# Magnetic-Field Driven Colloidal Microbots Employing Wall-Based Propulsion

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**Summary:** Magnetic-field driven colloidal microbots for interventional procedures in the cardiovascular system

**Description:** Many interventional procedures in the cardiovascular system require invasive catheter-based methods to reach their intended targets. This can be problematic because catheters cannot access the entire vascular system. Moreover, they are an inelegant approach to applications that require finesse, such as removing a blood clot without damaging the vessel wall. The disclosed method demonstrates an approach to assemble, target, and disassemble microbots in the vasculature that can replace and improve upon these invasive procedures. This novel approach uses a combination of oscillating magnetic fields to create colloidal assemblies that roll along available surfaces. As a result, this method can be used to generate and control microbots that can translate throughout the body 10-100 times faster than competing approaches.

**Main Advantages of this Invention**

- Can achieve the 1 mm/s speeds necessary for practical application
- The mobility can be tightly controlled allowing for targeted applications
- Upstream mobility

**Potential Areas of Application**

- Magnetic Imaging
- Treatment of stokes and clots in the cardiovascular system

Colloidal microwheels (bots) are small enough to pass through narrow regions of the vasculature.

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**Intellectual Property Status:** US Pat. Appl. No. 15/069,681

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**Opportunity:** We are seeking a strategic partner for the development of this technology.

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