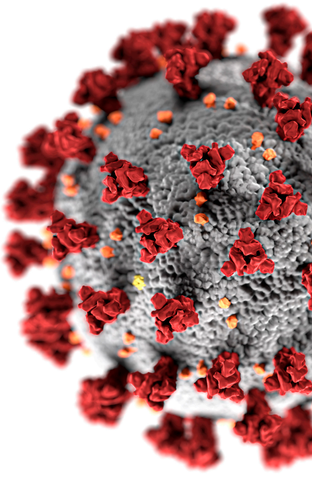
CD ANALYSIS IN VACCINE DEVELOPMENT



VACCINES PREVENT DISEASE

Vaccines prevent disease by training the immune system to fight off a pathogen (virus or bacterium).

To do this they present antigen, part of the pathogen, to the immune system.

A good vaccine will provide long lasting and broad immunity to all who need it.

VACCINE DEVELOPMENT

Vaccine development is hard because different development processes are required for different antigens / vaccine types.

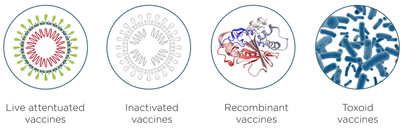
Choosing how best to present the antigen to the immune system requires knowledge of the disease and our immune response to it.

CD IN VACCINE DEVELOPMENT TO:

- Understand pathogens and the diseases they cause
- Assess antigen structure, stability and interactions with other vaccine components
- Characterize DNA- and RNA-based vaccines and their delivery vehicles
- Gain a deep understanding of product and processes allowing rapid scale up over multiple sites

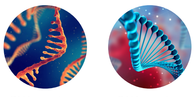
CONVENTIONAL VACCINES

Conventional vaccines use attenuated (weakened) or killed pathogen, parts of the pathogen which cause an immune response or toxins produced by the pathogen.



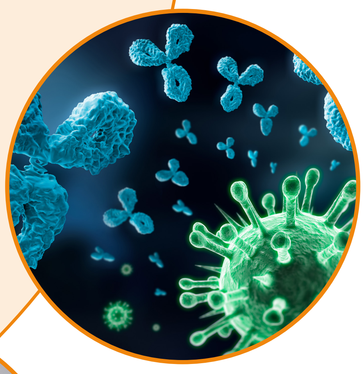
Live attentuated vaccines | Inactivated vaccines | Recombinant vaccines | Toxoid vaccines

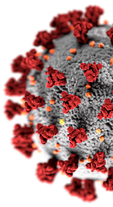
NEWER METHODS



RNA vaccines | DNA vaccines

Newer methods use genetic material (DNA or RNA) from the pathogen, can be quicker and cheaper to make and are safer as the active pathogen is not used.





ADJUVANTS

Adjuvants aid in developing a broad and lasting immune response using less antigen. Using less antigen can reduce pressure on manufacturing.

Adjuvants work by extending the presence of antigen in the blood, helping the antigen adsorb to antigen-presenting cells, activating cells of the immune system, or supporting the production of small signalling molecules.

CHIRASCAN Q100

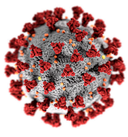
Speed up vaccine development

More walk-away time for increased productivity and flexible working

Analyze more samples

Reproducible and easy to duplicate across multiple sites

Faster and more robust decision making



PRODUCT SAFETY & EFFICACY

No matter the method of design, manufacture or presentation, safety and efficacy of the final product are critical.

There are many ways of testing safety and efficacy in the development process: characterizing the protein antigen or nucleic acid, testing for stability under different conditions, checking for retention of functionality with adjuvants are just a few.

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