Researchers at Northeastern are making the world healthier by collaborating across disciplines to completely reimagine drug discovery and delivery. These outside-the-box collaborations give way to innovative technologies that are capable of tackling some of the world’s greatest health challenges.

Alessandro Vespignani, professor of chemistry and chemical biology

Vespignani is a pioneer in the network science of infectious disease outbreaks. Using data such as airline traffic and cellphone usage, Vespignani creates maps of human mobility, yielding computational models with the predictive power to transform global public health policy.

Recent Grants

- $1.2 million from the National Institutes of Health
- $1.1 million from the National Science Foundation
- $1 million from the National Science Foundation
**Michael Pollastri**, professor of chemistry and chemical biology

Pollastri’s unique approach to curing neglected diseases, like African sleeping sickness, is a breakthrough in drug development. He and his team sift through thousands of drugs, searching for those that can be repurposed to stop the parasite—a method that yields new therapeutics more quickly, and at lower cost.

**Recent Grants**
- **$404,894** from the National Institutes of Health
- **$232,810** from the Flatley Discovery Lab

**Heather Clark**, associate professor of pharmaceutical sciences

Clark is a leader in the scientific community’s effort to uncover the mysteries of the human brain. She and her team are developing nanosensors that will reveal a precise, real-time picture of brain chemistry—transforming the treatment of conditions ranging from Alzheimer’s to schizophrenia.

**Recent Grants**
- **$1.6 million** from the National Institutes of Health
- **$862,182** from the National Institutes of Health and National Institutes of General Medical Sciences
- **$404,894** from the National Institutes of Health
- **$327,260** from the Defense Advanced Research Projects Agency
- **$232,810** from the Flatley Discovery Lab
- **$100,000** from the Center for Integration of Medicine and Innovative Technology

**Improving Drug Safety**

Like a carton of milk, if left unchecked biological drugs—such as vaccines—can eventually go bad, with serious, even fatal, implications.

This situation becomes especially acute in the case of the increasingly in-demand generic counterparts called biosimilars, where standard screening systems used by the FDA are insufficient. At Northeastern, Graham Jones, chair of the chemistry and chemical biology department, is developing more nuanced techniques to examine biologics, including biosimilars, so that new standards can be set that will inform the FDA’s regulatory process.

Recently, Northeastern partnered with the Waters Corporation on this effort. The Waters Corporation has provided Northeastern with specialized instrumentation to assist in a broad-reaching program that will make biosimilar analysis a manageable and efficient process. The program includes a state-of-art research laboratory housing dozens of analytical instruments, a master’s degree focusing on the area of biosimilar analysis, and a training program to teach industry users and regulatory agencies how to achieve accurate characterizations of their materials.

For more information, contact Tim Leshan, vice president for government relations, 617.373.8528, t.leshan@neu.edu, or visit northeastern.edu/governmentrelations.