Dominican partners with biotech firm for project

The collaborative project, funded with a STTR (Small Business Technology Transfer) grant from the National Institutes of Health (NIH), involves preclinical stage II development of a new chloroquine analog, called a Reversed Chloroquine Compound (RCQ), a class of molecules effective against multi-drug resistant forms of human malarias. The Dominican research team, led by Dr. Roland Cooper, will evaluate the molecules supplied by DesignMedix for efficacy against a variety of chloroquine-resistant strains of malaria.
The Dominican research team with DesignMedix also will evaluate the potential for malaria strains to evolve resistance to the RCQ drugs. The project may also evaluate the drugs against ex vivo samples of malaria from subjects in field studies in which Dominican researchers already participate, and aid in the interpretation of sequencing results of genomes from RCQ-resistant parasites.

"It creates opportunities for students to engage in cutting edge, federally-funded malaria research at Dominican," says Dr. Cooper, a biologist and associate professor who has been working on anti-malarial drug research with colleagues at Portland State University since 2004. "That in turns helps in recruiting students at the undergraduate and graduate levels who are especially keen to engage in the growing research profile of the School of Health and Natural Sciences."
Dr. Cooper has long collaborated with Dr. David Peyton, professor of Chemistry at Portland State, who is the Chief Scientific Officer for DesignMedix. The company is pursuing drugs that target microorganisms known to thwart chemotherapy by becoming resistant, such as malaria or various bacterial species.

Dominican's role is to explore the mechanism of action of these drugs in the malaria parasite by trying to induce resistance to the compounds. Genetic changes associated with resistance often point to proteins directly associated with the action of a drug.
In 2012, Dominican was involved in research with a UCSF malaria clinical drug trial in Uganda, funded in part from President Mary Marcy's Strategic Initiative grant. That work was important in helping secure NIH funding for this current project, by providing key preliminary data on the RCQs.
The Dominican research team partnering with DesignMedix's team is grateful to Dominican senior biology major Melissa Forbush, who has worked as an independent study student for two years on the project. According to Dr. Cooper, she significantly advanced the project, providing the platform for the new research to advance.

Forbush and graduate student Stephanie Huezo presented their malaria research last November at the American Society of Tropical Medicine and Hygiene meeting in Washington, D.C.

Dr. Cooper said the DesignMedix project also provides funding to recruit an MS student in the fall 2014.