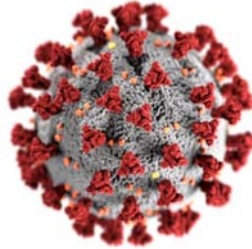


COVID-19: Vaccines



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Global Research & Development UnitedHealth Group

Parasites without Borders

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COVID-19 Vaccine Talk outline

1. Vaccines Study Phases
2. Vaccine Types
3. Participating in a Vaccine Study
4. Decisions about Vaccines with limited Data

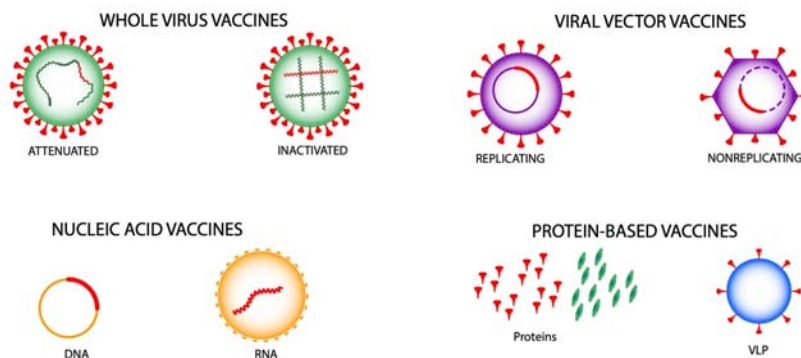
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Vaccines Study Phases

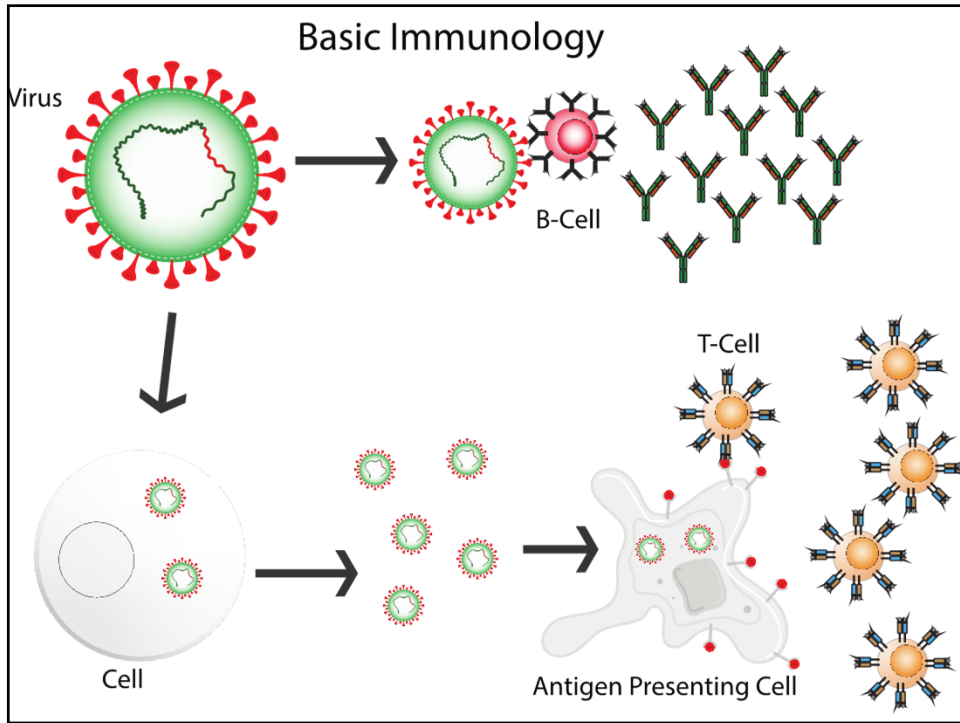
- **Phase 1 Safety Trials** are small safety trials with some confirmation that the vaccine stimulates the immune system.
- **Phase 2 Expanded Trials** move this up to hundreds of people and a broader age and again look at safety and immune stimulation.
- **Phase 3 Efficacy Trials** are placebo-controlled trials look at efficacy and less common side-effects.

