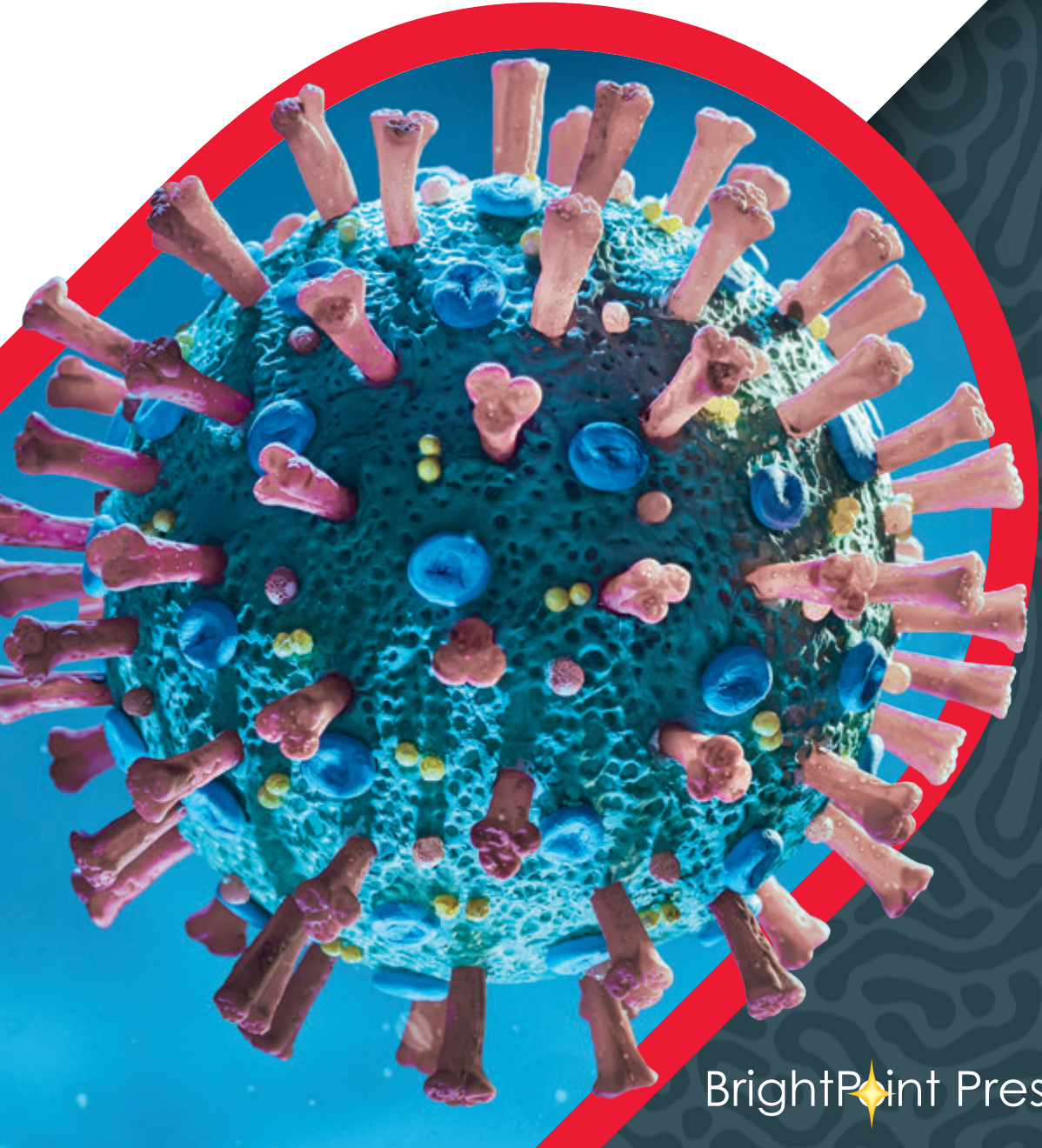


THE COVID-19 PANDEMIC

# THE COVID-19 VIRUS

by Walt K. Moon



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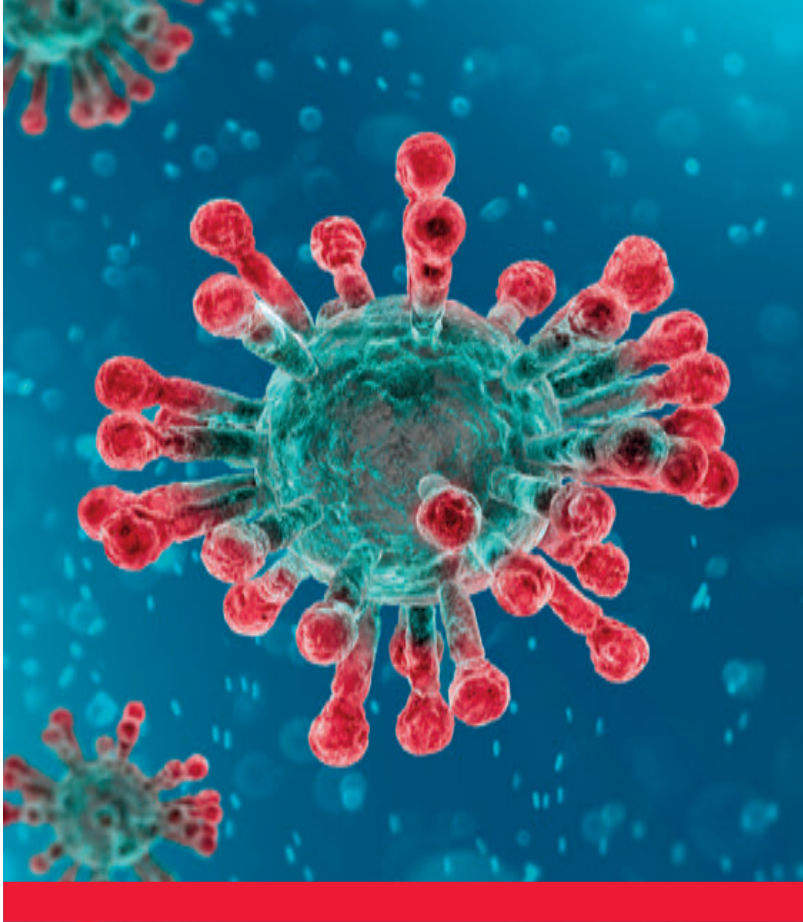
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# AT A GLANCE

- The COVID-19 pandemic spread around the world in 2020. This disease is caused by a virus called SARS-CoV-2.
- SARS-CoV-2 belongs to a family of viruses called coronaviruses.
- SARS-CoV-2 invades healthy human cells. It forces cells to produce copies of the virus. After killing cells, new copies of the virus spread to other cells, and the process repeats.
