CONCEPT LIFE SCIENCES
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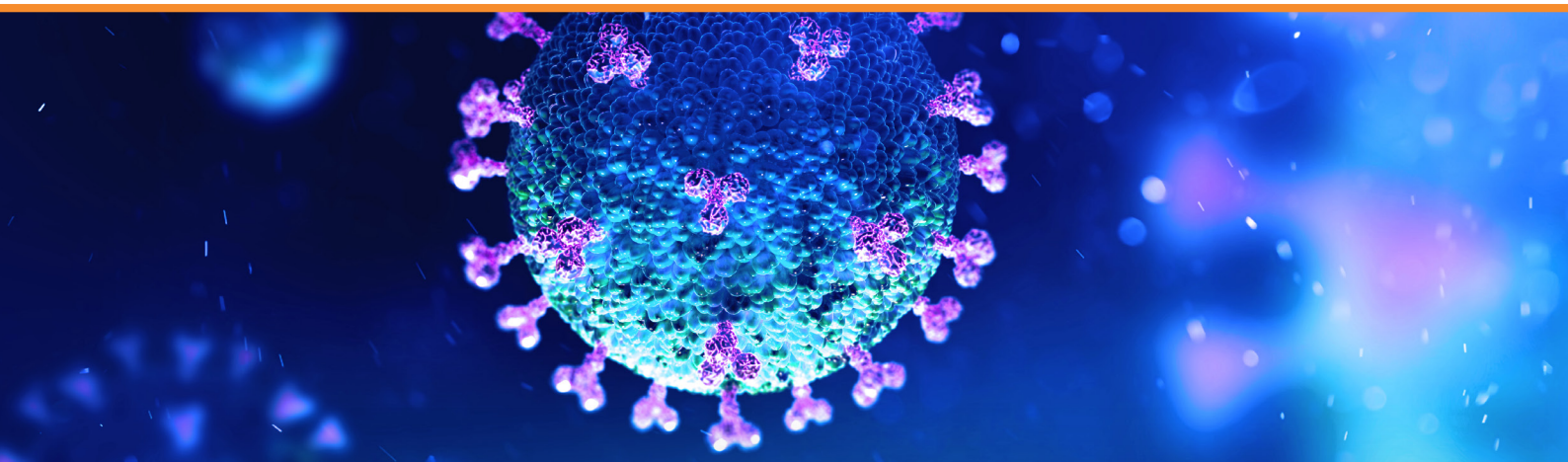

SUPPORTING YOUR COVID-19 PROJECTS

The spread of COVID-19 is one of the biggest public health challenges the world has faced, and research has a vital role to play in developing new therapies to combat this and future pandemics.

Concept Life Sciences has the knowledge, skills and capacity to be able to offer a range of solutions to help our clients combat COVID-19. Our services support the research and development of new antiviral therapies. This includes small molecules, biologics, therapeutic antibodies, vaccines and repurposing of existing therapeutics. We also support development of improved clinical diagnostic, prognostic and end point biomarkers of the host immune response to COVID-19 for use in clinical trials.

In addition, through our alliance with our sister company Malvern Panalytical, we are able to combine our analytical expertise and advanced analytical instrumentation to support small molecule, large molecule and vaccine development.

SMALL MOLECULE AND BIOLOGIC ANTIVIRAL THERAPIES

Scientists at Concept Life Sciences provide solutions to support many of the therapeutic strategies being adopted in the fight against COVID-19. Whether that be: inhibition of viral-host cell interactions, inhibition of viral replication, modulation of pro-inflammatory pathways leading to cytokine release or the development of neutralising antibodies or peptides.

Understanding the interaction between COVID-19 and the host cell, that lead to internalisation and replication of the virus, stimulation of signalling pathways arising from the host immunological response and ultimately its clinical manifestations e.g. the "Cytokine Storm", are critical to the development of new antiviral therapies and managing the clinical response.

Concept Life Sciences biophysical experts use multiple technologies to quantify the binding affinity and kinetics of either small molecules, peptides or neutralising antibodies that may interfere with the principle binding receptors for COVID-19 e.g. ACE2- the first assault of COVID-19 on host cells.

Knowledge of coronavirus structural biology, enables our computational chemists to apply their knowledge of structure based drug design using in silico docking models to rapidly identify the most promising drug candidates for specific Covid protein targets. In parallel, the pharmacology team can develop and industrialise novel biochemical and cell based assays to assess functional inhibition of protein targets e.g. proteases or polymerases essential for viral replication. Our immunologists,

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have proven expertise in developing complex immunology assays using ethically sourced human cells and tissues, providing our clients with translational assays to study the effects of large and small molecule therapeutics on complex immune cell interactions, their downstream signalling pathways and effector mechanisms, which are responsible for the release of pro-inflammatory cytokines following COVID-19 infection.

This coupled with our drug discovery expertise in medicinal chemistry design, synthetic chemistry of small molecule, peptide, nucleoside and nucleotides and our ADMET and DMPK teams, enables us to expedite optimisation of antivirals against existing and novel therapeutic targets, from hit identification through to candidate selection.

These discovery activities are supported by a strong Process Research and Development team and GMP API manufacturing and materials characterisation and GLP bioanalytical experience providing continuity of support in order to rapidly transition projects from discovery into the clinic.

VACCINE RESEARCH

Our Biology team have experience in multiple techniques which are widely used in vaccine research and vaccine development. For example SPR can be used as a tool to understand epitope/antibody interactions for the development of epitope-based vaccines which are specific and can avoid undesirable immune responses and generate long lasting immunity.

Understanding the degree and duration of immunity and host response to vaccines can be addressed with our immunology platform measuring specifically dendritic cell function and activation of T-cells and B-cells using flow cytometry and readouts such as cytokine release, gene expression and protein expression.

CLINICAL DIAGNOSTICS, PROGNOSTICS AND VIRUS DETECTION

Our scientific team have expertise in developing biomarkers, which can be used to rapidly assess for example viral load in clinical samples using standard protocols (.e.g. RT-PCR) or antibody detection of prior exposure against COVID-19 or other coronaviruses. In addition, we can support development of novel biomarkers to GCP for diagnostics, prognostics or outcomes. Endpoints such as cytokine analysis or gene expression using state of the art nanostring technology, or protein expression in tissues using our multiplex histology platform coupled with our bioanalytical capabilities can provide critical PK/PD measures to support clinical trials.

OUR ALLIANCES

Concept Life Sciences has teamed up with our sister company Malvern Panalytical to provide access to state of the art technologies combined with advanced analytical services in order to provide both small molecule, biologics and vaccine developers support during the development and manufacturing phases of pharmaceutical development. Techniques such as Differential Scanning Calorimetry (DSC), Dynamic light scattering (DLS), Circular dichroism (CD), Size-exclusion chromatography multi-angle light scattering (SEC-MALS) and intrinsic fluorescence have been used to study long-term vaccine stability, protein aggregation, AAV loading, and general biophysical properties to optimise development work flows and provide essential quality control during vaccine and biologics development and manufacturing.

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At a time when many companies are trying to fast track the development of COVID-19 programs, we would like to advise all clients that we have put in place necessary measures to allow us to remain fully operational to support you in all your projects, and are fully compliant with local, WHO and CDC guidelines regarding social distancing. We continue to provide a high level of service, with expedited turnaround times and a single point of contact for your project.

Our team of experienced scientists, with depth and breadth of knowledge and expertise, share your passion for delivering science.

AS YOUR DEDICATED PARTNER AND COLLEAGUE, WE ARE HERE TO HELP YOU ACHIEVE YOUR GOALS

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