

Quiz

Infectious diseases

Gram stain

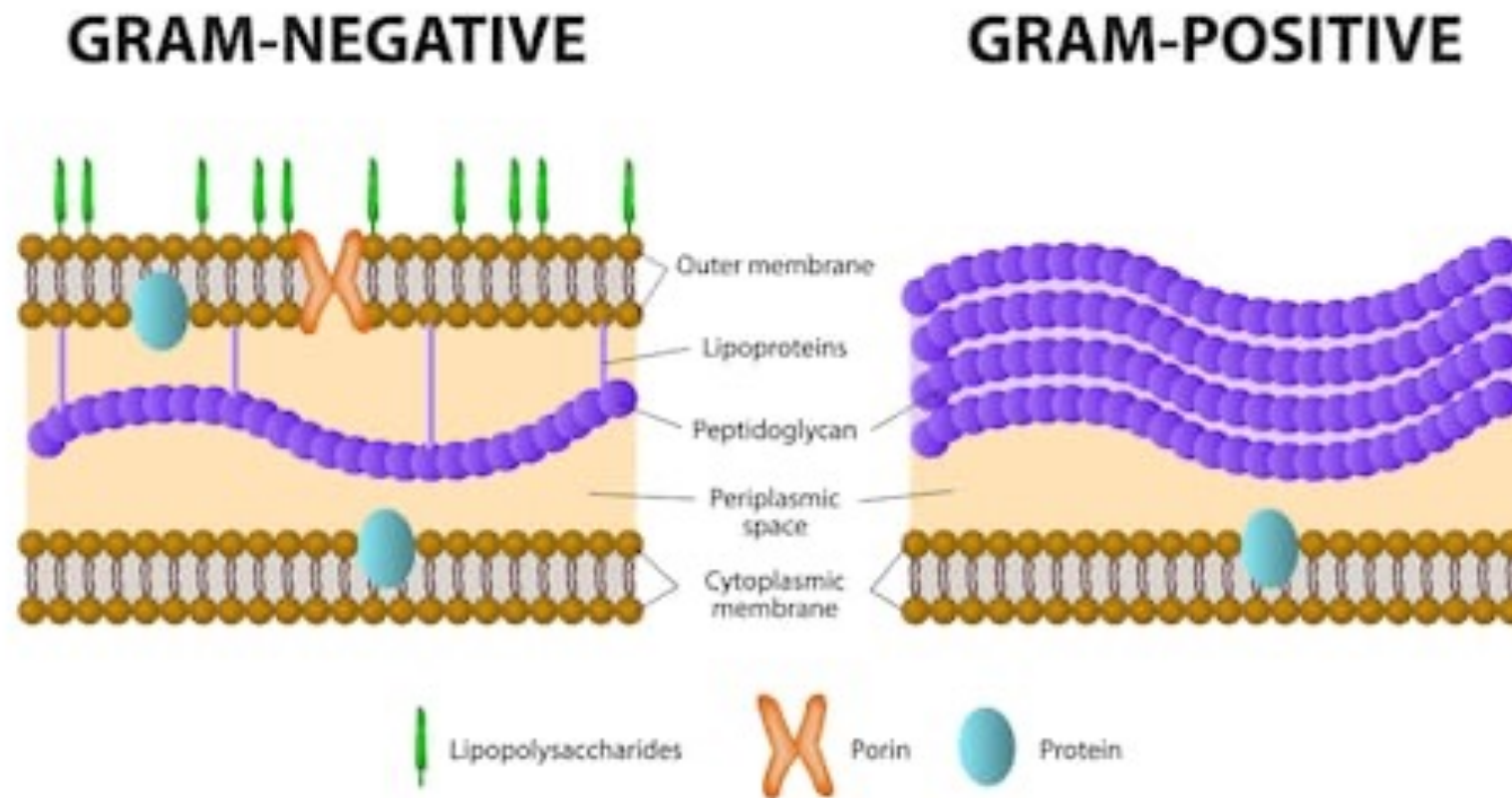
(1) What is stained by crystal violet?

