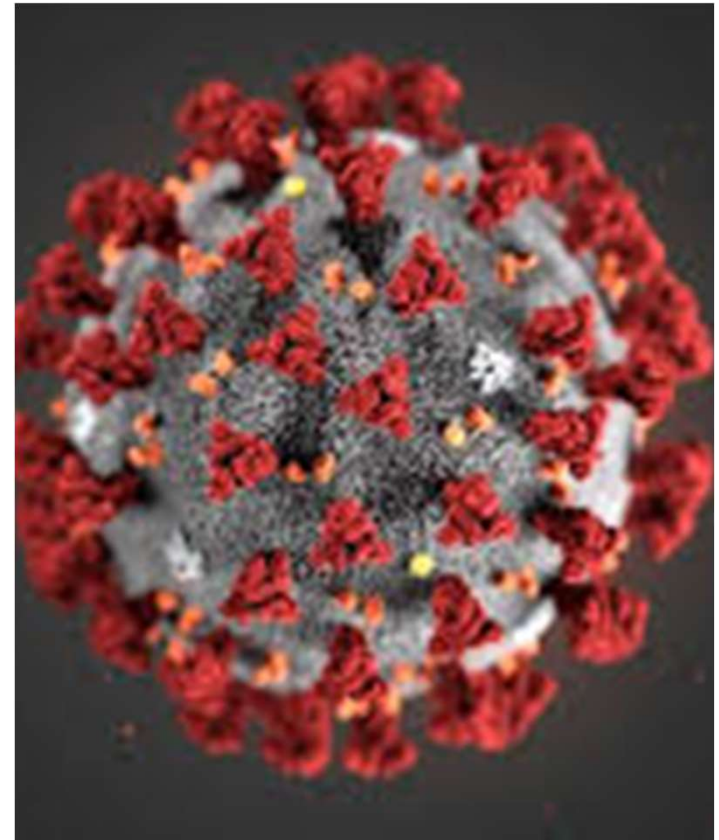


# THE COVID VACCINE

HELPING YOUR BODY BEAT  
THE 'RONA





## INFORMATION SOURCES AND BIASES

- Personal Bias
  - For vaccines - by way of training and background as well as spiritual inclination
    - Love thy neighbor
    - We live in community
  - Science and faith can and do intermix and can support one another.
    - God doesn't hate science.
  - I do not assume I know everything
    - Or really... anything depending on the topic
  - I do NOT discount the activity and hand of God
- Sources
  - Peer reviewed scientific articles and in some cases pre-print servers
  - Avoided sources like Newsmax/Breitbart (ultra right) and Wonkette/Palmer report (ultra left)
- In a nation of 331 million and world of 7.8 billion, almost anything can happen to anyone
  - The large numbers of benefit do not discount the personal tragedy of a serious vaccine side effect.

# VACCINES: THE CONCEPT

- Preparing the natural mechanisms of your body to produce the defenses to reduce or eliminate infection.

# VACCINES THROUGHOUT HISTORY

## The Great

- Smallpox
- Polio
- Measles/Mumps
- Tetanus
- Rabies

## The Useful

- Influenza
- Pertussis
- HPV
- Hepatitis B
- Meningitis
- Chicken pox/Shingles
- The list goes on....

## The Not Useful

- Rotashield
  - Other rotavirus vaccines are useful
- RSV
  - Never presented for evaluation, large side effects in early trials
- Early iteration of measles
  - Same as RSV