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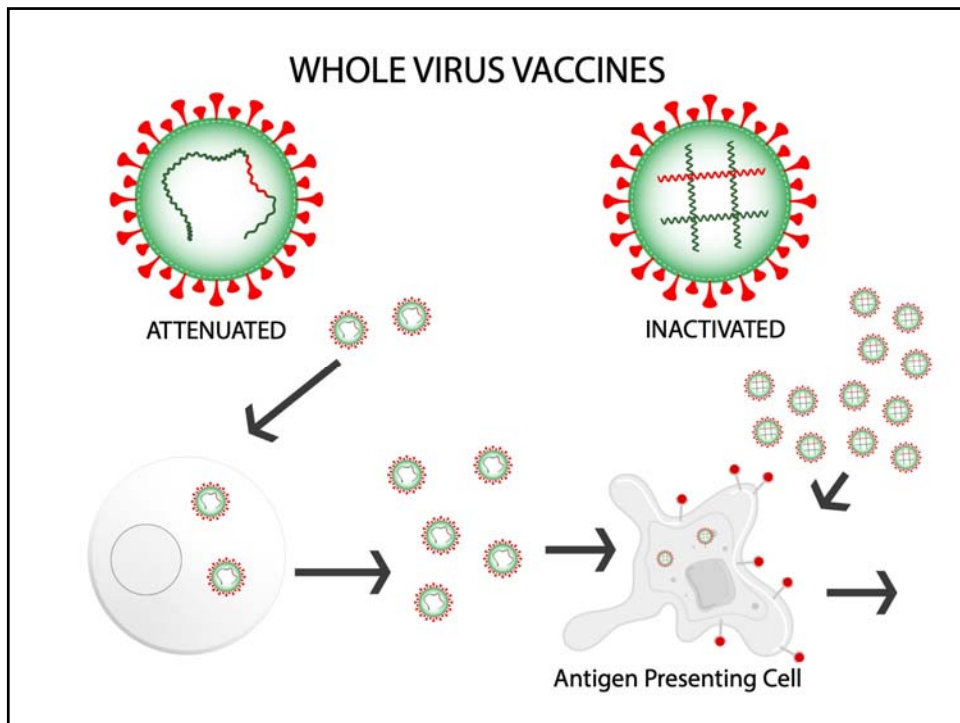
Vaccines Types



