

Microfluidic device for blood plasma separation and assays

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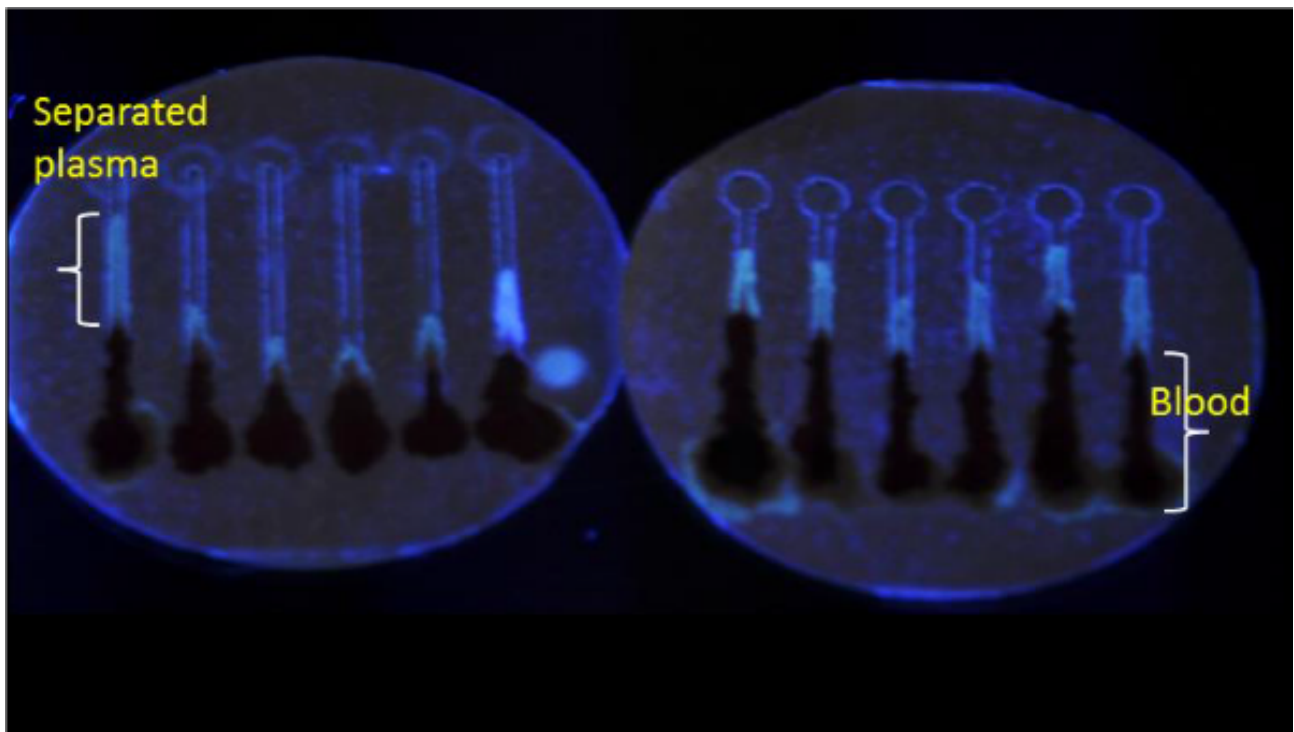
Technology description

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Oregon State University is seeking a licensee for a microfluidic device that separates blood plasma from whole blood and can facilitate downstream assays. The device can be used with raw blood or blood treated with anticoagulants, both with a lower volume than is required by current testing strategies. Testing zones of different chemistries and assays can be integrated downstream of the plasma separation zone for point of care diagnostics and target analysis of blood plasma constituents. Composed of a simple membrane-based wicking microfluidic device fabricated on a PCL-filled glass microfiber, the device is inexpensive (\$1.10 manufacturing cost of a 6 assay device), easy to use, and highly efficient. Proof of concept assays with canine blood showed effective blood plasma separation with raw and treated blood, quantitative detection of total plasma protein and direct bilirubin, and fibrinogen separation and immobilization in a sample zone.

Background of Invention

Blood plasma is an analyzable component of whole blood that is especially important in the identification of health changes before they become severe medical conditions. Current methods to separate blood plasma from whole blood are challenging they require centrifugation, sample preparation, and trained personnel. These methods are expensive and cannot be deployed in resource limited settings. Separation of blood plasma from whole blood is essential in obtaining accurate health results, which are critical when testing for conditions like heart disease, cancer, and diabetes.



Application area

Blood plasma separation

Blood assays

Advantages

Effective blood plasma separation and easy integration of assays for testing a broad range of analytes

Inexpensive and simple components for minimal sample preparation and utilization in areas with limited resources

Institution

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