

PRESS RELEASE

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Cell imaging and tracking: now and the future Promising methods developed to play a central role in tomorrow's medicine

Vienna, Austria, November 12, 2012 – The European Network for Cell Imaging and Tracking Expertise (ENCITE) held its final workshop on cell imaging and tracking at the Leiden University Medical Centre/NL, on November 5, 2012, attracting over 100 participants. In addressing the questions “What are the clinical needs for imaging and improved disease diagnosis?” and “What are the best tools for translation to clinic?” ENCITE has achieved promising advances, some of which have been captured in a new video that was launched at the event.

The workshop marked the end of the successful goal-oriented research project, showcasing the consortium's leading edge research findings that include significant developments in new imaging labels and techniques:

- New cell tracking methodologies, some of which are very promising for clinical application
- A suite of labelling probes with enhanced sensitivity and specificity, capable of detecting cell function
- Increased MRI contrast by improving the relaxivity of the reporter gene ferritin
- Imaging tools for monitoring the fate of transplanted stem cells in cancer, diabetes and heart disease

In visualising host immune responses to cancer tumour growth, optimised multiphoton microscopy “provides staining for free” and represents a non-invasive method, without the need for labelling, in live tissue imaging, reported Bettina Weigelin, Post Doctoral Research Associate at Radboud University Nijmegen Medical Centre/NL. With a view to the translation to the clinics, Jolanda de Vries, Assistant Professor at the Department of Tumor Immunology at the Nijmegen Centre for Molecular Life Sciences/NL, explained that the visualisation of vaccine-induced immune responses in cancer patients “helps to identify potentially responding patients and is a step towards personalised medicine”.

The afternoon session was devoted to looking ahead to the future, and critically reflected on the statement “**cell imaging and tracking play a central role in tomorrow's medicine**” highlighted by:

- An entertaining video launch on how **in vivo, image-guided cell therapy is revolutionising medicine today**, and describing ENCITE's role in this revolution, as scientists joined forces to translate important research developments into clinical practice, helping to make cellular therapy a reality, not just a dream.
- Excellent **keynote lectures giving their views on cell imaging and tracking** over the years
- A lively round table discussion addressing the question “**What will cell imaging look like over the next 10 years?**”

The expert panel and audience discussed several ideas, including:

- It's time to go beyond proof of principle and push new imaging technologies towards clinical application
- To facilitate clinical translation, the relationship between academia and the pharmaceutical industry must improve, and the academics should lead the research initiative
- When considering the potential applications for a novel finding, the researcher should ask themselves, “*How does this influence a patient's quantity and quality of life?*”, as this is the question that medical insurance companies will ask.

A visionary outlook on biomedical imaging, given by Klaas Nicolay, Professor at the Eindhoven University of Technology/NL, concluded the day. Several ideas were presented, including how bioengineering will play an influential role, allowing multi-scale images to be produced, and how image-guided therapeutic interventions, such as MRI guided radiotherapy, literally provide a “light in the dark” for clinicians and are likely to increase. Finally education was presented as being key to the future of imaging, requiring dedication and a long term commitment and investment in the future generation of imaging scientists.

As it concludes, the success of the ENCITE project is clear: new labels and imaging techniques have been developed and progressed towards their clinical application. A solid educational programme on ENCITE's new technologies has been established to offer individual face-to-face and electronic trainings on a long-term basis entitled: **ENCITE Multi Centre Cluster for Training**. The scientists thank ENCITE for being such an inspiring home for their studies.

Video on the ENCITE Blog: <http://youtu.be/xnVNkWEFZyE>

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