DYNAMIC CARBON ISOTOPE EXCHANGE OF PHARMACEUTICALS WITH LABELED CO_2

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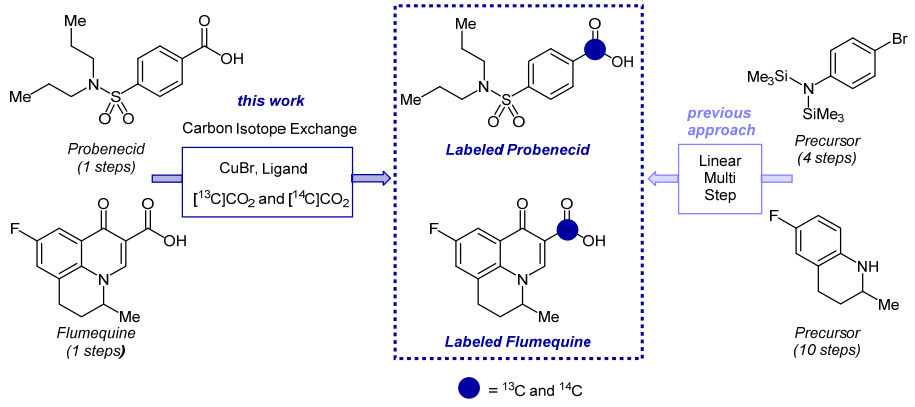
Carbon-14 radiolabeling is a unique tool that, in association with β-counting and β-imaging technologies, provides vital knowledge on the fate of synthetic organic molecules such as pharmaceuticals and agrochemicals [1]. Traditional multistep synthesis and the associated costs have limited its utilization. Hydrogen isotope exchange reactions are routinely utilized for deuterium and tritium labeling; however, in the field of carbon isotope labeling, this concept has remained unexplored until recently [2]. We report a dynamic carbon isotope exchange with $^{14}CO_2$, the most fundamental and readily available source of radiocarbon [3]. This new process expands the concept of late-stage carbon radiolabeling with substrates bearing Csp^2 carboxylic acids and provides a direct access to end-use labeled pharmaceuticals.



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