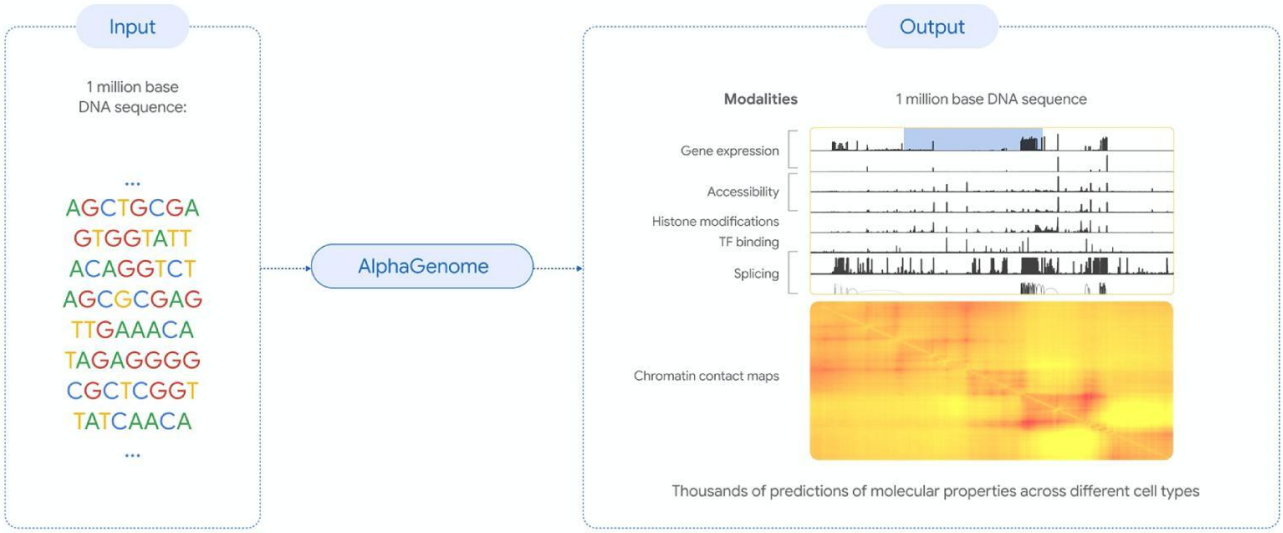
VIT – BIO NEWS – 2026

Global Biology & Biotechnology Updates for Student Knowledge Enrichment

(Discover. Learn. Innovate)

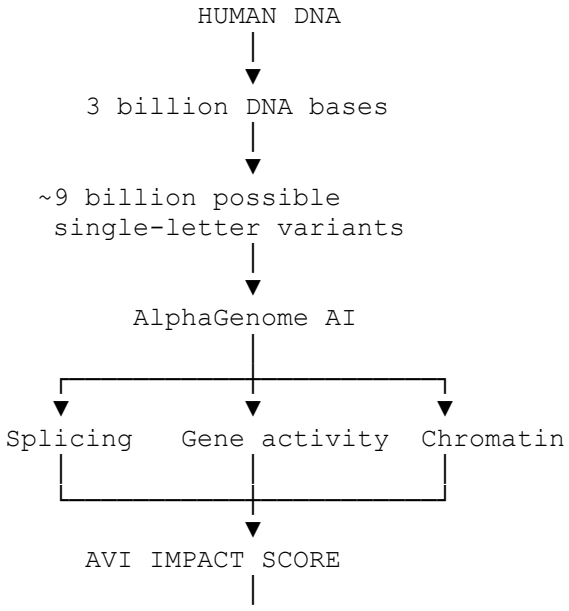


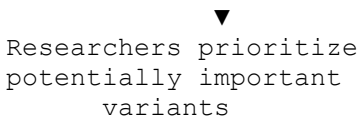
Google Maps the Effects of 9 Billion DNA Variants

One of the biggest biology stories this week is **Google DeepMind's AlphaGenome Atlas**, announced on **8 September 2026**.

It contains predictions for the molecular effects of approximately **9 billion possible single-letter changes in the human genome**. The dataset is about **1 petabyte** and includes both protein-coding and non-coding DNA.

How it works





The particularly important feature is that AlphaGenome also addresses the **non-coding 98% of the genome**, where many regulatory elements and disease-associated variants occur.

Why this matters: Instead of experimentally testing billions of variants one by one, researchers can use computational predictions to prioritize variants for laboratory investigation.

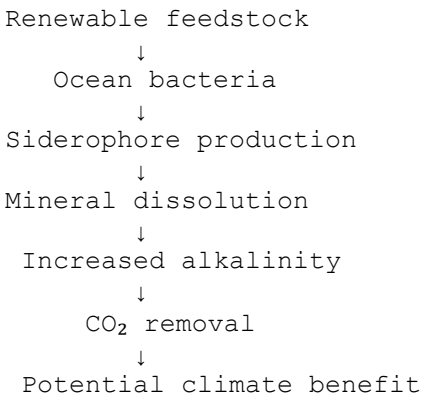
Source: Google DeepMind — AlphaGenome Atlas

Bacteria Could Help Remove CO_2 From the Atmosphere

A September 2026 study in **Nature Biotechnology** reports an approach using **ocean bacteria and bacterial siderophores** to accelerate mineral dissolution.

