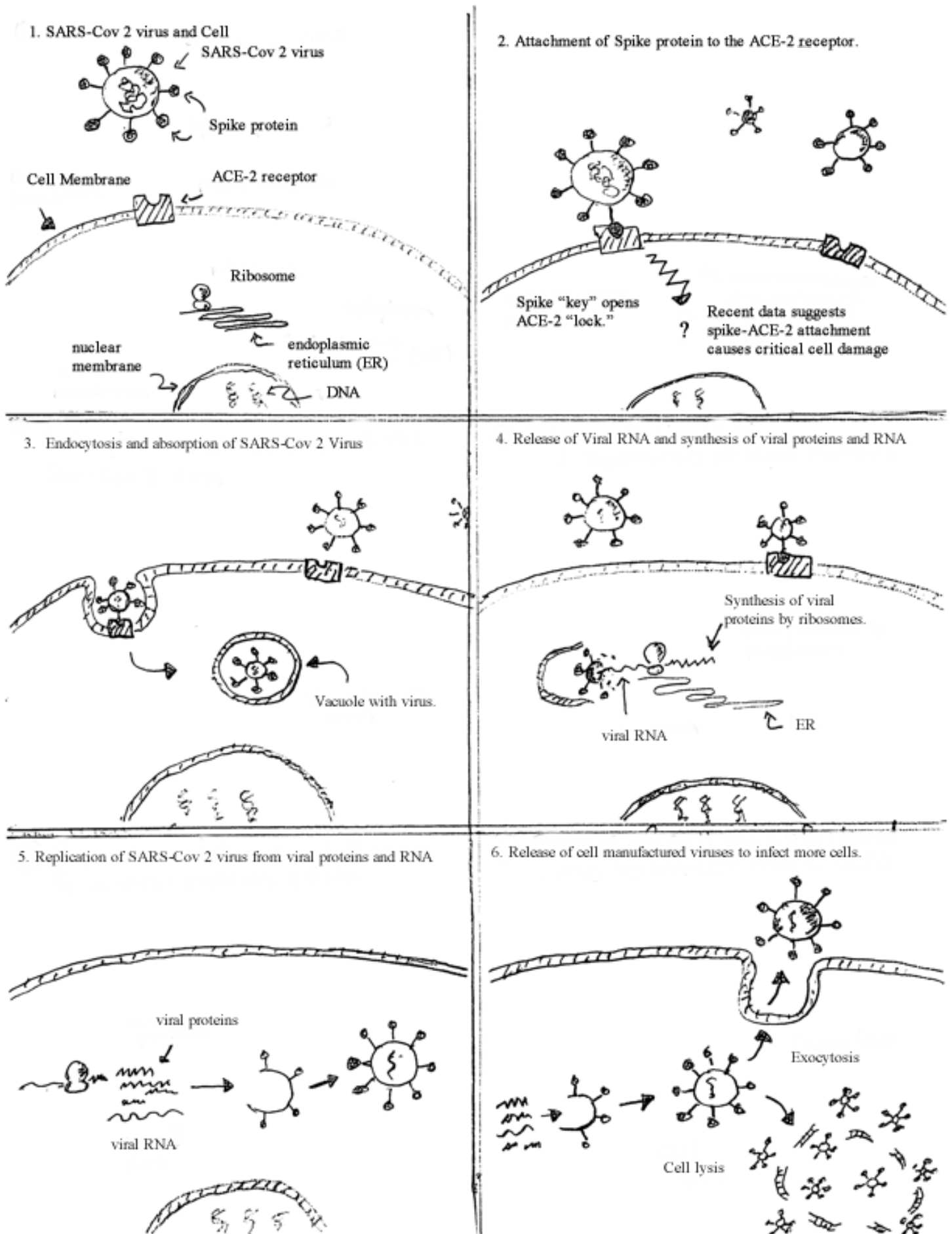


## Sars-Cov 2: Infection and Replication



1. Sars-Cov 2 virus presents to capillary epithelium of respiratory tissue. The "spike" protein is a unique feature of the Sars-Covd 2 virus; also the ACE-2 receptor is found in lung, heart, blood vessels, kidney, liver, and gastrointestinal tract. The ACE-2 receptor is present in epithelial tissue and it is pretty much ubiquitous throughout the body.
2. Binding of Sars-Cov 2 "spike" protein to the ACE-2 receptor on epithelial cell. Spike protein acts like a key to unlock the door (ACE-2 receptor) to pass through the cell membrane and enter the cell. It has been recently discovered that the spike protein can act pathogenically on the infected cell independent of the virus.
3. Absorption of the virus into the cell via endocytosis. Virus contained in membrane-bound vacuole.
4. Enzymes in the cell break down vacuole and viral capsid releasing mRNA (template to produce more viruses) into the cell which attaches to the ribosome and endoplasmic reticulum (ER).
5. Ribosome with ER use the mRNA as a template to produce copies of the virus.
6. Cell releases viral copies by exocytosis or cell lysis (cell breaking apart). Viruses enter circulatory and lymphatic system to infect other cells where the above processes repeat infecting more cells.