

What Lies Beyond Traditional Fluorine Substitution? New Vistas From a Synthetic Standpoint

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During the last decade there have been transformational changes in the development of reagent-controlled fluorinations and the use of fluorine-containing building blocks for the synthesis of an ever more complex catalogue of organofluorine compounds. Our group entered the field of fluorination by investigating the influence of traditional fluorination reagents on alkyne substrates. This was followed by the development of fluorine-containing alkynes capable of propargyl-allene interconversion, and their use in the synthesis of a diverse array of selectively fluorinated cyclic systems. In recent times, we became intrigued by the question of whether fluorine-containing reagents could be coaxed to play multiple roles, including as anticancer agent. This presentation will unveil examples from our laboratory on the recent development of a potential therapeutic agent and the discovery that a common electrophilic source of fluorine, such as Selectfluor, can participate simultaneously as fluorinating agent and co-catalyst in transition metal-mediated transformations.