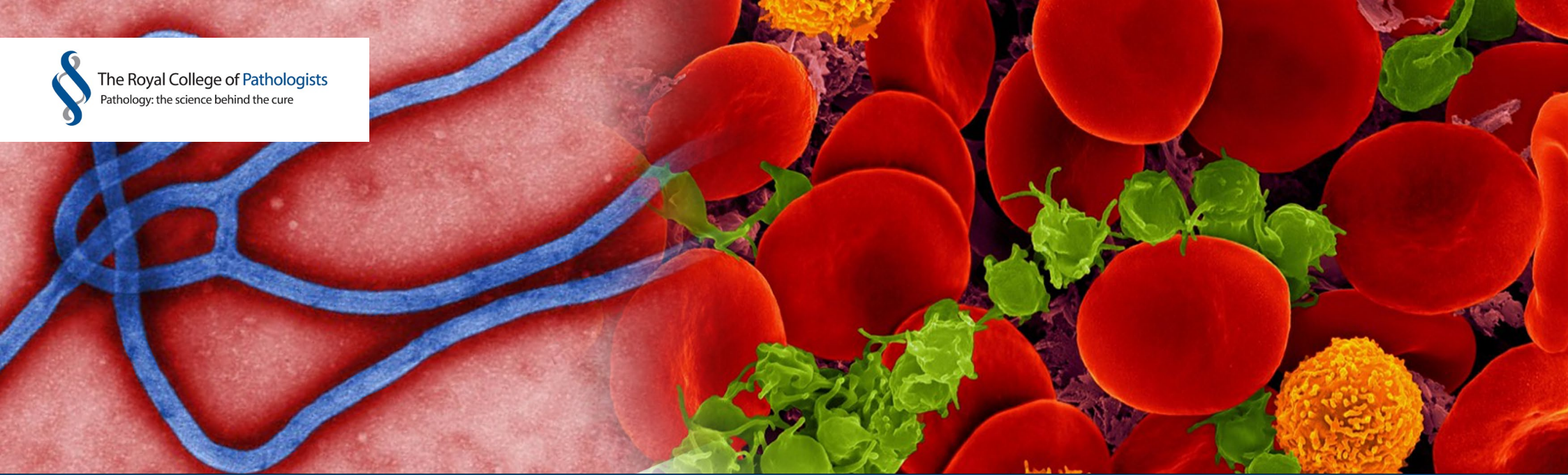
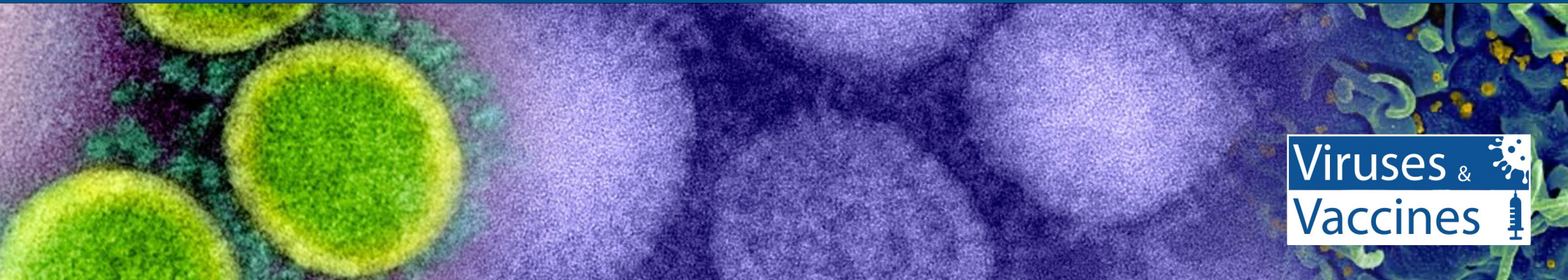




