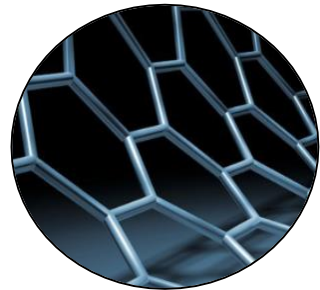
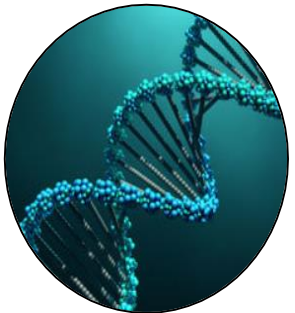




Cutting Edge Science

With Dr. Declan McGlade



Let's look back on some of the things we've
learned

Different Branches of Science

Biology



The study of living things



Genetic Engineering



Genetic Engineering

Genetic Engineering



Using our understanding of **DNA:**

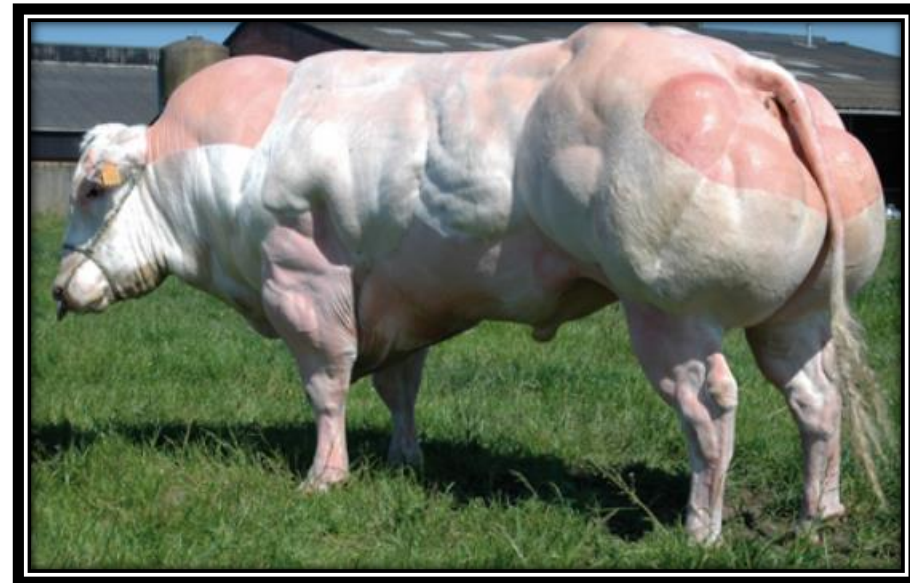
The code of life

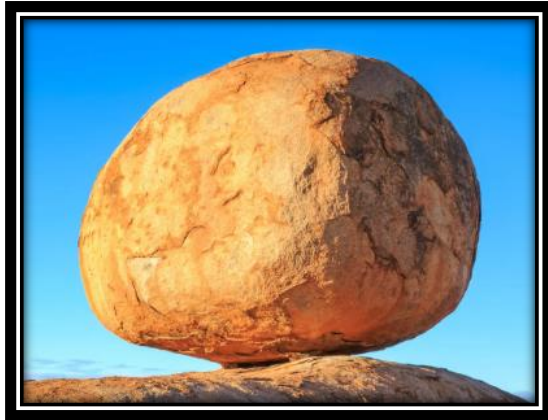
To change features of living things

Selective breeding or Genetic engineering?



Phenotype – The features we can see



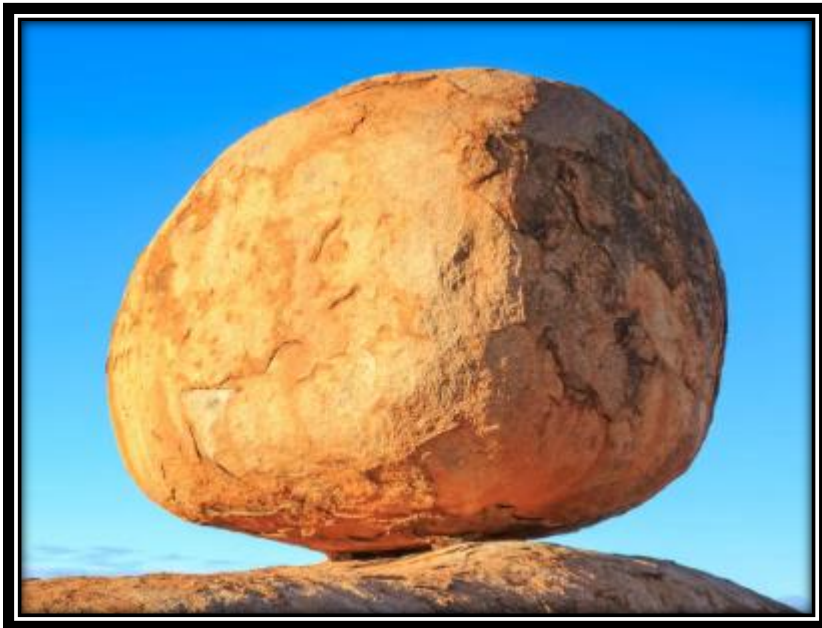


Baby rocks?



Is a rock a living thing?