- Crystal violet stains the peptidoglycan layer in the cell wall of bacteria

(2) Which type of bacteria have only one membrane?

- Gram-positive bacteria

Comparison gram-negative/gram-positive bacteria



(3) Is syphilis a bacterial or viral disease?

- Syphilis is a bacterial disease
- *Treponema palladium*



(4) Is there a treatment for Syphilis?

- Antibiotics (e.g. Penicillin)
- Treatment might not undo damage that the infection has caused.

(5) From which animal did we inherit syphilis?

- We inherited syphilis from sheep



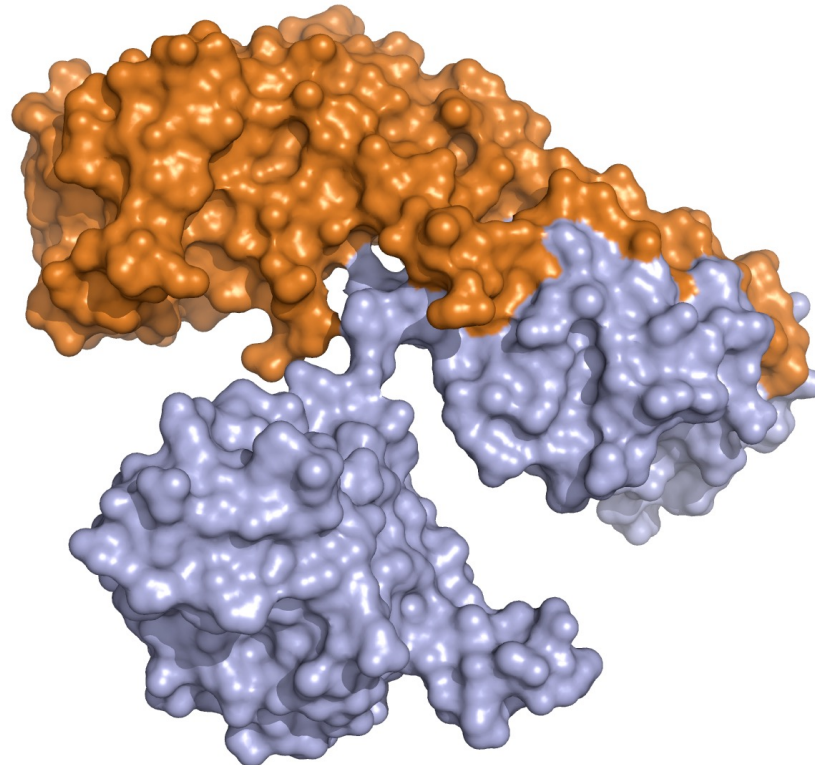
(6) Can you name a bacterial disease of the upper respiratory system caused by a secreted toxin?

- Diphtheria



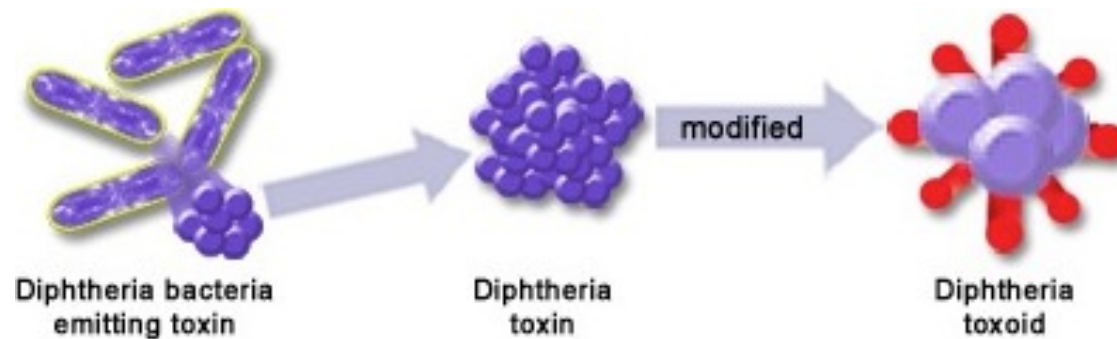
(7) The secreted toxin is which type of molecule?