The Royal College of Pathologists  
Pathology: the science behind the cure

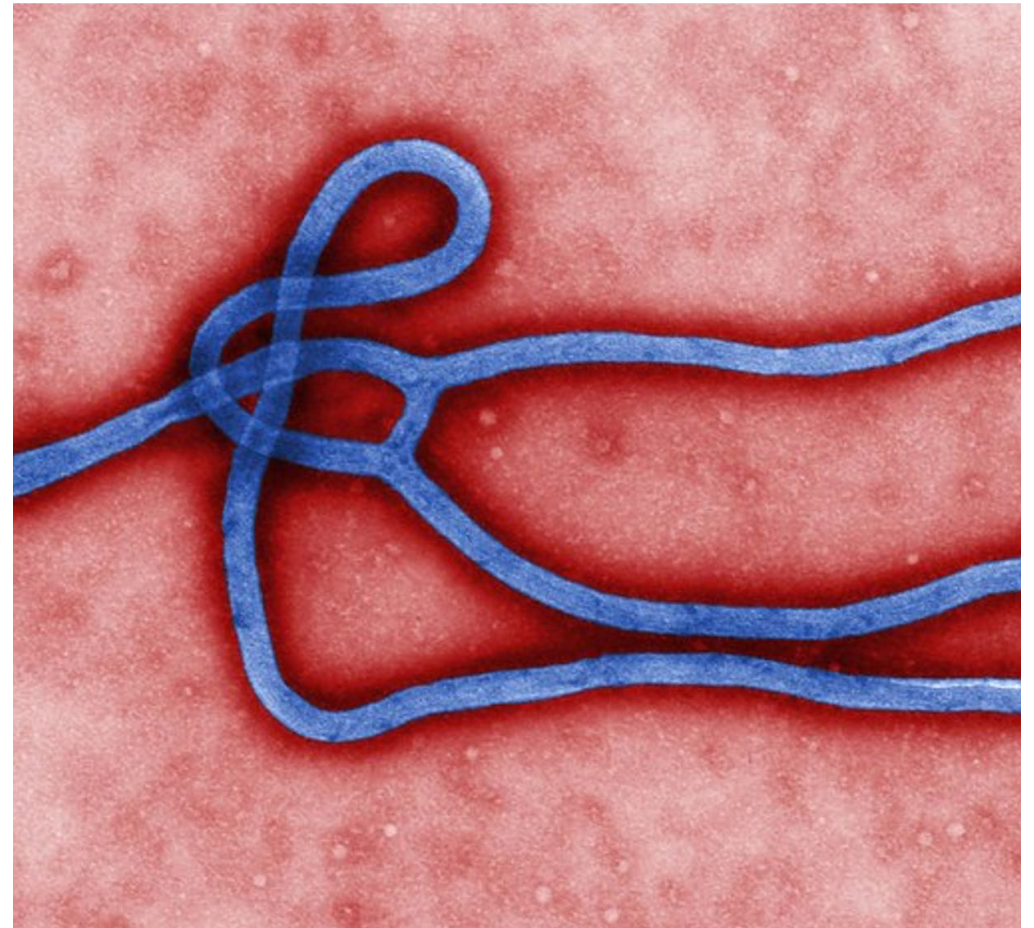
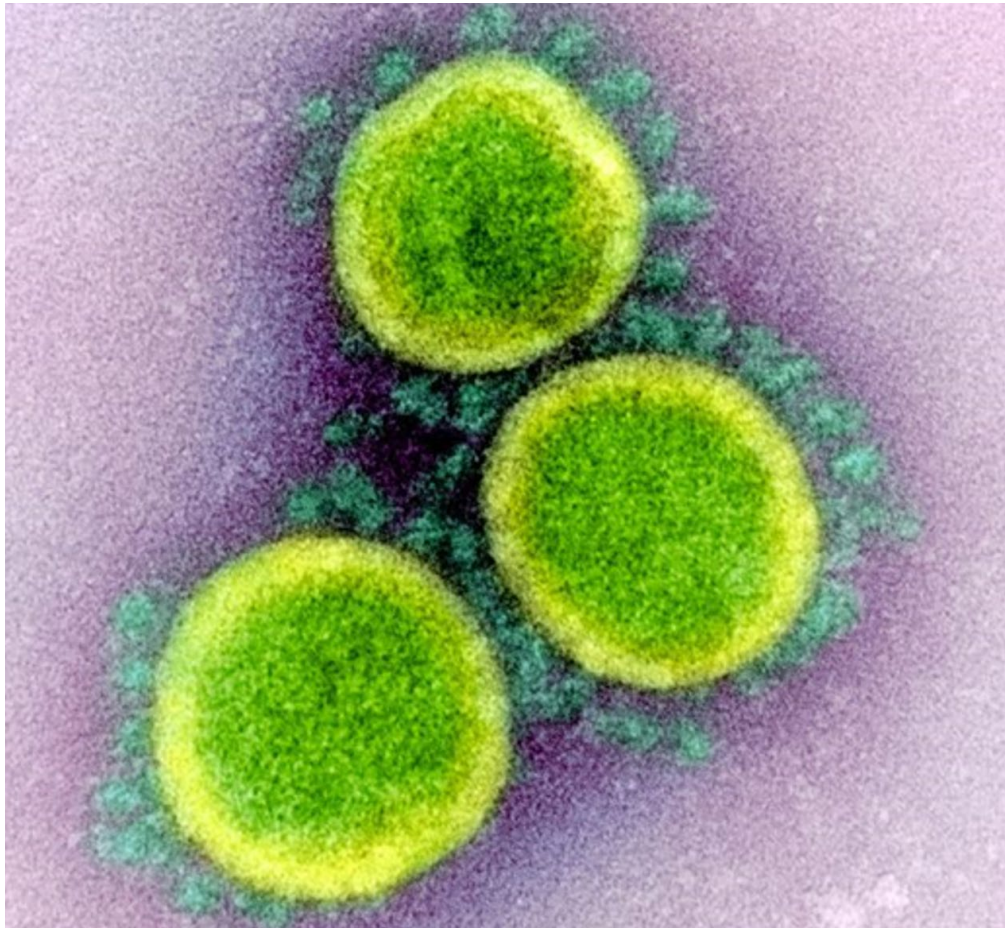