- For some people, COVID-19 causes mild symptoms or even no symptoms. For others, the disease is deadly.
- The virus harms cells in the respiratory system, damaging the lungs and making breathing difficult.

# WHAT IS A CORONAVIRUS?

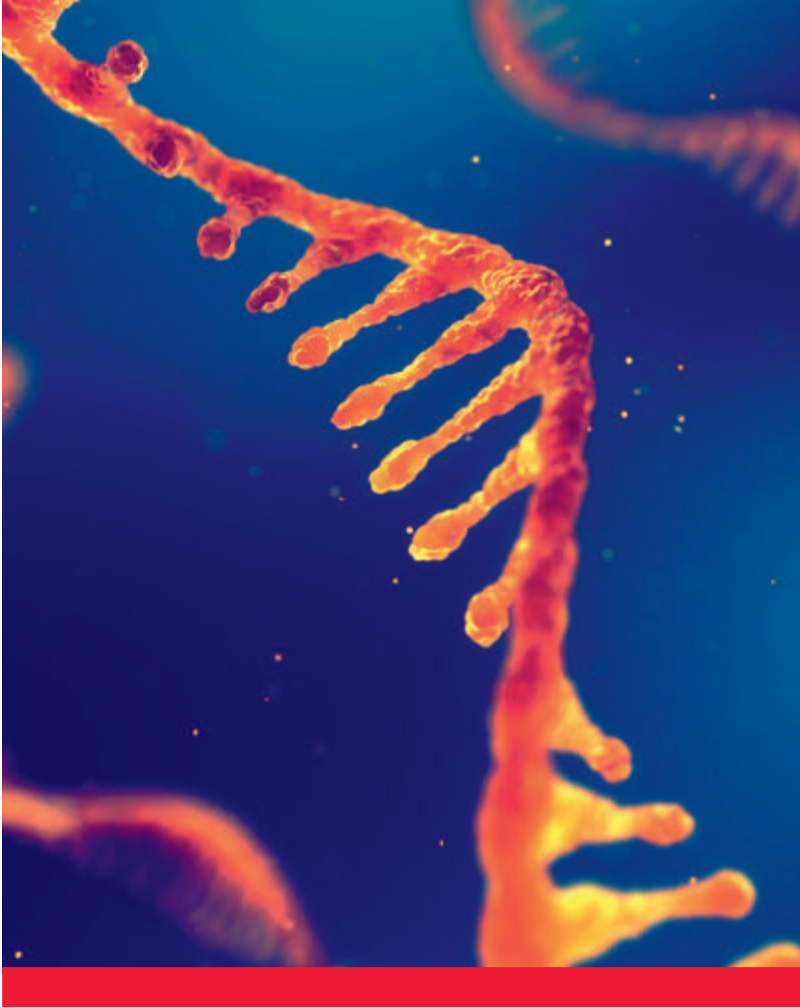
**V**iruses are tiny particles with one purpose: to make copies of themselves. They cannot do this alone. A virus must first **invade** a living cell. Then it uses the cell to **reproduce**. The cell fills with copies of the virus, which kills the cell. The new viruses invade other cells, and the



***Coronaviruses such as SARS-CoV-2 have many spikes.***

process repeats. Many cells die. This is how viruses make people sick.