- The diphtheria toxin is a protein



(8) What is the name of a vaccine that is based on an inactivated toxin

- **Toxoid vaccine**
- Toxin chemically modified (e.g. formaldehyde)



(9) Can you name a bacterial disease which leads to massive diarrhea and is caused by a secreted toxin?

- Cholera

(10) What type of vaccine is the seasonal flu vaccine produced in hen eggs?

- Killed (inactivated) vaccine

(11) Why is it possible to produce the seasonal flu vaccine in hen eggs?

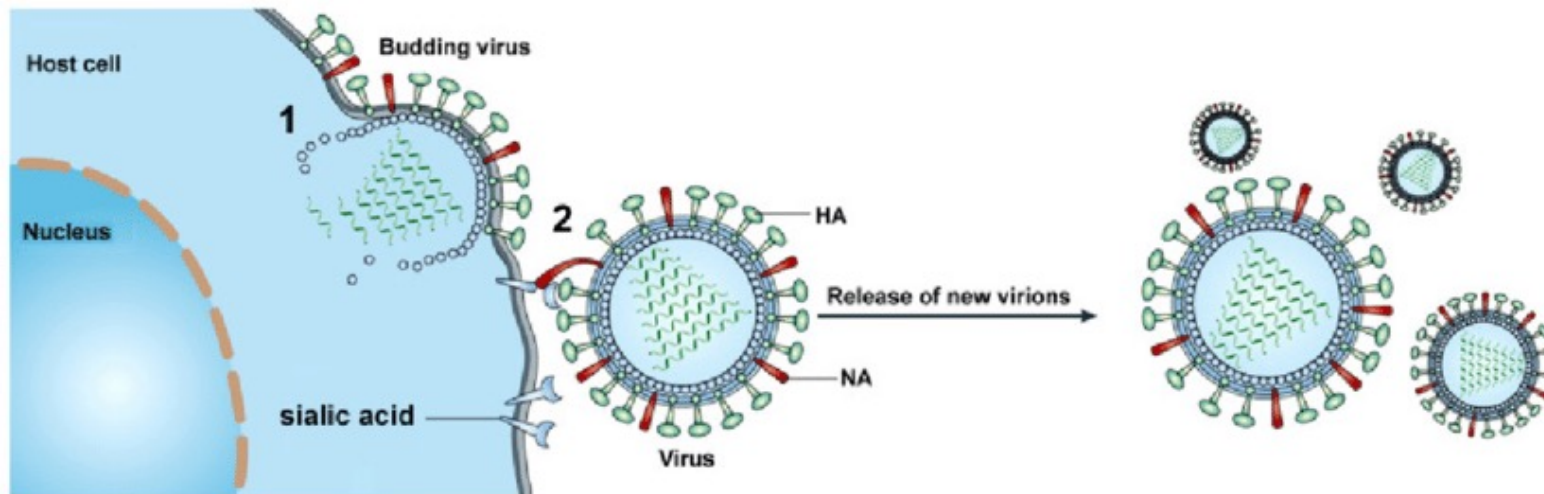
- We inherited influenza A from birds
- the virus grows on bird tissue
(e.g. chicken embryos)

(12) Do all viruses have a lipid membrane?

- No, some have just a protein shell which is called capsid and no membrane

(13) How do you call viruses which have a lipid membrane? And where does this membrane come from?

- Enveloped viruses
- The lipid membrane is derived from the host cell in which virus



(14) How can you weaken (attenuate)
a virus?

- By introducing and passaging the virus into cells (non host-like) where they do not replicate well.
- Eventually the virus will over time accumulate mutations and become less virulent

(15) Do you remember a viral disease for which an attenuated vaccine had been developed?

- Poliomyelitis (Polio)
- Measles
- Smallpox (cowpox)

(16) Is it also possible to attenuate pathogenic bacteria?

- Yes, e.g. attenuated vaccine against tuberculosis
- BCG (Bacillus Camille Guerin)
- *Mycobacterium bovis* was cultivated and sub-cultured for 13 years in a medium containing bile/potatoes to lose its virulence