# Get Inspired Science Images



Viruses &   
Vaccines 

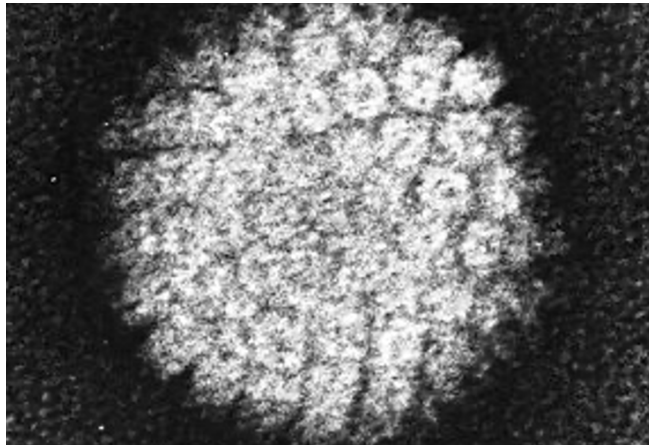
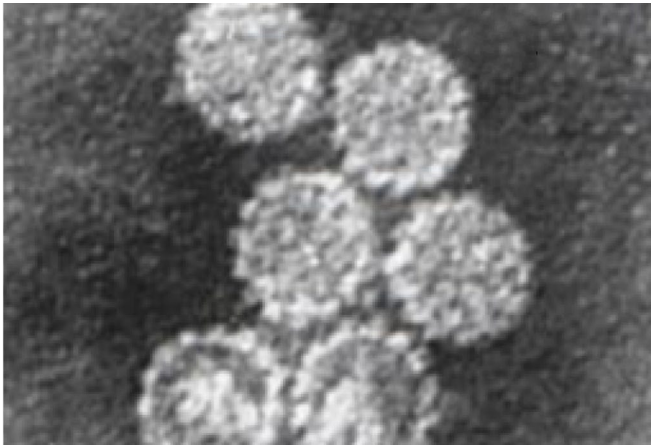
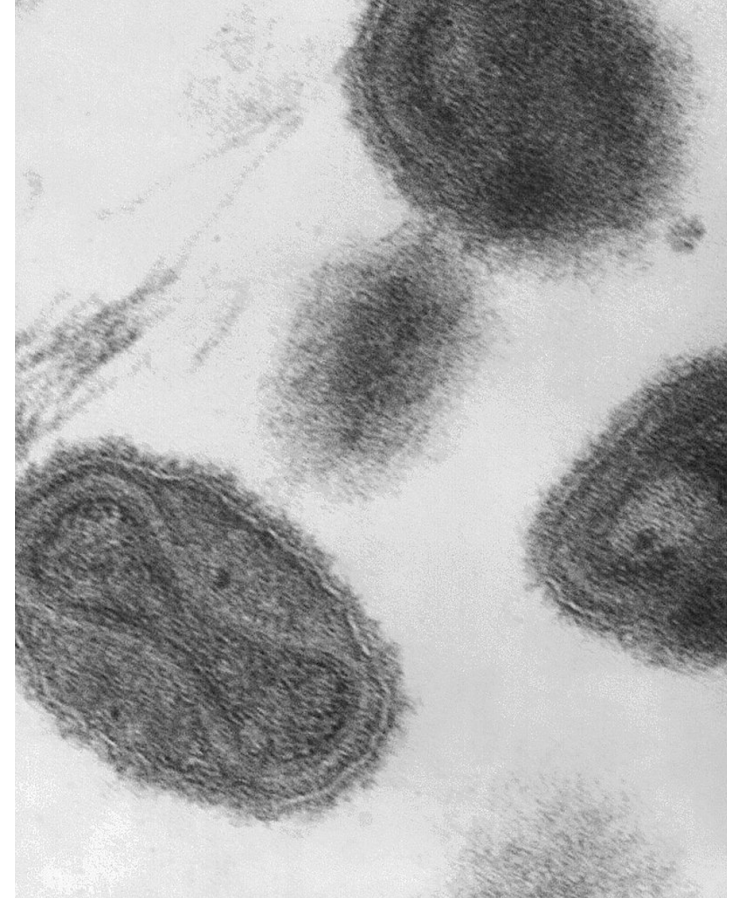
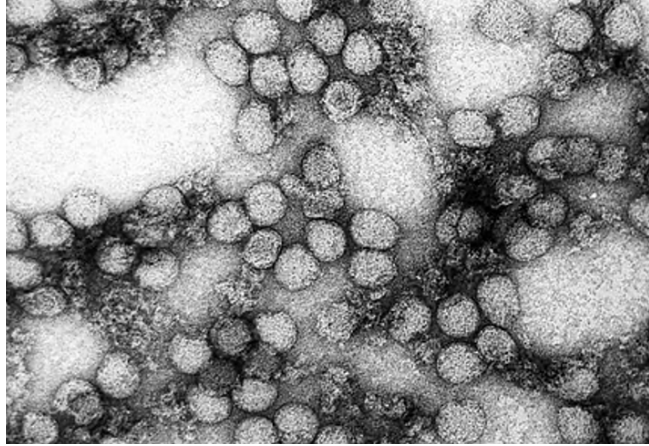
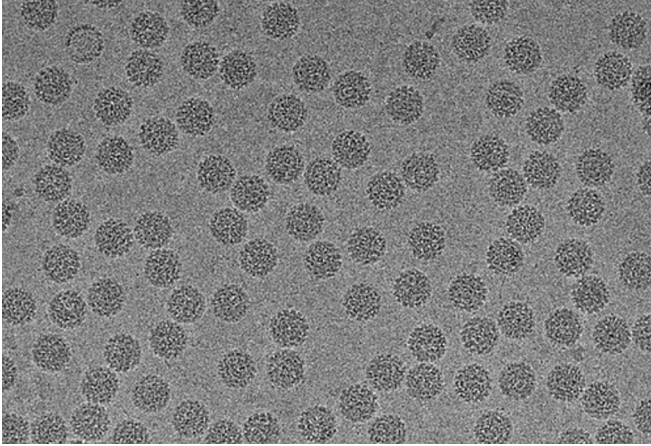
# Get inspired: viruses



Take a look at microscope images and computer models from science and get inspired to create your own viral artwork. A tiny world is glimpsed through light microscopy where colourful dyes reveal structures. Viruses are usually too small to be seen with a light microscope. Instead electron microscopy is needed to reveal viruses at a nanoscale with images in black and white. Bright colours can artificially be added to make images more beautiful, as seen above. Take a look at black and white images and get inspired to create artwork and add your own vibrant colours. Use images from science to create your own patterns, doodles, drawings, paintings or sculptures. Please share your creations on social media and use #VirusesAndVaccines.

*Credit: left – 'Novel Coronavirus SARS-CoV-2' by National Institute of Allergy and Infectious Disease (NIAID); right – 'Ebola Virus' by CDC Global Health. License by Creative Commons 2.0.*

