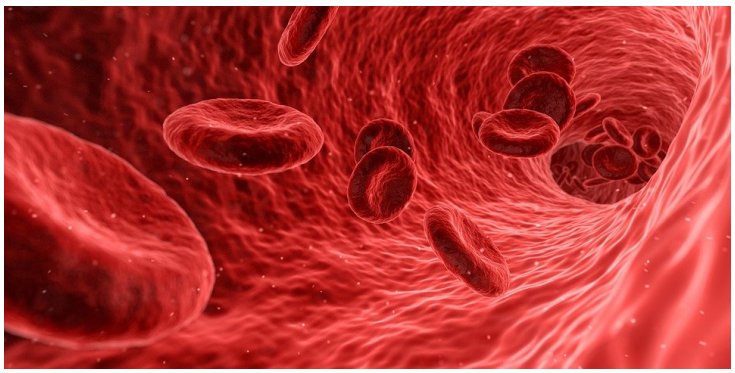
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Scientists design novel technique for tackling blood diseases

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This can be used in medical diagnostic devices, as well as in other channels, to replicate diverse flow systems such as blood vessels.



A new technique to study the flow of liquids developed by scientists from Université Paris-Saclay and the University of Amsterdam offers fresh hope for tackling blood diseases like thrombosis.

Previous microfluidic measurement tools have been based on particle tracking. The new technique uses polarized optical signals from luminescent nanorods to measure flow shear – i.e. the strain produced by directional pressure – at an instant, microscopic level never achieved before.

This can be used in medical diagnostic devices, as well as in other channels, to replicate diverse flow systems such as blood vessels.

It is perfectly suited to the study of thrombosis as the generation and breakdown of blood clots are directly influenced by shear stress that depends on the geometry of veins and capillaries. As blood flow is dynamic, with beats and swirls, the new technique can provide an instant, precise measurement.

Furthermore, beyond microfluidics, the principle of rod-orientation determination developed by the team shows promise as bio-markers to monitor the complex dynamic motions of micro-biosystems such as cells, genes, and enzymes.