Columbia Technology Ventures

A low volume microfluidic chip for point-of-care monitoring of clotting therapies

Technology #cu15091

Blood clotting disorders require careful treatment and monitoring. Accurate measurement of blood coagulation is critical in identifying patients who are at risk of acute thrombotic events and for monitoring antithrombotic therapies. This technology is a multi-channel microfluidic device that would enable point-of-care diagnosis and treatment response assessment. Unlike existing technologies that require a larger volume of blood, this technology uses less than one milliliter of blood, and is therefore particularly well-suited for pediatric patients with limited blood volume. This technology provides a fast and accurate testing that would improve the diagnosis of coagulation irregularities and the efficiency of subsequent treatment.

Point-of-care medical device for fast and accurate monitoring of coagulation with minimal blood volume requirement

This technology proposes a microfluidic device that could quickly assess and monitor blood coagulation using less than one milliliter of blood. This device is comprised of multiple channels that could simultaneously assess platelet signaling and function, as well as monitor drug sensitivity and efficacy. The low blood volume requirement, combined with the multi-channel design, would make this device particularly well-suited for pediatric patients with limited blood volumes. Since fast and accurate diagnosis and monitoring is critical for blood clotting abnormalities, this proposed technology could become a highly reproducible point-of-care device that would improve the diagnosis and treatment efficiency of coagulation.

Lead Inventors:

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Applications:

- Point-of-care diagnostic tool for coagulation dysfunction
- Monitoring tool for patients on anti-thrombotic medications
- Drug screening with small volumes of blood for pediatric and adult patients
- Platform technology for diagnosis and monitoring of other diseases
- Point-of-care system used to assess drug efficacy in pediatric clinical trials
- Coupled with mobile device for remote diagnostic and monitoring of diseases
- Coupled with high throughput-technology to enable fast analysis of large volumes of blood samples

Advantages:

- Requires low volume of blood
- Easy to use
- Highly reproducible
- Short analysis cycle time
- Simultaneous evaluation of different functions

Patent Information:

Patent Pending

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