A virus has two basic parts. The first is genetic material. It may be RNA



***A strand of RNA is shaped like a spiral.***

or DNA. These are chemicals that contain instructions for building a cell or a virus. For example, a person's height and eye color are represented in his or her DNA. Cells copy their own genetic material to create



new cells. Viruses take over this ability to instead make copies of themselves.

The second part of the virus is an outer shell of **proteins**. It protects the genetic material inside.

Viruses attack cells in specific areas.

Viruses that cause the common cold strike the upper airways near the nose.

SARS-CoV-2 often infects cells in the lower airways and lungs. This is why people with COVID-19 can get pneumonia.

## **FIGHTING BACK**

Viruses can be deadly if they keep killing cells. But the body has ways to fight back.



The immune system protects the body from viruses and other invaders.

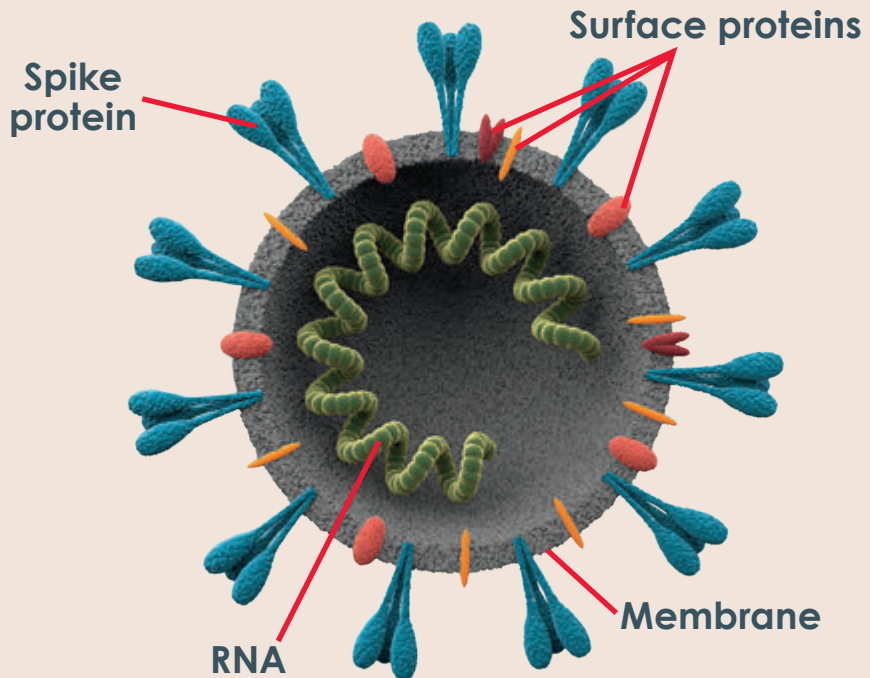
One way it does this is with T cells.

T cells recognize certain proteins on the surfaces of cells. If the proteins are from the virus, that means the cell is infected. T cells destroy the infected cell. This stops the virus from spreading. However, some viruses

### **VIRUSES VS. BACTERIA**

Viruses and bacteria both cause diseases. But they are very different. Viruses are not alive. They need to take over a cell to reproduce. Bacteria are alive. They make their own energy and reproduce on their own. Viruses cause diseases such as influenza, measles, and COVID-19. Bacteria cause diseases such as tuberculosis and food poisoning.

## CORONAVIRUS FEATURES



*Proteins on the surface of a coronavirus help it attach to cells. It is able to insert its RNA after attaching.*

in the 1960s. Since then, they have discovered a total of seven coronaviruses that infect humans. Four of these cause mild diseases such as colds. Three are more serious.

# GLOSSARY

**alerting**

sending a warning about something

**immunologist**

a scientist who studies the immune system

**invade**

to enter a place or an object

**pandemic**

an outbreak of disease that occurs over a wide area

**proteins**

chemicals that are the building blocks of living things

**reproduce**

to create offspring or copies of a living thing

**respiratory**

related to the process of breathing

**scientific journals**

publications that print scientific research papers

**symptoms**

the effects that a person feels from a disease

# SOURCE NOTES

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