C-glycosyl compounds: multifunctional scaffolds for the development of dual imaging tools

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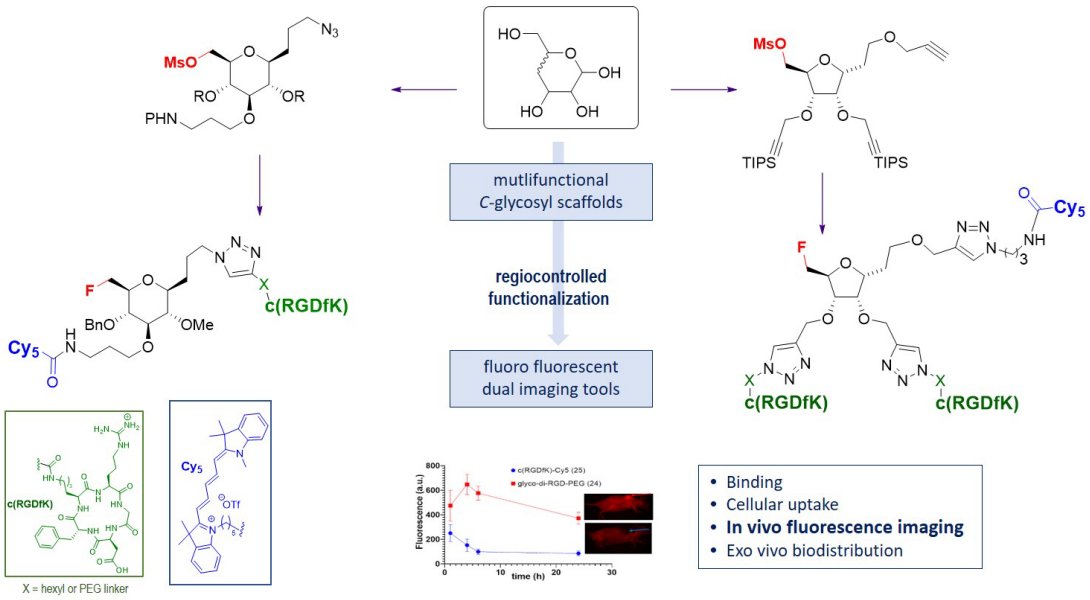
Close analogs of *O*-glycosides, *C*-glycosyl compounds display chemical and biological stabilities toward enzymatic hydrolysis and are thus used to build bioactive compounds, peptidomimetics and more complex sugars. In this work, *C*-glycosyl compounds are selected as multifunctional scaffolds for the development of imaging tools. More precisely, we focused here on bimodal molecular imaging, a current trend which combined two complementary modalities: PET (Positron Emission Tomography) and NIRF (Near Infra-Red Fluorescence).[1] Two *C*-glycosyl scaffolds are thus functionalized in a regiocontrolled manner in order to introduce the key elements at different stages: a fluorescent cyanine derivative for NIRF, a fluorine-18 atom for PET and one or two c(RGDfK) peptides targeting integrins overexpressed in some malignant tumours. The copper-catalyzed alkyne-azide cycloaddition (CuAAC) was used for the introduction of the fluorophore and for the bioconjugation step with peptides. *In vitro* and *in vivo* evaluations by fluorescence imaging and the resection of the tumor demonstrated the potential of the conjugates in glioblastoma cancer diagnosis and image-guided surgery.[2,3]



Dual imaging agents based on C-glycosyl scaffolds

Bibliographic references:

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