The process could enhance natural rock weathering and increase the trapping of CO_2 in alkaline seawater.

Biology → Climate pathway

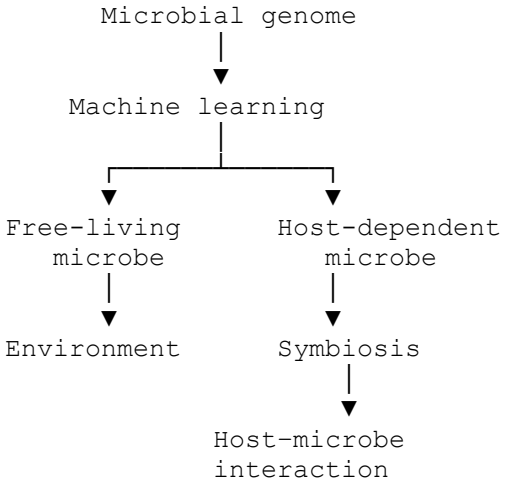


This is an exciting example of **microbiology + synthetic biology + climate biotechnology**.

AI Predicts Hidden Microbial Partnerships

Researchers have developed **symclatron**, a machine-learning framework that uses genome sequences to predict whether previously uncultivated bacteria and archaea live independently or depend on hosts.

The concept



The researchers suggest that host-dependent microorganisms may be **much more widespread across Earth's ecosystems than previously recognized**.

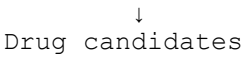
AI Searches Huge Chemical Libraries for New Drug Candidates

A September 2026 *Nature Biotechnology* paper describes **AI-enhanced adaptive virtual screening** for discovering potential ligands from very large chemical libraries.

Traditional vs AI-assisted discovery

```
TRADITIONAL
Millions of molecules
        ↓
Laboratory screening
        ↓
Few candidates
        ↓
Testing
        ↓
Drug candidate


AI-ASSISTED
Millions of molecules
        ↓
AI virtual screening
        ↓
Prioritized molecules
        ↓
Laboratory validation
```

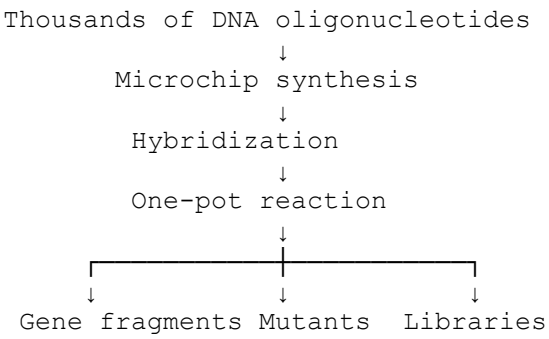


The important idea is not that AI replaces laboratory experiments, but that it can help researchers **decide which molecules are worth testing first**.

New High-Throughput Gene Synthesis Approach

Another 2026 development is **MOSAIC**, a gene-synthesis method based on oligonucleotide hybridization.

According to *Nature Biotechnology*, the approach can produce **more than 1,000 different gene fragments and mutant libraries in parallel** using microchip-based oligonucleotide synthesis.

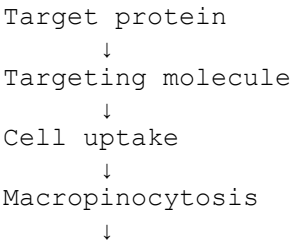


This could be valuable for **synthetic biology, protein engineering and high-throughput genetic screening**.

Scientists Engineer Better Protein-Degradation Systems

A 2026 *Nature Biotechnology* study reports **recyclable LYTACs (McR-TACs)** that use macropinocytosis to promote degradation of target proteins.

The broader field is trying to develop ways to eliminate disease-associated proteins that are difficult to target using conventional drugs.



```
Protein degradation
      ↓
Reduced target activity
```

Precision DNA Base Editing Continues to Advance

Recent 2026 biotechnology research includes new approaches for **more precise DNA base editing**, including work highlighted by *Nature Methods*.

The goal is increasingly to make genetic changes that are:

More precise → More predictable → Fewer unwanted changes

```
Original DNA
   A C G T
     ↓
Target base
     ↓
Precision editor
     ↓
Corrected DNA
   A C G T
```

This remains an active research area rather than a universal clinical solution.

TOP BIOLOGY NEWS - 2026

Topic	What happened?	Potential impact
AlphaGenome Atlas	Maps effects of ~9 billion DNA variants	Genomics & disease research
Ocean bacteria	Engineered bacteria explored for CO_2 removal	Climate biotechnology
Symclatron	AI predicts microbial symbiosis	Microbiome & ecology
AI drug screening	AI searches huge chemical libraries	Drug discovery
MOSAIC	>1,000 gene fragments produced in parallel	Synthetic biology
McR-TACs	Recyclable protein-degradation system	Therapeutics
Base editing	More precise DNA editing approaches	Gene therapy

Further Details:

Dr. Suneetha V. Dean SBST

91 416 220 2661 / 2662 / 2663

dean.sbst@vit.ac.in

School of Bio Sciences and Technology
Vellore Institute of Technology(VIT),
Vellore – 632 014, Tamil Nadu, India.