

WEEKLY DIGEST: BIOLOGICAL & BIOMEDICAL SCIENCES

Artificial Neurons and AI Tools Transform Protein Engineering

Recent advancements in artificial neurons and AI-driven protein design tools are reshaping the landscape of biological and biomedical sciences. Engineers at Northwestern University have created printed artificial neurons that can effectively communicate with living brain cells, mimicking their electrical signals. Meanwhile, OpenProtein.AI has launched a no-code platform that democratizes access to sophisticated AI tools for protein engineering, enabling researchers across academia and industry to enhance their work. Together, these innovations signal a new era of collaboration between artificial intelligence and biological research.

KEY FINDINGS

- ✓ Printed artificial neurons can communicate with biological brain cells.
- ✓ Artificial neurons produce electrical signals similar to living neurons.
- ✓ OpenProtein.AI's platform allows no-code access to AI tools for protein engineering.

IMPLICATIONS

- Enhanced understanding of brain functions through artificial neuron integration.
- Broader accessibility to advanced protein design tools may accelerate biotechnological innovations.
- Potential for interdisciplinary collaboration between AI developers and biologists.

1. Artificial neurons successfully communicate with living brain cells

Category: Research

Departments: Electrical & Computer Engineering, Biological Sciences, Computer Science

Topics: Robotics, Brain-Machine Interfaces, Neuroprosthetics, Energy-Efficient Computing, Biocompatible Electronics

Impact Score: 26.0

Rubric Scores

Research Relevance: 5

Educational Value: 4

Innovation / Novelty: 5

Practical Impact: 5

Interdisciplinary Potential: 4

Ethical / Policy Implications: 3

Engineers at Northwestern University have developed printed artificial neurons that can interact directly with biological brain cells, producing electrical signals similar to those of living neurons. In experiments with mouse brain slices, these artificial neurons successfully activated real neurons, demonstrating enhanced compatibility between electronic devices and neural systems. This advancement could facilitate the creation of brain-machine interfaces and neuroprosthetics, while also inspiring energy-efficient computing systems modeled after the brain's architecture. The study, co-led by Mark C. Hersam and Vinod K. Sangwan, will be published in the journal Nature Nanotechnology on April 15.

<https://www.sciencedaily.com/releases/2026/04/260417225020.htm>

2. Bringing AI-driven protein-design tools to biologists everywhere

Category: Applications

Departments: Biological Sciences, Computer Science, Pharmaceutical Sciences

Topics: Healthcare AI, Protein Structure Prediction, No-Code AI Tools, AI-Driven Drug Development, Biological Model Training

Impact Score: 25.0

Rubric Scores

Research Relevance: 4

Educational Value: 4

Innovation / Novelty: 5

Practical Impact: 5

Interdisciplinary Potential: 4

Ethical / Policy Implications: 3

OpenProtein.AI has developed a no-code platform aimed at facilitating access to advanced AI tools for scientists engaged in protein engineering. Founded by Tristan Bepler and Tim Lu, the platform provides researchers in both academia and industry with resources to design proteins, predict their structure and function, and train models without requiring machine-learning expertise. The initiative addresses the gap between cutting-edge AI capabilities and the needs of biologists, enhancing the efficiency of drug development and the design of proteins with specific traits. OpenProtein.AI's flagship model, PoET, exemplifies their commitment to creating user-friendly tools for biological research.

<https://news.mit.edu/2026/bringing-ai-driven-protein-design-tools-everywhere-0417>