

New reagent delivers a chemical breakthrough

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"Build a better mousetrap," the saying goes, "and the world will beat a path to your door." In the complex field of organic chemistry, that path leads to Florida State University, where a newly developed substance could make the jobs of scientists throughout the world a little easier as they work to develop new drugs and other chemicals that benefit humanity.

Researchers from the Dudley Laboratory at FSU have invented a reagent — a substance used in a chemical reaction to detect, measure, examine or produce other substances — that can trap specific regions of complex molecules in such a way that those molecules can be released at a later time. This will allow scientists to perform complex experiments involving chemical synthesis much more easily and precisely.

"It isn't every day that one can put a new product on the market," said Gregory B. Dudley, an assistant professor of chemistry and biochemistry at FSU whose research lab bears his name.

"Even more exciting for me is the knowledge that scientific breakthroughs in biomedical research and various other areas of organic chemistry might be made possible as a result of this reagent," Dudley said.

The Sigma-Aldrich Chemical Company has licensed Dudley's patent-pending reagent from FSU and recently began marketing it to chemical research labs worldwide under the name "Bn-OPT" — short for

BeNzylOxyPyridinium Triflate. FSU will receive royalties from Sigma-Aldrich in the amount of 5 percent of net sales of the reagent.

Bn-OPT is designed to be employed as part of what Dudley refers to as "protecting group strategies" in organic synthesis.

2-Benzyloxy-1-methylpyridinium trifluoromethanesulfonate — the rather unwieldy chemical name for the new reagent - converts vulnerable hydroxy groups, also known as alcohols, into benzyl ethers upon warming. These less-reactive benzyl ethers provide "protection" for alcohols during chemical synthesis. Bn-OPT emerged from his lab's basic research in organic chemistry, and researchers now are studying the reagent in search of new applications.

"Benzyl ethers have always played an important role in organic chemistry, but their use has been limited by difficulties in preparing them," Dudley said. "This reagent solves some of the problems associated with making benzyl ethers."

Professor Joseph Schlenoff, the interim chairman of FSU's department of chemistry and biochemistry, hailed Dudley as a young educator whose work is helping others both in and out of the classroom.

"Greg is one of our rising stars, both in teaching and research in the area of synthetic organic chemistry," Schlenoff said. "His discovery of this important new chemical reagent will bring significant attention to our department and to the cutting-edge research that is being conducted here."

Source: Florida State University

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