



## Glossary

# What is it good for? Basic versus applied research

**Antigen:** A foreign substance (such as the spike protein on the outside of a virus) that produces an immune response from the body linked to the production of antibodies.

**Cation:** An ion with a positive charge.

**Chromatography:** A technique used in a lab to separate a mixture of compounds.

**Cytotoxic:** Toxic to cells.

**Fluorescent protein:** A protein that fluoresces (glows) under ultraviolet light. The most well-known example is green fluorescent protein (GFP) from jellyfish. Scientists often join the gene sequence for GFP to the gene for another protein they are interested in, which gives a fluorescently labelled protein that they can monitor more easily.

**Host/host cell:** This just means the cell or organism the synthetic nucleic acids are being introduced into.

**In vitro:** In vitro studies are performed with biological molecules or cells outside of their natural context. In vitro experiments are often referred to as 'test-tube experiments'.

**In vivo:** In vivo studies test biological entities as a whole. Examples are animal experiments or studies in human patients.

**Ionizable:** Compounds that can gain or lose electrons, giving a positive or negative charge.

**Lipid:** An organic compound made up of fatty acids that are insoluble in water. This includes oils and steroids. Lipids are the main component of cell membranes.

**mRNA:** Messenger RNA – the single-stranded RNA molecules that encode proteins.

**Nanoparticle:** An extremely small particle between 1 and 100 nanometres (nm) in size. The thickness of a piece of paper is around 100 000 nanometres.

**Nucleoside:** A ribosugar linked to a nucleobase, similar to the nucleotides that make up nucleic acids, but nucleotides additionally have phosphate groups.

**Pathogen:** A disease-causing microorganism.

**Physiological:** Relating to the functions of living organisms.

**Polynucleotide:** A chain of nucleotides chemically linked together, for example, DNA and RNA.

**Protein folding:** The folding of the amino acid chain that makes up proteins into a 3D shape.

**SARS-CoV-2:** The name of the coronavirus that causes the disease COVID-19.

**Transcription:** The process through which a segment of DNA is copied into mRNA, which can be used to make proteins through translation.