

# STRUCTURE OF FLU VIRUS

## (INFLUENZA VIRUS)

### SHAPE

Influenza is an RNA virus which may exist in different shapes from round balls to long, spaghetti-like filaments.

### GENOME [Koracademy.com](http://Koracademy.com)

The genome of this virus is associated with five different viral proteins and is surrounded by a lipid membrane, which means that influenza belongs to the "enveloped" group of viruses. <sup>Eight</sup> ~~Each~~ separate pieces of Ribonucleic acid (RNA) make up the influenza virus genome and each piece of RNA specifies the amino acid sequence of one and sometimes two of the virus's proteins.

### ROLE OF RNA / SEGMENTED NATURE OF RNA

The segmented nature of the RNA allows different flu viruses to easily "mate" with each other to form hybrid progeny viruses with bits of RNA from each parent virus.

### PROJECTIONS / SPIKES

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influenza virus particles is their external layer of approximately 500 spike-like projections. These spikes represent the envelope glycoproteins HA and NA.

## VIRAL ENVELOPE

The viral envelope consist of a lipid membrane and a matrix protein.

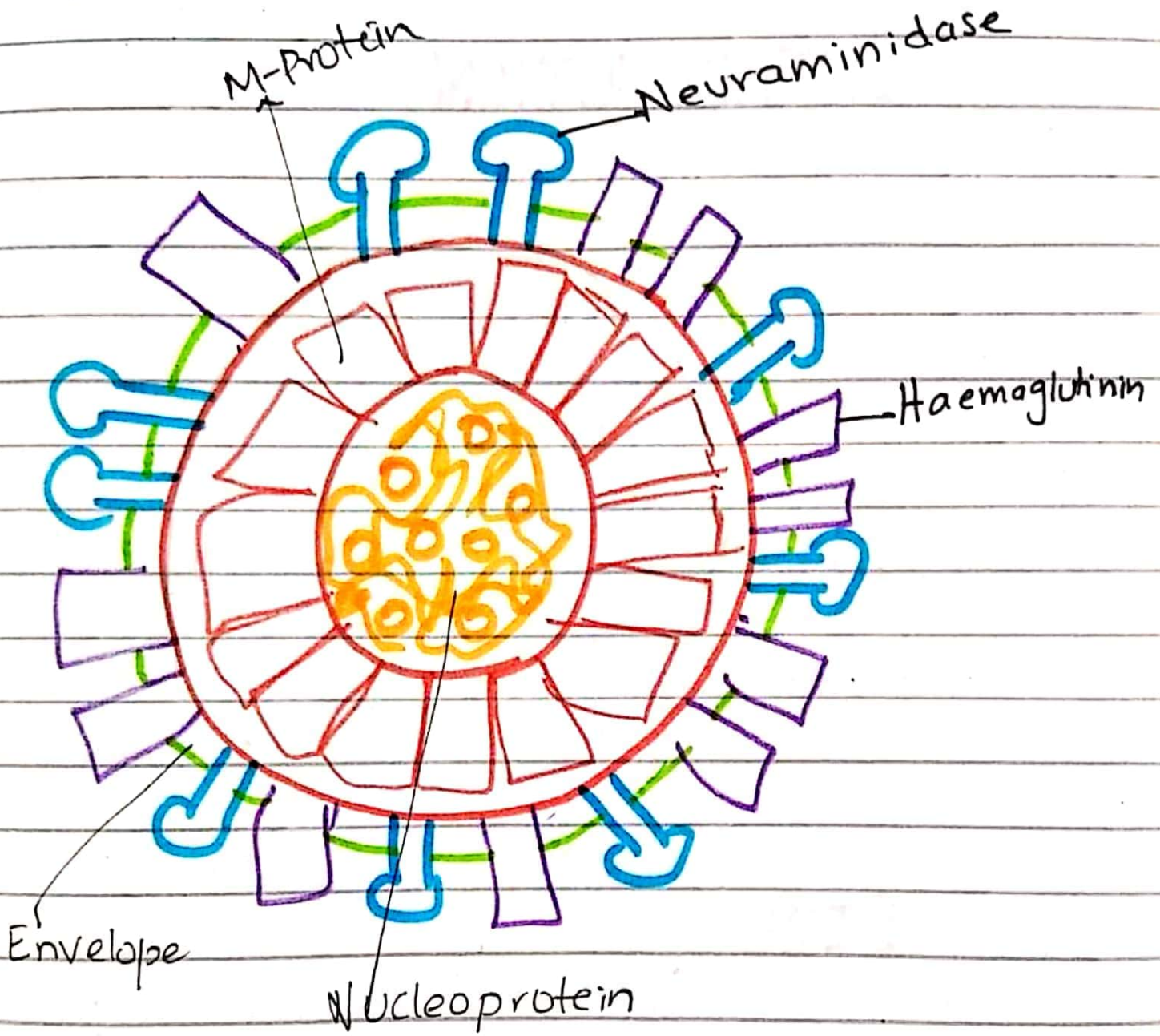
### i) LIPID MEMBRANE

The outer layer of the virus is a lipid membrane which is taken from the host cell in which the virus multiplies. Inserted into the lipid membrane are 'spikes' which are glycoproteins known as HA (hemagglutinin) and NA (neuraminidase). Both HA and NA play a ~~crucial~~ crucial role in the infection of the epithelial cells of the upper respiratory tract. HA is a rod shaped triangular molecule and NA exists as a mushroom shaped spike with a box-like head on top of a long stalk, containing a hydrophobic region by which it is embedded in the viral membrane.

### ii) MATRIX PROTEIN

Beneath the lipid membrane is a viral protein called M1 or matrix protein. This protein, which forms a shell

gives strength and rigidity to the lipid envelope.



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