Google DeepMind's AlphaGenome AI Tool | National Current Affairs | 31 Jan 2026

Why in News?

Google DeepMind has launched **AlphaGenome**, an **artificial intelligence tool** designed to predict how genetic mutations influence gene regulation and contribute to human diseases.

Key Points

- **Objective:** The AI tool developed by **Google DeepMind** is used to analyse **long DNA sequences** and predict the biological impact of **genetic variations**.
    - Primarily targets **non-coding (regulatory) DNA regions**, which constitute about **98% of the human genome** and play a key role in gene regulation.
- **DNA Analysis Capacity:** Capable of analysing **up to one million DNA base pairs simultaneously**, allowing assessment of long-range genetic regulatory effects.
    - Predicts effects of mutations on **gene expression, RNA splicing, chromatin accessibility, and regulatory activity**.
    - Helps to identify **genetic drivers of complex diseases** such as cancer, cardiovascular disorders, autoimmune diseases, and neurological conditions.
- **Training Data:** Trained on large-scale **public genomic datasets** from humans and mice to identify patterns linking DNA sequences with biological outcomes.
    - Acts as a **virtual laboratory**, enabling scientists to test genetic hypotheses before conducting costly and time-consuming biological experiments.
- **Availability:** Released for **non-commercial research use** through an **Application Programming Interface (API)** to support global scientific collaboration.
- **Limitations:** Not approved for **clinical diagnosis or personalised medical treatment**; predictions depend on quality and diversity of training data.

> **Read More:** **Artificial intelligence**, **Genetic variations**, **DNA** , **RNA**

Maharashtra's Tableau Wins First at Republic Day Parade 2026 | National Current Affairs | 31 Jan 2026

Why in News?

Maharashtra's **state tableau** won **first place** among states and union territories at the **Republic Day Parade 2026.**

Key Points

- **Maharashtra Tableau Theme:** "Ganeshotsav: A Symbol of

Aatmanirbharta" emphasised **cultural heritage, community participation, social unity and self-reliance**.

- ○ The tableau showcased **Ganeshotsav festivities**, celebrating traditions and community strength, with participation from a **Nagpur dhol-tasha group** enhancing cultural appeal.
- **Other Winners:**
  - ○ **Second Place:** Jammu & Kashmir for a display on **handicrafts and folk dances**.
  - ○ **Third Place:** Kerala for a tableau on **Water Metro and 100% Digital Literacy**.
- **Marching Contingents:** The **Indian Navy** was named **Best Marching Contingent** among the three armed services.
  - ○ The **Delhi Police** won among **Central Armed Police Forces**.
- **Ministry Category:** The **Ministry of Culture** won the best tableau among central ministries for its presentation **"Vande Mataram – The Soul Cry of a Nation."**
- **Significance:** The awards reflect excellence in **cultural representation, thematic creativity** and promote **national pride** by showcasing India's **diversity, heritage and developmental narratives**.

Read More: **Republic Day 2026**, **Vande Mataram**

PFRDA Constitutes Expert Committee on SAARG for NPS | National Current Affairs | 31 Jan 2026

Why in News?

The **Pension Fund Regulatory and Development Authority (PFRDA)** has set up an **Expert Committee on Strategic Asset Allocation and Risk Governance (SAARG)** to review and modernise the **investment framework of the National Pension System (NPS)**.

Key Points:

- **Aim:** To align NPS fund management with **global best practices** and strengthen long-term retirement outcomes for subscribers.
- **Objective:** Strengthening the long-term investment architecture of NPS by improving diversification, enhancing risk management practices and expanding investment choices available to subscribers.
- **Composition of the Committee:**The **SAARG Committee** is chaired by **Narayan Ramachandran**, former Country Head of **Morgan Stanley India**.
  - ○ **Experts:** It includes experts from **asset management, capital markets, regulation, and investment advisory**, along with senior PFRDA representation.
- **Mandate of the Committee:** SAARG has been tasked with undertaking a comprehensive review of existing NPS investment guidelines for both government and non-government sectors.
  - ○ The review will include benchmarking India's pension investment framework with leading global pension systems as well as the evolving domestic investment ecosystem.
- **Significance:**This initiative is crucial for improving **portfolio resilience, return optimisation, and risk mitigation** in pension funds.
  - ○ It reflects India's efforts to deepen **long-term domestic capital pools** and ensure **financial security for an ageing population**.

Read More: **PFRDA, National Pension System, Morgan Stanley India**

Kerala Becomes First Indian State to Declare an Official 'State Microbe' | National Current Affairs | 31 Jan 2026

Why in News?

The **Government of Kerala** has officially declared **Bacillus subtilis** as its **State Microbe**, becoming the **first Indian state** to recognise a microorganism in its roster of state symbols.

Key Points:

- **About Bacillus subtilis:** *Bacillus subtilis*, commonly known as the **'Hay Bacillus'**, is a Gram-positive, rod-shaped bacterium found primarily in soil and the gastrointestinal tract of humans and ruminants.
    - *Bacillus subtilis* is a **non-pathogenic, probiotic bacterium** widely found in **soil, fermented foods** and the **human gut**.
- **Resilience:** It is famous for its ability to form tough, protective **endospores**, allowing it to survive extreme environmental conditions like heat and drought.
- **Safety:** It is categorized as **GRAS (Generally Regarded As Safe)** by global food authorities and is a key ingredient in traditional fermented foods like the Japanese *Natto*.
- **Promotion of 'One Health':** The move underscores the interconnectedness of human, animal, and environmental health, as *B. subtilis* plays a role in all three.
- **Combatting AMR:** By highlighting "good bacteria," the state aims to educate the public on the microbiome, potentially curbing the irrational use of antibiotics that leads to **Antimicrobial Resistance (AMR)**.
- **Biotechnology Hub:** Kerala aims to position itself as a leader in **Microbial Biotechnology**.

Read More: Antimicrobial Resistance, One Health