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A HISTORY OF THE CORONAVIRUSES

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The First Human Coronaviruses

In 1965, David Tyrrell and Malcolm Bynoe discovered a new virus, which they named B814, in a specimen taken from a British schoolboy infected with the common cold.^{1,2} Within the next two years, two more viruses —229E and OC43— were discovered by independent teams.^{1,3,4} Examination by microscopy of B814 and 229E demonstrated that they were morphologically and biologically similar to avian infectious bronchitis virus.⁵

In 1968, researchers proposed the existence of a category of viruses currently known as the “coronaviruses,” including B814, 229E, and OC43. This name was a reference to the projections that were found on all of these viruses, reminiscent of the sun’s corona.⁶

SARS-CoV

In November 2002, a new form of pneumonia of unknown origin was discovered in Guangzhou, China, before it spread throughout Guangdong province. This disease, referred to as severe acute respiratory syndrome (SARS), spread to Hong Kong in February 2003 and then to 29 countries around the world, eventually resulting in 8098 infections and 774 deaths.^{1,7} The cause of this illness was found to be a coronavirus named SARS-CoV, which was slightly different phylogenetically from known human coronaviruses but closely related to coronaviruses found in bats and civets. To date, however, the exact origin of SARS-CoV remains unknown.⁷

MERS-CoV

In June 2012, MERS-CoV, short for Middle Eastern Respiratory Syndrome-Coronavirus, was discovered in Saudi Arabia when a man suffering from severe respiratory symptoms was admitted to a hospital.¹³ It is believed that the virus originated from bats but was transmitted to humans via infected dromedary camels, which are often used for transport. Although MERS-CoV has been relatively localized, with 80% of the over 2560 reported cases being from Saudi Arabia. However, it also has one of the highest mortality rates among coronaviruses —it is lethal in approximately 35% of cases.¹⁴

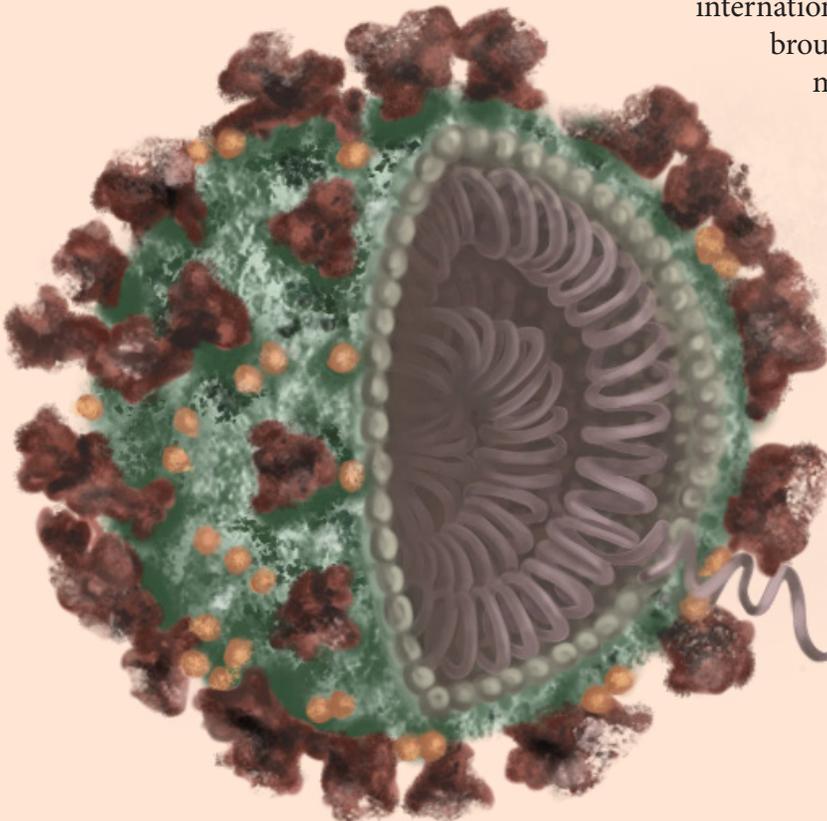
NL63/HKU1

In 2004, a novel coronavirus was discovered in a 7-month-old infant who had been admitted to the hospital for bronchitis and conjunctivitis.⁸ This virus, later named NL63, was found to predominantly infect infants and immunocompromised individuals, leading to symptoms common to other human coronaviruses such as fever, cough, and respiratory problems.⁹ A year later, researchers in Hong Kong isolated another novel coronavirus from a 71-year-old man suffering from pneumonia symptoms.¹⁰ The virus, termed HKU1, is most prevalently seen in the winter and spring, and more commonly infects children.^{11,12}



SARS-CoV-2/COVID-19

In early December 2019, a physician reported patients with SARS-like symptoms in Wuhan, China. The cause of these cases was found to be another novel coronavirus, termed SARS-CoV-2, which results in a disease titled coronavirus disease 2019 (COVID-19).¹³ On January 30, 2020, as cases continued to rise at an alarming rate, the World Health Organization declared a public health emergency of international concern.¹⁵ Since then, COVID-19 has brought about a global pandemic, with over 57 million confirmed cases, more than 1 million deaths, and far-reaching consequences to the physical and mental health of countless others.¹⁶



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References can be found on our website:
meducator.org