Navigation Sciences Acquires Exclusive Rights to Novel Technology for Minimally-Invasive, Lung Cancer and Other Soft Tissue Procedures

Image guided, Intra-operative imaging, has potential to improve patient outcomes, increase operating room efficiency and surgical precision

Brookline, MA, October 23, 2018 – Navigation Sciences today announced that it has acquired exclusive rights from Brigham and Women's Hospital (Boston, MA) to novel augmented surgical navigation technology for use in lung cancer and other surgical procedures. The technology, called iVATS (image guided video-assisted thoracoscopic surgery) is designed to provide real-time GPS navigation to precisely locate and excise tumors. The technology has demonstrated great potential to improve surgical outcomes, increase operating room efficiency and surgical precision.

"iVATS technology is designed to address a key challenge in lung cancer and other soft tissue surgeries, the precise localization and removal of lesions with optimal surgical margins, while preserving lung function and sparing unaffected tissue," said Alan D. Lucas, co-founder and CEO of Navigation Sciences. "Current approaches in lung cancer surgery either remove a small section around the tumor, preserving lung function, but increasing recurrence risk, or an entire lobe, which lowers recurrence risk at the expense of diminished lung function. We are well positioned to move forward rapidly to develop the new technologies associated with iVATS for lung cancer, where clinical proof of concept has already been demonstrated."

Mr. Lucas added the need for improved soft tissue surgical technology in early stage cancers is large and growing, particularly now with the advent of more effective screening techniques. There are more than 450,000 soft tissue surgeries per year in the US, including lung, breast, liver, thyroid and brain, where minimally invasive, image guided surgery has potential to provide significant benefit to patients. In lung cancer, the number of early stage patient diagnoses is expected to increase with the demonstrated success of early screening at reducing deaths. However, insufficient distance between the tumor and the margin of the resection has been shown over time to be associated with recurrence and death. In breast cancer, lack of precision in localizing tumors and excision with appropriate surgical margins, is a significant contributor to repeat surgeries in the approximately 25 percent of women who undergo lumpectomies.

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The revolutionary technology's key innovation is in the use of an active fiducial marker for localizing the tumor, along with augmented reality software to enable real-time, enhanced visualization and guidance and an integrated surgical cutting device. The technology is used in conjunction with a multi-modal, minimally invasive procedure that includes: Imaging and a proprietary navigation algorithm for placement of fiducials; and real time soft tissue and cutting device tracking to precisely obtain an adequate margin.

The iVATS technology was pioneered by Raphael Bueno, MD Chief, Thoracic Surgery, at Brigham and Women's Hospital and Professor of Surgery at Harvard Medical School, and Jayender Jagadeesan, PhD, research assistant at BWH and Assistant Professor of Radiology at Harvard Medical School. Drs. Bueno and Jagadeesan are co-founders and shareholders of the company.

Drs. Bueno, Jagadeesan and colleagues published a clinical proof-of-concept study on iVATS in the *Journal of Surgical Oncology* in May 2015. In the 25-patient, Phase I-II clinical trial (with 23 cancer positive patients), there were no significant complications and all nodules were fully resected with negative margins. The study also demonstrated the technology integrates with surgical workflow.

About Navigation Sciences
Navigation Sciences is developing novel, image-guided video assisted technology (iVATS) for minimally invasive localization and removal of early stage lung tumors and other soft tissue lesions. The technology, which combines real-time imaging with augmented reality (AR) promises to dramatically improve surgical outcomes, increase operational efficiency and surgical precision. iVATS clinical proof-of-concept has been demonstrated in a published clinical trial. Learn more at: www.navigationsci.com.

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