



IIT BHU Tops at Forensic Hackathon 2025

Why in News?

The research team from the **School of Biochemical Engineering, [Indian Institute of Technology \(BHU\), Varanasi](#)** has won **top honours** at the **Forensic Hackathon 2025**.

- This hackathon was part of the **[All India Forensic Science Summit](#)** organised by the **[National Forensic Sciences University \(NFSU\)](#)** .

Key Points

- **About the Award:**
 - The award was presented by **the Union Home Minister at Vigyan Bhavan in New Delhi** .
 - The team was awarded a **cash prize of Rs 2 lakh** and a **memento** for their **innovative research** .
- **Developed Technology:**
 - The team has developed a **glycan-based forensic technique** that allows **accurate age estimation** based on **biological fluids**, i.e., it can be used to estimate the exact age of a person even without **DNA** .
 - This technology combines **glycomic profiling** with machine **learning algorithms** to estimate both **chronological age** and **biological age** .
 - Currently practiced **DNA-based forensic analyses** , which incorporate **epigenetic markers** , have **biological variability** and **technical limitations** .
 - **DNA methylation-based models** often require **ancient and good-quality DNA**, which may be unavailable in forensic cases.
- **Importance:**
 - This innovation can make **profiling of suspects based on samples collected from crime scenes** more accurate, especially when DNA matches are not available.
 - This technology could be useful in **identifying missing persons, identifying unidentified victims in mass disasters** , and verifying **claims of being a juvenile or misrepresenting age** .
 - Biological age provides important evidence about a person's **health, immune status** and **stress, which** can help in **reconstructing a crime** .

Deoxyribonucleic Acid (DNA)

- Deoxyribonucleic acid (DNA) is an **organic molecule with a complex molecular structure**.
- The strands of a DNA molecule are made up of a **long chain of monomer nucleotides**. It is arranged in a **double helix structure**.
- **James Watson and Francis Crick discovered that DNA** is a double-helix polymer in the year 1953.
- This is necessary for the transfer of genetic characteristics of organisms from one generation to another.
- Most of the DNA is found in the nucleus of the cell, so it is called central DNA.

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