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EIBIR is proud to have the ESMRMB represented in the General Meeting and the EIBIR Scientific Advisory Board. The European MR community is well represented within different European projects co-ordinated by EIBIR and co-funded by the European Commission. To intensify the focus on networking activities and collaborative projects, active involvement and input from the MR community is highly welcome to bring in new ideas for initiatives and projects.

Any feedback is extremely welcome and may be sent to: office@eibir.org

A peek into the future of cell imaging.

ENCITE educational workshop on cells at work: imaging in health and disease

After the great success of last year's 1st edition, the European Network for Cell Imaging and Tracking Expertise (ENCITE) and EIBIR, were very proud to hold the 2nd workshop, hosted by the University of Mons/BE.

Based on initial findings and more recent advances in their research, 26 experts from the ENCITE consortium presented remarkable insights into new methods of cell imaging. The following four sessions focused on different cornerstones of the project:

Imaging of pathophysiological processes

The session focused on the current possibilities of applying imaging techniques to the study and evaluation of pathophysiological processes and covered a broad range of new imaging modalities, with applications in a series of disease situations in humans and animals. It was demonstrated that rapid technological advancement and improved understanding of diseases have gone hand in hand, and some possibilities were highlighted that will hopefully lead to better and more efficient therapeutic situations in the near future.

Imaging cell functions

The detection of functional states of cells in the body to discriminate healthy tissues and organs from diseased ones is an important research field, which is about to change future experimental and clinical imaging. Cell functions currently detected are glucose uptake as an indicator of metabolic activity, markers associated with cell activation and differentiation, and cell surface receptors that are only

present on particular cell types, such as neurons or immune cells. Most recently, novel probes were developed to visualise cell proliferation or cell death (apoptosis). In addition, cells used for transfer into patients during cell-based therapy are labelled *ex vivo* with stable probes so their distribution in the body and function state can be followed over time.

Imaging and cell therapy

This session's focus was the visualisation of cell-based therapeutic approaches by using molecular imaging techniques. It was stressed that the high resolution of MRI-based methods is a clear advantage over other methods.

Iron oxide-based particles are by far the most sensitive MRI contrast agents but have the disadvantage of causing negative and often unspecific contrast. Contrast generated by other physiological processes like immune response or bleeding can be misinterpreted as contrast caused by iron oxide particle labelled cells. To overcome such limitations, efforts are being made to use 19-fluorine (19F)-based contrast agents for cell monitoring. Whole body 19F MRI has the advantage of having no background signal so that the generated contrast after cell implantation is highly specific.

Nanosized probes, tools for contrast enhancement and for imaging-guided therapy

The use of nanosized probes as tools for contrast enhancement and for imaging-guided therapy was presented. Both basic aspects of the preparation of nanoparticles were covered, *in vitro* characterisations in diagnosis and therapy of major diseases. Besides the MRI approach, a very stimulating contribution was presented on the potential of US microbubbles in image-guided drug delivery.

More than 100 participants from 16 different countries did not want to miss the exceptional opportunity to learn and exchange ideas in an international and interdisciplinary environment gathered in Mons and agreed that the workshop offered them unique possibilities for interesting discussions, besides getting in touch with experts and peers in a pleasant atmosphere.

Next year's workshop is already in the planning phase.

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