First North-East India-Specific Antivenom

Prelims: *Current events of National and International Importance| Science & Technology*

Why in News?

*Researchers in India have developed the first North-East India-specific antivenom—an **equine F(ab)₂ bivalent antivenom**—designed to neutralize venom from two pit viper species common in the region.*

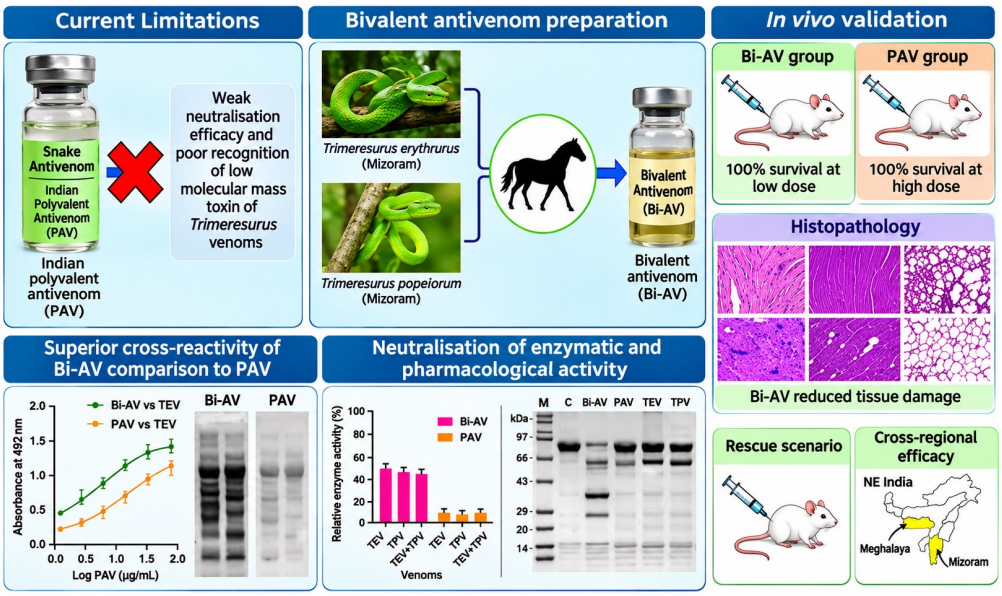
Announced by India's Ministry of Science and Technology on November 25, 2026, it targets the **Pope's pit viper** (*Trimeresurus popeiorum*) and the **red-tailed bamboo pit viper** (*Trimeresurus erythrurus*).

Why It Matters in India?

- **Closes a regional treatment gap-** Commercially available Indian polyvalent antivenom primarily targets India's "Big Four" venomous snakes—Russell's viper, spectacled cobra, common krait, and saw-scaled viper.
- It has limited effectiveness against many medically important snakes in North-East India.
- **Targets local venom variations-** Venom samples for the research were collected from **Mizoram** and **Meghalaya** to match regional snake venoms.
- **Addresses a neglected health issue-** The World Health Organization classifies snakebite as a neglected tropical disease and medical emergency, and region-specific antivenoms help tackle gaps in care across diverse Indian habitats.

How It Performed & Next Steps

- **Preclinical results-** In laboratory and preclinical studies published in the *International Journal of Biological Macromolecules*, the bivalent antivenom outperformed standard Indian polyvalent antivenom.
- It significantly reduced blood coagulation disruptions as well as local and organ tissue damage caused by pit viper envenomation.
- **Collaborating institutions-** The project was led by Prof. Ashis K. Mukherjee at the Institute of Advanced Study in Science and Technology (IASST), Guwahati, alongside Premium Serums and Vaccines Pvt. Ltd. (Pune), Amrita Research Centre (Delhi-NCR), Mizoram University, and Aaranyak (Guwahati).
- **Not yet in routine clinical use-** Additional clinical and regulatory evaluations are still required before hospitals can routinely administer the antivenom to patients.



Reference

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