Magnetic Sentinel Lymph Node Biopsy
The incidence of cancer is growing worldwide, and with it the demand for better, faster and less expensive solutions for diagnosis and treatment.

Endomag is developing a new, effective clinical platform that uses safe magnetic fields to power diagnostic and therapeutic devices. These will avoid the safety, workflow and availability concerns associated with ionising radiation.

Without changing clinical procedures or outcomes, Endomag products put the surgeon in control and improve the experience for patients. They will save time and money in hospitals across the world by improving workflow and efficiency.

Improving the global standard of cancer care for everyone, everywhere

The first two Endomag products are the Sentimag® probe and Sienna+®, a magnetic tracer solution. Sienna+® is injected into the body and the Sentimag® is used to track its presence, locating lymph nodes for the staging of breast cancer.

By avoiding the need for traditional radioisotopes in sentinel lymph node biopsy (SLNB), Sentimag® and Sienna+® improve workflow and lower costs, enhance patient comfort and quality of life, and provide a better standard of care available to everyone, everywhere.
Key advantages for clinicians

- Allows best practice SLNB to be performed anywhere, by any trained practitioner
- Issues with radioactive materials are eliminated, but with equivalent clinical outcomes [1-5]
- Delivers ultrasensitive detection and intuitive location of sentinel lymph nodes
- Sienna+® tracer is safe, easy to transport and has a long shelf life
- Increases workflow, efficiency and cost-effectiveness
- Sentimag® and Sienna+® are a CE-approved system for SLN localisation

Sienna+® Tracer

Sienna+® is a dark brown suspension of organically coated iron oxide particles. It is injected subcutaneously where the natural physical action of the lymphatic system filters out the particles, enabling sentinel nodes to be located using Sentimag®.

- Optimised – Particle size is optimised for filtration and retention by sentinel lymph nodes
- Easy to use – Simple to store and handle, which means it significantly improves workflow compared with radioactive tracers
- Fast – Localisation can start just 20 minutes after injection†

†Migration time can increase with patient age, weight or breast size

Sentimag® Probe

The Sentimag probe activates the iron oxide particles in Sienna+®. The magnetic signature generated by the Sienna+® particles is then detected by the Sentimag® probe.

- Ultrasensitive detection – Proximity-based sensing for naturally intuitive and accurate node localisation
- Intuitive location of nodes – Audible pitch variation allows the surgeon to focus on the patient, not the instrument
- Flexible – Suitable for both pre- and post-incision use

Clinical results

Since its launch at the end of 2012, the system has treated over 3,000 patients and has produced a strong base of clinical results confirming its safety and efficacy in the diagnosis and treatment of breast cancer. It has been involved in over 10 clinical studies and trials recruiting over 1,500 patients across 12 European countries that have demonstrated clinical equivalence to the standard of care for SLNB – either Technetium (99mTc) alone or the combination technique (99mTc and blue dye) [1-5].

<table>
<thead>
<tr>
<th>Parameter*</th>
<th>Sentimag®</th>
<th>Standard technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection rate</td>
<td>97%</td>
<td>96%</td>
</tr>
<tr>
<td>Concordance</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Malignancy detection rate</td>
<td>96%</td>
<td>95%</td>
</tr>
<tr>
<td>Malignancy concordance</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>Mean number of nodes</td>
<td>2.0</td>
<td>1.9</td>
</tr>
</tbody>
</table>

*All parameters calculated on a per-patient basis
Clinical references:


5. Rubio et al. 2014: The superparamagnetic iron oxide is equivalent to the Tc99 radiotracer method for identifying the sentinel lymph node in breast cancer, Eur J Surg Oncol

Comparison with traditional approaches

<table>
<thead>
<tr>
<th>Technique/advantage</th>
<th>Sentimag®</th>
<th>Gamma probe</th>
<th>Fluorescent probe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoids radiation</td>
<td>Yes</td>
<td>–</td>
<td>Yes</td>
</tr>
<tr>
<td>Surgeon-controlled</td>
<td>Yes</td>
<td>–</td>
<td>Yes</td>
</tr>
<tr>
<td>Established working practice</td>
<td>Yes</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Suitable for both pre- and post-incision use</td>
<td>Yes</td>
<td>Yes</td>
<td>–</td>
</tr>
<tr>
<td>Inexpensive consumables</td>
<td>Yes</td>
<td>–</td>
<td>Yes</td>
</tr>
<tr>
<td>Spatial imaging (MRI - high res)</td>
<td>Yes</td>
<td>Yes (Scintigraphy - low res)</td>
<td>–</td>
</tr>
<tr>
<td>Quantitative detection</td>
<td>Yes</td>
<td>Yes</td>
<td>–</td>
</tr>
</tbody>
</table>

Sentimag® and Sienna+® avoid the use of radioisotopes while maintaining standard working practice and delivering equivalent detection rates to the standard of care.

About Endomag

Since 2007, we’ve been devoted to developing new and effective techniques for diagnosing and treating cancer. Our focus is on perfecting methods that improve the experience of patients, whatever their stage of treatment.

The Sentimag® and Sienna+® device system was developed to increase access to the standard of care in breast cancer staging by providing an alternative approach to locating sentinel lymph nodes. The Endomag system avoids the need for traditional radioisotopes in sentinel lymph node biopsy (SLNB), improving workflow and costs at the same time as increasing standard of care and improving patient comfort and quality of life.

The Sentimag® and Sienna+® are CE-approved for marketing and sales in Europe, the Middle East, Africa and Australasia. Endomag is seeking marketing authorisation in other countries to deliver its technology to global markets.