Docket #: S23-354

Milli-spinner Clot-Shredding Thrombectomy Device

Stanford researchers at the Zhao Lab have designed milli-spinner thrombectomy devices that mechanically debulk clots by safely shredding the clots for fast and complete clot removal. Existing rotation-based thrombectomy devices and atherectomy devices having the rotating wire directly spinning in the blood vessel, without any protection in between the rotation component and blood vessel. For this new spinner thrombectomy system, the rotating component is completely inside the catheter to break the clot. This is a safer approach for stroke treatment, as the aspiration force can safely and directly suck out the clot fragments during the spinning treatment to prevent the fragments from traveling downstream.

Stage of Development

- Working prototype

Applications

- Thrombectomy device for acute ischemic stroke

Advantages

- Minimally invasive
- Millimeter scale and self-contained robot
- Safer operation for stroke treatment

Publications

- Chang, Y., Li, Q., Wu, S., Pulli, B., Samli, D., Yock, P.,Heit, J. J., & Zhao, R. R. (2025). Milli-spinner thrombectomy. *Nature*.

Patents

- Published Application: WO2025038507
- Published Application: 20260165721

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