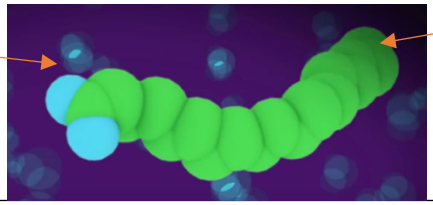
Fighting coronavirus with soap

https://pdb101.rcsb.org/learn/videos/fighting-coronavirus-with-soap

Part 1: The molecule of soap (detergent)

Each molecule of soap has got 2 parts: a head and a tail.
The head is hydrophilic. It can interact with molecules of water by forming hydrogen bond.
The tail is hydrophobic. It gets away from water.

Légender le schéma suivant :



A

1

B

2

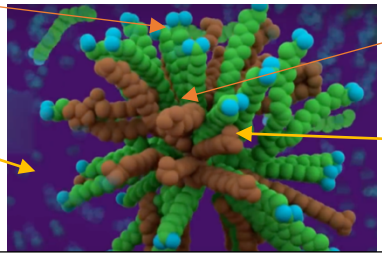
Title : C

Molecule of soap (molecule of detergent)
Head of molecule of soap hydrophilic
Tail of molecule of soap hydrophobic
Hydrophobic
Hydrophilic

Part 2: How does a molecule of soap work on your skin?

When the molecule of soap encounters lipid particles on our skin, the tails aggregate around them to form spherical structures called micelles.

Légender le schéma suivant



A

B

a
property 1 :

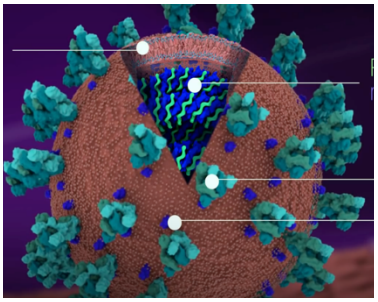
b
property 2

Title : a micelle made off molecule of detergent and lipid from the bottom of the skin

Molecule of detergent
Molecule of lipid from the bottom of the skin
Inside of the micelle
Outside of the micelle
Hydrophobic
Hydrophilic

Part 3: The coronavirus

The viral envelope consists of a lipid bilayer (LB) where membrane(M), enveloppe (E)– not design here) and spike (S) structural proteins are anchored.
Inside the envelope, there is the nucleocapsid, which is formed from multiple copies of nucleocapsid protein (N), which are bound to the RNA genome (+).



The coronavirus
(The M protein is not present here)

Complete the grid:

Biomolecule	Lipid	Protein	Nucleic acid
LB			
RNA genome			
N			
S			
E			

Part 4: How does molecule of soap work on coronavirus?

Molecules of soap insert themselves into the lipid bilayer. They help water to get into the virus. They create micelle around the viral envelope.

The tail of molecules of soap interacts with the hydrodrophobic part of protein. It extracts proteins from the viral envelope.

Fig 1

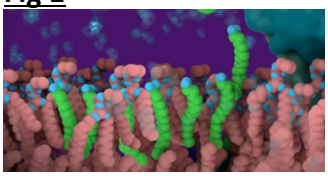


Fig 2:

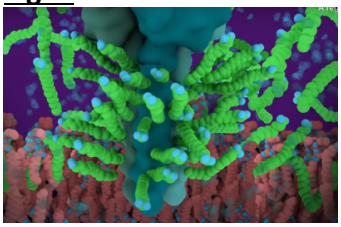


Fig 3

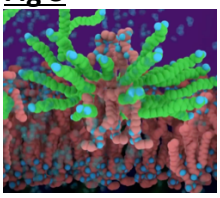


Fig 4:

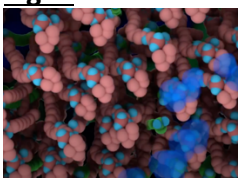
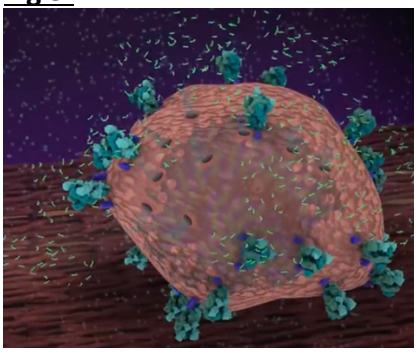


Fig 5:



Molecules of soap insert themselves into the viral lipid bilayer.
Molecules of soap help water to get into the virus.
Molecules of soap create micelle around the viral envelope.
The tail of molecules of soap interacts with the hydrodrophobic part of protein. It extracts proteins from the viral envelope.
There is no more structural integrity of the virus. The virus can't infect a new cell.

Part 5: Conclusion

Complete the sentence with

1- from. 2-The higher chance 3- the longer 4- than

So washing your hand with soap protects you better ……infection …….washing your hand only with water.
……you wash your hand, ……of destroying the virus you have.