



# Covid-19 News

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# Agenda

- Introduction
- Biochemistry Dialogue
- Metabolic Processes
- Molecular Genetics
- Homeostasis
- Population Dynamics
- Sign Off - The Road to 10 million
- Works Cited

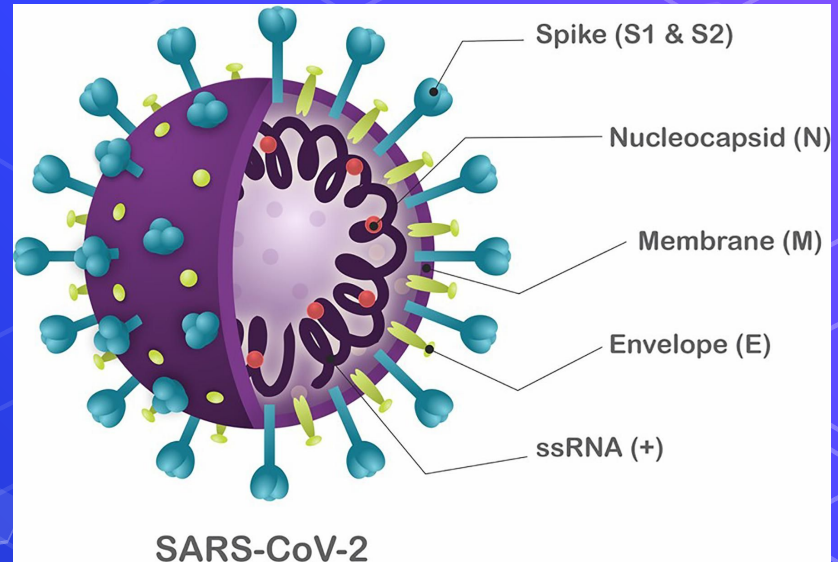


# Introduction

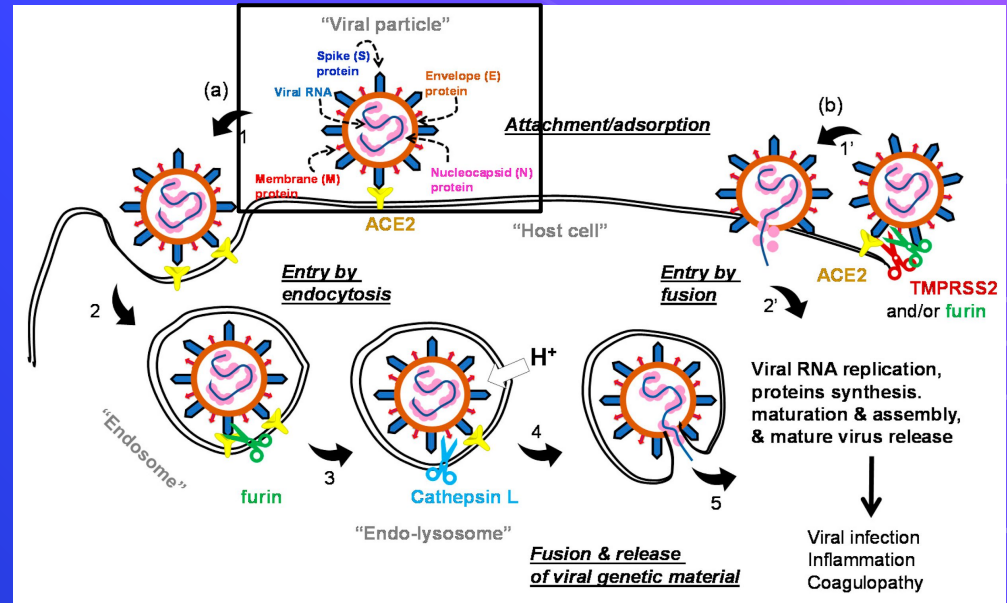


# Biochemistry

Properties of the virus

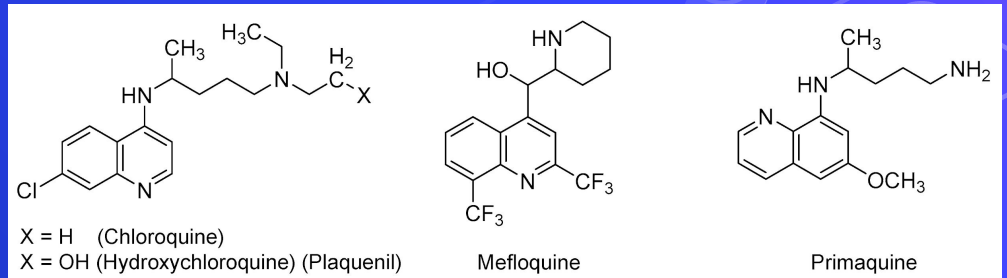


- Life cycle of Sars-CoV-2 as a virus →



(Al-Horani, R. A., Kar, S., & Aliter, K. F. (2020))

