Cloud Labs to Advance Biotechnology Act (Cloud LAB Act)

Overview

The **Cloud LAB Act** (**H.R.7801/S.2676**) would direct the Director of the National Science Foundation (NSF) to establish a national network of cloud labs for the purposes of generating high-quality biological data through automated instrumentation. These cloud labs would provide researchers with greater access to high-quality experimental instrumentation and data collection to advance their research and train future AI models.

Background

The National Security Commission on Emerging Biotechnology (NSCEB) assessed in April 2025 that the convergence of AI and biotechnology (AIxBio) could transform virtually every sector—from health to defense to agriculture and beyond. If America is to reap the full benefits of AIxBio, the United States must lead its development, which starts with generating high-quality training data for AI models.

Cloud labs are physical laboratory facilities that combine advances in AI, robotics, and automation. They can generate massive quantities of high-quality biological data to train AI models, while also providing U.S. scientists remote access to high-quality automated instrumentation from anywhere in the country—whether in rural land-grant university communities or urban college towns.

Given the significant barriers to entry for building and maintaining a cloud lab, especially related to cost, the United States should create a national network of new and existing cloud labs as an investment in economies of scale. The resulting data would be critical for future biological AI models that can help the United States outcompete strategic competitors such as China, who is aggressively collecting biological data to power its own AIxBio ambitions.

H.R. 7801

Sponsor:
Rep. Jay Obernolte
(R-CA-23)

Original Co-Sponsor:
Rep. Ro Khanna
(D-CA-17)

S. 2676

Sponsor:
Sen. Todd Young
(R-IN)

Original Co-Sponsor:
Sen. Andy Kim
(D-NJ)

Legislative Details

01 Phase I

Within one year, the NSF Director, in consultation with the Secretary of Energy and the Under Secretary of the National Institute of Standards and Technology (NIST), would create a plan for the network that assesses the existing state of cloud labs in the United State and includes details on access to the cloud labs, sample intellectual property agreements, outreach plans, and cybersecurity plans.

02 Phase II

Within two years, the NSF Director would establish a venue for the network of cloud labs and create no fewer than two new cloud labs on a competitive basis.

03 Phase III

Within four years, the NSF Director would create no fewer than three new cloud labs on a competitive basis, for a total of five cloud labs.

04 Annual Reporting

The NSF Director would submit an annual report to Congress on the progress and successes of the cloud labs.

Interested in co-sponsoring this bill?

Please contact ideas@biotech.senate.gov