

## RSV Vaccine

- The Food and Drug Administration (FDA) approved the first vaccine Arexvy for the respiratory syncytial virus (RSV) to lower respiratory tract disease in people older than 60 years.
- This is the first RSV vaccine to be approved anywhere in the world.
- The vaccine is manufactured by the company, GSK.
- lower respiratory tract disease caused by the RSV virus leads to approximately 60,000-1,20,000 hospitalizations and 6,000-10,000 deaths among adults who are 65 years of age and older.
- The RSV virus significantly affects older adults with comorbidities. Like the common cold, RSV usually causes mild symptoms but can turn deadly if it infects older people

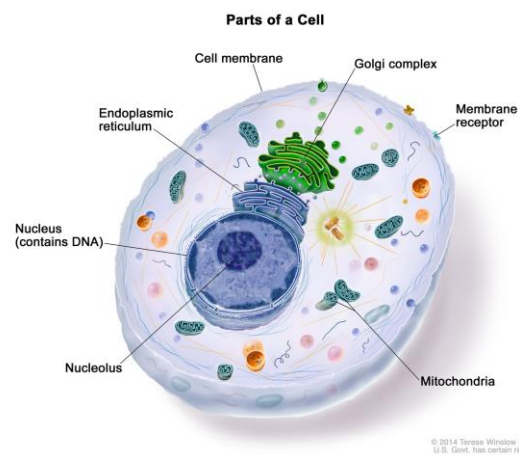
### About RSV

- Respiratory syncytial virus, also called human respiratory syncytial virus and human orthopneumovirus, is a common, contagious virus that causes infections of the respiratory tract. It is a negative-sense, single-stranded RNA virus.



THE HINDU

## Molecular motor



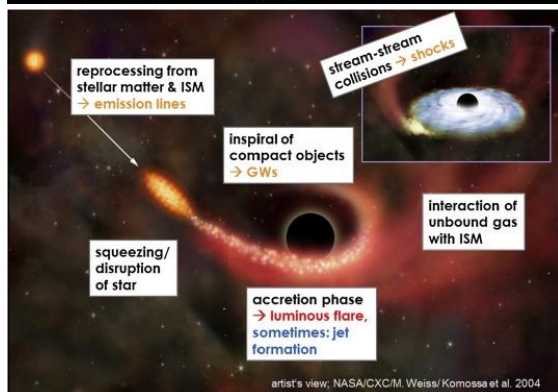
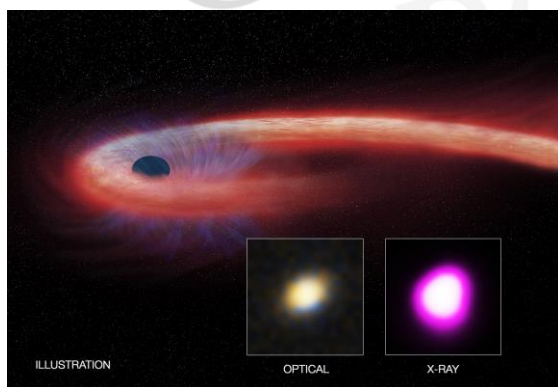
- Each cell in the body is a complex soup of electrochemical reactions that produce energy, but they are not enough.
- Cells also need to move things, such as pull two organelles together, move cargo towards and away from the nucleus, and power the movement of subcellular molecules.
- Many of these actions are driven by molecular motors, which use biochemical energy to do mechanical work. “Disruption or deregulation in these processes can

lead to deleterious effects which can manifest as different diseases,”

- When an enzyme called Rab5 binds to a long protein called EEA1, the protein loses its taut and rigid shape and becomes floppy.
- This ‘collapse’ pulls two membranes inside a cell closer to each other. In the new study, researchers have reported that EEA1 regains its rigid shape in another mechanism so that it can become floppy again to pull the membranes closer, creating a new kind of two-part molecular motor.

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### Tidal Disruption Event



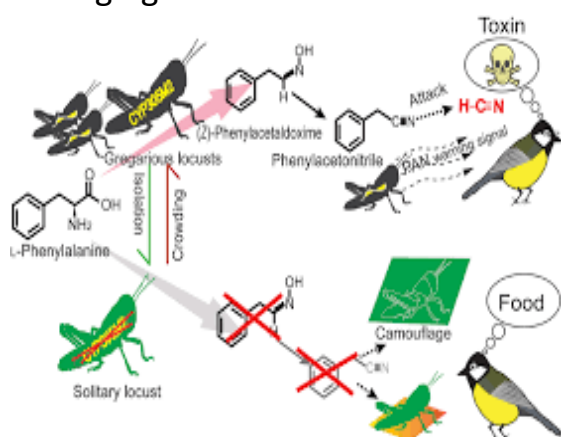
- A tidal disruption event (TDE) is an astronomical phenomenon that occurs when a star approaches sufficiently close to a supermassive black hole (SMBH) to be pulled apart by the black hole's tidal force, experiencing spaghettification.
- Spaghettification (sometimes referred to as the noodle effect) is the vertical stretching and horizontal compression of objects into long thin shapes.
- A portion of the star's mass can be captured into an accretion disk around the black hole (if the star is on a parabolic orbit), resulting in a temporary flare of electromagnetic radiation as matter in the disk is consumed by the black hole.
- An accretion disk is a structure (often a circumstellar disk) formed by diffuse material in orbital motion around a massive central body.

## THE HINDU

### Pheromone called phenyl acetonitrile

- Swarming migratory locusts which threaten food security across the globe avoid being eaten by other locusts by producing a smelly pheromone called phenyl acetonitrile (PAN), according to a new study (Science).

- The discovery of an anti-cannibalistic signalling pathway in locusts could provide a target for locust management strategies.
- Among species of locusts, cannibalism is common, and cannibalistic interactions have been implicated in the formation of damaging swarms.



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**GISAID**

GISAID the Global Initiative on Sharing All Influenza Data, previously the Global Initiative on Sharing Avian Influenza Data, is a global science initiative established in 2008 to provide access to genomic data of influenza viruses.

The database was expanded to include the coronavirus responsible for the COVID-19 pandemic, as well as other pathogens.

The database has become the world's largest repository for SARS-CoV-2 sequences.

GISAID facilitates genomic epidemiology and real-time surveillance to monitor the emergence of new COVID-19 viral strains across the planet.

**THE HINDU**

**Nutrients from Atmosphere**

Nutrients derived from atmospheric dust deposited on an ocean's surface play a key role in mediating global phytoplankton biomass distributions (Science).

Some vital nutrients for phytoplankton growth are provided through the atmospheric deposition of desert dust.

Using a 14-year global time series of modeled dust deposition, researchers investigated the impact of atmospheric nourishment on global phytoplankton distributions.

**THE HINDU**