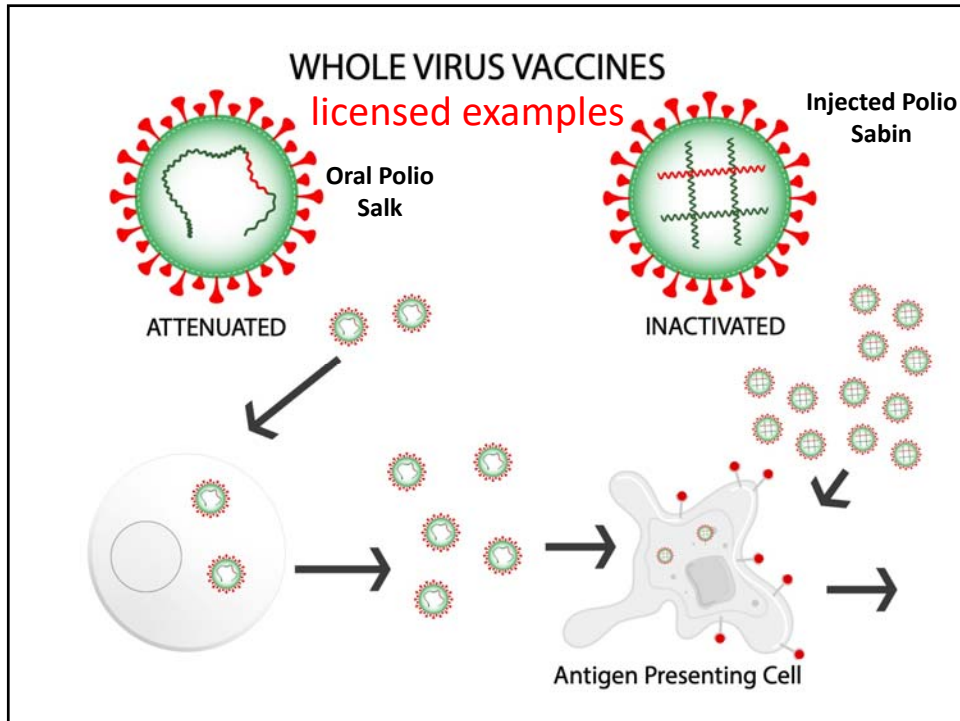
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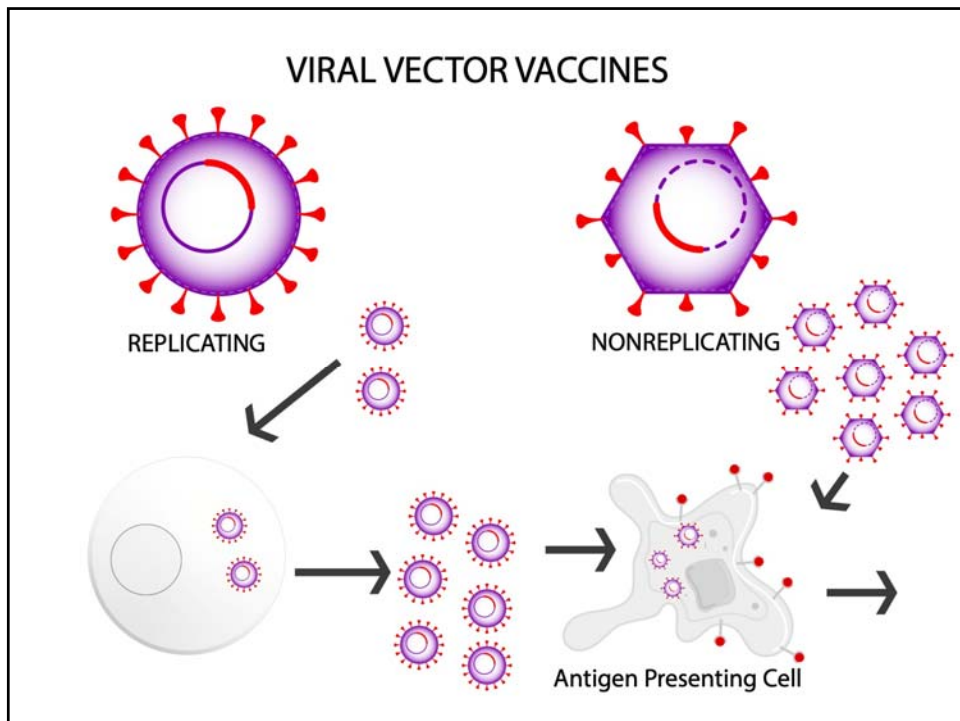
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