# Nipah virus

***Prelims: Current events of national and international importance***

**Why in News?**

*Recently, Kerala launched antibody surveillance studies on the Nipah virus.*

- **Novel pseudo virus neutralization test (PVNT) -** It is based on a Vesicular Stomatitis Virus (VSV) system.
- **Developed by -** Institute of Advanced Virology (IAV), Kerala.
- **Vesicular Stomatitis Virus (VSV) system** – It is a valuable tool to study entry, replication, and assembly of virus.
- **Pseudo virions -** IAV developed non -infectious Nipah virus-like particles (VLPs) in laboratory which mimic the wild type NiV.
- **Ghost viruses** – The engineered viruses carry most of the characteristics of the virus, including the NiV structural proteins G, F, and M, except their ability to replicate (because it lacks the viral genome).
- **Ephrin B2** - The main cell receptor used by NiV for infecting host cells.
- **Advantages**
  - **Effective platforms** - VLPs and pseudo virions are effective platforms for studying *cell binding and entry kinetics of the virus.*
  - **Safe to handle** – VLP and pseudo virions cannot replicate and reproduce infectious viruses (because it lacks the viral genome)
  - It makes them safe to handle in standard Biosafety Level 2 (BSL-2) facilities.
- **Other testing mechanism - Real-time polymerase chain reaction (RT-PCR) test** - Using body fluids like:
  - Nasal or throat swabs.
  - Cerebrospinal fluid (CSF).
  - Urine samples.
  - Blood samples.

## Nipah virus (NiV)

• Nipah virus is a zoonotic virus.
• **Host** - Fruit bats of the *Pteropodidae family* are the natural host of Nipah virus.
• **Transmission** -It is transmitted from animals to humans and can also be transmitted through contaminated food or directly between people.
• **Impacts** - Nipah virus infection in humans causes a range of clinical presentations, from asymptomatic infection (subclinical) to acute respiratory infection and fatal encephalitis.
• **Fatality rate** - The case fatality rate is estimated at 40% to 75%.
• **Vaccine** - No vaccine available for either people or animals.
• **Treatment -** The primary treatment for humans is supportive care.
*The recurrence of the spillover events/outbreaks in a specific geographic belt in northern Kerala is due to human behaviour, land use, and bat ecology interactions.*

**Reference**

The Hindu| Nipah virus infection