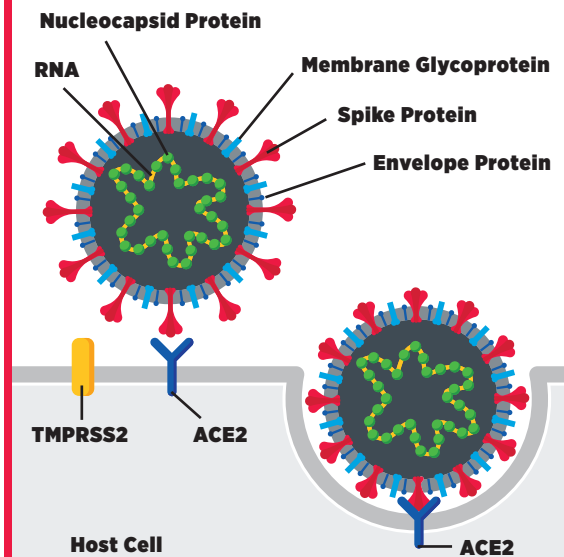


FIGURE 4 HOW SARS-COV-2 ENTERS A CELL



Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus that causes Coronavirus Disease 2019 (COVID-19). SARS-CoV-2 particles are spherical and enter cells that have a protein called angiotensin-converting enzyme 2 (ACE2) on the surface. Each SARS-CoV-2 particle contains RNA encased in a “shell” formed of the nucleocapsid protein. This is enclosed in a lipid envelope. Three structural proteins pass through the lipid envelope, the envelope protein, the membrane protein, and the spike protein. The spike protein attaches to ACE2, which is found on the surface of certain human cells including some of those lining the nasal passages and lungs. To enter these cells, the virus needs another protein, called TMPRSS2, to be present on the cells. TMPRSS2 modifies the spike protein, triggering fusion of the SARS-CoV-2 lipid envelope with host lipid membranes. This allows the encased RNA to fully enter the cell where, after it is uncoated from the nucleocapsid protein, it hijacks the host’s genetic material and cellular machinery to produce copies of itself and to produce more envelope, nucleocapsid, membrane, and spike proteins.