

Greener Chemistry



Stacey Brenner-Moyer
Associate Professor, Chemistry

CURRENT RESEARCH

Using organic catalysts to facilitate drug development processes

Most medicines, in industry and in academics, are synthesized in a stepwise fashion, like making a sandwich. Just as making a sandwich involves first spreading mustard on a slice of bread, then lettuce, then tomato, then a slice of cheese, pharmaceutical drugs have multiple synthetic steps that move the chemicals through different stages. Dr. Stacey Brenner-Moyer, Associate Professor of Chemistry at Rutgers University, combines all of these processes into one step in a single flask and develops cascade reactions by using organic catalysts like amino acids that are natural, inexpensive, renewable, and sustainable. The application of Dr. Brenner-Moyer's lab's green chemical methods in the pharmaceutical industry ultimately may help make the synthesis of certain drugs more efficient, less wasteful, less costly, and greener.

Unlike metal-based catalysts that are more commonly used in the drug development process, organic catalysts can yield chemical reactions and transformations that cannot be created with metal catalysts. In order to develop certain chemical reactions, Dr. Brenner-Moyer's team looks for small structures or fragments that appear in natural products or medicines, and examines ways to make these structures efficiently and more easily. Collaborating with theoretical, computational, and synthetic chemists as well as biologists, Dr. Brenner-Moyer and her team are making great strides in not only developing new reactions, but also taking these new reactions to explore their practical applications. One such application is an antibiotic, which is very potent and targets an enzyme that is not targeted by any antibiotics currently on the market.

Current research areas include:

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AFFILIATION



EDUCATION

- Ph.D. in Chemistry 2005, Stanford University

AWARDS

- National Science Foundation CAREER Award, 2012
- American Chemical Society Women Chemists Committee Lectureship Award, 2011

RESEARCH AREAS

Chemical, Life Science, Poverty & Equality, Clean Energy

FUNDING REQUEST

Your contributions will help support the continued research of Dr. Stacey Brenner-Moyer and her team at Rutgers University as they use organic catalysts to facilitate the drug development process. Donations will help support the \$450K/year required to fund personnel, research chemicals, disposable needles, silica gel, and solvents to move the research forward. Help combine multiple synthetic steps in one to make the process more efficient and less costly. Support Dr. Brenner-Moyer!