Killed (Inactivated) Fractional Protein Vaccines

There are 2 types of killed (inactivated) fractional vaccines: protein-based and polysaccharide-based. Out of the protein-based vaccines, there are subunits and toxoids. The subunit vaccines include influenza, pertussis, hepatitis B, HPV, and anthrax while the toxoids include diphtheria and tetanus. The DTaP/Tdap combined vaccine consists of diphtheria toxin, tetanus toxin, and acellular pertussis subunit.



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Subunit Vaccines

Subunit
Submarine
Protein-based fractional vaccines can be categorized into subunit and toxoids. Subunit vaccines contain a particular antigen (proteinaceous compound) that generates a T-cell dependent immune response.

Influenza (Intramuscular)
In-flute-virus
There are several types of vaccines for influenza. The classic "Flu shot" is a trivalent or quadrivalent vaccine which contains the killed subunits of the influenza virus for that particular year. Recall that in comparison, the intranasal influenza vaccine is a live vaccine.

Bordetella Pertussis
Border Pearl-tusks
Bordetelle pertussis causes pertussis ("whooping cough"). The DTaP vaccine contains acellular B. pertussis subunits.

Hepatitis B
Happy-tie-liver Bee
For hepatitis B vaccination, the hepatitis B surface antigen (HBsAg) is used as the proteinaceous subunit. The hepatitis B vaccine is given in early childhood or in adults if they are at risk.

Human Papillomavirus (HPV)
Human Puppet-Virus
The HPV vaccine helps confer immunity to human papillomavirus, which can cause cervical cancer, laryngeal cancer, anal cancer, or warts.

Bacillus anthracis (Anthrax)
Rods Amtrak
The antrax vaccine adsorbed (AVA) is available for pre-exposure and post-exposure prophylaxis against anthrax (caused by B. anthracis).

Toxoid Vaccines

Toxoid
Toxic-green-barrel
Toxoid vaccines are fractional vaccines that consist of inactivated but immunogenic toxins released from certain organisms.

Corynebacterium diphtheriae (Diphtheria)
Corn-dip-bacteria
The toxins released from C. diphtheriae are obtained and inactivated. They are combined with toxins in C. tetani as well as acellular pertusis subunits to form the DTaP/Tdap vaccine.

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Clostridium tetani (Tetanus)

Titanic-ship

The toxins released from C. tetani are obtained and inactivated. They are combined with toxins in C. diphtheriae as well as acellular pertusis subunits to form the DTaP/Tdap vaccine.

Considerations

DTaP and Tdap

DTaP-dancer

The diphtheria, tetanus, and acellular pertussis (DTaP) vaccine is composed of C. diphtheriae toxins, C. tetani toxins, and B. pertussis subunits. DTaP is administered to children under 7 years of age while Tdap is administered to those 7 and older.

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