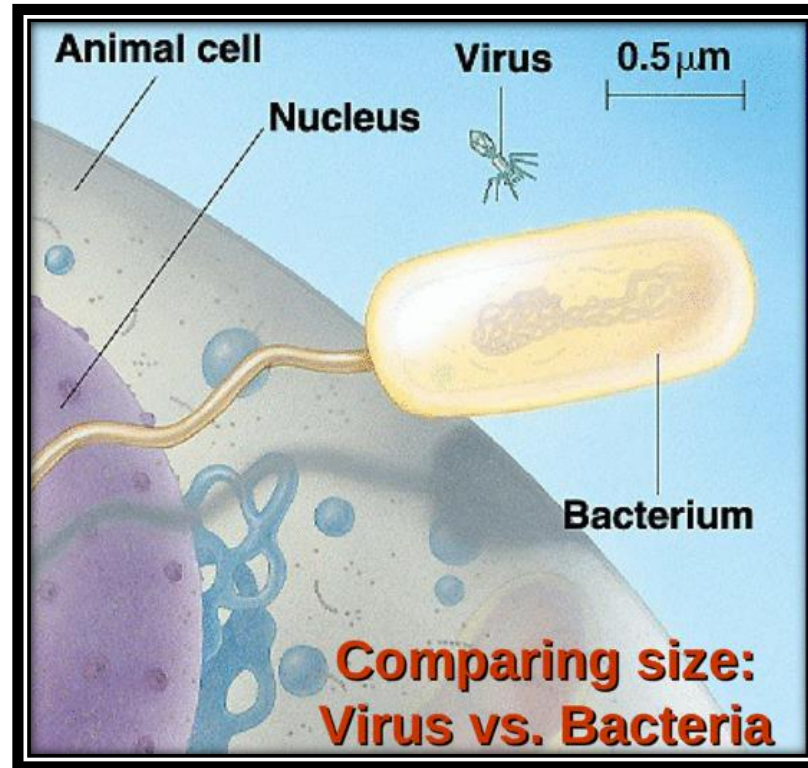
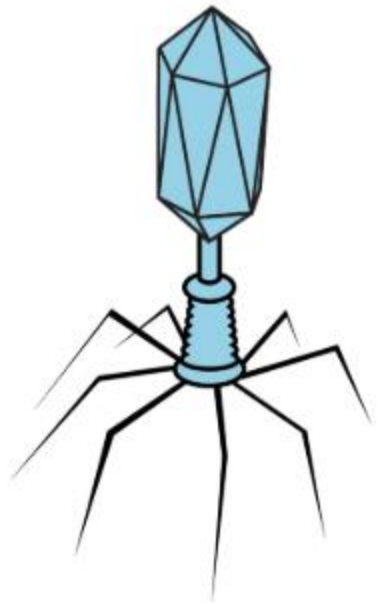
- A rock is not a living thing because it **does not have DNA**
- When biologists talk about living things we use a specific word: **Organism**



Phenotype & Genotype

- **Phenotype** is the word we use to describe features we can see
- **Genotype** is the code within our cells that defines our phenotype

As part of our course we talked about viruses



Bacteriophage

FIRST OF ALL

Let's use the proper name!!!!

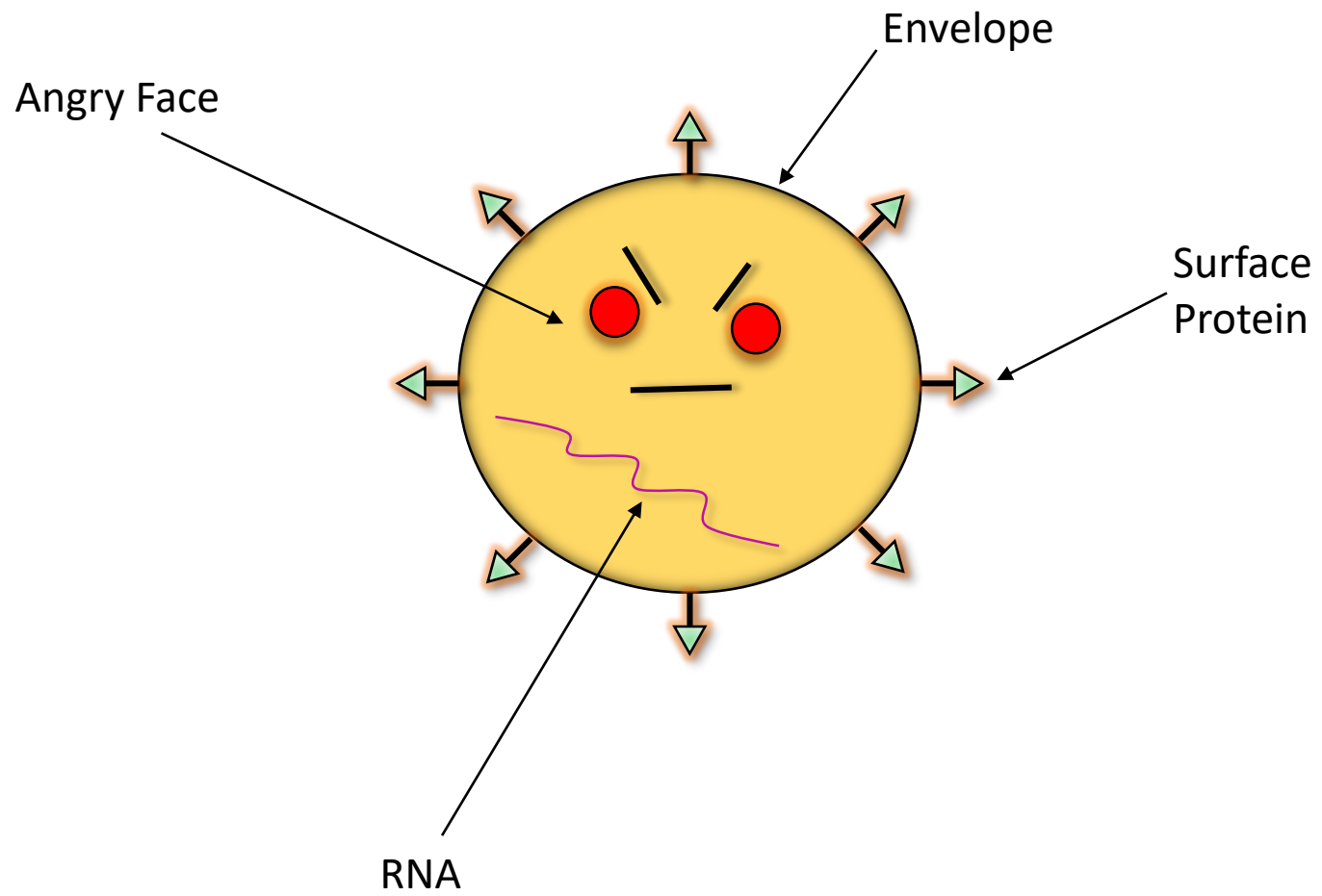
SARS-CoV-2

Coronaviruses are a whole family which include SARS – *severe acute respiratory syndrome*

