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**ASSIGNMENT**

Human coronaviruses (HCoVs) are large RNA viruses that infect the human respiratory tract.

Respiratory diseases caused by human coronavirus infection are of both medical and socio-economic importance. Currently, they are studied in various model systems, ranging from cell lines to animal models. Coronaviruses

Coronaviruses (CoVs), a subfamily of the Coronaviridae family, are positive strand RNA viruses with the largest genome of all known RNA viruses (≥27 Kb). The genomic RNA is capped, polyadenylated and associated with nucleocapsid proteins within an enveloped virion.

In animals, CoV infections are mainly associated with respiratory and enteric disease and can have large economical impact on the veterinary industry, e.g. Porcine Epidemic Diarrhea Virus (PEDV) causes gastrointestinal disease in pigs.In humans, CoV infections are mainly associated with respiratory diseases that are considered to have a large impact on the economy due to reduced productivity of the working population. Currently, 6 coronaviruses that cause disease in humans have been discovered.

For most patients, COVID-19 begins and ends in their lungs, because like the flu, coronaviruses are respiratory diseases.They spread typically when an infected person coughs or sneezes, spraying droplets that can transmit the virus to anyone in close contact. Coronaviruses also cause flu-like symptoms: Patients might start out with a fever and cough that progresses to pneumonia or worse.In the early days of an infection, the novel coronavirus rapidly invades human lung cells. Those lung cells come in two classes: ones that make mucus and ones with hair-like batons called cilia.Mucus, though gross when outside the body, helps protect lung tissue from pathogens and make sure your breathing organ doesn’t dry out. The cilia cells beat around the mucus, clearing out debris like pollen or viruses.

* That’s when phase two and the immune system kicks in. Aroused by the presence of a viral invader, our bodies step up to fight the disease by flooding the lungs with immune cells to clear away the damage and repair the lung tissue.These holes are likely created by the immune system’s hyperactive response, which creates scars that both protect and stiffen the lungs.

When that occurs, patients often have to be put on ventilators to assist their breathing. Meanwhile, inflammation also makes the membranes between the air sacs and blood vessels more permeable, which can fill the lungs with fluid and affect their ability to oxygenate blood.In severe cases, you basically flood your lungs and you can’t breathe.