

Aza-BODIPY and metal, a winning association for multimodal imaging and theranostics

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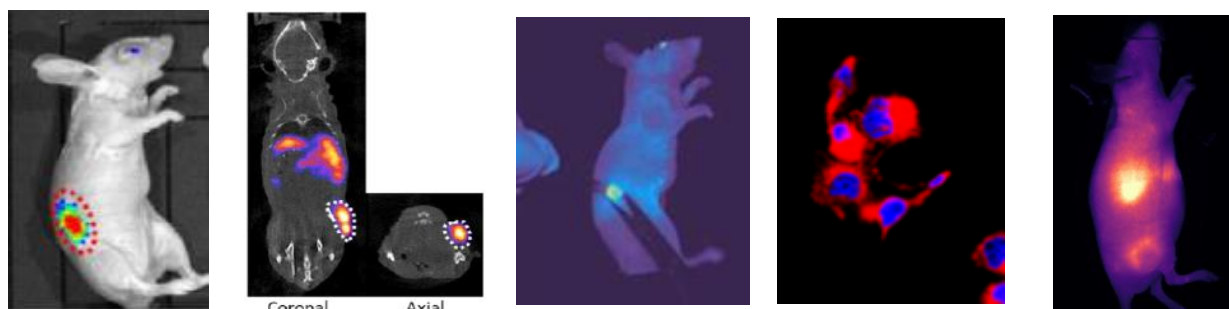
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Possessing a know-how in the synthesis of fluorophores and more particularly in the design of aza-BODIPYs and being experts in the use of metals for imaging and therapy, we decided to associate these two fields to conceive innovative and performing tools for medicinal chemistry.

Aza-BODIPYs are organic fluorophores that are chemically and photochemically stable, fast to synthesize and displaying strong brightness. Contrary to their “C” analogues (BODIPYs), they have the advantage of absorbing and emitting in the near infrared, a zone of the electromagnetic spectrum allowing a better penetration of tissues and a better resolution of images. Their main drawback being their water solubility, we have developed a strategy enabling their water solubilization, limiting their aggregation and facilitating their functionalisation. This Wazaby platform can be bioconjugated with an antibody and functionalized with another group of interest.¹



From left to right: Wazaby1 fluorescence image, SPECT image, Fluorescence assisted surgery / Wazaby2 *in vitro* fluorescence image, *in vivo* fluorescence image

In the work that will be presented, we decided to associate this platform with an antibody and an [¹¹¹In]-indium complex. This bimodal contrast agent (Wazaby1) was used for tumor imaging by SPECT and fluorescence *in vivo* and for surgery assistance.² In parallel, this platform was combined with gold complexes to follow them *in vitro* and *in vivo* by fluorescence imaging (Wazaby2).³ The anticancer effect of these theranostics was also evaluated in tumor-bearing mice.

¹ Pliquett *et al.* *Bioconjugate Chem.* **2019**, *30*, 4, 1061–1066

² Privat *et al.* *J. Med. Chem.* **2021**, *64*, 15, 11063–11073

³ Lescure *et al.* *Eur. J. Med. Chem.* **2021**, 113483