- Chemical makeup of certain vaccines\* being used against Covid-19 →



\*Vaccines will be talked about later on in the presentation



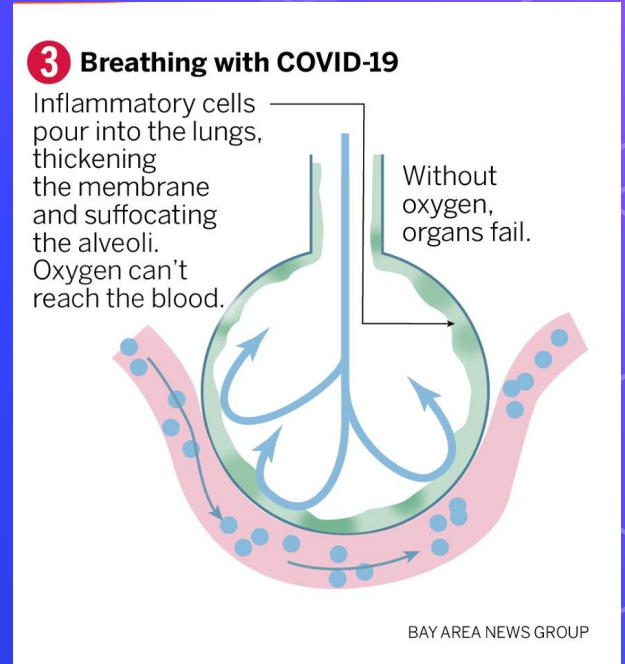
# Metabolic Processes

Now that we know the mechanisms through which Covid-19 infects, let's talk about the body's response



# Metabolic Processes

- Burst cells = Local Inflammation
  - Blood Plasma
  - Immune cells
- Pneumonia
- Acute Respiratory Distress Syndrome



An alveolus infected with covid-19

# Molecular Genetics

- Testing for the virus
- RT-PCR vs PCR
- RT-PCR vs CT Scans



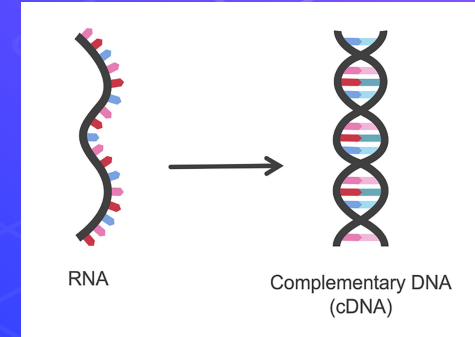


# Reverse Transcription Polymerase Chain Reaction

- RNA  $\rightarrow$  cDNA
- cDNA + DNA fragments
- Fluorescent dye
- Replicate



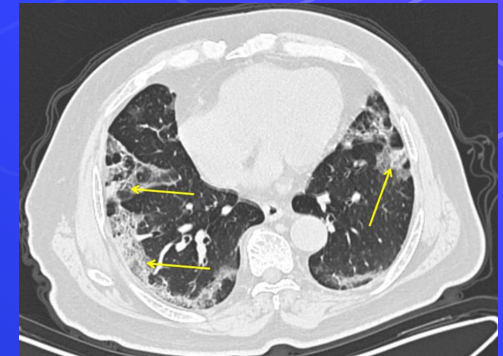
RT-PCR Machine



Differentiating process between  
RT-PCR and PCR

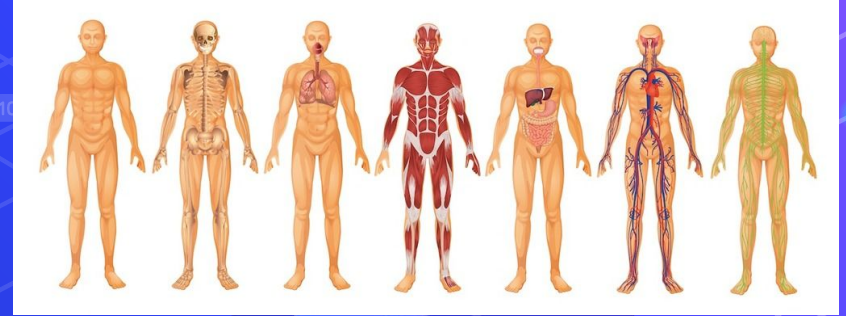
- Chest CT =  $5.1 \pm 1.5$  days
- RT-PCR =  $6.9 \pm 2.9$  days

