Point of Care Rheological Assay for Sickle Cell Disease

VANDERBILT UNIVERSITY
CTTC Center for Technology Transfer & Commercialization

Summary

Vanderbilt researchers have created a novel technology for the diagnosis and monitoring of disease states using the rheological properties of a blood sample with a lateral flow membrane.

Addressed Need

Sickle Cell Disease (SCD) is expected to afflict over 14 million newborns by 2050 and there is an acute need for early diagnosis of the disease in low resource setting. Current diagnostics require highly trained personnel, are limited to laboratory settings , and fail to provide a viable alternative to the gold-standard HPLC analysis. There is a market opportunity for new technologies that provide clinically relevant assessments of sickling hemoglobin levels, such as the concentration of hemoglobin S, in a sample to aid in the diagnosis and management of SCD.

Unique Features

- Low-cost lateral flow diagnostic
- Quick evaluation of results without the need for specialized equipment
- Results easy to understand
- Rapid diagnosis and quantification of Hemoglobin S

Technology Development Status

This technology relates to a blood-based diagnostic assay for Sickle Cell Disease comprised of a lateral flow strip, buffer solution, and mobile phone based analysis program. The assay presents a unique method to assess diseases since it evaluates the actual properties of fluids as they move through the membrane. The diagnostic assay has demonstrated remarkable accuracy in a 74 subject trial with **100% sensitivity** and a **mean error of 4.3%** compared to gold-standard HPLC.

Intellectual Property Status

A patent application has been filed.

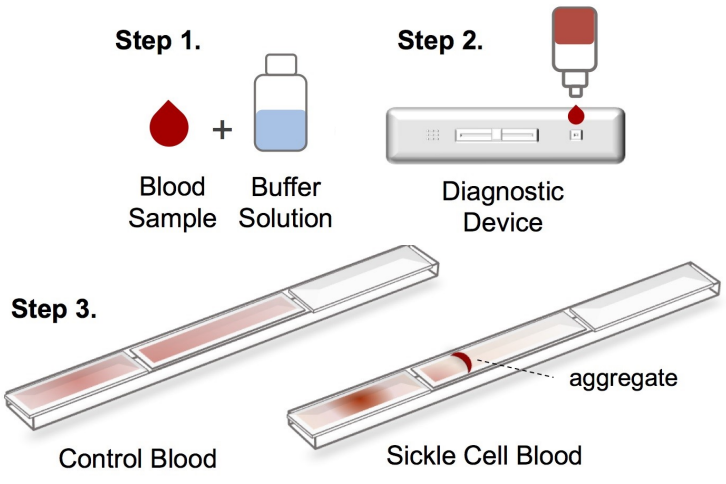

Figure 1: The workflow for using the Sickle Cell Disease diagnostic assay is shown.

CTTC CONTACT:
Ashok Choudhury, PhD
(615) 322-2503
ashok.choudhury@vanderbilt.edu

INVENTORS:
Kevin Cyr
Christina Marasco, PhD
Jennifer Colby, PhD

VU REFERENCE: VU 16007

Visit **http://cttc.co/technologies** for available Vanderbilt technologies for partnering