SARS was a problem in the early 2000's

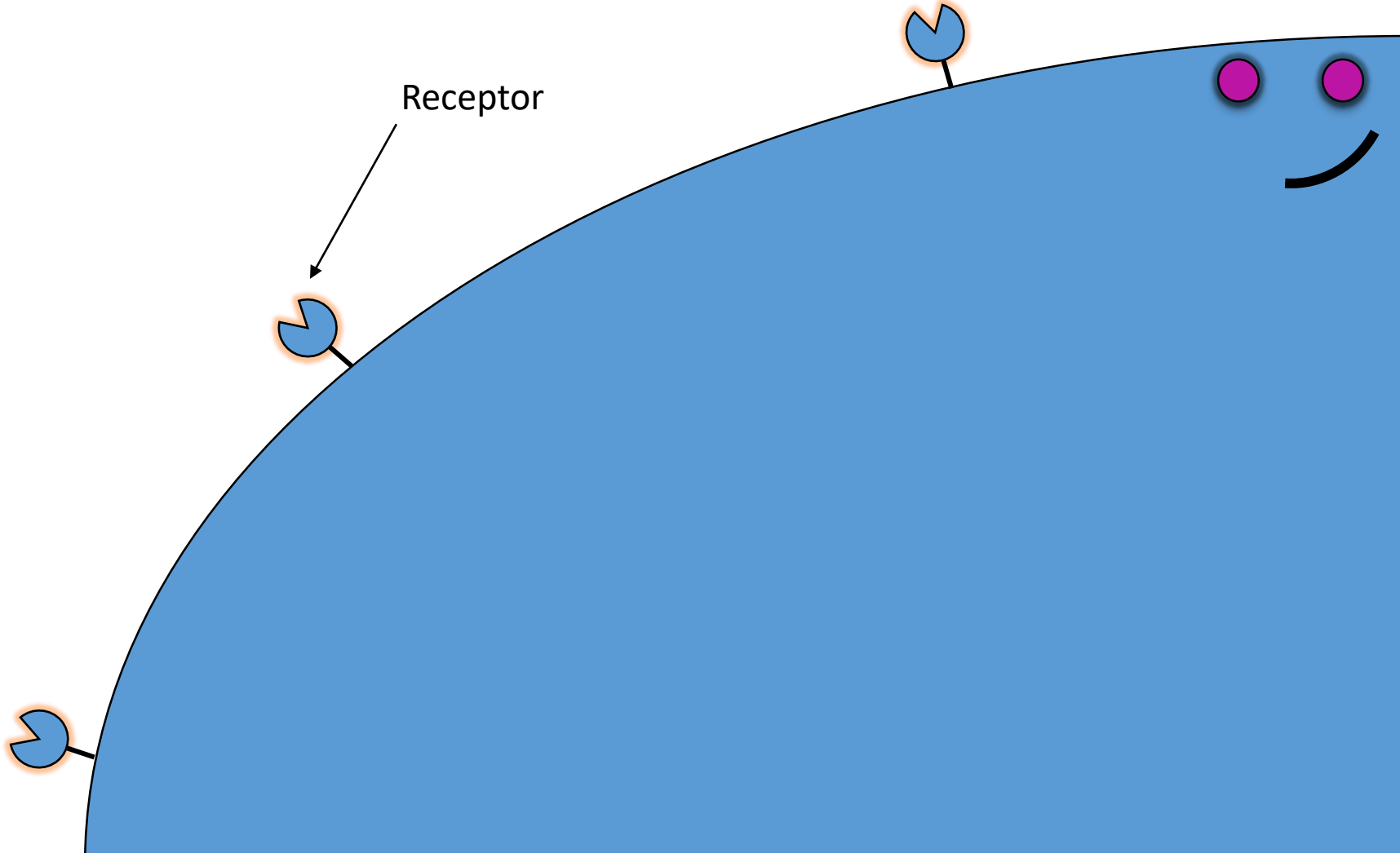
Our current coronavirus is in the same family and can cause similar problems