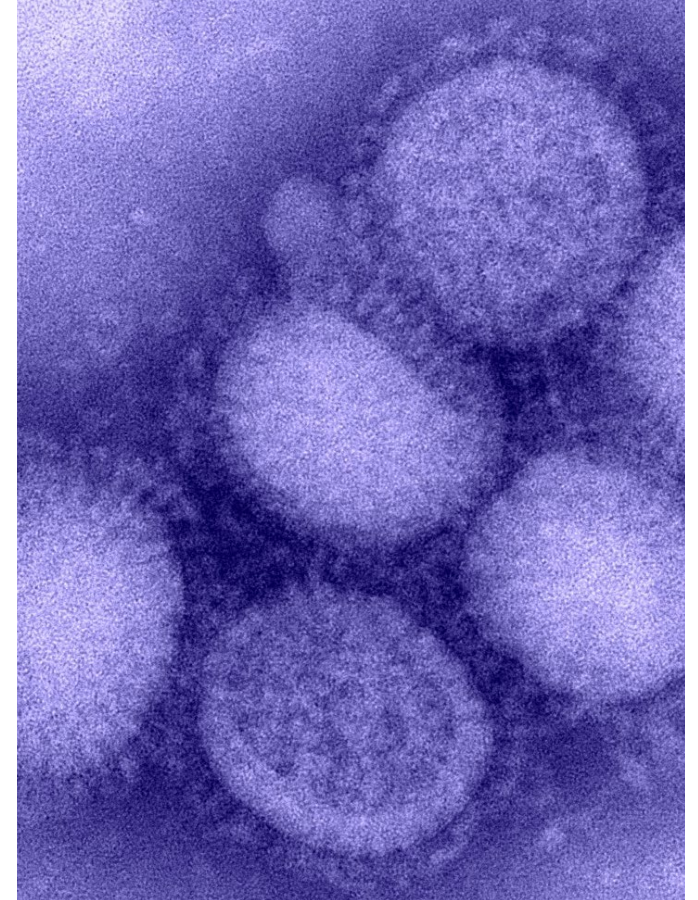
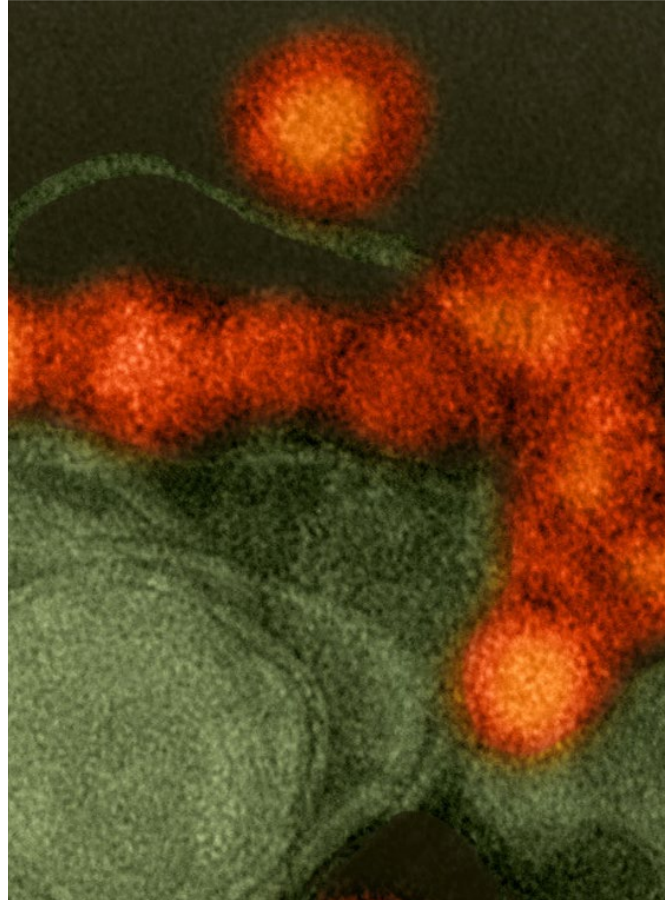
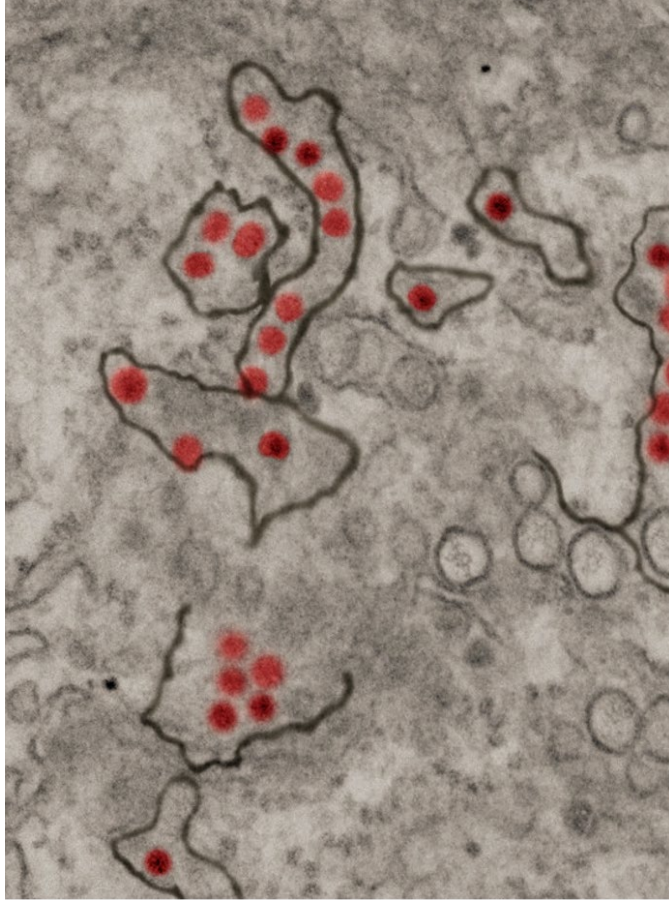
# Glimpsing viruses..



These images of viruses were taken using an electron microscope and are only ever black and white. Scientists often add colours onto images to make them more beautiful. Take a look at the patterns and get inspired to doodle/draw and add your own colours.

*Credit: top left, bottom left and bottom middle: 'Papillomavirus'; by MHB Catroxo and AMCRPF Martins; top middle - 'Yellow Fever' from Centers for Disease Control and Prevention; far right - 'Smallpox' by Dr Fred Murphy & Sylvia Whitfield from CDCPPH Image Library. Licenses under Creative Commons/Public domain.*

