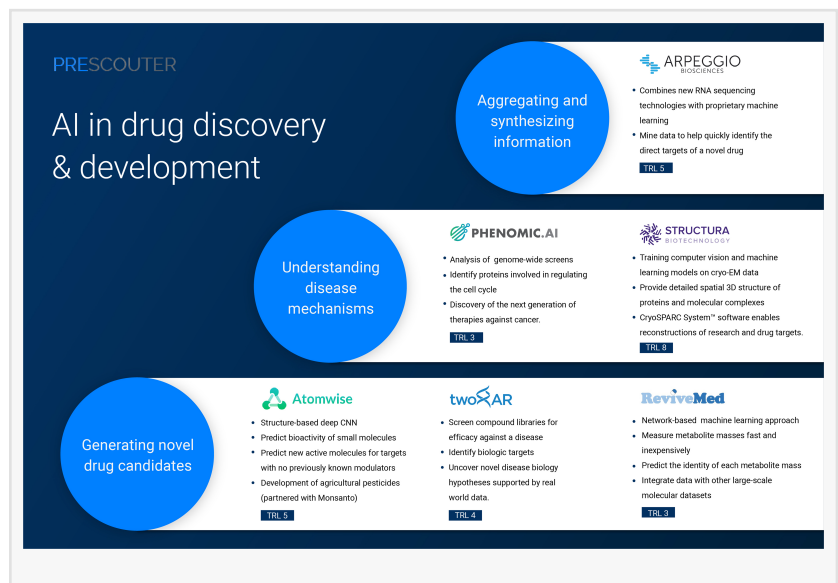


# Artificial Intelligence in the Pharmaceutical Industry

*New Report Details the Applications of AI in Drug Discovery and Preclinical Drug Development*

CHICAGO, ILLINOIS, UNITED STATES, August 23, 2018 /EINPresswire.com/ -- [PreScouter](#), a Chicago-based research intelligence company, has released a detailed [report](#) on the applications of artificial intelligence (AI) in drug discovery and development. As the use of AI in the pharmaceutical industry is projected to bring in billions of dollars in funding in the near future, PreScouter believes that this report is invaluable to any biopharmaceutical company interested in integrating an AI-based methodology in their current drug development processes.



The major driving force for selecting this topic was the questions PreScouter receives from clients in every industry about specific ways in which AI could improve upon the current way of doing things, according to Dr. Charles Wright, PreScouter Project Architect for the healthcare and life sciences industry. “In the pharmaceutical industry, early use cases are becoming available that highlight the potential for AI to improve the process of discovering and developing a new drug, which is currently an incredibly difficult task,” says Wright.

“

AI has the potential to transform the drug development process, benefiting all parties involved—from the companies developing new drugs to the patients in desperate need of viable treatments”

*Dr. Charles Wright, PreScouter Project Architect*

To generate drugs using an AI-based approach, many AI models start with a 3D model of a molecule, for example a protein that promotes cancer cell growth, explains Mohamed Akrouf, one of the researchers who worked on the report. “The AI model then generates a series of synthetic compositions and predicts the probability of

interaction between the two molecules. If a drug is likely to interact with a specific molecule, it can be synthesized and tested.”

The report compares traditional drug discovery methods with AI-based methods, illustrating both the benefits and limitations seen with AI-based drug discovery applications as well as current challenges and future opportunities. A number of case studies are included that illustrate the AI capabilities of six startups.

Wright sees that the three common challenges faced by all pharmaceutical companies are (1) timelines of about 15 years, (2) costs in excess of \$1B and (3) a minuscule rate of success. It’s

estimated that 1 in 10 small molecule projects become candidates for clinical trials (that's after screening through millions of compounds to hone in on viable candidates). Only about 1 in 10 of those compounds will then pass successfully through clinical trials. "AI has the potential to transform the drug development process by making it both more efficient and effective, thus benefiting all parties involved—from the companies developing new drugs to the patients in desperate need of viable treatments," says Wright.

Dr. Navneeta Kaul, the second researcher who helped compile the report, believes that with the advances made in AI, "The day is not far when a machine will be able to tailor a drug for each unique individual in a much shorter period of time."

About PreScouter, Inc.:

PreScouter provides research support services to help business leaders make better R&D, product development and corporate development decisions. PreScouter's custom-selected teams of Advanced Degree Researchers and Subject Matter Experts connect business leaders with new markets, commercializable technologies, industry-impacting startups, and other actionable data. PreScouter's growing list of 500+ clients includes GE Healthcare, Coca Cola, BAE Systems, Clorox, and Volvo. For more info, please visit [www.prescouter.com](http://www.prescouter.com).

PreScouter's growing list of 500+ clients includes GE Healthcare, Coca Cola, BAE Systems, Clorox, and Volvo. For more info, please visit [www.prescouter.com](http://www.prescouter.com).

###

Link to report: <https://prescouter.com/inquiry/applications-of-artificial-intelligence-in-drug-discovery-and-development/>

Mariam Jomha  
PreScouter  
8722229225  
email us here

The infographic is divided into two main sections. The top section, titled "Traditional VS AI-based drug discovery methods", compares two approaches. The "TRADITIONAL" side lists: Target-driven; Work well for easily druggable targets that have a well-defined structure and whose interactions inside the cell are understood in detail; and Extremely limited due to the complex nature of cellular interactions & limited knowledge of intricate cellular pathways. The "AI-BASED" side lists: Data-driven; Complex algorithms and machine learning can extract meaningful information from a large dataset; and Identify compounds that could bind to 'undruggable targets', i.e., proteins whose structures are not defined. A summary box at the bottom of this section states: "A predictive set of compounds can be easily identified with AI in a relatively small amount of time and at a quarter of the cost of traditional methods." The bottom section, titled "Ethical issues and regulations", features a large "AI" graphic made of circuitry. To its right are several question boxes: "fairness?", "treatment error?", "misdiagnosis?", "research standards?", "bias against minority classes?", "FDA approval?", "training biases?", and "virtual clinical trials?".

### Traditional VS AI-based drug discovery methods

TRADITIONAL	AI-BASED
<ul style="list-style-type: none"><li>• Target-driven</li><li>• Work well for easily druggable targets that have a well-defined structure and whose interactions inside the cell are understood in detail</li><li>• Extremely limited due to the complex nature of cellular interactions &amp; limited knowledge of intricate cellular pathways</li></ul>	<ul style="list-style-type: none"><li>• Data-driven</li><li>• Complex algorithms and machine learning can extract meaningful information from a large dataset</li><li>• Identify compounds that could bind to 'undruggable targets', i.e., proteins whose structures are not defined</li></ul>

A predictive set of compounds can be easily identified with AI in a relatively small amount of time and at a quarter of the cost of traditional methods.

### Ethical issues and regulations

AI

- fairness?
- treatment error?
- misdiagnosis?
- research standards?
- bias against minority classes?
- FDA approval?
- training biases?
- virtual clinical trials?

This press release can be viewed online at: <http://www.einpresswire.com>

Disclaimer: If you have any questions regarding information in this press release please contact the company listed in the press release. Please do not contact EIN Presswire. We will be unable to assist you with your inquiry. EIN Presswire disclaims any content contained in these releases. © 1995-2018 IPD Group, Inc. All Right Reserved.