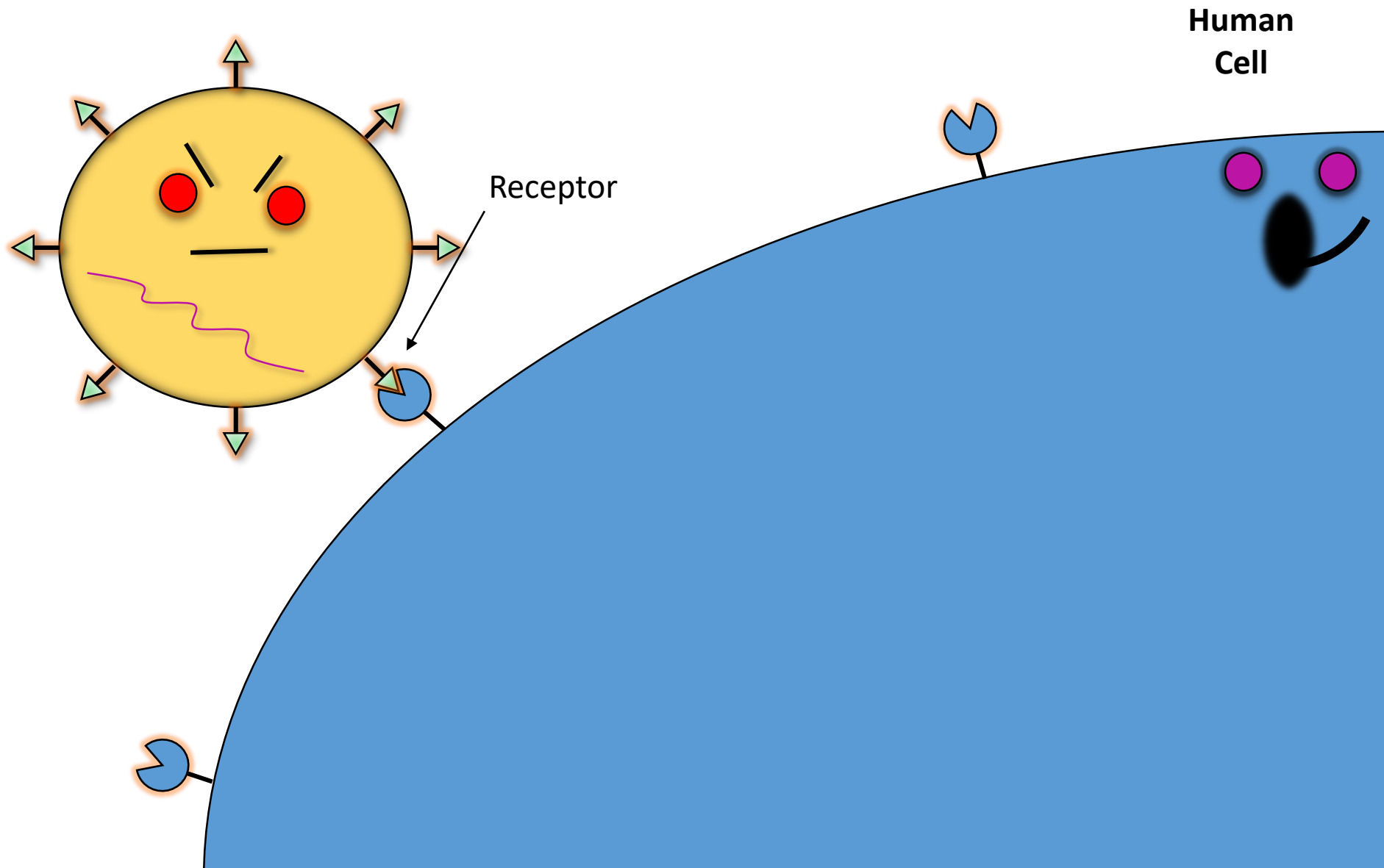




Human
Cell

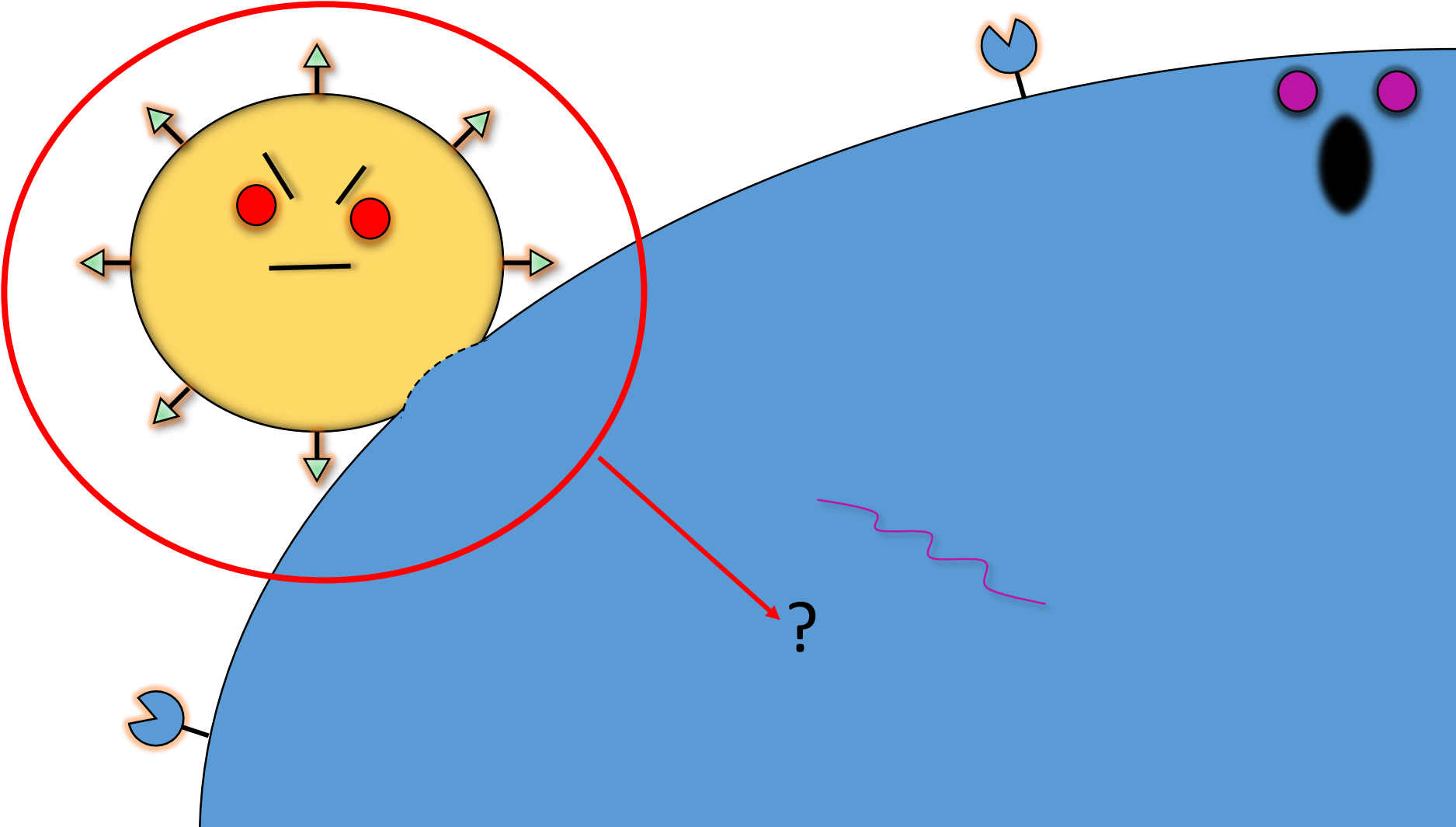
Receptor

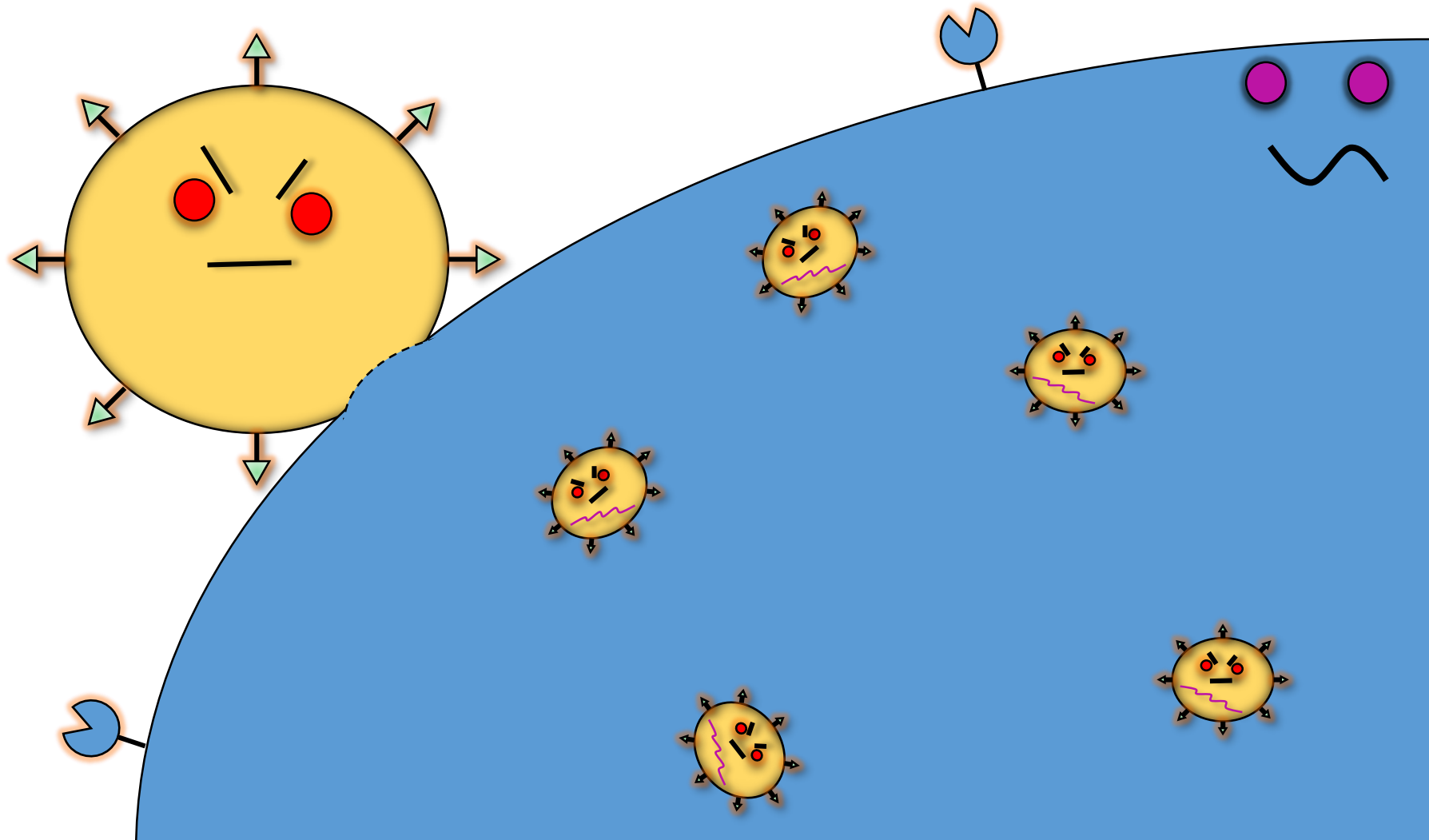


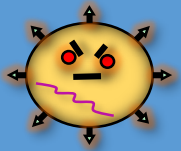
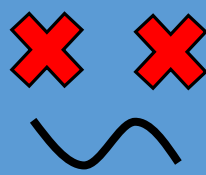