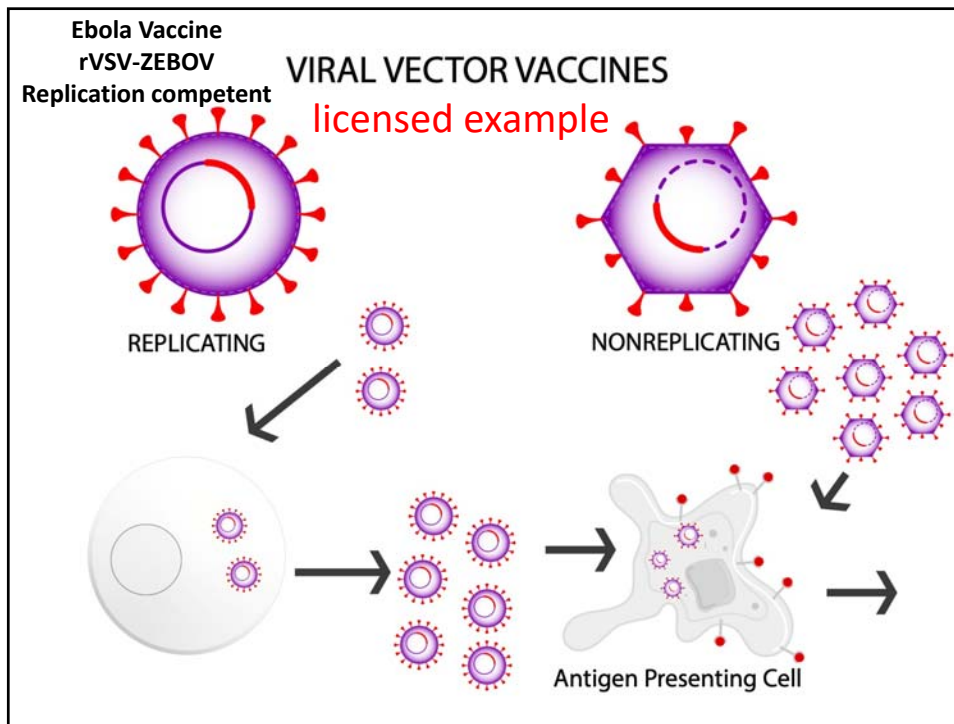
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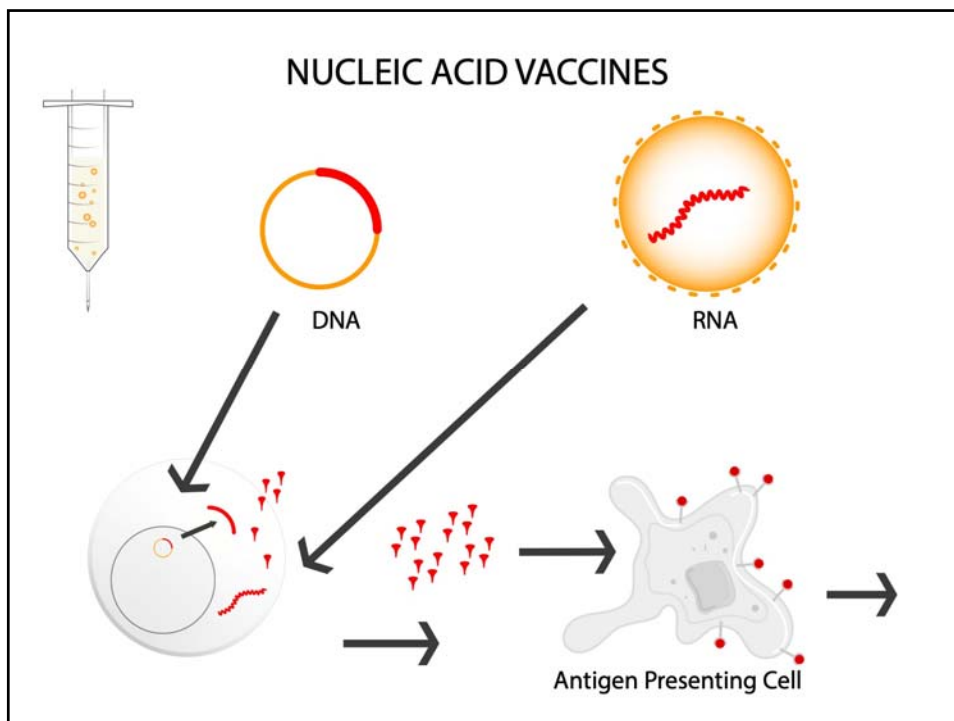
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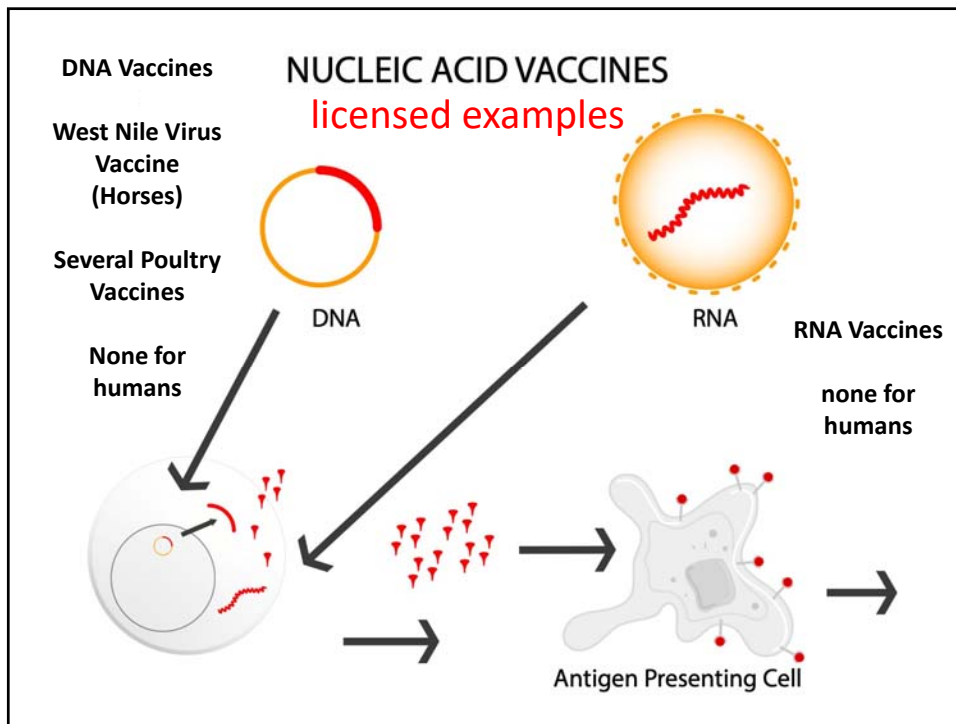
