

## Monthly Publication Highlight - Dr. Darci Trader

The Purdue College of Pharmacy is pleased to honor and recognize the outstanding research and scholarship generated by our faculty each month. This month we highlight Dr. Darci Trader, Assistant



Professor of Medicinal Chemistry and Molecular Pharmacology.

Dr. Trader's recent publication, "Development and Application of a Sensitive Peptide Reporter to Discover 20S Proteasome Stimulators", ACS Combinatorial Science (March 19, 2018; DOI: [doi.org/10.1021/acscombsci.7b00193](https://doi.org/10.1021/acscombsci.7b00193)). The research was performed by graduate student Rachel A. Coleman under the supervision of Dr. Trader.

This research focuses on the development and application of a novel peptide reporter that will allow for the detection of molecules capable of perturbing the activity of the proteasome. More specifically, this reporter is more sensitive to enhanced, or stimulated, proteasome activity. The proteasome is responsible for the degradation of proteins in cells, which is important for proper cell function; however, as cells age or become afflicted by diseases such as Parkinson's, the activity of the proteasome declines, leading to the accumulation of proteins and diminished cell health. It has been proposed that the activity of the proteasome could then be enhanced in order to prevent the accumulation of protein and maintain healthy cell function. The novel reporter peptide described in our recent publication will make the process of locating molecules that enhance proteasome activity easier. We then applied our new reported molecule and discovered four new proteasome stimulators that are being evaluated in diseases models currently in our lab.

"One of the long-term goals of my laboratory is to understand how the activity of the proteasome can be harnessed and modified to affect a variety of disease types," said Dr. Trader. "Development of this new screening technique is the first step to discover molecules that can increase the activity of the proteasome to potentially reverse diseases associated with protein accumulation."