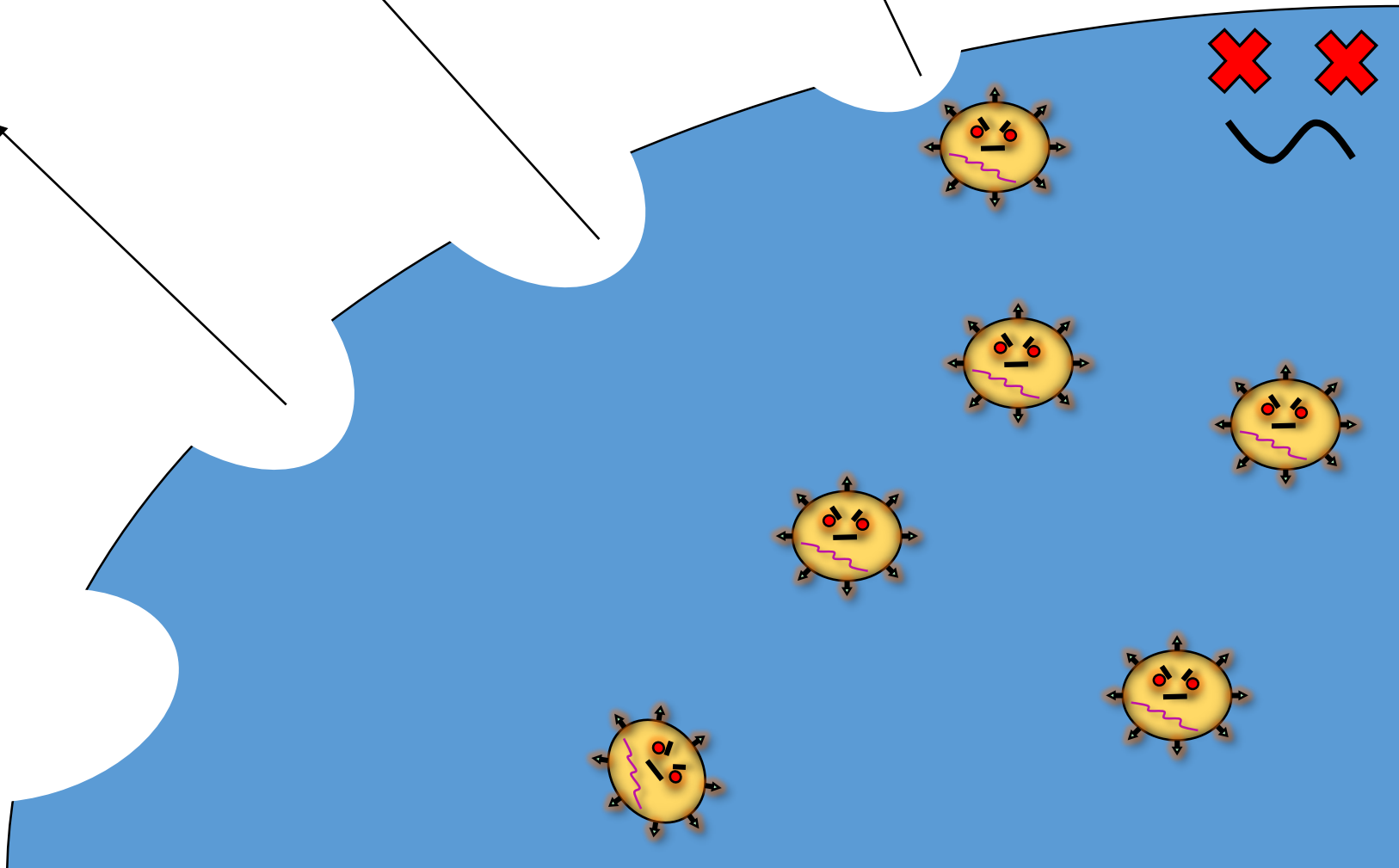
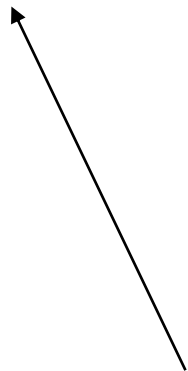
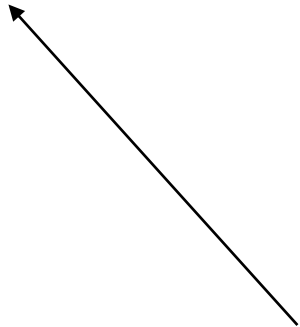
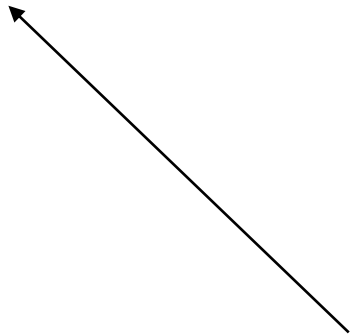
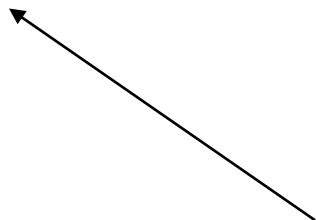
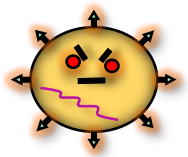


