NIH announces novel venture with drug companies to fight major diseases

by Ariana Eunjung Cha, February 4, 2014, the Washington Post

(bold highlights added, not original)

The National Institutes of Health is undertaking an ambitious collaboration with private industry in an attempt to speed up the search for treatments for some of the world's most devastating diseases — **Alzheimer's, type 2 diabetes, rheumatoid arthritis and lupus**.

The pilot projects announced Tuesday will involve the sharing of not only scientists but also of data, blood samples and tissue specimens among 10 rival companies, the federal government and several nonprofit groups and research foundations.

The companies that have signed up to participate include most of the large drug makers, which in the past had resisted calls to share detailed data and samples from experiments, preferring to instead use the information to gain lucrative patents.

The agreement with NIH represents a major break from how they used to do business. The competing pharmaceutical companies have said they will hold off launching commercial ventures based on discoveries from the partnership until after the data has been made publicly available. The idea behind the collaboration is similar to that of the "open source" movement among some computer scientists who believe that sharing their code with anyone who wants it is the best way to innovate.

The first group of projects, which will last three to five years, will involve an investment of more than **$230** million from industry participants including Bristol-Myers Squibb, GlaxoSmithKline, Johnson & Johnson, Eli Lilly, Merck, Pfizer, Sanofi and Takeda, as well as a few smaller biotech companies.

At its core, the collaboration aims to change the way biomedical research has been conducted at a fundamental level. For the most part, scientists working on new drugs still depend on trial and error, making guesses about what could work as a treatment and then testing their hypotheses.

The initiative — called the Accelerating Medicines Partnership, or **AMP** — takes a more comprehensive approach, bringing scientists from industry and government together to look at the universe of possibilities and prioritize the most promising targets for treatments.

NIH Director Francis S. Collins said Tuesday that researchers are investing a great deal of money and time in areas of research that have high rates of failure.

"We are going to try to increase the odds of picking the right targets to go after for the next generation of drug development," he said. In other words, Collins said, the partnership aims to "avoid wasting precious time and money chasing duds."

In many ways, the project builds on the foundation of data analysis and sharing that was laid by the sequencing of the human genome in 2001.

Since then, there has been an explosion of big data in three major areas of scientific research: genomics, with the cost and time to sequence DNA plummeting; proteomics, with breakthroughs in the understanding of the involvement of proteins in disease; and in the ability to process, store and analyze high-resolution images.

Despite this immense progress in basic research, there have been few breakthrough treatments for patients suffering from disease. And each year, researchers end up abandoning 90 to 99 percent of drugs that seemed promising in the early stages of research.

The most painful failures happen when drugs reach "phase 2" and "phase 3" clinical trials with patients. By that time, researchers have usually spent years and hundreds of millions or even a billion dollars.

Mikael Dolsten, president of worldwide research and development at Pfizer, called the current approach "fragmented" and said what the group is trying to develop is a "precise navigation system, a GPS for human disease."

The partnership, the product of two years of negotiations between officials at NIH and the drug companies, aims to streamline the process of drug development at its initial stage by bringing researchers together to sift through the very large data set of opportunities in an effort to find and test new "biomarkers" for disease.

Collins said such mind-sharing and data-sharing will compress the timeline for developing new drugs and reduce costs at the same time.

While the first phase of the project will be focused mostly on collaborations between the industry and NIH, Robert Clarke, dean of research at Georgetown University Medical Center, said he hopes the partnership will grow to include academia. He said he believes the projects could eventually lead to a sea change in the scientific community's attitudes toward sharing the details of research and that he imagines a day when there will be new models for those types of collaborations and new channels for funding researchers who want to build on publicly shared data.

"We have been using our limited resources to reinvent the wheel for too long," he said.

D. Lansing Taylor, director of the University of Pittsburgh's Drug Discovery Institute, said the announcement comes at a time of increasing pressure on pharmaceutical companies' finances. With the patents for many of the industry's blockbuster drugs expired or expiring and a controversy simmering over toxicity issues related to some new therapies, drug makers are seeking new ways of doing business.

"Collaboration is a necessity. It's not an option anymore," Taylor said. "It's too expensive to develop and utilize the new technologies on your own."

Ariana Eunjung Cha is a national reporter for the Post. She has previously served as the newspaper's bureau chief in Beijing, Shanghai and San Francisco, a correspondent in Baghdad and as a tech reporter based in Washington.