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 ^15N_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 ^15N_2-diazirine synthesis.

Here, we report a new procedure for a one-pot and metal-free synthesis of (^15N_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 (^15N_2-labeled) diazirines, first insights onto the reaction mechanism and hyperpolarization results will be presented and discussed.