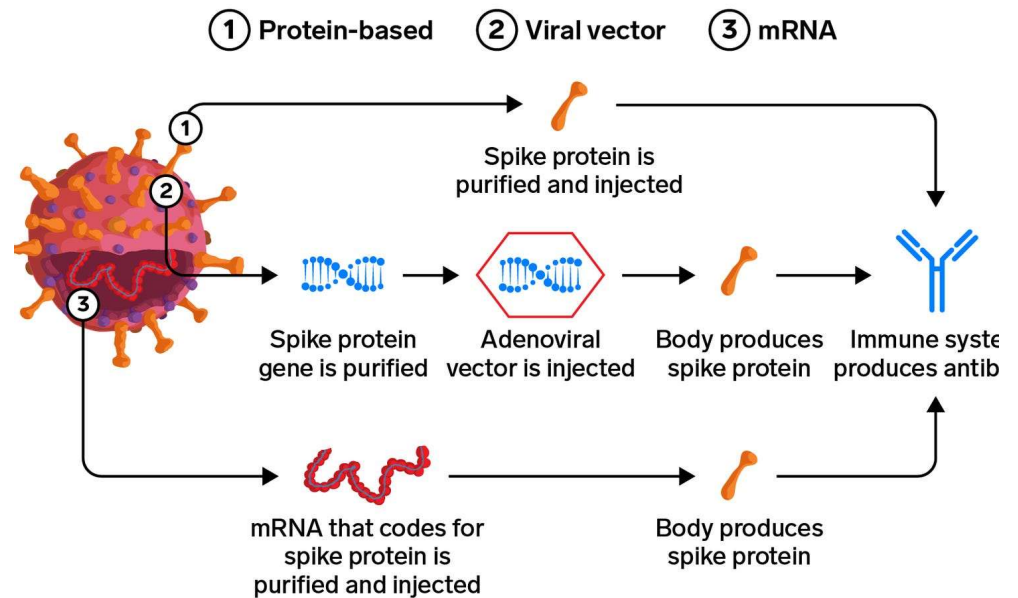
# VACCINES – BENEFITS AND SIDE EFFECTS

- Effective vaccines cause durable immunity to disease
  - In most cases better than natural immunity
  - Re-infection
- If disease is not prevented in many cases the severity is reduced
  - Possible protection from transmission as well
- Mass vaccinations can protect unvaccinated people from harm
  - “Herd immunity”
- In some cases, the disease has been eliminated completely
- Anaphylaxis/Allergic reactions
  - Varied and wide but at very low rate
- Neurological dysfunction
  - At most 1.6 per million people in flu vaccine
  - Some studies argue there is no correlation
- Side effects from additives and “immune boosters”
  - See above for reactions
- Autism
  - Disproven and except for the primary author, retracted.
- **The unknown**
  - More relevant with newer vaccines

# COVID VACCINES

- mRNA
  - Moderna
  - Pfizer
- Adenovirus
  - Johnson and Johnson
  - Astra Zeneca (Europe but not approved in US)
  - Sputnik V (Russia, not approved in US)
- Killed/live virus
  - Sinovac (China)
- Molecular subunit vaccine
  - Novavax, not out of trials yet

## Three types of coronavirus vaccines in developme




Source: National Institutes of Health presentation at Senate hearing on September 9, 2020

INSIDE

# DOSING AND EFFECTIVENESS

- mRNA vaccines
  - Two doses but some data now suggests one dose may be sufficient.
  - Will not know for sure until real world studies are done
- Adenoviral vaccines
  - One dose
- Effectiveness
  - Reported 90+% on mRNA vaccines
  - 70+% adenovirus vaccines
  - BUT – cannot compare directly as studies done at different times and with different populations. And its unknow the effect of variants ultimately on effective.

# SAFETY – WILL I GROW AN EXTRA LIMB?

- Study data and real world data suggest a higher rate of non-serious side effects with mRNA vaccines
    - In other words a lot of people feel terrible but a low number of people actually have something serious happen.
      - Anaphylaxis – around 5-11 in a million (mostly in folks who have had reactions like this before)
      - “covid arm”, “covid lips”
      - Neurological side effects – Bell’s palsy, Guillaine Barre
        - Very low rate thus far
  - Adenoviral vaccines
    - May be more well tolerated but data is still being gathered
  - Antibody dependent enhancement
  - Fertility
  - Unknown?
- 





# THE FUTURE?

- The variants
  - Natural evolution of coronaviruses
  - Relatively slow evolution
  - Some vaccines may be less effective
- Herd Immunity
  - Vaccine immunity better than natural immunity
  - Estimate 70-80% population immune needed for benefit of herd immunity to kick in
- When O Lord?
  - Late summer?
  - One more surge coming (but not as bad...we hope)