

Ossianix is responding to the COVID-19 pandemic by developing therapeutic single domain VNAR antibodies to the COVID-19 spike protein.

by Frank Walsh • 02 Apr, 2020

The current COVID-19 pandemic is a healthcare catastrophe of global proportion. There are no treatments for the disease and a vaccine will take time to develop. Therefore, additional novel immunological approaches need to be considered for therapeutic development. Passive immunization via antibodies that target and neutralize the virus are attractive options. There are already early reports of antibodies cloned from B cells of infected individuals, as well as monoclonal antibodies developed from humanized mice.

A novel approach being pioneered at Ossianix uses its patented VNAR phage display libraries to identify single domain antibodies with high affinity and specificity against the COVID-19 spike protein. The spike protein is the site of attachment of the virus with its cellular receptor ACE-2 and blockade at that site will neutralize its activity.

Single domain VNAR antibodies have large CDR3 binding domains that preferentially bind cavities and buried epitopes in proteins. These are often the sites of protein-protein interactions. It is thus highly likely that screening of the multi-isoform and [HKC1] highly complex VNAR libraries will identify hits that will be different from those isolated from human B cells. Once identified, VNAR single domain antibodies can then be developed to block these sites. Certain VNAR antibodies that bind to the transferrin receptor have also shown the capability to specifically target the lung in rodents and non-human primates. These VNARs can be fused to antibodies or other therapeutics creating bispecific biologics for targeted delivery.

The screening campaign against the COVID-19 spike protein at Ossianix is advancing rapidly and we hope to announce the results to the scientific community over the coming weeks.

Ossianix wishes to partner after this screening stage with interested parties in government, academia or biotech and pharma companies to develop the virus blocking VNAR antibodies and move the project to a therapeutic reality in the shortest possible time.

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