Robotically Steerable Guidewire

EXECUTIVE SUMMARY

TEAM
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FUNDING
$22K GRA Grant
$108K Biolocity Grant
$2.8M NIH Grant

INTELLECTUAL PROPERTY
Patent pending (PCT)

Technology available for licensing and partnership

STATUS
Prototype Development

TECHNOLOGY

Navigating tortuous anatomy remains the primary barrier to success in complex endovascular procedures. The guidewire technology is an enabling navigation tool that increases the maneuverability of guidewires by making them steerable, allowing access into complex vasculature spaces. The guidewire in the proposed device is made of nitinol that allows the operator more range of motion to maneuver in multiple directions, giving the device 3-dimensional reach.

Clinical implementation of the device could reduce procedure times, radiation exposure and the use of contrast agents. In addition, the technology could potentially provide an effective new platform for next generation therapeutics.

MARKET NEED

A growing number of catheter-based technologies have led to a significant increase in the number of conditions now suitable for endoluminal therapy. Of note, treating benign prostatic hyperplasia (BPH) and atherosclerotic lesions secondary to peripheral artery disease (PAD) with the guidewire technology could vastly improve standard of care. To date, both conditions are difficult to treat due to the delicate, tortuous anatomy traversed to reach the treatment area. The prevalence of these conditions such as PAD and BPH will increase as the U.S. population ages, driving growth in the demand for treatment.

As an enabling navigational tool, this device will address market need as the population/prevalence growth and increased breadth of endovascular technologies emerge.

STATUS

To date, the team has designed a 1.43m long, .016” diameter, unidirectional guidewire as well as a 1m long, 0.016” diameter multi-joint guidewire whereby all the joints bend in the same plane. In the 1.43m long guidewire, a single tendon on the distal tip can be controlled to bend up to 90 degrees. The 1m long guidewire has been demonstrated to maneuver in a phantom vasculature model. The team is currently working on developing a multi-joint prototype, whereby non-planar motion can be achieved in the same joint section of the guidewire.

For more information on this technology email biolocity@gatech.edu or contact:
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