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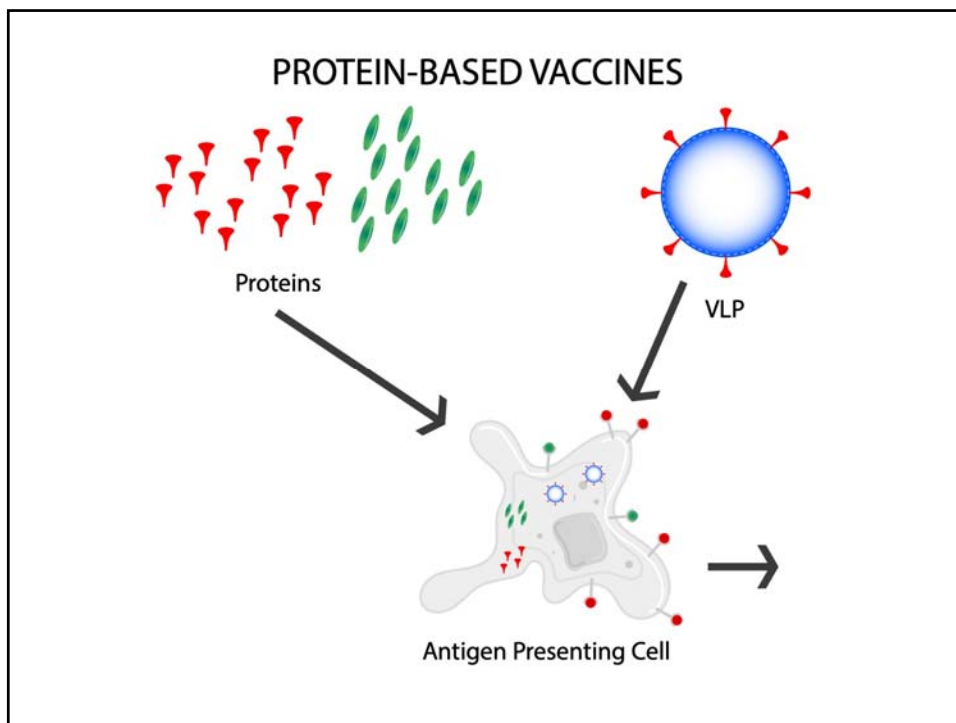
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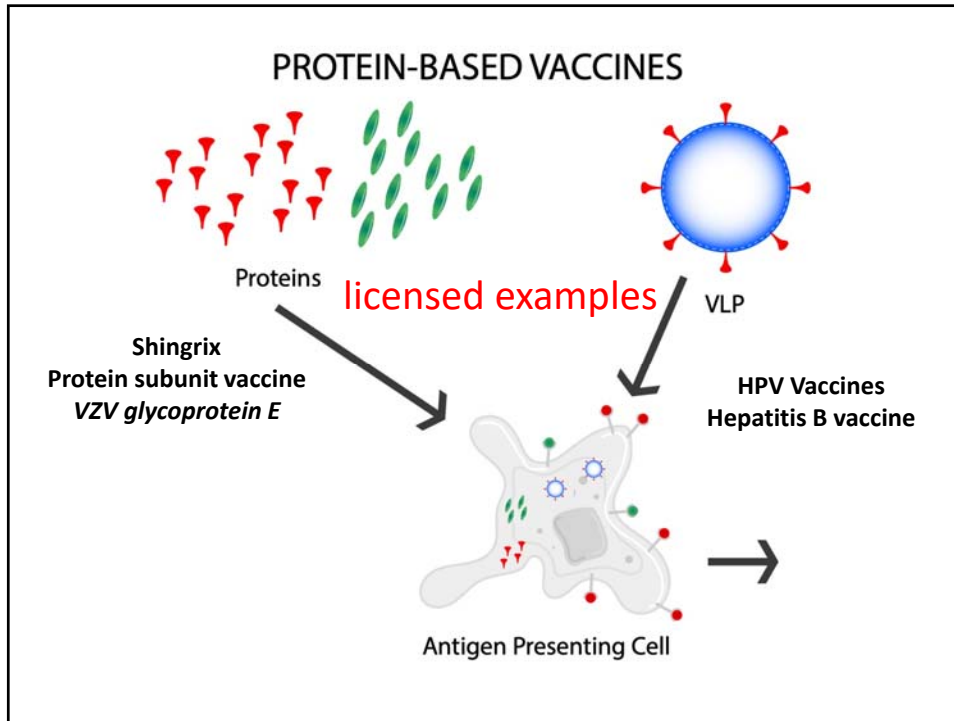
