**COVID-19**

**Neutralizing Monoclonal Antibodies Against SARS-CoV-2 for COVID-19 Screening and Treatment**

**Brief Description of Technology**

Development of neutralizing monoclonal antibodies (mAbs) that bind to the spike glycoprotein on SARS-CoV-2.

**Technology Overview**

The WHO declared COVID-19 a global pandemic as of March, 2020. The infection is caused by SARS-CoV-2, a beta coronavirus with 79.5% genome sequence identify to SARS-CoV. As of June, 2020, more than 400,000 people have died globally from COVID-19, and there remains no vaccine or approved therapeutic. The surface spike protein of SARS-CoV-2 binds ACE2 receptors on the surface of human cells. Once bound, the virus is able to enter the cell and translate RNA to produce more viruses. The SARS-CoV-2 envelope glycoprotein is a surface-exposed class-I fusion protein that has an ectodomain comprised of a receptor binding domain (RBD) subunit and a membrane-fusion subunit. Researchers at the Fred Hutch have developed neutralizing monoclonal antibodies capable of binding specific regions of the SARS-CoV-2 ectodomain. Drs. Stamatatos, McGuire, and Pancera have isolated 45+ monoclonal antibodies from serum samples derived from SARS-CoV-2 seropositive patients.

**Applications**

- Could serve as an immediate therapeutic
- These antibodies act as templates for vaccine development, or the development of screening tools and assays
- Use within a cocktail approach to reduce viral escape

**Advantages**

- Fully-humanized neutralizing antibody validated in live virus
- Blocks interaction with ACE2 receptor on human cells
- Cocktail application would

**Market Overview**

The Global Respiratory Disease Vaccine Market is expected to grow from USD 18,236.13 Million in 2018 to USD 25,236.13 Million by the end of 2025 at a Compound Annual Growth Rate (CAGR) of 4.75%. The global COVID-19 diagnostics market accounted for USD 4.9 billion in 2020 and with a CAGR of 6.1%, is estimated to reach USD 8.3 billion by 2029.