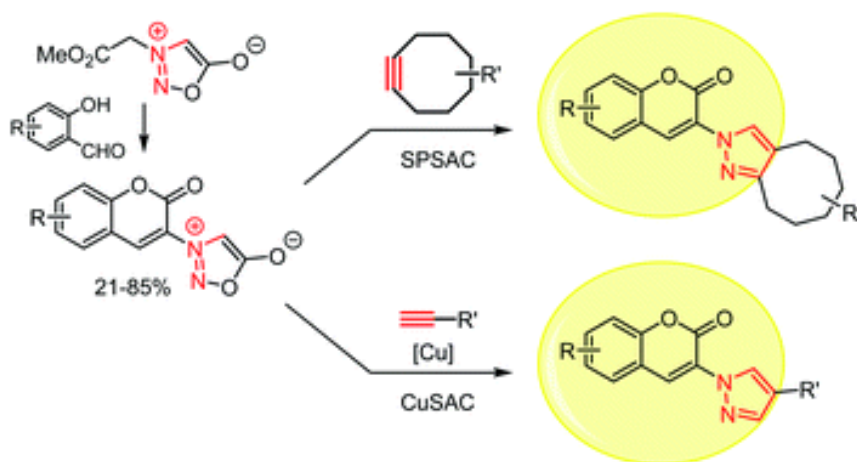


<https://pubs.rsc.org/en/content/articlelanding/2018/cc/c8cc06070c#!divAbstract>

## Sydnone-coumarins as clickable turn-on fluorescent sensors for molecular imaging

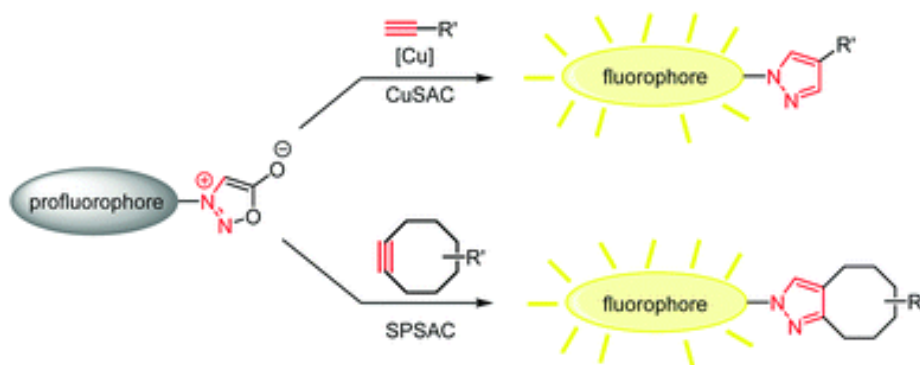
Elodie Decuyppère, Margaux Riomet, Antoine Sallustrau, Sarah Bregant, Robert Thai, Grégory Pieters, Gilles Clavier, Davide Audisio and Frédéric Taran.

**Abstract.** Copper-catalyzed and copper-free sydnone–alkyne cycloaddition reactions have emerged as complementary click tools for chemical biology but their use in bioorthogonal labeling is still in its infancy. Herein, combinations of alkynes and coumarin-sydnes were screened for their ability to generate pyrazole products displaying strong fluorescence enhancement compared to reactants. One sydnone was identified as a particularly suitable new turn-on probe for protein labeling.



Clickable fluorogenic probes are important chemical tools to label, visualize and study biomolecules. They are typically designed with a profluorophore bearing a clickable function that both suppresses the fluorescence and allows the ligation to the corresponding click partner. The structural changes accompanying the click reaction lead to unquenching of the profluorophore and result in the enhancement of the fluorescence. Many of these probes are based on the Cu(I)-catalyzed azide–alkyne [3+2] cycloaddition reaction (CuAAC), which can be considered as the archetype of click chemistry, and its copper free version using strained cycloalkynes. [...]

In this contribution, we designed a series of sydnone–coumarins and evaluated their ability to behave as effective fluorogenic clickable turn-on probes, both in CuSAC and SPSAC reactions. The enhancement of the fluorescence results from the suppression of internal quenching and the structural modifications triggered by the transformations (Scheme 1). [...]



**Scheme 1** Schematic principle of turn-on sydnones probes.