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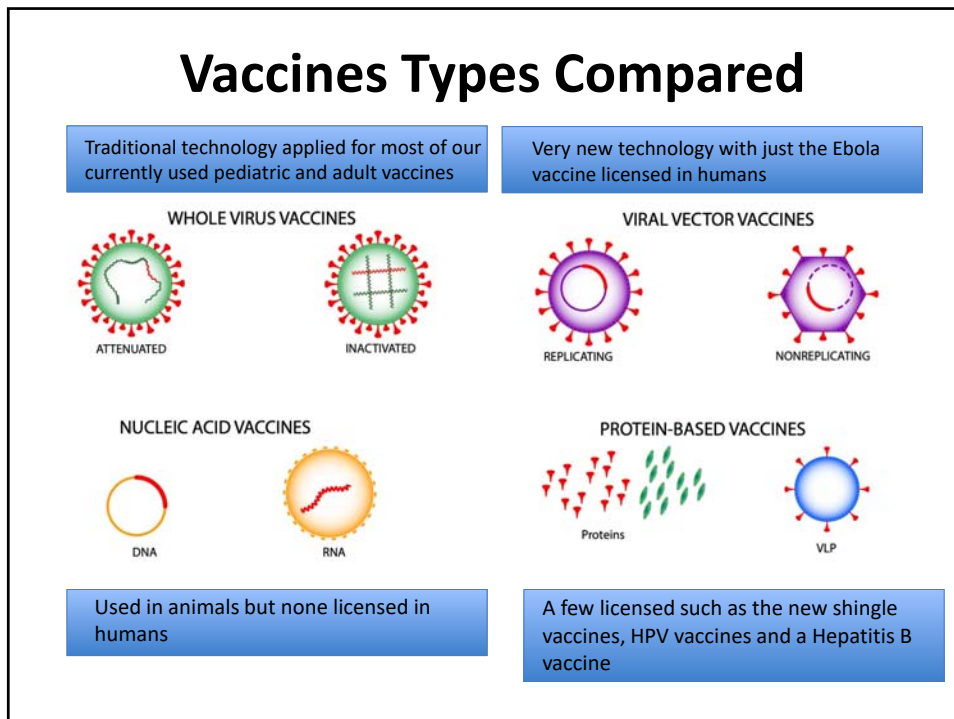
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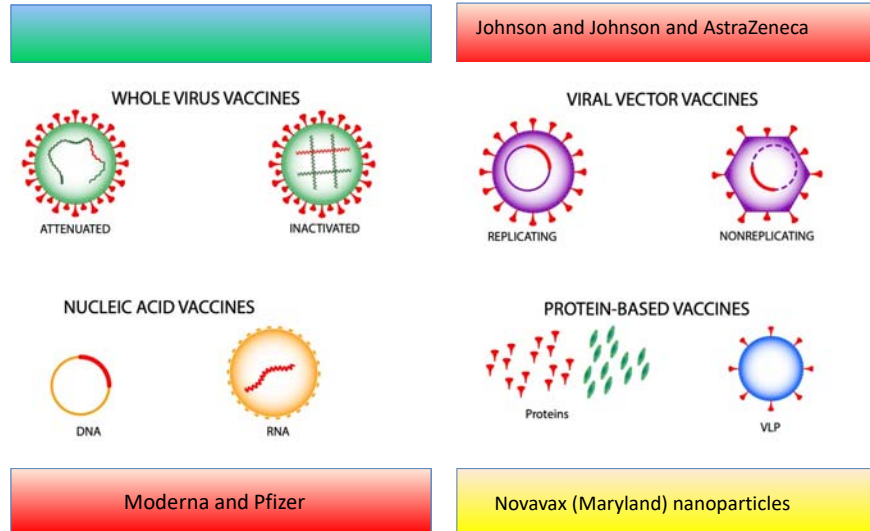


