



## TECHNOLOGY

# High Affinity Aptamer for Detection of HIV Reverse Transcriptase

## OVERVIEW

### Background

The development of multi-drug therapy for HIV has greatly extended the lives of patients undergoing multi-drug therapy. For best results, multi-drug therapy requires early detection and constant monitoring of viral loads in patients. Current technologies for viral load monitoring require dedicated machinery and highly skilled technicians for proper testing. These demands make it difficult for adequate testing in the developing countries where HIV infections are increasing the most. Therefore, development of new diagnostic techniques that would allow for viral load testing in point-of-care environments far removed from sophisticated testing labs is of great importance to increase treatment of HIV in developing countries. Companies have developed new technologies, but their ability to detect viral load levels similar to existing tests is unclear.

### Innovative Technology

Researchers at the University of Maryland have developed an aptamer with high affinity for the HIV reverse transcriptase (RT). HIV RT is a key enzyme for replicating the HIV virus, and its sequence is conserved across many subtypes of HIV-1 making it a strong target for identifying multiple types of HIV-1. The high affinity of this aptamer (1 nM Kd) allows for the detection of viral loads comparable to current tests. However, using the aptamer in diagnostic testing would not require the specialized equipment and personnel that many of the current standard techniques do, allowing testing in more point-of-care settings.

## APPLICATIONS

- Point-of-care testing for HIV infection
- Point-of-care monitoring of HIV therapy resistance

## ADVANTAGES

- Simple procedure does not require highly skilled technician
- Does not require expensive laboratory equipment
- Stable binding of aptamer allows for detection of low levels of HIV RT

## CONTACT INFO

UM Ventures  
0134 Lee Building  
7809 Regents Drive  
College Park, MD 20742  
Email: [umdtechtransfer@umd.edu](mailto:umdtechtransfer@umd.edu)  
Phone: (301) 405-3947 | Fax: (301) 314-9502

## Additional Information

## INSTITUTION

University of Maryland, College Park

## **LICENSE STATUS**

Available for non-exclusive license

## **CATEGORIES**

- Research Tools, Antibodies, & Reagents

## **EXTERNAL RESOURCES**

LS-2014-032