Chest CT identifying Covid-19  $\rightarrow$



# Homeostasis

How Covid-19 disrupts homeostasis



# What happens to the body?

- The inflammatory proteins can jump into the blood
- Fever
- Gastrointestinal Conditions, Loss of Smell and Taste
- SIRS



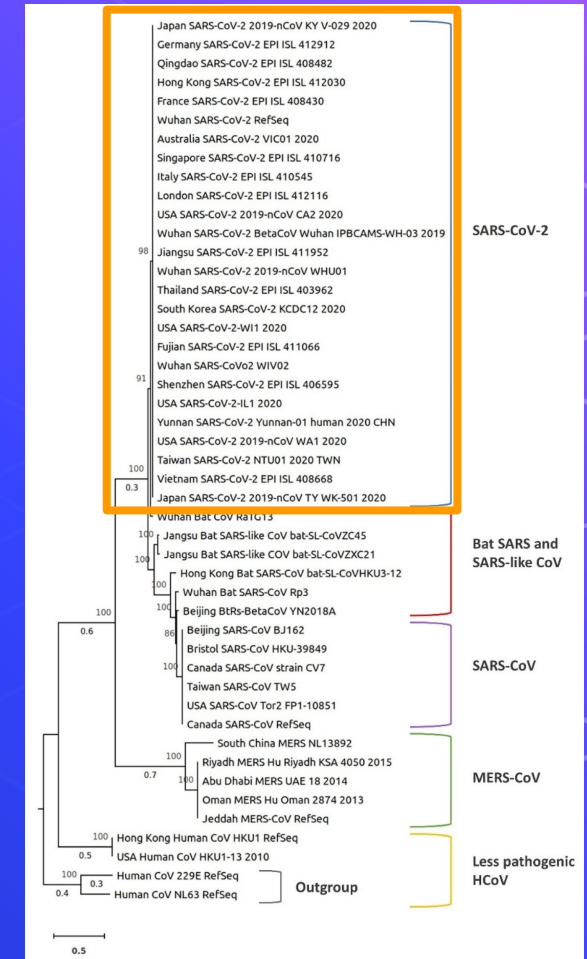
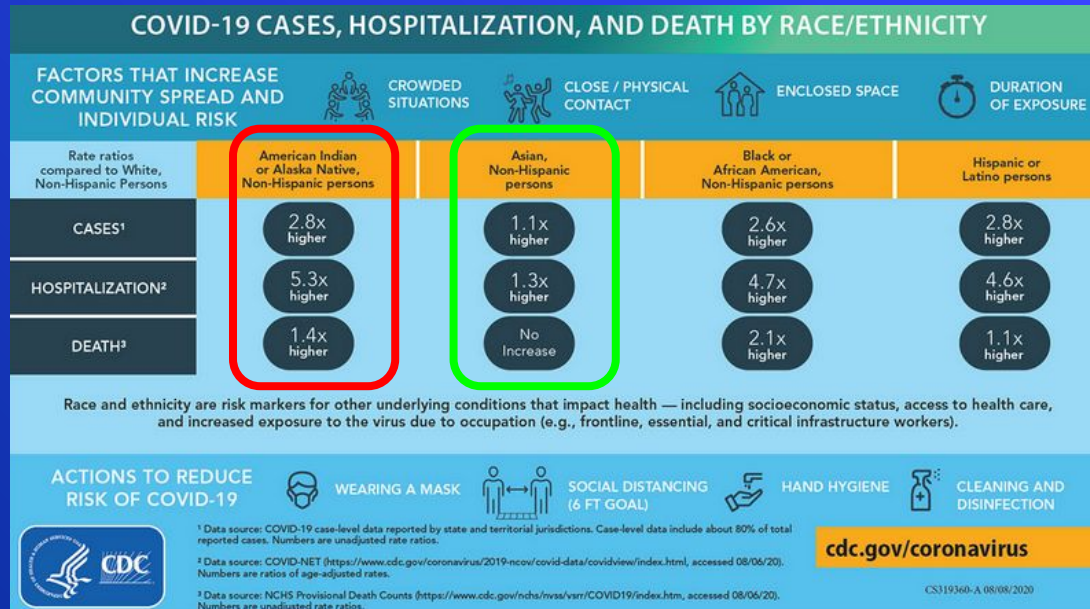


# Population Dynamics

- Demographics most affected
- Vaccines and herd Immunity



- No correlation between age
- 66% herd immunity (Todd Neff, F., 2020) → not possible without vaccine
- Current vaccine at 90% effectiveness



# The Road to 10 million



- Since June 27, 2020:
- US = +10M
- Brazil = +5M
- Russia = 2M
- Canada = 0.3M
- <https://youtu.be/jwplJ6sY0GM>



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