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MRI and MRS: unvaluable tools for developing innovative therapies



Wednesday, 16th October
12.00 p.m.

CIC biomaGUNE - Seminar Room

Magnetic resonance imaging (MRI) is probably the most versatile in vivo imaging and diagnostic technique available today. It provides access to a wide range of tissue properties (fat content, water diffusion and stiffness to name a few) as well as functional and metabolic information on key organs (brain, heart, kidneys, etc.). Moreover, in many situations, preclinical MRI developments can be translated into clinical applications.

In addition to being an indispensable diagnostic tool for most pathologies, MRI can be advantageously used to evaluate and validate the efficacy of new therapeutic approaches.

In this seminar, we will present three studies carried out by our team at the University of Bordeaux in which MRI and magnetic resonance spectroscopy (MRS) are used for therapeutic applications. In the first of them we will show how MRI can be used for imaging the biodistribution and mapping the concentration of theranostic nanoparticles in patients with tumors. In a second example, we will present the first results of an MRI-based evaluation of airborne drug delivery techniques. Finally, we will present how miniaturized NMR instrumentation can be used to assess the impact and efficacy of therapeutic molecules.

These three examples will illustrate how MRI and MRS can be the tools of choice for the development and validation of new therapeutic approaches.