

A “Metal Detector For Breast Cancer” Makes Detection Procedure More Accessible

University College London



Around 1.25 million new cases of breast cancer are diagnosed each year. Surgery is usually required to remove the tumor. The accepted best practice is to concurrently remove both the tumor and the 'sentinel' lymph nodes to check if the cancer has spread to other sites in the body. This method uses an injected radioactive tracer and detection system, delivered in larger medical facilities. But it is costly, has availability constraints, and can pose challenges around the patient's ability to withstand adverse effects.



Endomag Ltd., a medical devices spin out from University College London (UCL), is challenging these problems without the need for nuclear medicine. An injectable solution of microscopic magnetic particles optimized for migration and uptake in the lymph nodes (Magtrace®), and a hand-held external magnetic sensing probe (Sentimag®) can provide a clear signal as well as visual guidance when performing sentinel node biopsy procedures.

The procedure can be accessed by patients without the need to go to a major center with nuclear medicine facilities, negating the need for many patients to travel great distances. Dr. Eric Mayes, Endomag's founding CEO noted, "We were determined to localize access to this life-saving procedure, making it available to many more women, close to home and at much lower cost."

The innovation didn't stop there. Endomag has developed a way to mark small, early-stage tumors more accurately prior to their surgical removal. Magseed, a tiny magnetic 'seed' the size of a grain of rice, can be implanted in the tumor days or even weeks before surgery. The Sentimag® probe is then used to locate the seed during surgery, making the whole process smoother and less painful for patients.

Endomag was originally spun out to capitalize on research work in magnetic sensing led by Professor Quentin Pankhurst from the UCL Centre for Nanotechnology and assisted by collaborators from the Texas Center for Superconductivity at the University of Houston. University College London Business (UCLB), UCL's commercialization company, supported the process all along the way, including translational grants, pre-seed investment grants, commercialization challenges and securing EU regulatory approval.

Dr Steven Schooling, UCLB's Managing Director who worked closely with Endomag's founders and management team throughout the journey commented, "Creating a successful med-tech spinout company is a complex and time-consuming process as you seek to translate research into solutions that satisfy a clinical need. Navigating this journey is never easy and the commitment and passion of the academic founders, Dr Eric Mayes and his senior leadership team at Endomag, to build a company which has enabled global access to highly accurate breast cancer staging solutions, has been truly exemplary. I am immensely proud to have worked with the team throughout this two-decade long journey and to have seen the healthcare impacts that world leading UCL research has been able to unlock."

As the company entered 2024, Endomag's technologies were used in more than 1,350 hospitals in 45 countries. The company achieved revenues of around US\$40 million in 2023 with significant forecast growth, leading to its acquisition in the summer of 2024 by Hologic, a U.S.-based provider of women's health solutions.

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