

**NON-TECHNICAL ABSTRACT:** The objective of this project is to develop paper-based displacement immunoassays as portable and inexpensive point-of-care diagnostic devices for use in rural areas of developing countries, in home health care and in other resource limited settings. Displacement immunoassays have been demonstrated for the detection of multiple analytes and disease markers. Paper-based devices have been demonstrated as a useful platform for portable and low-cost diagnostic devices. The combination of displacement immunoassays with paper-based devices will provide a new tool for diagnosing and monitoring disease that will be inexpensive, portable and easy to use. The project will involve the development of the paper-based device, the development of a working protocol for the assay, the optimization of storage conditions for the reagents on the devices, and the development of a paper-based displacement immunoassay for hepatitis B. The technology should be adaptable to a wide range of immunoassays, which will enable the detection of a wide range of analytes and disease markers.