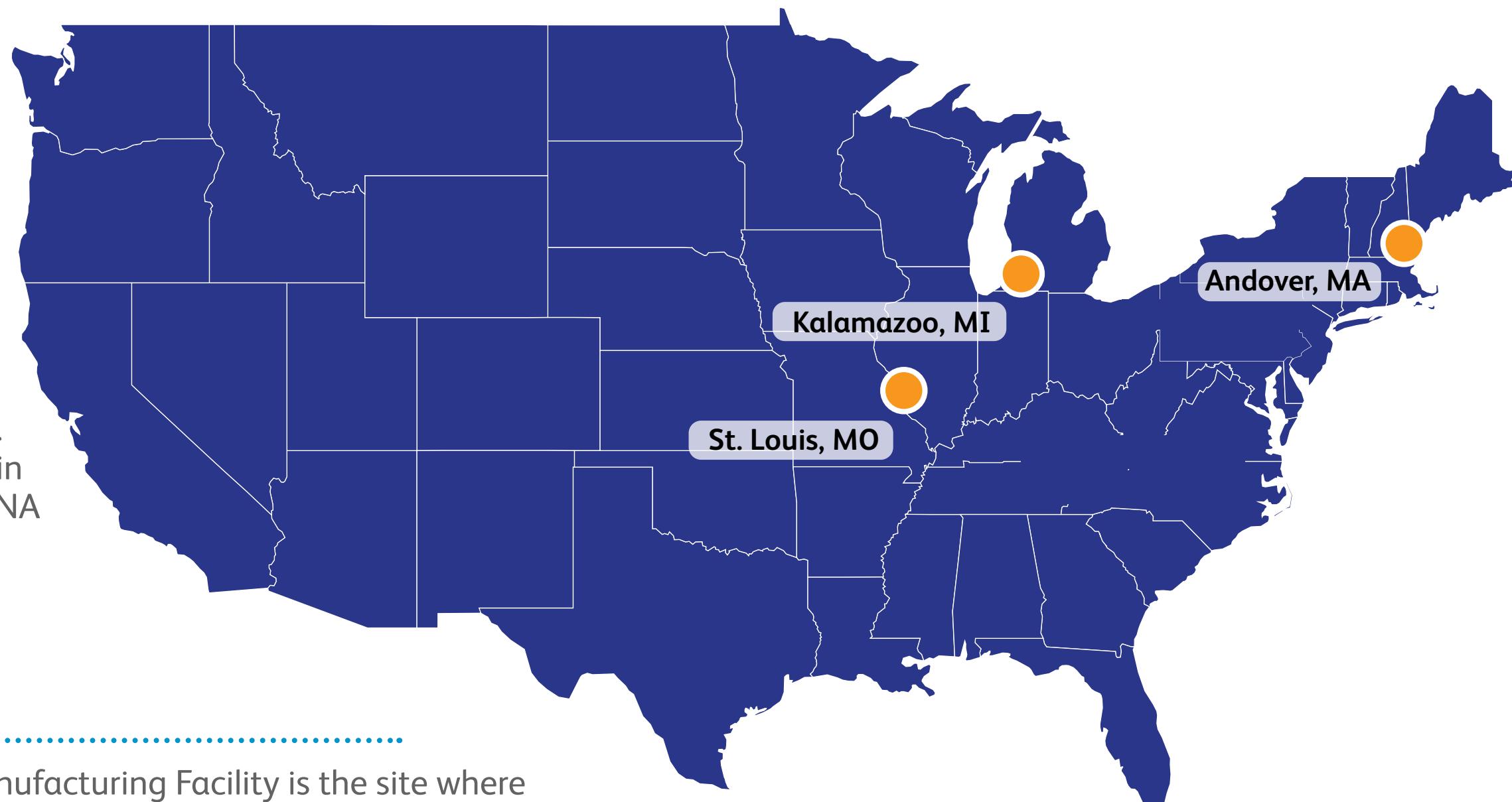
Breakthrough Vaccine to Potentially Protect Against the Spread of COVID-19



In terms of geographic manufacturing sites, Pfizer has manufacturing sites across the U.S. Initially for the COVID-19 U.S. commercial vaccine program, we are leveraging three of them:

St. Louis, MO Raw Material Production

The St. Louis site is where the plasmid DNA for the vaccine antigen is produced. The DNA is the template required to manufacture the mRNA vaccine. The template DNA is produced in a cell culture process and subsequently purified through a series of chromatographic and filtration steps. The purified template DNA is then linearized in preparation for the manufacture of the mRNA drug substance at our Andover, MA, facility.



Andover, MA Drug Substance

Using an enzymatic process, the Andover Manufacturing Facility is the site where the linearized template DNA is incubated with mRNA building blocks in a reaction vessel to make the mRNA drug substance. The mRNA drug substance is then purified to ensure it meets the highest level of quality and subsequently shipped to Kalamazoo.

Kalamazoo, MI Formulation, Fill & Finish

The Kalamazoo site will receive the mRNA drug substance and other raw materials and combine them through a series of steps including impingement jet mixing and specialized mixing to construct the lipid nano particle followed by sterile filtration. The bulk vaccine will then be transferred to an aseptic filling line where it will be filled into a sterilized vial and capped. It will then undergo 100% inspection before it is transferred to the packaging lines where it will be labeled and packed. The packed containers will then go into blast freezers before being staged in storage freezers awaiting final packing into dry ice shipping containers.

Our Puurs, Belgium, site is being leveraged for European supply.

How it Works

The vaccine is composed of an mRNA drug substance combined with a lipid nanoparticle. mRNA works by introducing into the body an mRNA sequence containing genetic instructions for the pathogen-specific antigen.

Once inside the vaccinated person's own cells, the mRNA provides instructions for the body to produce a piece of the virus, also called an antigen, to potentially generate a strong immune response. For the COVID-19 vaccine, the mRNA encodes the instructions to make a COVID-19 antigen.