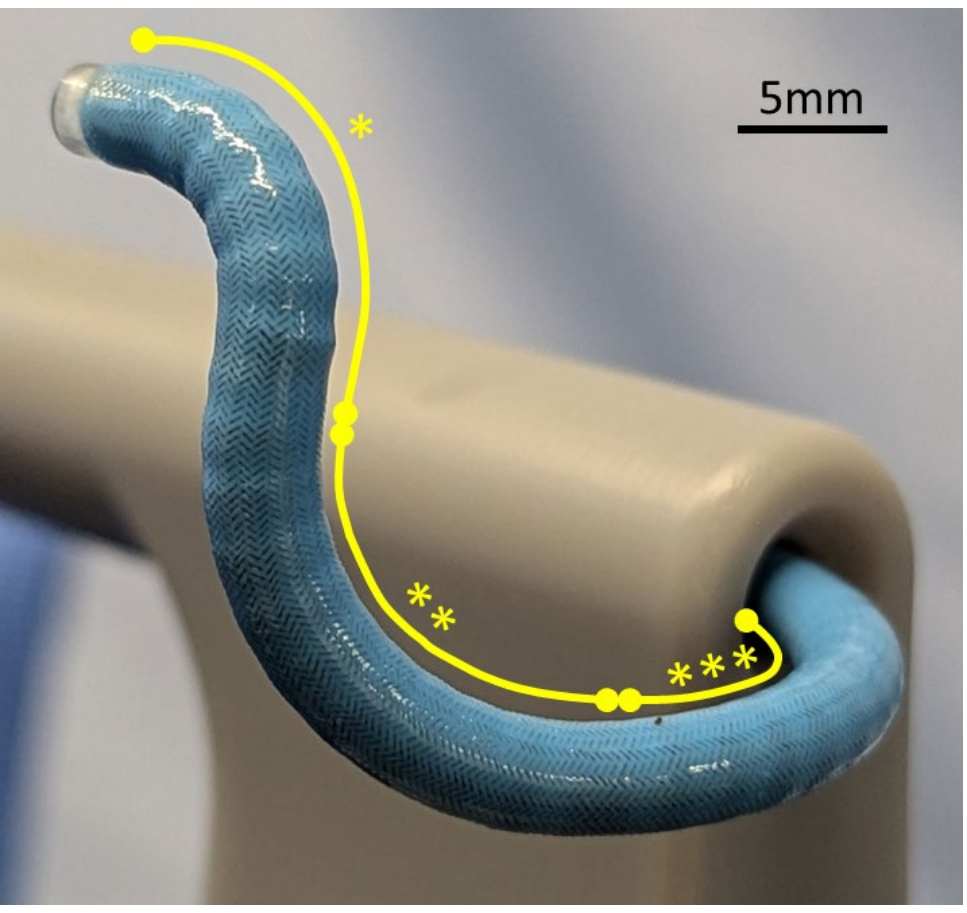
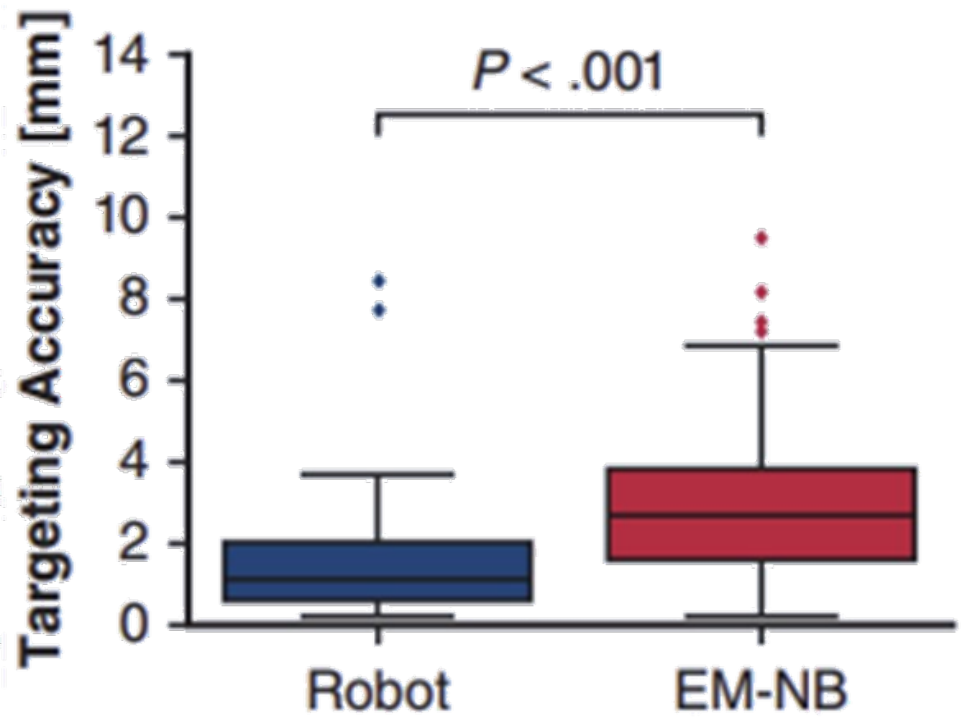
First Look

“Snake” Robotic Bronchoscope: Improving Maneuverability to Diagnose & Treat Hard-to-Reach Lung Cancers



Real-time accuracy of robotic bronchoscopic platform vs. electromagnetic navigational bronchoscopy (EM-NB)



Clinical Need

Lung cancer screening can substantially improve survival outcomes, but rapid, definitive diagnosis of suspicious lung nodules is a critical unmet healthcare need. Unfortunately, the majority of lung nodules are in the periphery and upper lobes are difficult to access *via* bronchoscopy.

Our Innovative Approach

We developed a novel robotic bronchoscopic platform that “snakes” through airways in a flexible “follow-the-leader” fashion for accurate navigation, biopsy, and *in situ* intervention for lesions in challenging locations. We are exploring autonomous capabilities to enhance clinical effectiveness, reduce cognitive and kinematic challenges for physicians, and shorten the learning curve.

Results

Through iterative prototyping and testing on pseudotumors in large animal *in vivo* studies and *ex vivo* human lungs, we developed a platform that is optimized for ease of use, ergonomics, and minimal OR footprint. The superior maneuverability facilitates access to lesions in distal and upper lobe locations that were previously not reachable.

Commercial Potential

These pre-clinical data demonstrate feasibility and clinical potential to improve access to lung nodules for rapid diagnosis. Preparations for FDA regulatory assessment are underway. Integrating autonomy could allow physicians of all experience levels to perform transbronchial biopsies safely, particularly in under-resourced settings.

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