

Magn. Reson. Discuss., referee comment RC1
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Comment on mr-2021-23

Malcolm Levitt (Referee)

Referee comment on "Determination of hydrogen exchange and relaxation parameters in PHIP complexes at micromolar concentrations" by Lisanne Sellies et al., Magn. Reson. Discuss., <https://doi.org/10.5194/mr-2021-23-RC1>, 2021

This is a very nice article demonstrating an elegant method to determine multiple kinetic and spin dynamical parameters on complexes involved in SABRE-style PHIP experiments, using clever combinations of signals from pulse sequences that are identical except for changes to the phase. The results are of very high quality attesting to the control and reproducibility of the experimental technique. I think this is a valuable contribution to the difficult task of disentangling the multiple chemical and spin dynamical processes contributing to the magnitude of PHIP-enhanced signals. My sole criticisms concern the figures which I do not think are very good. For example in Figure 1 the labels have a ludicrously large size with respect to the important content, some of which so crowded and small that it cannot be read. Obscuring some of the details by the jagged "hyperpolarization" stars does not help - surely a better visual device can be found. The figure should also give the structure of the mtz ligand. Figure 2 is better but again the choice of fonts and font sizes is a little eccentric. These are minor distractions from this report of a fine piece of work.