Absci First to Create and Validate De Novo Antibodies with Zero-Shot Generative AI

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This breakthrough unlocks the potential to accelerate time to clinic by over 50% and increase probability of success in the clinic

Creating antibodies in silico with generative AI represents a major industry breakthrough on the path to fully de novo antibody design and Absci's vision to deliver breakthrough therapeutics at the click of a button, for everyone.

VANCOUVER, Wash. and NEW YORK, Jan. 10, 2023 (GLOBE NEWSWIRE) -- Absci Corporation (Nasdaq: ABSI), a generative AI drug creation company, today announced the ability to create and validate *de novo* antibodies *in silico* (via a computer) with the use of zero-shot generative AI — a major milestone for the biotechnology industry. The ability to create *de novo* therapeutic antibodies *in silico* could potentially reduce the time it takes to get new drug leads into the clinic from as much as six years down to just 18-24 months while also increasing their probability of success in the clinic. This new advancement is a major industry step change, unlocking the potential to deliver breakthrough therapeutics at the click of a button, for every patient.

Historically, biologic drug discovery is risky, time-consuming, and expensive, with a >90% failure rate. It takes an average of 10 years and >$1 billion to bring just one new drug to market, limiting the scope and number of treatments that drugmakers can pursue.

"It's a slow, arduous process to bring just one safe, effective drug to the market. I have overseen the development of over ten drugs to approval throughout my career, and know the labor and dedication required for the small chance of creating a therapeutic that can improve lives," **said Andreas Busch, PhD, Chief Innovation Officer of Absci**. "What Absci has accomplished is just one of the reasons I joined the team. Being part of the mission to bring potentially life-changing biologics to patients with the power of generative AI is the next evolution in medicine. We're seeing that start today."

Absci used zero-shot generative AI — a method that involves designing antibodies to bind to specific targets without using any training data of antibodies known to bind those specific targets. Absci's model produced antibody designs that were unlike those found in existing antibody databases, and the zero-shot designs worked in the lab right out of the computer — without the slow and costly step of further optimizing the *in silico* designs in the lab.

Absci's breakthrough demonstrates generative AI as an alternative to traditional biologic drug discovery, potentially unlocking treatments for traditionally "undruggable" diseases and improving therapeutic possibilities for many others.

Scalable biological data has been one of the biggest barriers to applying generative AI to biologic drug discovery. Absci overcomes this challenge with its proprietary high-throughput wet lab technology, which today is capable of testing and validating nearly 3 million unique AI-generated designs each week — well above the industry standards. This wet lab data is an invaluable component for improving generative AI models and creating better antibody designs. Absci can accomplish this design to data cycle in a timeframe of weeks.

"Despite the technological breakthroughs of the last decade, the process of drug discovery has remained relatively archaic. Our success in creating brand new antibodies on a computer unlocks the potential to create transformative therapies at a click of a button for patients," **said Sean McClain, founder and CEO of Absci**. "Generative AI used in conjunction with innovative synthetic biology can now be harnessed to have real-world impacts for patients."

Absci further demonstrated its wet lab's ability to experimentally validate the superiority of *de novo* antibody candidates to bind to the target antigen — all without lead optimization of the *in silico* designs — in cycle times as little as six weeks. Absci validated antibodies for HER2 and multiple additional targets.

The achievement is also the first example of a generative AI engine designing new therapeutic antibodies by designing the heavy chain complementarity determining region 3 (HCDR3) from scratch, where the computational design has been wet-lab validated to bind to the intended targets. HCDR3 is a critical region for antibodies to bind to their targets and enable their therapeutic potential.

The bioRxiv preprint manuscript with technical details of the achievement can be found here.

About Absci
Absci is a generative AI drug creation company that combines AI with scalable wet lab technologies to create better biologics for patients, faster.

Our Integrated Drug Creation™ platform unlocks the potential to accelerate time to clinic and increase the probability of success by simultaneously optimizing multiple drug characteristics important to both development and therapeutic benefit. With the data to train, the AI to create, and the wet lab to validate, we can screen billions of cells per week, allowing us to go from AI-designed antibodies to wet lab-validated candidates in as little as six weeks. Our vision is to deliver breakthrough therapeutics at the click of a button, for everyone.

Absci's headquarters is in Vancouver, WA, with our AI Research Lab in New York City and an Innovation Center in Zug, Switzerland. Visit www.absci.com and follow us on LinkedIn (@absci), Twitter (@Abscibio), and YouTube.

Availability of Other Information about Absci
Investors and others should note that we routinely communicate with investors and the public using our website (www.absci.com) and our investor relations website (investors.absci.com), including without limitation, through the posting of investor presentations, SEC filings, press releases, public conference calls and webcasts on these websites. The information that we post on these websites could be deemed to be material information. As a result, investors, the media, and others interested in Absci are encouraged to review this information on a regular basis. The contents of our website, or any other website that may be accessed from our website, shall not be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended.

Absci Forward-Looking Statements
Certain statements in this press release that are not historical facts are considered forward-looking within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including statements containing the words “will,” “pursues,” “anticipates,” “plans,” “believes,” “forecast,” “estimates,” “extends,” “expects,” and “intends,” or similar expressions. We intend these forward-looking statements, including statements regarding our expectations regarding business operations, financial performance and results of operations, including our expectations and guidance regarding cash and cash equivalents, short-term investments and restricted cash, our projected cash usage, needs and runway, our expectations for the count of new Active Programs, technology development efforts and the application of those efforts, including acceleration of drug development timelines, advancements toward *in silico* drug design, drug discovery and development activities, internal research and publication efforts, and research and technology development collaboration efforts, to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Securities Exchange Act, and we make this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect our current views about our plans, intentions, expectations, strategies, and prospects, which are based on the information currently available to us and on assumptions we have made. We can give no assurance that the plans, intentions, expectations, or strategies will be attained or achieved, and, furthermore, actual results may differ materially from those described in the forward-looking statements and will be affected by a variety of risks and factors that are beyond our control, including, without limitation, risks and uncertainties relating to our ability to effectively collaborate on research, drug discovery and development activities with our partners or potential partners; along with those risks set forth in our most recent periodic report filed with the U.S. Securities and Exchange Commission, as well as discussions of potential risks, uncertainties, and other important factors in our subsequent filings with the U.S. Securities and Exchange Commission. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise.

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