An MRI-based classification scheme to predict passive access of 5 to 50-nm large nanoparticles to tumors

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Résumé en anglais	Nanoparticles are useful tools in oncology because of their capacity to passively accumulate in tumors in particular via the enhanced permeability and retention (EPR) effect. However, the importance and reliability of this effect remains controversial and quite often unpredictable. In this preclinical study, we used optical imaging to detect the accumulation of three types of fluorescent nanoparticles in eight different subcutaneous and orthotopic tumor models, and dynamic contrast-enhanced and vessel size index Magnetic Resonance Imaging (MRI) to measure the functional parameters of these tumors. The results demonstrate that the permeability and blood volume fraction determined by MRI are useful parameters for predicting the capacity of a tumor to accumulate nanoparticles. Translated to a clinical situation, this strategy could help anticipate the EPR effect of a particular tumor and thus its accessibility to nanomedicines.
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