Developing Drugs to Fight Infection

Laboratory research identified novel compounds that could lead to new antimicrobial drugs.

►Description: Infectious disease is the second-leading cause of death worldwide, and a growing number of highly resistant microbes threaten to worsen this problem. To address the public health crisis of infection due to antibiotic resistant germs, the Wisconsin Infectious Disease Drug Discovery project looked for novel compounds that could lead to new antimicrobial drugs.

►Results: This project first developed new methods for screening large libraries of chemical compounds for antimicrobial activity. Laboratory research then identified novel lead compounds for anti-staph and anti-fungal activity, which are now being studied in animal models. The anti-fungal compound leads generated interest from industry and research support from Johnson & Johnson. The work resulted in a drug target patent, patents that are pending on two of the lead compounds and several research articles. The project funding also helped catalyze a UW-Madison group that represents a drug discovery emphasis in the Wisconsin Center for Infectious Disease.


►Next Steps: This drug discovery project leveraged additional support from multiple sources, including two National Institutes of Health (NIH) grants, totaling about $4.5 million, as well as Wisconsin Alumni Research Foundation (WARF) accelerator funding for anti-fungal drug development. Research was expanded to include natural products from terrestrial and aquatic sources, leading to another NIH grant for $3.5 million; these studies are ongoing. A novel fungal drug target is the basis for a large-scale screen for anti-fungal compounds that is currently being conducted at the NIH in collaboration with the investigators at the National Center for Advancing Translational Sciences.