

## **Pivotal role of the protein corona on NP cellular uptake for boosting $^{19}\text{F}$ -MRI sensitivity**

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The success of  $^{19}\text{F}$ -MRI for tracking of therapeutic cells leverages on the development of highly performant  $^{19}\text{F}$ -probes. PLGA-based NPs containing PERFECTA, a multibranching superfluorinated molecule with an optimal MRI profile thanks to its 36 magnetically equivalent fluorine atoms, are promising  $^{19}\text{F}$ -MRI probes. In this contribute the importance of NP surface functionalization in relation to NP interactions with the biological environment will be shown, stressing the pivotal role played by the protein corona (PC) on cellular labelling efficacy. The formation of PC NP in cell culture medium is key element for the optimization of cell labelling and can be exploited to boost NP cellular uptake with a considerable increase of the detection sensitivity by  $^{19}\text{F}$ -MRI.