DIRECT TRANSFORMATION OF AMINO ACIDS INTO DIAZIRINES AND $^{15}N_2$-DIAZIRINES AND THEIR APPLICATION AS HYPERPOLARIZED MARKERS

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Diazirines are small 3-membered ring heterocyclic compounds bearing a nitrogen-nitrogen double bond and an sp^3 carbon that are cyclic and substituted analogues of diazomethane [1]. Usually, diazirines are synthesized from carbonyl derivatives in 3 or 4 steps [2].

In 2016, T. Theis showed that $^{15}N_2$-diazirines could be used in SABRE-SHEATH hyperpolarization in NMR and MRI with a possible application for *in vivo* imaging [3]. However, as for their unlabelled counterpart, there is a lack of efficient method for $^{15}N_2$-diazirine synthesis.

Here, we report a new procedure for a one-pot and metal-free synthesis of ($^{15}N_2$-labeled) diazirines from unprotected amino acids. Our methodology proved to be efficient on most proteinogenic amino acids and on non-proteinogenic one as well, providing good to excellent yields.
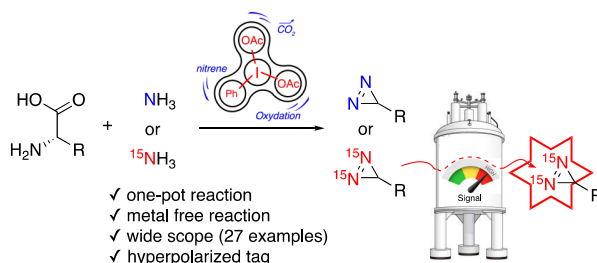
The reaction conditions for the formation of ($^{15}N_2$-labeled) diazirines, first insights onto the reaction mechanism and hyperpolarization results will be presented and discussed.

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