Synthesis of a manganese magnetic resonance imaging contrast agent based on pyclen structure.

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In medicine, medical imaging has a leading place in the diagnosis setting. This is why some researches are continually carried out to improve the available techniques. One of the most used techniques to obtain anatomical informations is magnetic resonance imaging (MRI). The commercially available contrast agents are based on gadolinium complexes. Recently, it has been shown that gadolinium can lead, mainly for patients with renal disfunctions, to a pathology named NSF (nephrogenic systemic fibrosis). Thus it is interesting to develop an efficacy contrast agent based on another paramagnetic ion such as manganese. The macrocycle used in this work is a pyclen derivative which is functionalized to respect protection and deprotection steps. Three different derivatives which differ by the arm present on the pyridine will be synthesized in order to evaluate their efficacy once complexed with manganese. (Figure 1) The products are for the moment under synthesis and relaxometric tests will be performed to evaluate the relaxivity of the different derivatives.

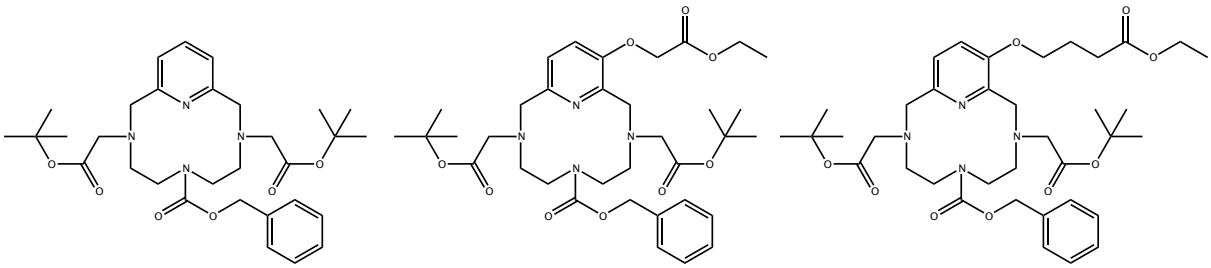

Figure 1 : 3 pyclen derivatives used in this work