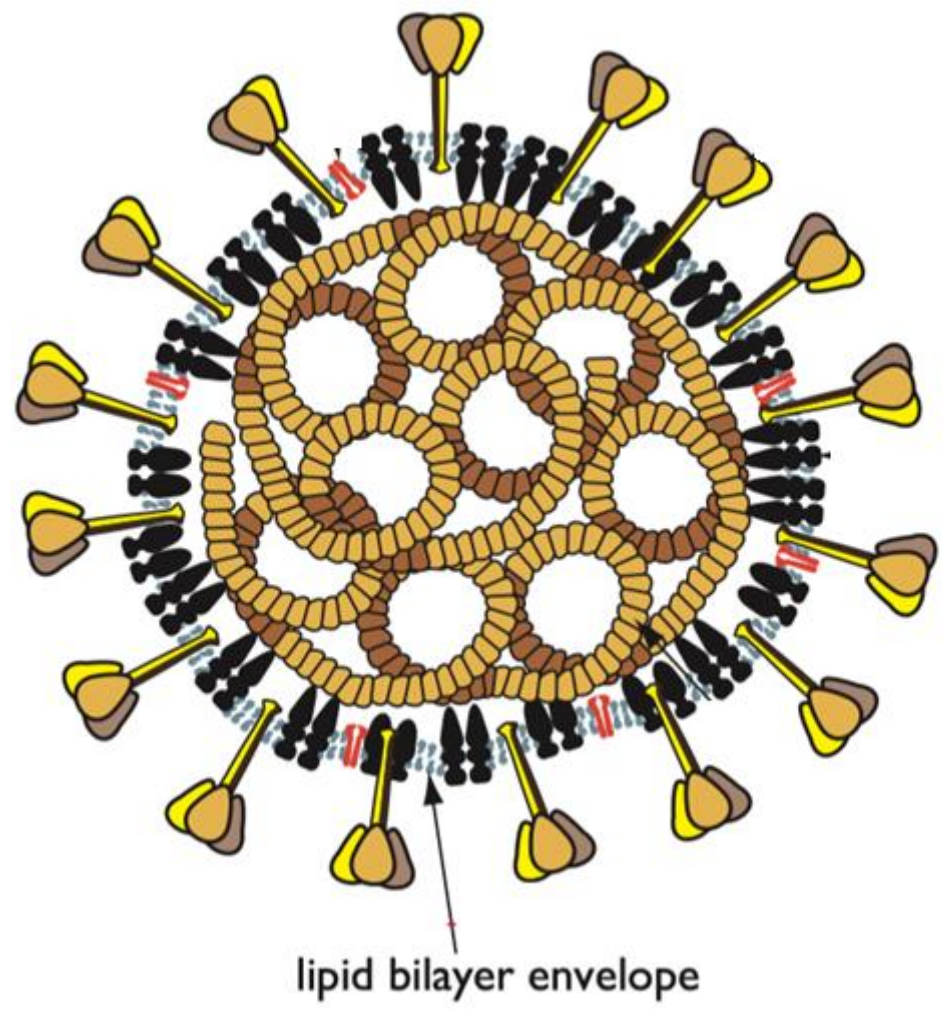
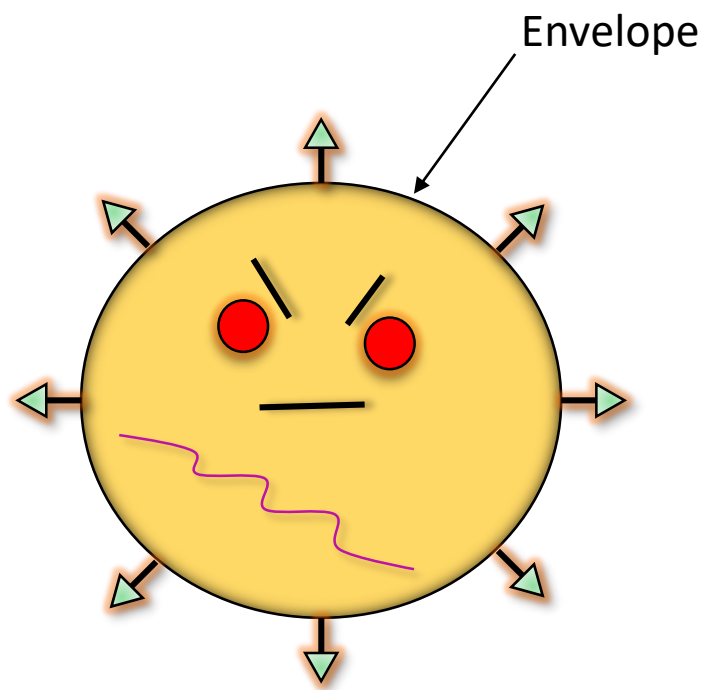
Human Cell