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Leading Vaccines in the U.S.



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Participating in a Vaccine Study

- For **Moderna** one can go to <https://www.modernatx.com>
- For the **Pfizer/BioNTech** one can go to <https://www.covidvaccinestudy.com/>
- For the **AstraZeneca/Oxford** study go to <https://www.c19vaccinestudy.com>
- **Johnson and Johnson** – <https://www.unitedinresearch.com>
- **Novavax** -starting soon
- To sign up to be alerted for a vaccine trial <https://www.coronaviruspreventionnetwork.org>

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Decisions about Vaccines with limited Data

- Minor adverse effects
- Serious Adverse Effects
 - Death
 - Guillain-Barré syndrome (GBS)
 - Rapid onset of ascending paralysis over hours to weeks with about 15% of people requiring mechanical ventilation.
 - This is thought to be caused by auto-reactive antibodies triggered by natural infections or vaccination.
 - Most people fully recover over weeks to years but 30% never fully recover and about 7-8% die.
 - Transverse Myelitis
 - Encephalitis
 - Antibody dependent enhancement (ADE)

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Guillain-Barré syndrome (GBS)

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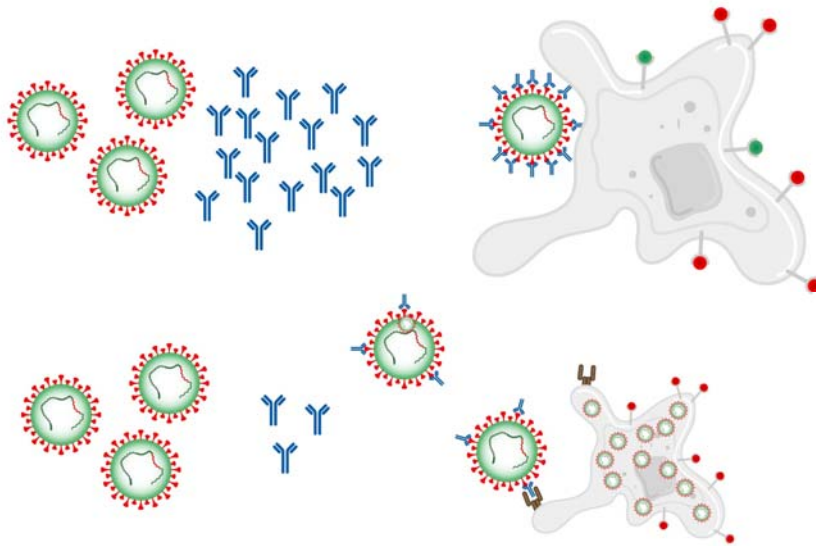
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Transverse Myelitis

- Rapid onset of weakness, sensory issues and bowel and bladder dysfunction.
- This is thought to be caused by auto-reactive antibodies triggered by natural infections or vaccination that target the myelin (oligodendrocytes and schwann cells) in the spinal cord.
- Most people have at least a partial recovery but this can take years.

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Antibody Dependent Enhancement



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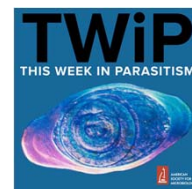
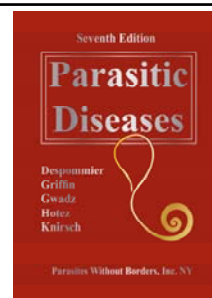
Vaccines and Emergency Use Authorization

- **Project BioShield Act of 2004**
https://www.congress.gov/bill/108th-congress/senate-bill/15_2004.
- **Pandemic and All-Hazards Preparedness Reauthorization Act of 2013**
<https://www.congress.gov/bill/113th-congress/house-bill/307>
- Under these regulations, *if the known or potential benefits are thought to outweigh the known and potential risks, emergency use can be granted.*

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Thank you!

- If you want more information visit:
- www.parasiteswithoutborders.com
- <http://www.microbe.tv/twiv>
- Dgriffin@ProHEALTHcare.com



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