




Monoclonal antibody

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- Monoclonal antibodies are artificially created antibodies that aim to aid the body's natural immune system. **They target a specific antigen a protein from the pathogen that induces immune response.**
- **Monoclonal antibodies can be created by exposing white blood cells to a particular antigen.** To increase the quantity of antibodies produced, a single white blood cell is cloned, which in turn is used to create identical copies of the antibodies. In the case of Covid-19, scientists usually work with the **spike protein of the SARS-CoV-2 virus, which facilitates the entry of the virus into the host cell.**
- **Antibodies are tiny Y-shaped proteins in our blood** that recognise microbial enemies and bind to them, signalling the immune system to then launch an attack on the pathogen. However, for people whose immune systems are unable to make sufficient amounts of these antibodies, scientists provide a helping hand.
- The idea of delivering antibodies to treat a disease came into being in 1900s, when Nobel-prize winning German immunologist Paul Ehrlich proposed the idea of a 'Zauberkegel' (magic bullet), a compound which selectively targets a pathogen.
- **Muromonab-CD3, the world's first monoclonal antibody to be approved for clinical use in humans.** Muromonab-CD3 is an immunosuppressant drug given to reduce acute rejection in patients with organ transplants.

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