

Devices and Methods for Measuring Blood Coagulation

Researchers at the University of South Florida have developed a low cost method to determine the speed of blood coagulation in patients with blood clotting disorders.

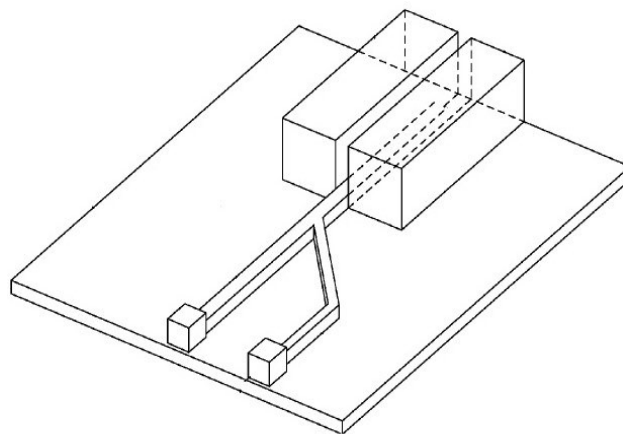
Determining speed of blood coagulation is key in patients taking blood thinning medication requiring the monitoring of coagulation properties. Some people use a blood thinner for a short time, but many others take it for years to prevent serious health problems like stroke or heart attack. The Food and Drug Administration estimates that more than 31 million prescriptions for warfarin were written in recent years. The human body automatically creates a blood clot when there is a wound so that the bleeding stops. However, with long-term use of blood thinners there is a risk of serious or even fatal bleeding. In these cases, being able to monitor the speed in which coagulation takes place is imperative. Two traditional laboratory methods of measuring the speed of blood coagulation are thromboelastography and prothrombin time; both have significant limitations. Hence there is a need for a low-cost method that determines the speed of blood coagulation and also overcomes the limitations of existing methods.

Inventors at USF have developed a new on-chip optical sensor based on back reflection from an on-chip optical waveguide interface. Blood coagulation can be easily tracked by measuring the change in the reflected power. Simulations show that it can be directly used for measurements in blood plasma, and with additional signal processing can be used in whole blood. This invention has wide ranging applications in the field of medical devices.

ADVANTAGES:

- Can be used with plasma and/or whole blood
- Low-cost method
- Point of care device

*Measure Coagulation of Both
Plasma & Whole Blood*



*Blood Coagulation Measurement
Device*

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