

Advancing Anti-HIV Drug Delivery: New Device

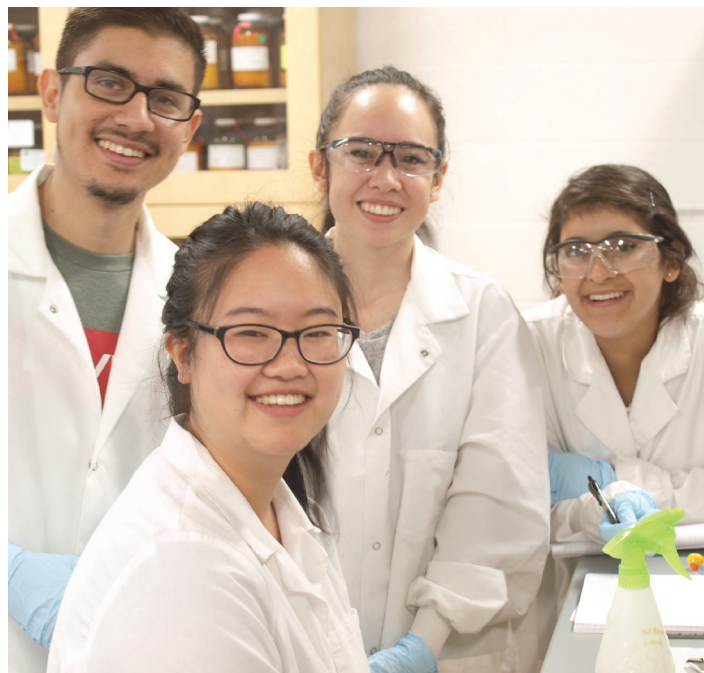
By Marc Baum, Oak Crest Institute of Science | Photos by Paul Webster



In our previous articles, I've talked about the students we involve in research projects. This month, I'd like to share some of the research we're doing with help from the students. A longstanding, multidisciplinary focus at Oak Crest is developing innovative, long-acting biomedical devices used to deliver antiviral drugs to young women in Africa for the prevention of HIV-1 infection. HIV-1 is the virus that causes AIDS, a disease that affects millions of people globally and affects young women disproportionately in developing countries. Our goal is to create technologies that can help curb the spread of the disease and understand how the drugs work at the cellular level.

There are two established drugs used to prevent HIV infection, and both block a virus-growing enzyme. We have used this two-drug backbone as a foundation in much of our research and added a third drug that uses a different approach. It might seem like combining these drugs would be the best solution, but our published mechanistic studies show that there are subtleties at play. Depending on the combinations, the drugs can either enhance their efficacy at preventing HIV-1 infection, or at the other end of the spectrum, counteract their effectiveness. This suggests that using more drugs doesn't always yield better results. We are continuing to investigate these unexpected findings.

We are also collaborating with scientists in Africa to help them build capacity for local synthesis of antiretroviral agents used to prevent and treat HIV using new technologies. It is highly likely that we will be hosting scientists visiting from Africa next year who will be learning techniques and instrumentation they can transfer back to their home countries. For more information about the latest scientific studies at Oakcrest or to sign up for our newsletter, please check out our website at www.oak-crest.org/.



Oak Crest Institute of Science (Oak Crest) is a 501(c)(3) non-profit organization established to teach and conduct cutting-edge science research. The institute provides an experience-giving role in education, where students work on authentic, funded research projects and develop a sense of belonging to the STEM community.

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Designs and Drug Combinations

