There are 7 coronaviruses that infect humans. Here's what makes SARS-CoV-2 so dangerous

SARS-CoV-2 is not the flu. It causes a disease with different symptoms, spreads and kills more readily, and belongs to a completely different family of viruses. This family, the coronaviruses, includes just six other members that infect humans.

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Why was this seventh coronavirus the one to go pandemic?

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The structure of the virus provides some clues about its success. In shape, it's essentially a spiky ball. Those spikes recognize and stick to a protein called ACE2, which is found on the surface of our cells: This is the first step to an infection. The exact contours of SARS-CoV-2's spikes allow it to stick far more strongly to ACE2 than SARS-classic did, and "it's likely that this is really crucial for person-to-person transmission," says Angela Rasmussen of Columbia University. In general terms, the tighter the bond, the less virus required to start an infection.

There's another important feature. Coronavirus spikes consist of two connected halves, and the spike activates when those halves are separated; only then can the virus enter a host cell. In SARS-classic, this separation happens with some difficulty. But in SARS-CoV-2, the bridge that connects the two halves can be easily cut by an enzyme called furin, which is made by human cells.

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