Dear Editors-in-Chief

Cancer Nanotechnology

We are pleased to submit our manuscript entitled “Radiolabeling and PET-MRI microdosing of the experimental cancer therapeutic, MN-anti-miR10b, demonstrates delivery to metastatic lesions in a murine model of metastatic breast cancer” by Mariane Le Fur et al. for publication in *Cancer Nanotechnology*.

In our earlier work, we identified microRNA-10b (miR10b) as a master regulator of the viability of metastatic tumor cells. This knowledge allowed us to design a miR10b-targeted therapeutic consisting of anti-miR10b and magnetic nanoparticles (MN), termed MN-anti-miR10b. In preclinical studies, we demonstrated that MN-anti-miR10b caused durable regressions of established metastases. As a first step towards translating MN-anti-miR10b for clinical applications, we needed to develop a radiolabeled version of MN-anti-miR10b for the extended studies in human metastases. In this manuscript, we devised a method to efficiently radiolabel MN-anti-miR10b with Cu-64 (64Cu) and evaluated the pharmacokinetics and biodistribution of the radiolabeled product at two different doses in murine models. In addition, we evaluated the uptake of 64Cu-MN-anti-miR10b by metastatic lesions using both *in vivo* and *ex vivo* positron emission tomography-magnetic resonance imaging (PET-MRI). As a result, we observed a comparable distribution of the therapeutic after administration of a microdose or macrodose. Our results demonstrate that PET-MRI following a microdose injection of the agent will accurately reflect the innate biodistribution of the therapeutic. The tools developed in the present study lay the groundwork for the clinical testing of MN-anti-miR10b and other similar therapeutics in patients with cancer and we are keen to share the results with the broader research community through potential publication in *Cancer Nanotechnology*.

Thank you for the exciting opportunity to publish in your journal.

Sincerely,

 

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