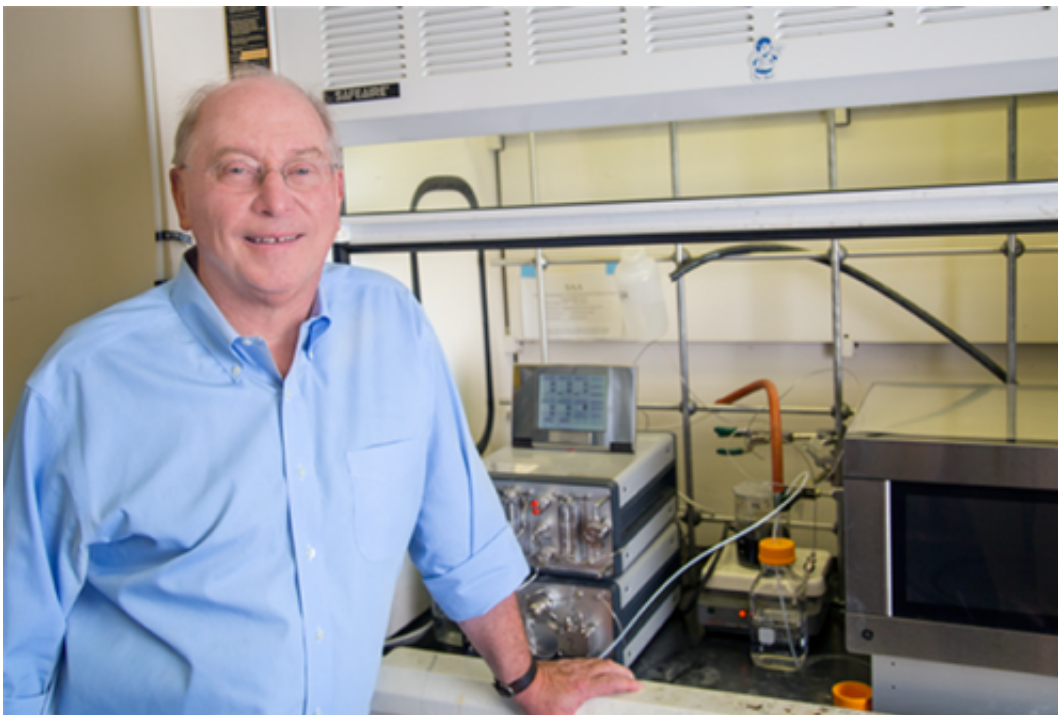


# Engineering professor makes major breakthrough in reducing cost of key AIDS drug

January 8 2015, by Brian Mcneill

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A team of researchers led by a Virginia Commonwealth University engineering professor has invented a far more cost-effective way to manufacture a widely used AIDS drug, potentially greatly expanding access to the much-needed drug in countries with emerging economies, such as South Africa.

"We've had a major breakthrough," said B. Frank Gupton, Ph.D., a research professor in the School of Engineering and chair of the Department of Chemical and Life Science Engineering, who is leading the project. "We have developed a much more cost-effective way to produce this [drug](#)."

The drug, nevirapine, is used to prevent mother-to-child transmission of HIV, and is also used in combination with other retroviral drugs to treat HIV and AIDS.

Gupton and colleagues at VCU have been working with researchers at the University of Washington, Florida State University and the Massachusetts Institute of Technology on the project, called the Medicine for All Initiative, which is funded by a \$4.4 million grant from the Bill & Melinda Gates Foundation. The project is being conducted in partnership with the Clinton Foundation.

The team has completed the first phase of the project, which was to develop a significantly more cost-effective way to produce the starting materials of nevirapine.

Next, Gupton said, the researchers will transfer the technology to the Clinton Foundation, which will outsource the improvements to existing pharmaceutical manufacturers. In parallel, the researchers are working to automate the process, making it possible to be produced anywhere.

"We completed the first phase and we've gotten the chemistry to where it's probably the lowest-cost process you could imagine, using really cheap, inexpensive raw materials and streamlining the chemistry for the process," Gupton said. "We've reported our results to the Gates Foundation and I believe that they were very pleased with our progress."

The researchers' new process for manufacturing nevirapine could

potentially expand access to the drug for AIDS patients around the globe.

"The idea is not so much to reduce the cost, but to increase the availability of this drug to emerging economies, such as South Africa," Gupton said. "So hopefully this will make these drugs more affordable and allow organizations like the Gates Foundation and the Clinton Foundation to purchase more drugs with the same amount of money."

The AIDS epidemic continues to grow, Gupton said.

"The infected population is increasing at a rate of about 14 percent a year globally," he said. "We don't talk about it much [in the United States], but it's a huge problem."

Gupton said the team is in the process of patenting its technology, but will provide open access to anyone working with the Clinton Foundation or the Gates Foundation.

Barbara D. Boyan, Ph.D., dean of the School of Engineering, said the technology has applications to many drugs needed to combat the AIDS epidemic. "The effort of Gupton's team," she said, "is a critical part of the solution to provide 'Medicines for All.'"

Provided by Virginia Commonwealth University

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