

Assignment-1

Biology project 10 marks

Topic SARS CoV 2 OR CORONA VIRUS

THE PROJECT SHOULD BE HAND WRITTEN AND MUST NOT BE MORE THAN 15 – 20 PAGES.

Topics to be covered

1. acknowledgement
2. Introduction
3. Structure of covid 19
4. mode of infection – spread of the virus in world and in India
5. difference between pandemic and epidemic. concept of community transfer and stages of spread of disease. Concept of quarantine, isolation and prophylaxis
6. role of health workers
7. your contribution in this context as a student of biology.
8. possible cure of disease(you can be innovative and suggest biologically correct ways of controlling the pandemic and curing it
9. conclusion
10. bibliography

Here is an overview of the above disease which will help you to understand the topic better and further elaborate on it.

SARS CoV 2 (Severe acute respiratory syndrome is a strain of a virus belonging to the family of corona virus name after the spikes on the surface of the virus. Like all viruses covid 19 is a non cellular entity and can only multiply in the body of the host SARS COV2 and cause Covid 19 a contagious viral infection that attacks primarily your throat and lungs. When your body contracts a corona virus , it can develop pneumonia. The virus attacks living cells in order to multiply.

As already discussed in our classes on viruses virus has the genetic material containing information to make copies of itself. A protein shell provides a hard protective enclosure for the genetic material as it travels from one host to the other. The viral membrane merges with the cell membrane of the infected cell. Projecting from the viral particles are spikes of protein molecules like a crown(hence name corona) Like the other influenza viruses it makes use of these spikes to enter the cell of the body and

takes over its cellular machinery. Thus it starts building the components of the new viral particle. (protein and genetic material.

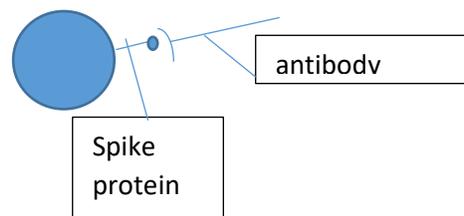
When an infected person coughs or sneezes. Or talks the droplets containing the virus are released in the air and reach the nose or the mouth of a healthy person to its lungs. Once inside the body it comes in contact with the cells of nose and throat and lungs. The protein inserts inside the receptor molecules in the cell membrane like lock and key. The virus travels inside a sac of phospholipids derived from the cell membrane. The viral envelope and cell membrane sac combines to permit the viral gene to enter the nucleus. The viral gene takes over the cell machinery producing copies of itself and viral protein by attaching to the ribosomes of the cells. They then make other viral protein such as the spike protein which are carried by vesicles to the cell membrane

Hence all parts needed for the creation of new viral particle gather near cell membrane and a new viral particle buds off from the cell membrane. For a normal person air reaches the alveoli through trachea, bronchus and bronchioles. The alveoli are flexible when air is breathed in the alveoli inflate and deflate during expiration. Gaseous exchange occurs through the alveoli and capillaries. Most of the germs are trapped in the mucus and cilia in the respiratory tubes push them out. But if your immune system is weak like in case of the corona virus the bronchi and the alveoli become inflamed as the immune system attacks the virus, but the rate of multiplication of virus is high the inflammation can cause the alveoli to be filled with fluid making it difficult for the body to get oxygen. Leading to lobar pneumonia (one lobe of lung infected) or bronchopneumonia affecting many areas of the lungs. This leads to symptoms like

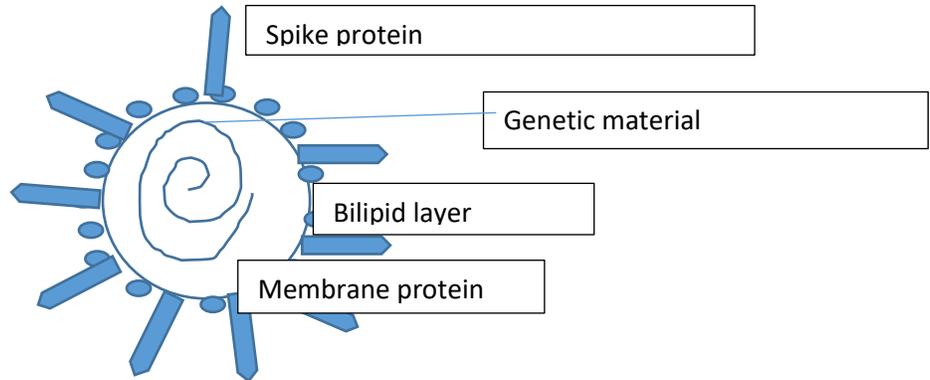
- Difficulty in breathing
- Headache
- Fever with chills
- Confusion
- Muscle pain
- Fatigue
- In extreme cases it leads to respiratory failure and the patient is kept in ventilator.

The symptoms are different depending upon age and existing conditions

A possible preventive measure may be development of vaccine (not yet developed) may be it can be a weak strain of the virus but can trigger the immune response from your body specifically development of antibody for the spike protein of corona virus



The antibody if developed could attach to the spike protein and prevent the spike protein to attach to the receptor on the cell membrane. The development of vaccine however require long time and extensive research. It is much more difficult than the small explanation given .



Please ensure that the project contains only biological aspect only. No political or sociological aspect to be included