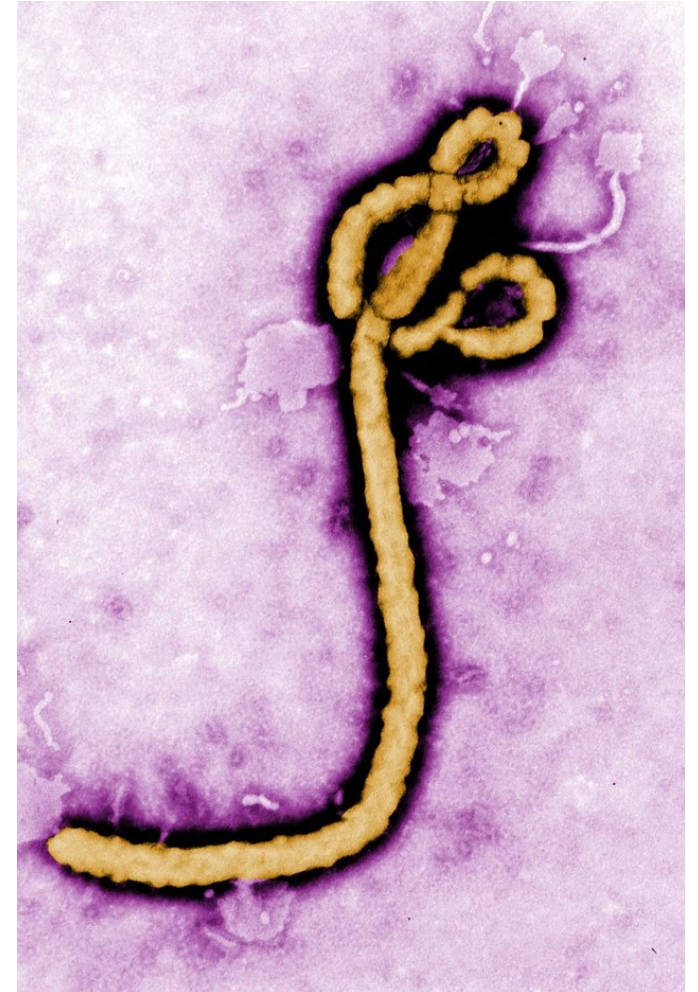
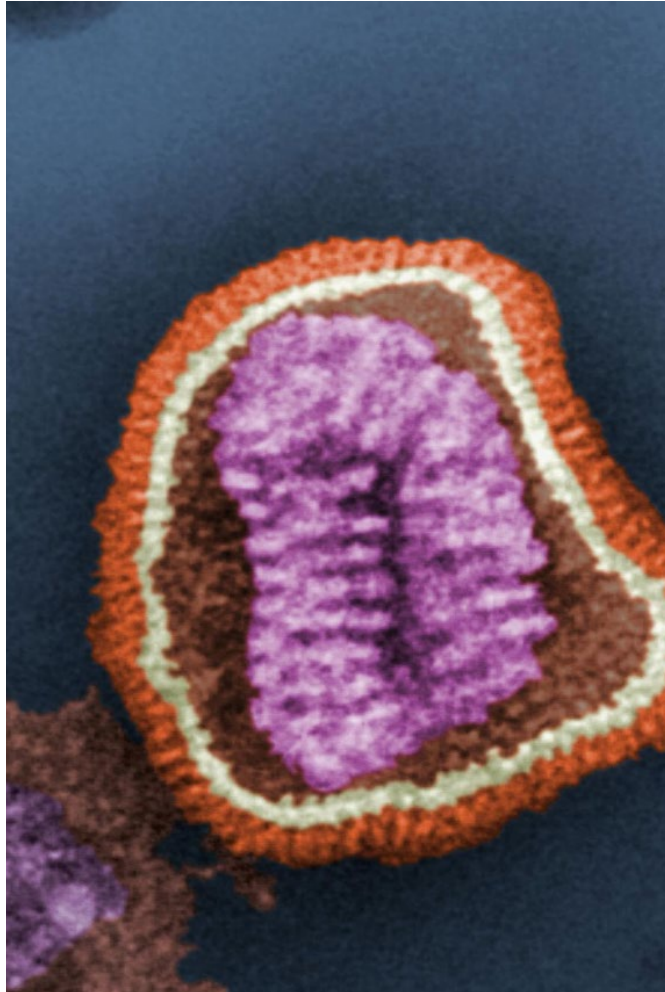
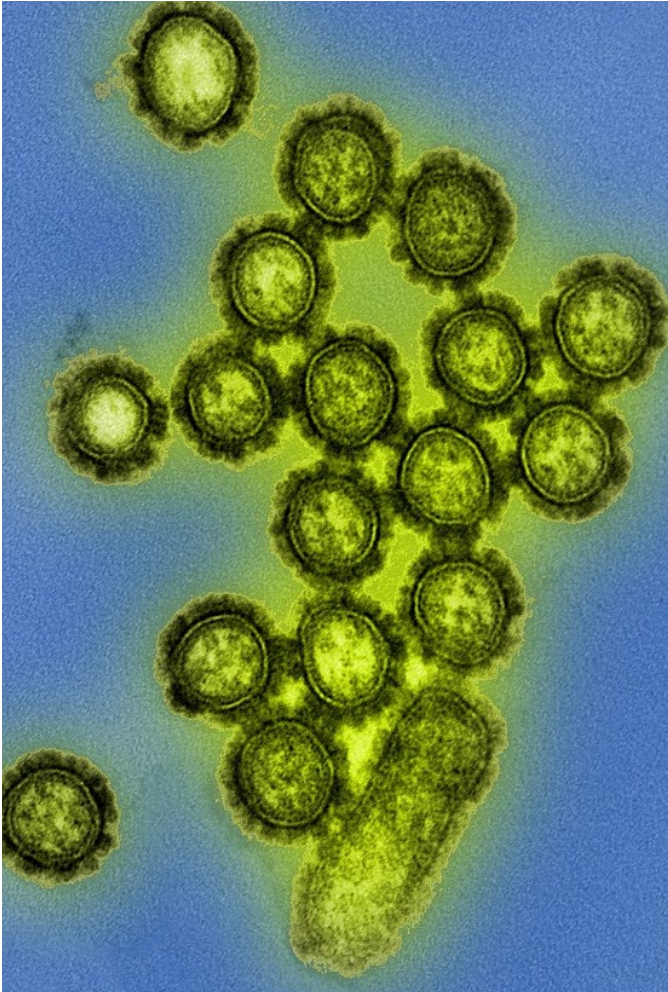
# Just add colour...



Scientists can use their artistic eye to add colours to black and white images of viruses to reveal their shape and beauty. Take a look at these microscope images and create your own colourful artwork inspired by viruses.

