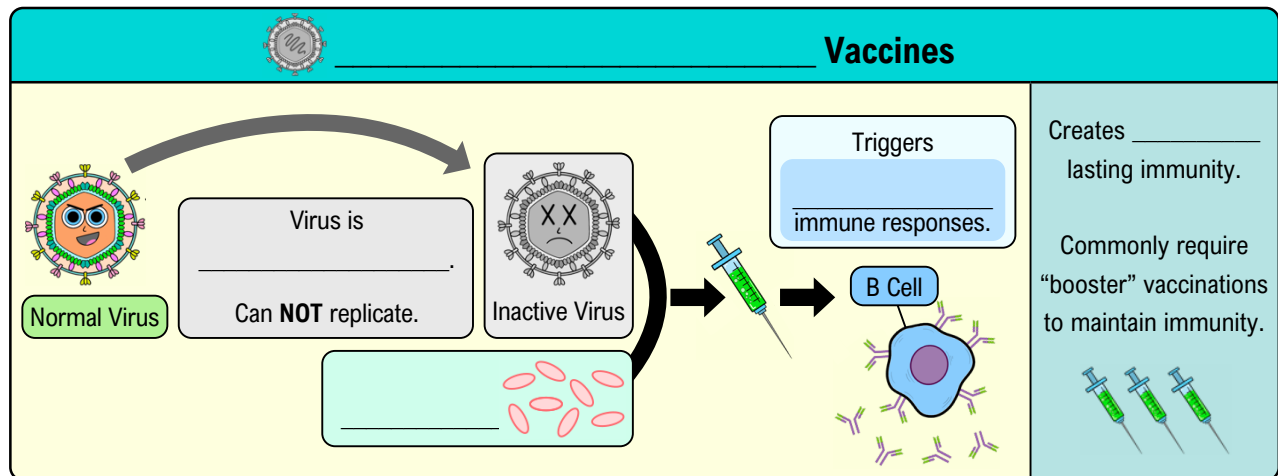


TOPIC: INACTIVATED VACCINES

Inactivated Vaccines

- ◆ Are altered so they can _____ replicate (*lacks immune amplification*); provides _____-term protection.
 - Typically require _____ doses & often only induces _____ immunity (not cell-mediated).
 - Often require **Adjuvants**: substances added to a vaccine to help _____ the immune response.
 - _____ effective, but *lower risk* (can't replicate or revert to pathogenic state).



EXAMPLE

Match the following scenarios with the type of immunity they provide to the individual.

A newborn acquiring immunity to yellow fever from its mother's breast milk.	
A patient receiving a dose of the diphtheria vaccine.	
A patient being immune to COVID-19 for a short period after being infected with the SARS-CoV-2 virus.	
A patient given anti-rabies serum (antibodies that target the rabies virus) after being bitten by rabid animal.	

- Naturally acquired active immunity.
- Naturally acquired passive immunity.
- Artificially acquired active immunity.
- Artificially acquired passive immunity.

TOPIC: INACTIVATED VACCINES

PRACTICE

_____ vaccines are more capable of causing disease in a patient. However, _____ vaccines do not provide as long-lasting immunity.

- | | |
|-------------------------------------|----------------------------|
| a) Inactivated subunit; Attenuated. | c) Adjuvant; Denatured. |
| b) Attenuated; Inactivated. | d) Humoral; Cell-mediated. |