Receptor









Fats are part of a group of chemicals called lipids

Remember that our virus has a lipid coat!

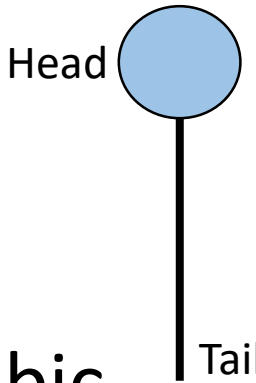
Soap and detergents can break up fats

So they can break the lipid coat on the virus too

Soaps contain *amphiphiles*

They like water

Their heads are hydrophilic

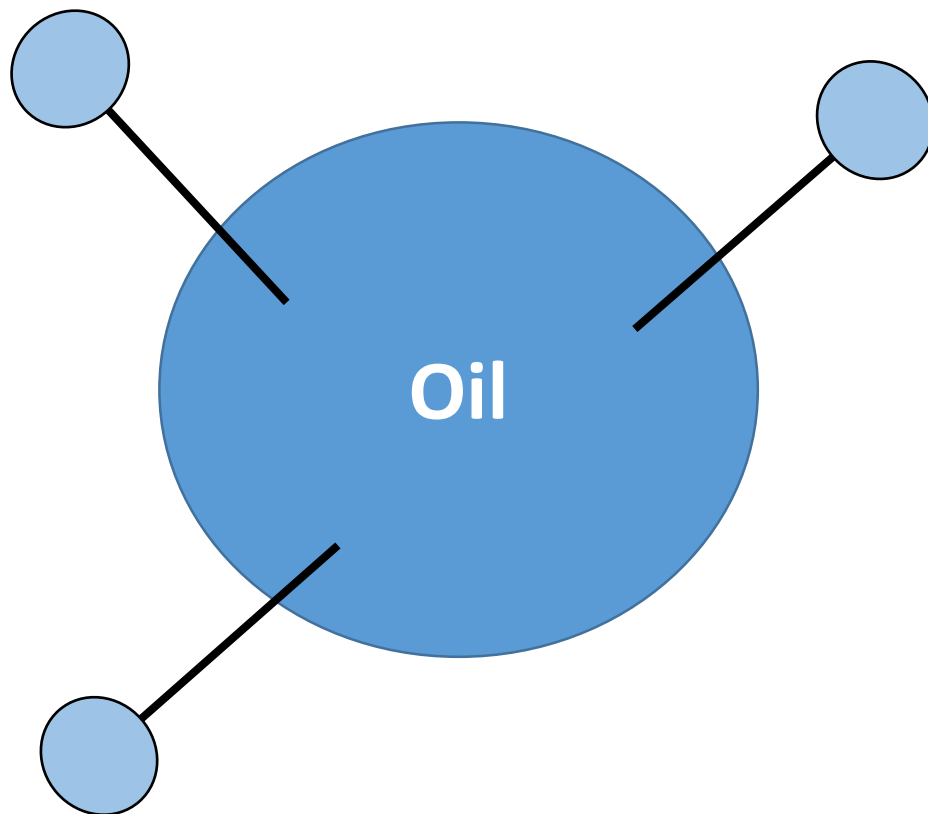


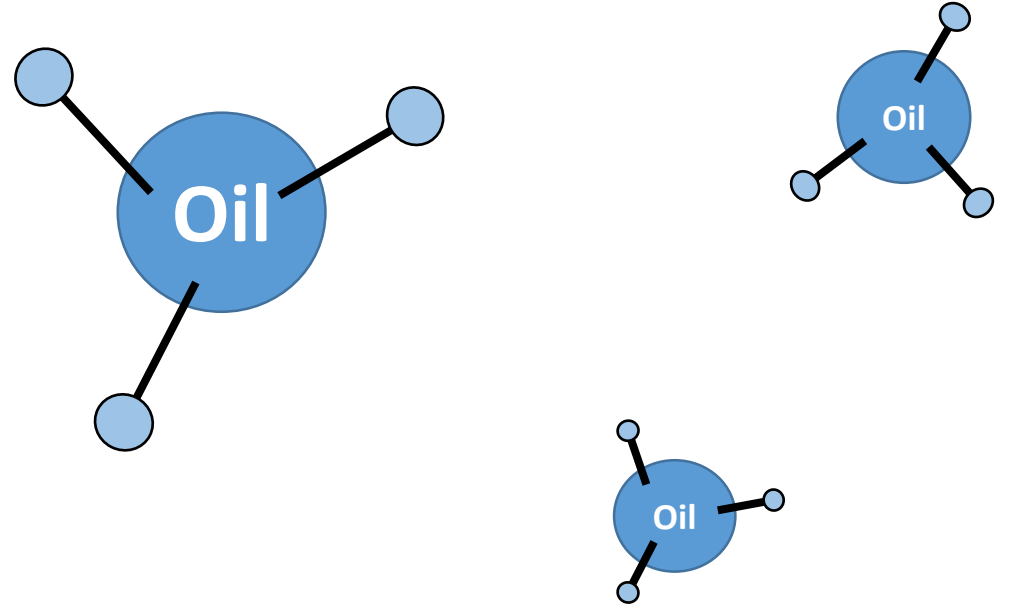
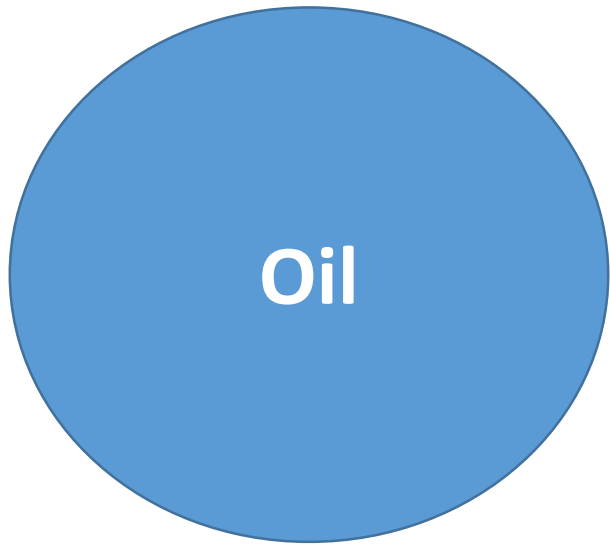
Their tails are hydrophobic