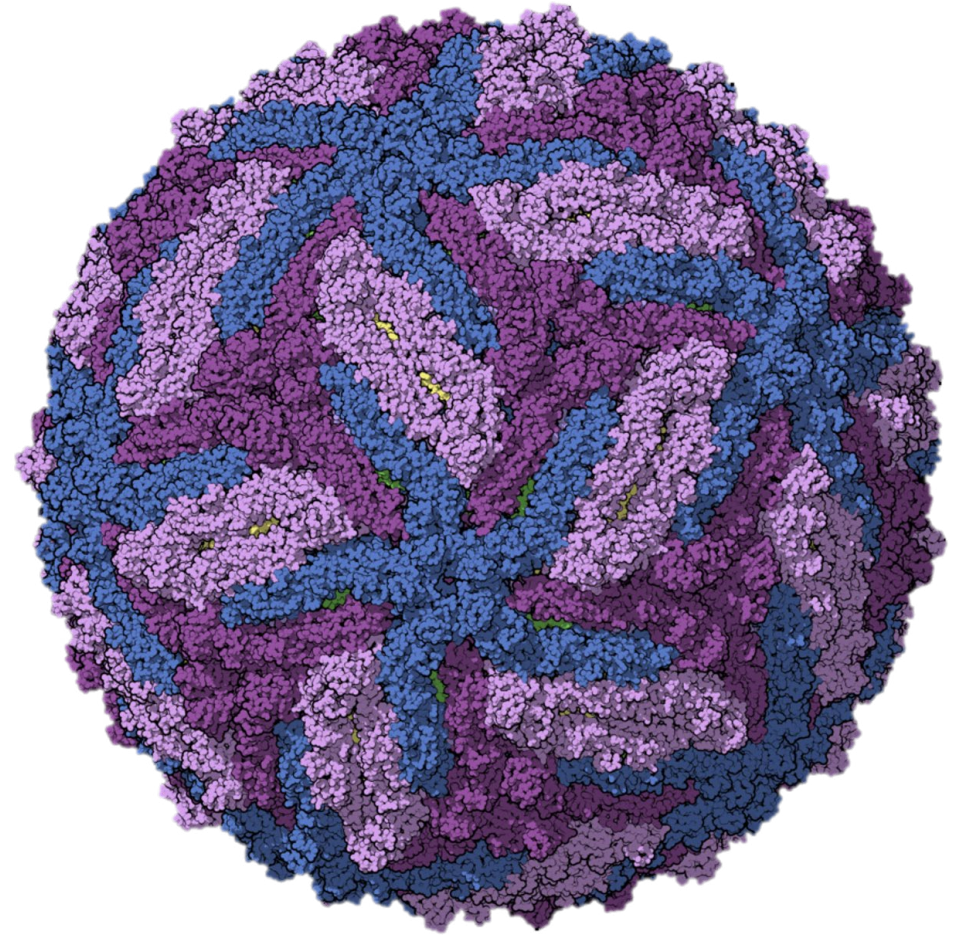
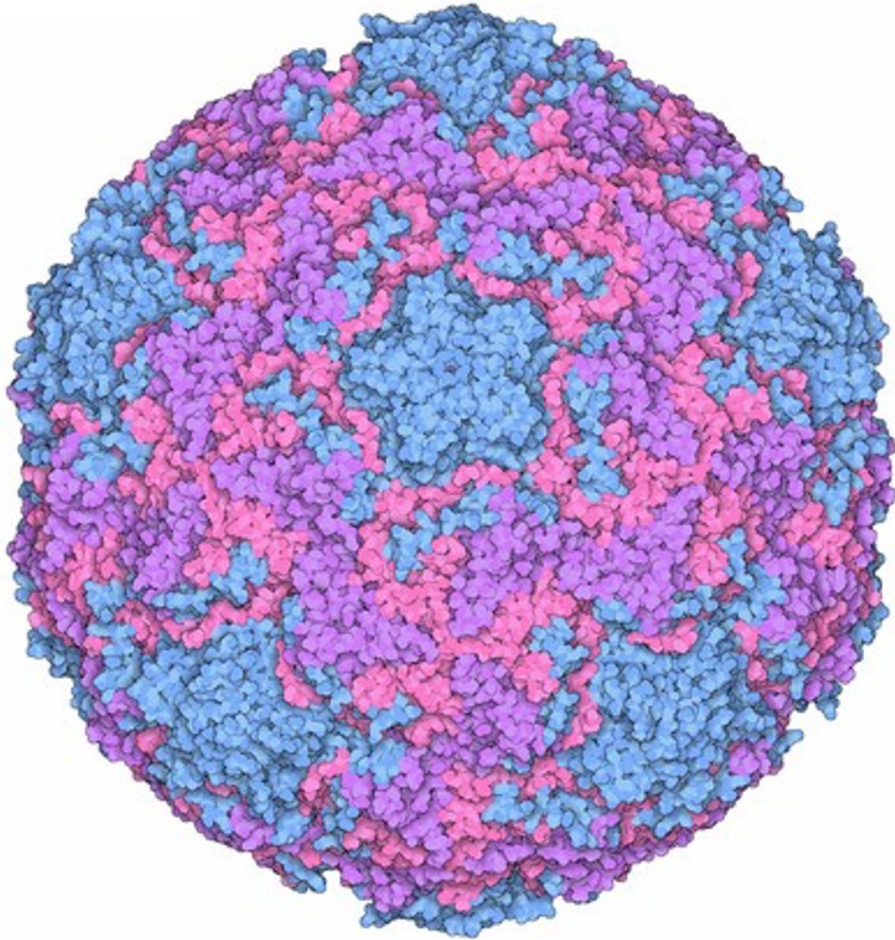
*Credit: left and middle – 'Zika Virus' from National Institutes of Health (NIH); right – 'Influenza' from Centres for Disease Control and Prevention. Licenses under Creative Commons/ Public domain.*

# Add more colour



*Credit: 'Influenza virus' – left from NIAID; middle 'from Centres for Disease Control and Prevention Public Health Image Library; right 'Ebola virus' from CDC Global Health. Licenses under Creative Commons/Public domain.*

