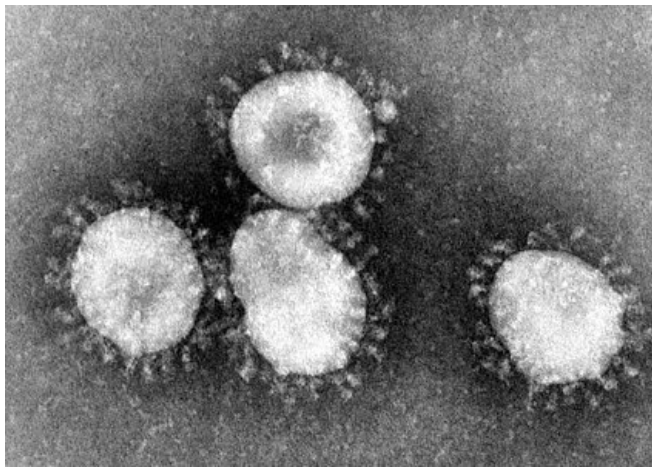
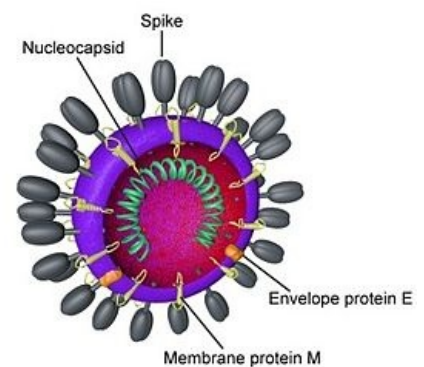


# Coronaviruses

<b>name</b>	Coronaviruses
	
<b>family</b>	Coronaviridae
<b>type of nucleic acid</b>	(+)ssRNA
<b>transmission</b>	via respiratory droplets
<b>diseases</b>	SARS, MERS, Covid-19 (SARS-CoV-2), kidney diseases, upper respiratory tract infections, gastroenteritis

**Coronaviruses** are RNA viruses, that get their name from their typical appearance. Human coronaviruses are common causes of the **common cold and other upper respiratory tract infections**, but can also cause serious diseases such as SARS (severe acute respiratory syndrome, originating in China), MERS (Middle East Respiratory Syndrome, native to Saudi Arabia) or COVID-19. The virions are transmitted via **respiratory droplets**.

These are enveloped (+) ssRNA viruses. Spikes protrude from the surface of their lipid envelope. These spikes have lytic, hemagglutinating, and adsorption activity. The envelope of the virus originates from the host membrane endoplasmic reticulum. There are 4 main subgroups: alpha (9E, NL63), beta (OC43, HKU1, MERS-CoV, SARS-CoV), gamma, and delta.<sup>[1][2]</sup>



Coronavirus virion

## Common human coronaviruses

Common human coronaviruses include types 229E, NL63, OC43, HKU1, and usually cause mild to moderate upper respiratory tract infections, such as the common cold. It is transmitted from an infected person to a person by coughing and sneezing, by direct contact with the patient (touch, handshake), indirectly by contact with infected objects (fomites), and rarely by contact with the patient's stool. Symptoms of the disease include rhinitis, headache, cough, sore throat, fever, and a general feeling of "illness". The disease usually lasts a short time and most people experience it during their lifetime. People may experience multiple coronavirus infections during their lifetime. The highest incidence is in the autumn and winter, but the infection can occur at any time of the year. Human coronaviruses sometimes also cause lower respiratory tract diseases such as pneumonia or bronchitis, more often in people with cardiopulmonary disease and a weakened immune system, and in children and older adults.<sup>[3]</sup>

## Other human coronaviruses

Other human coronaviruses that originally caused infections in animals (zoonoses) include *MERS-CoV*, *SARS-CoV* and the new coronavirus *2019-nCoV*. '*MERS*' ( *Middle East Respiratory Syndrome* ) was first reported in Saudi Arabia in 2012. From there, it spread to other countries. It manifests as fever, cough, shortness of breath, pneumonia, and is accompanied by a high mortality rate (every 3-4 out of 10 infected die). MERS still appears in the Arabian Peninsula. '*SARS*' (*severe acute respiratory syndrome*) appeared in China in 2002 and has been associated with fever, chills, body pain, pneumonia, but has not been reported in humans since 2004.

A new coronavirus, SARS-CoV-2, was reported in January 2020 and was first identified in China as the cause of the COVID-19 epidemic in Wuhan.

 For more information see SARS-CoV-2.

## Diagnosis

- History - information about travel to affected areas
- typical clinical presentation
- PCR detection from upper and lower respiratory tract samples and blood serum

## Prevention

Vaccines against COVID-19 are available.<sup>[4]</sup>The risk of infection can be reduced by thorough hand washing, avoiding contact with eyes, nose or mouth with unwashed hands, and avoiding close contact with patients. The risk of respiratory droplet transmission can be reduced by using respirators, surgical masks, or masks with particle protection category P3.

## Treatment

There is no causal treatment. Most common human coronavirus infections resolve spontaneously without treatment. In more severe cases, symptomatic treatment is possible (treatment of fever, pain, etc...).<sup>[3]</sup>

## Links

### Related articles

- SARS
- RNA viruses
- MERS

## References

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3. <https://www.cdc.gov/coronavirus/index.html>
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