They can make these two things mix... even though they don't normally mix!

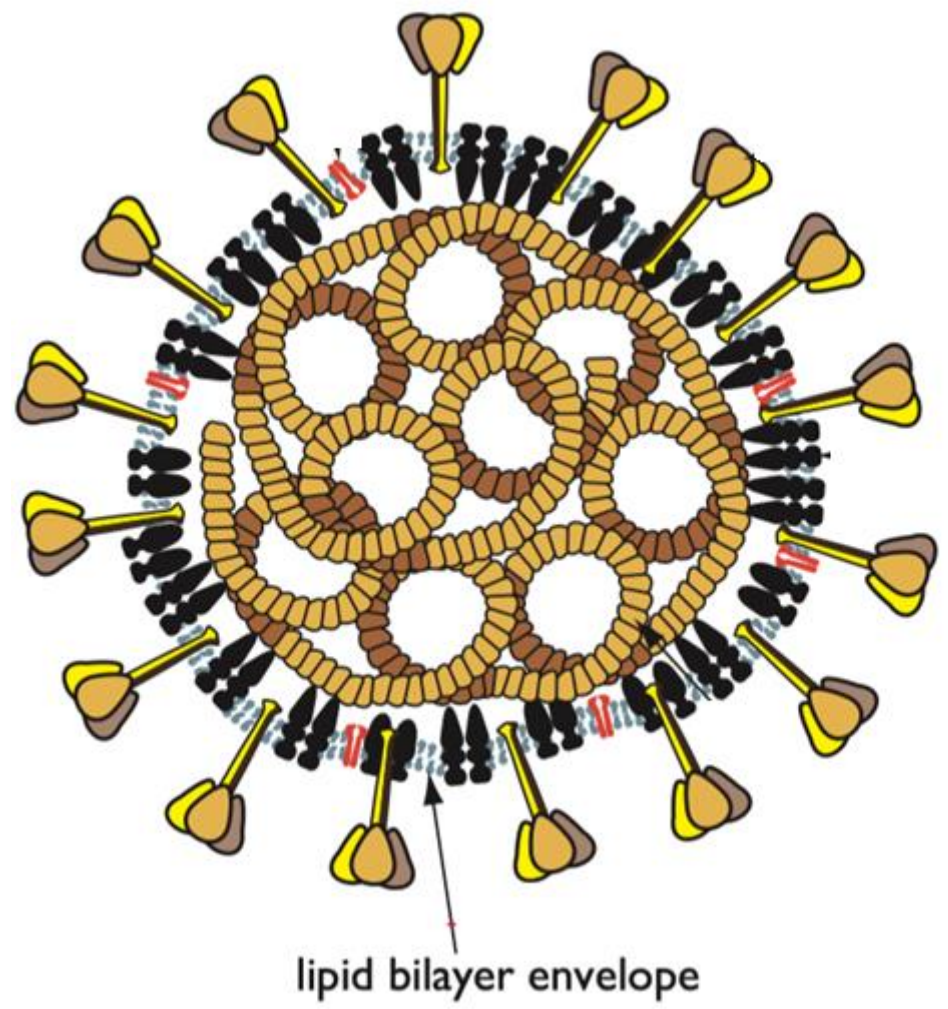
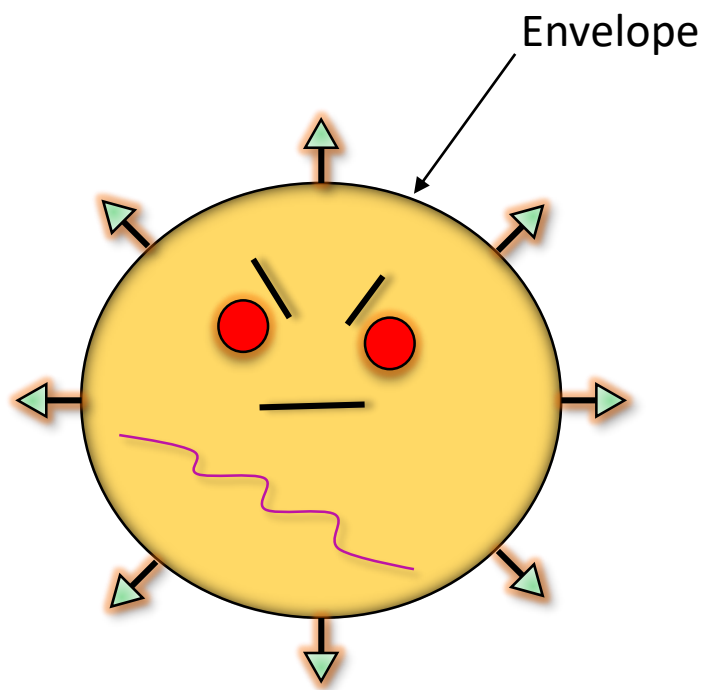
They like fats

They force fats and water to mix





The soap acts like a bridge between the water and the oil creating an... **emulsion**



Let's wash our hands

Wash often!



Hand-Sanitiser?



Your skin is part of your immune system



- Using a lot of hand sanitiser can damage your skin
- It's a physical barrier
- Other physical barrier like mucus
- Remember that the virus needs to get inside you to make you sick!
- The best way is to stop it outside