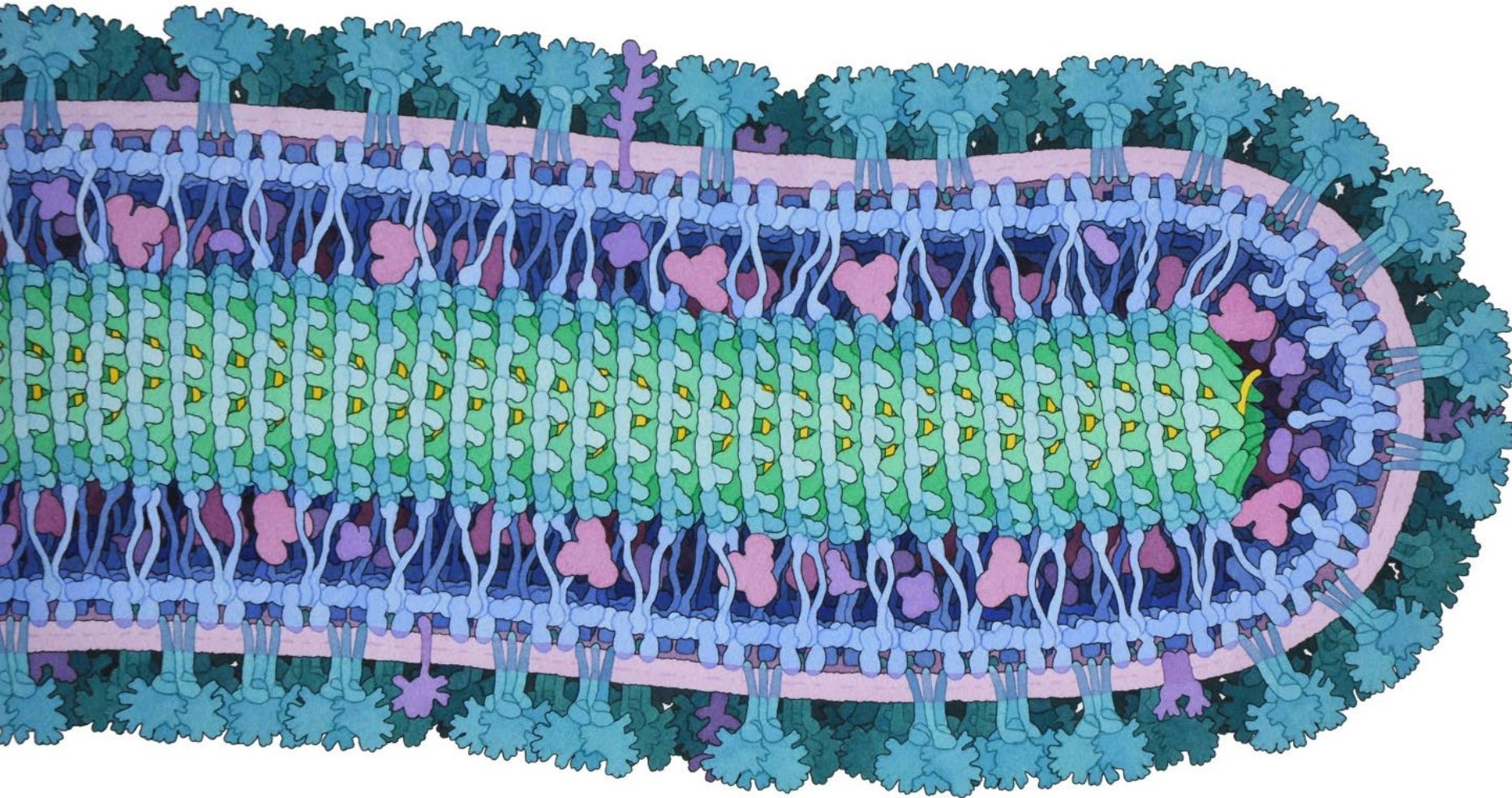
# Computer models...



Understanding protein structures within viruses allows scientists to construct 3D-like computer models to bring these tiny nano-sized balls to life. Use of bright colours makes them look beautiful and reveals their remarkable patterns.

*Credit: left – 'Rhinovirus' (a type of cold virus) from RCSB Protein Data Bank; right – 'Zika Virus' by Manuel Almagro Rivas. Licenses under Creative Commons.*

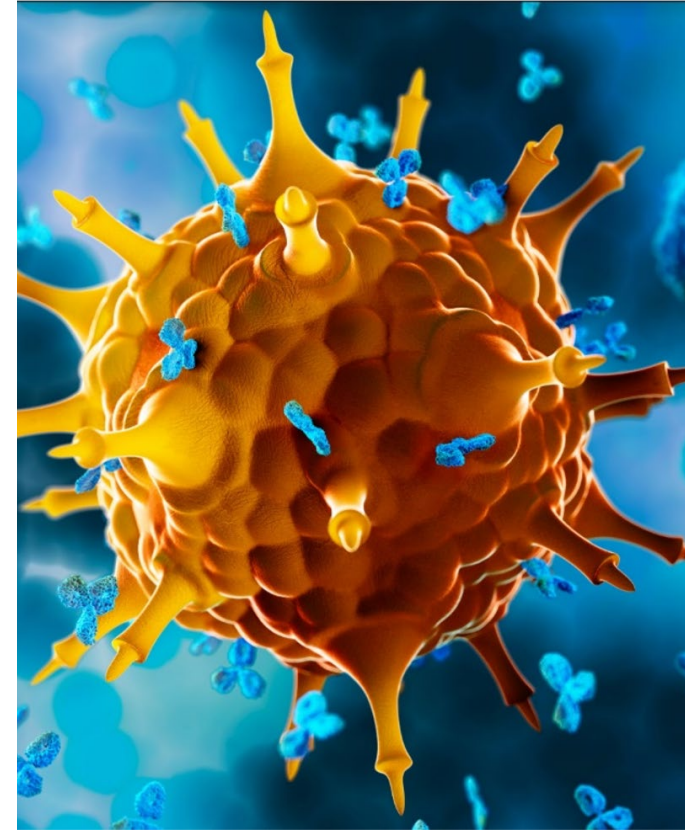
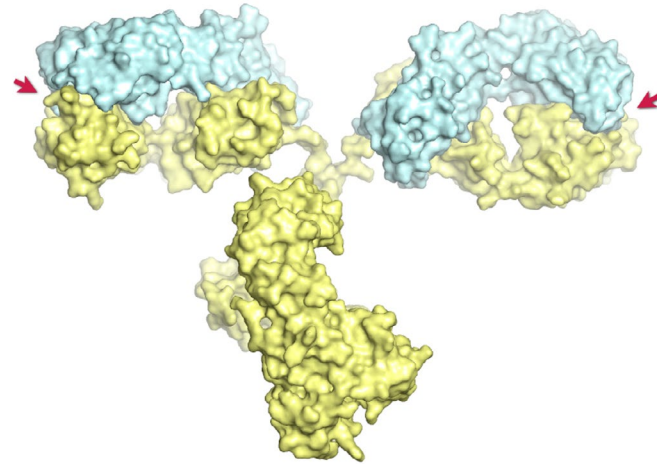
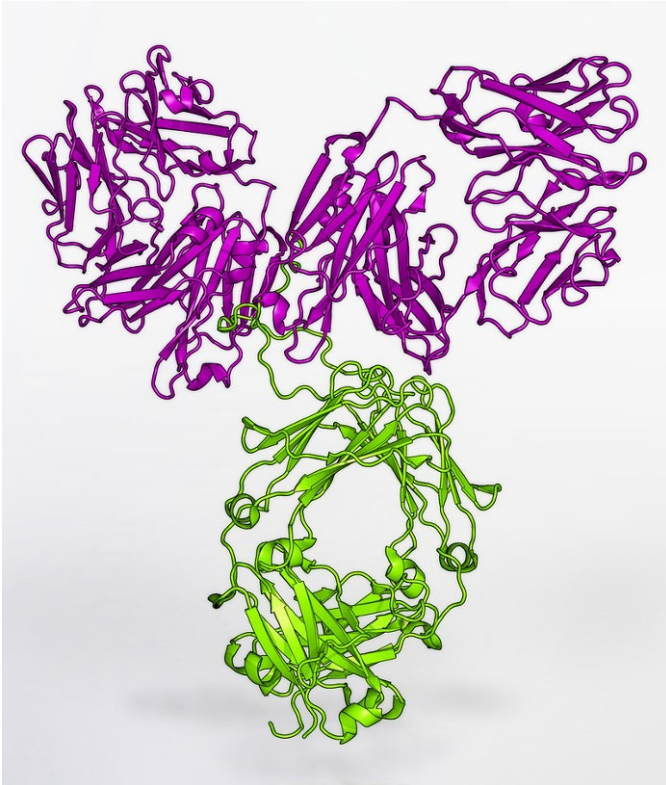
# Art inspired by science..



