

AI News Digest

09/21/2026 - 09/27/2026

WEEKLY DIGEST: BIOLOGICAL & BIOMEDICAL SCIENCES

AI Advances in Biology and Biomedical Research

Recent developments in AI are transforming biology and biomedical research. New benchmarks and models are being created to improve the accuracy and reliability of AI agents in biology. For instance, updated benchmarks are being designed to prevent misaligned behavior in AI agents. Additionally, AI models are being used to predict protein structures and propose high-quality synthesis routes for small molecules. These advancements have the potential to accelerate research in areas such as psychiatric disorders and pandemic preparedness.

KEY FINDINGS

- ✓ The updated benchmarks.bio evaluations restrict internet access, modify system and task prompts, anonymize datasets, and add new tests to address misaligned behavior in AI agents.
- ✓ RetroChimera, a retrosynthesis model, combines two strong models to automatically propose high-quality synthesis routes for small molecules.
- ✓ The AlphaFold Database has released predicted 3D structures for the protein complexes of over 2,800 viruses, which can help researchers prepare for future pandemics.

IMPLICATIONS

- These advancements in AI have the potential to accelerate research in biology and biomedical sciences, leading to new discoveries and treatments.
- The use of AI in biology and biomedical research may lead to the development of new therapies and diagnostic tools.
- The integration of AI in research may also raise new challenges and concerns, such as ensuring the accuracy and reliability of AI-generated results.

Key Metrics: 2,800: the number of viruses for which predicted 3D structures have been released through the AlphaFold Database; 50: the number of young scientists who will be supported by the Poitras Center for Psychiatric Disorders Research; \$10 million: the amount of funding provided by the Poitras family for the fellowship program

1. Continuous Benchmarks for Biology to Defend Against Misalignment

Category: Research

Departments: Biological Sciences, Computer Science

Topics: Healthcare AI, Misalignment Mitigation, Biology Benchmarking, AI Agent Evaluation

Impact Score: 27.0

Rubric Scores

Research Relevance: 5

Educational Value: 4

Innovation / Novelty: 4

Practical Impact: 4

Interdisciplinary Potential: 5

Ethical / Policy Implications: 5

The authors updated benchmarks.bio, a set of evaluations for AI agents in biology, to address misaligned behavior observed in previous versions. The updates included restricting internet access, modifying system and task prompts, anonymizing datasets, and adding live monitoring of model trajectories. These changes reduced misaligned behavior, but resulted in an average score decrease of 3.6 percentage points per benchmark, primarily due to reduced reliance on internet searches and memorized results. The updated benchmarks aim to test legitimate scientific reasoning in biology.

<https://blog.latch.bio/p/continuous-benchmarks-for-biology>

2. Improving synthesis prediction of small molecules at scale with RetroChimera

Category: Research

Departments: Chemistry & Biochemistry, Computer Science, Pharmaceutical Sciences, Metallurgical, Materials & Biomedical Engineering, Biological Sciences

Topics: Generative AI, Retrosynthesis Prediction, Molecular Design, Chemistry AI

Impact Score: 26.0

Rubric Scores

Research Relevance: 5

Educational Value: 4

Innovation / Novelty: 5

Practical Impact: 5

Interdisciplinary Potential: 5

Ethical / Policy Implications: 2

RetroChimera, a retrosynthesis model, was recently published in Nature, combining two strong models with complementary strengths to automatically propose high-quality synthesis routes. The model architecture and extensive validation studies, including recall of rare reaction types and zero-shot transfer, are described in the paper. RetroChimera's implementation and weights are open-sourced to accelerate development of new medicinally relevant molecules and advanced materials. In blind tests, PhD-level chemists preferred RetroChimera's individual reaction predictions over preceding models and recorded literature reactions.

<https://www.microsoft.com/en-us/research/blog/improving-synthesis-prediction-of-small-molecules-at-scale-with-retrochimera/>

3. How Open Science Can Help Researchers Prepare for the Next Pandemic

Category: Research

Departments: Biological Sciences, Computer Science, Pharmaceutical Sciences, Public Health Sciences, Nursing

Topics: Protein Structure Prediction, Generative AI, Healthcare AI

Impact Score: 21.0

Rubric Scores

Research Relevance: 3

Educational Value: 3

Innovation / Novelty: 4

Practical Impact: 4

Interdisciplinary Potential: 5

Ethical / Policy Implications: 2

NVIDIA, Google DeepMind, and the European Molecular Biology Laboratory's European Bioinformatics Institute have released predicted 3D structures for the protein complexes of over 2,800 viruses through the AlphaFold Database. The structures were inferred using Google DeepMind's AlphaFold2 AI model and NVIDIA BioNeMo Inference Runtime, allowing for large-scale predictions of viral proteomes. The dataset includes around 30% new protein interactions that have not been documented before, providing new insights for the biological community. NVIDIA has also released the BioNeMo Structure Prediction Pipeline, a GPU-accelerated workflow for generating predicted 3D structures from protein sequences.

<https://blogs.nvidia.com/blog/open-protein-dataset/>

4. Poitras Center to fuel early careers of 50 young scientists dedicated to psychiatric disorders research

Category: Research

Departments: Psychology, Computer Science, Biological Sciences, Nursing, Public Health Sciences

Topics: Healthcare AI, Psychiatric Disorders Research, AI for Mental Health

Impact Score: 15.0

Rubric Scores

Research Relevance: 2

Educational Value: 2

Innovation / Novelty: 2

Practical Impact: 3

Interdisciplinary Potential: 4

Ethical / Policy Implications: 2

The Poitras family has established a fellowship program for graduate students and postdocs studying major mental illness through the Poitras Center for Psychiatric Disorders Research at MIT's McGovern Institute for Brain Research. The \$10 million gift will fund 50 two-year fellowships over the next decade, with five fellowships awarded annually. This philanthropic investment aims to support early-career scientists and create a long-term talent pipeline focused on psychiatric disorders. The fellowships will enable researchers to pursue innovative projects, including those utilizing artificial intelligence to better understand and treat mental health conditions.

<https://news.mit.edu/2026/poitras-center-to-fuel-early-careers-50-young-scientists-psychiatric-disorders-research-0922>