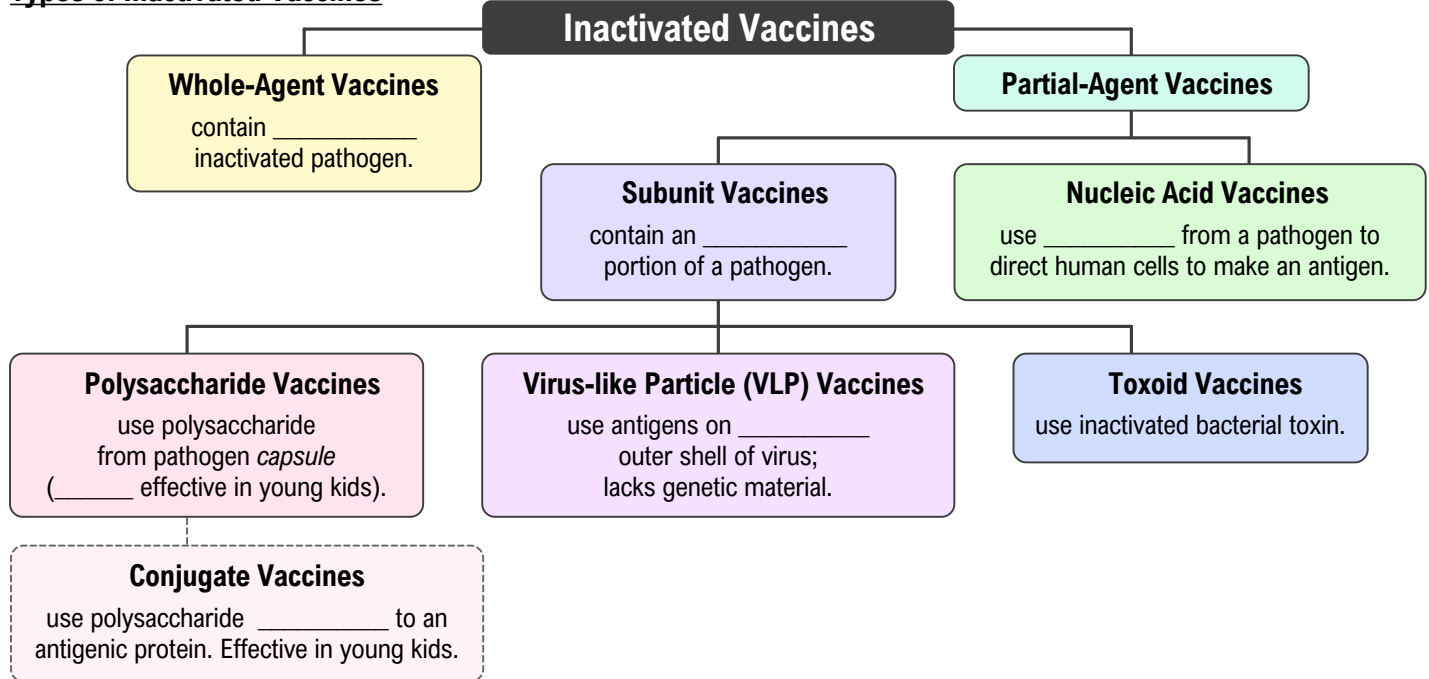
PRACTICE

A person who is not vaccinated against the rabies virus is bitten by a rabid animal. Why would anti-rabies serum (antibodies that target the rabies virus) be a more effective treatment for this person than simply vaccinating the individual after they are bitten?

- a) The person has already been exposed to the virus, they do not need an additional exposure with the vaccine.
- b) The vaccine does not provide immediate immunity to the virus, the body needs time to make antibodies.
- c) Anti-rabies serum contains antibodies that allow the immune system to immediately start fighting the virus.
- d) All of the above.

TOPIC: INACTIVATED VACCINES

Types of Inactivated Vaccines



◆ **Recombinant Vaccines:** use a component produced by genetic engineering.

PRACTICE

A vaccine that only contains antigenic portions of a virus is called a/an:

- a) Attenuated antigen vaccine.
- b) Recombinant inactivated vaccine.
- c) Inactivated subunit vaccine.
- d) Inactivated whole-cell vaccine.

PRACTICE

Which of the following statements about vaccines is incorrect?

- a) Inactivated vaccines are considered safer than attenuated vaccines for immunocompromised patients.
- b) Conjugate vaccines attach pathogenic polysaccharides to the host's antibodies.
- c) Because inactivated vaccines are less effective, they usually require multiple "booster" doses.
- d) Inactivated whole-cell vaccines are composed of "killed" pathogens.
- e) Toxoid vaccines provide immunity to toxins created by pathogenic bacteria.

TOPIC: INACTIVATED VACCINES

PRACTICE







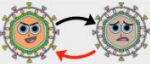


Haemophilus influenzae is an encapsulated, pathogenic bacterium which causes meningitis in infants and young children.

What type of vaccine would be best to protect young children from this disease?

- | | |
|-----------------------|----------------------------|
| a) Conjugate vaccine. | c) Attenuated vaccine. |
| b) Toxoid vaccine. | d) Polysaccharide vaccine. |

TOPIC: INACTIVATED VACCINES

Review of Attenuated & Inactivated Vaccines

Type of Vaccine	Attenuated 	Inactivated 
Replicates?	_____, but is weakened.	No
Part of Microbe Used	Weakened whole agent	Whole agent or antigenic part
 Need Adjuvant?	No	_____
 Immune Response	Cell-mediated & Humoral response	Humoral response
 Duration of Immunity	_____ -term	_____ -term
 Required # of Doses	1 or 2	Several boosters
 Risk of Reversion?	_____	No
 Risk for Pregnant or Immunocompromised?	Yes	_____
 Cost for Transport	_____ (Requires refrigeration)	Low (No refrigeration required)

EXAMPLE

Match the type of vaccine with the correct description or characteristic.

The microbes within these vaccines have the possibility of reverting to a pathogenic state.	
These vaccines offer short-term immunity and usually require booster vaccinations.	
These vaccines provide long-term immunity and trigger humoral and cell-mediated immunity.	
These vaccines are very low risk and are commonly given to immunocompromised individuals.	
These vaccines use adjuvants to trigger a stronger immune response in the patient.	

- a) Attenuated Vaccines. b) Inactivated Vaccines.

TOPIC: INACTIVATED VACCINES

PRACTICE

Which of the following statements about adjuvants is correct?

- a) They are used in attenuated vaccines to help weaken the attenuated pathogen.
- b) They are used in attenuated vaccines to help enhance absorption of the vaccine.
- c) They are used in inactivated vaccines to reduce the pain felt by the patient when administering the vaccine.
- d) They are used in inactivated vaccines to help enhance the immune response.