This beautiful image looks like a computer model but it's a piece of art created by David S. Goodsell imagining the surprising beauty of the inside of Ebola. Goodsell's image shows the proteins of this virus. Can you create your own viral artwork?

*Credit: 'Cross section through an Ebola Virus Particle' by David S. Goodsell (2014). Watercolour and ink on paper illustration. Creative Commons 4.0.*

# Heroic antibody

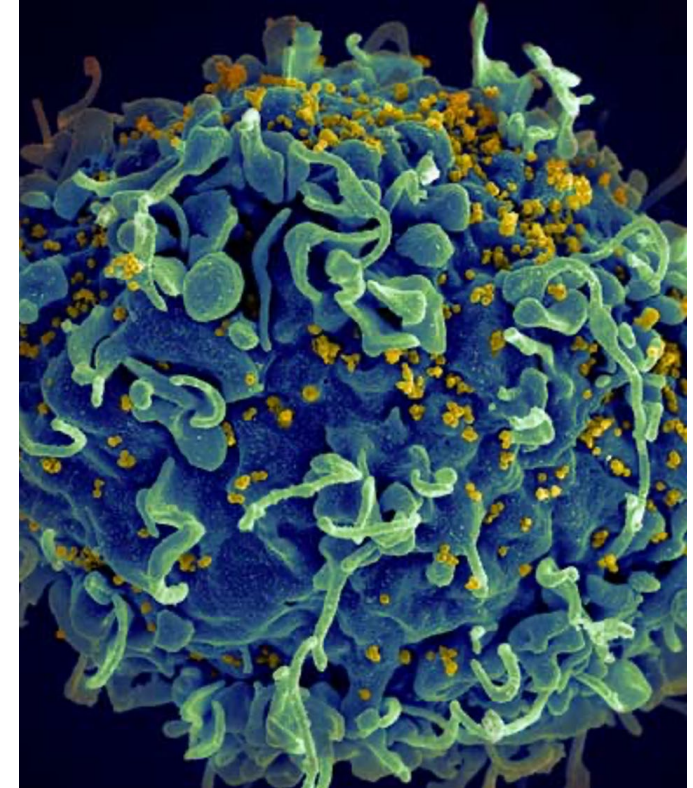
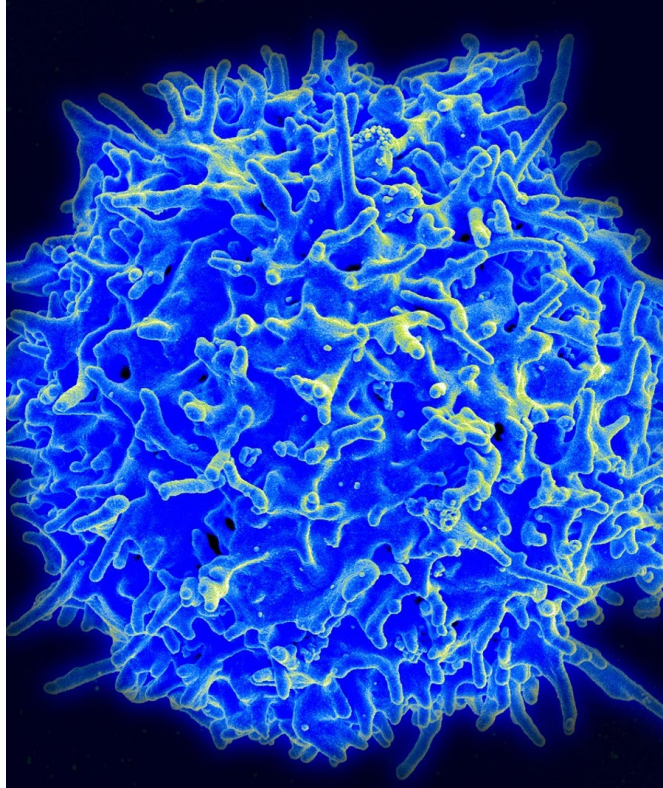


Your body makes antibodies which can recognise and 'inactivate' a virus. This 'Y-shaped' protein can recognise part of a virus using a little groove in the end of each of the arms. Get inspired and doodle/draw your own heroic antibody.

*Credit: 'Model of antibody' – left from NIAID; middle from sc63; right from Shutterstock, illustration imagining antibodies approaching a virus. Licenses under Creative Commons 2.0.*



# White blood cells



Your body contains many types of white blood cells (immune system) which help keep us well. These images are taken using scanning electron microscopy which reveals the 3D structure of cells. The photograph on the left shows red blood cells which carry oxygen (in red), platelets which help form blood clots (in green) and white blood cells, also known as 'killer' T cells (in orange).

These colours are all artificially added to the image. In the photo top right is a killer T cell which can destroy infected cells. The photo on the right shows a cell infected by a virus: HIV. The little yellow/orange structures are the virus emerging.

*Credit: Left – 'Human Blood Cells' by ZEISS microscopy; middle – 'Healthy Human T Cell' from NIAID; right – 'HIV Infected Cell' by Seth Pinsu, Elizabeth Fischer and Austin Athman, NIH. Licenses: Creative Commons 2.0.*