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Medicines for All Institute develops new, cost-saving synthesis of anti-HIV drug emtricitabine

Safer technology uses low-cost raw materials and greener process

RICHMOND, Va. (Feb. 11, 2019) — The [Medicines for All Institute](#) (M4ALL), which seeks to reduce the costs of manufacturing HIV/AIDS treatments and other lifesaving medications, has developed a new, efficient route to 5-fluorocytosine (5FC), a key starting material used in the synthesis of the anti-HIV drug emtricitabine.

The institute is releasing a process development report to manufacturers who are interested in learning more about its innovative, scalable technology that uses low-cost raw materials and an environmentally friendly procedure.

Based at Virginia Commonwealth University and its College of Engineering, M4ALL was established in 2017 with a \$25 million grant from the Bill & Melinda Gates Foundation. The institute has previously developed cost-saving methods to produce HIV drugs such as nevirapine, and has worked to transfer those technologies to manufacturers through its partners, such as the Clinton Health Access Initiative, U.S. Agency for International Development and the Medicines Patent Pool.

Emtricitabine is a major first-line therapy used in the treatment of HIV/AIDS. The cost of one of its main ingredients, 5FC, which currently requires special manufacturing facilities, has been skyrocketing. M4ALL's approach could reduce the cost of raw materials to produce 5FC by 40 to 60 percent.

"We've developed a very efficient process for the starting material for that drug," said [D. Tyler McQuade, Ph.D.](#), principal investigator for M4ALL and a professor in the Department of Chemical and Life Science Engineering. "What we've done is transformed a process that could

only be done by very specialized manufacturers and increased the number of potential partners who can implement it.”

To request a copy of the process development report, contact m4all@vcu.edu.

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About Medicines for All (M4ALL)

The Medicines for All Institute (M4ALL) operates under the auspices of the Virginia Commonwealth University College of Engineering. M4ALL’s mission is to improve access to affordable, high-quality medicines. This is done by lowering the cost of medications, both in market and in development, as well as enhancing the security of supply chains for these essential medications. M4ALL accomplishes its mission by reducing the cost of active pharmaceutical ingredients (APIs)—a major cost driver in treating infectious diseases in the developing world. Visit medicines4all.vcu.edu.

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