**Fluorescent Probes**

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Negatively Charged Yellow-Emitting 1-Aminopyrene Dyes for Reductive Amination and Fluorescence Detection of Glycans

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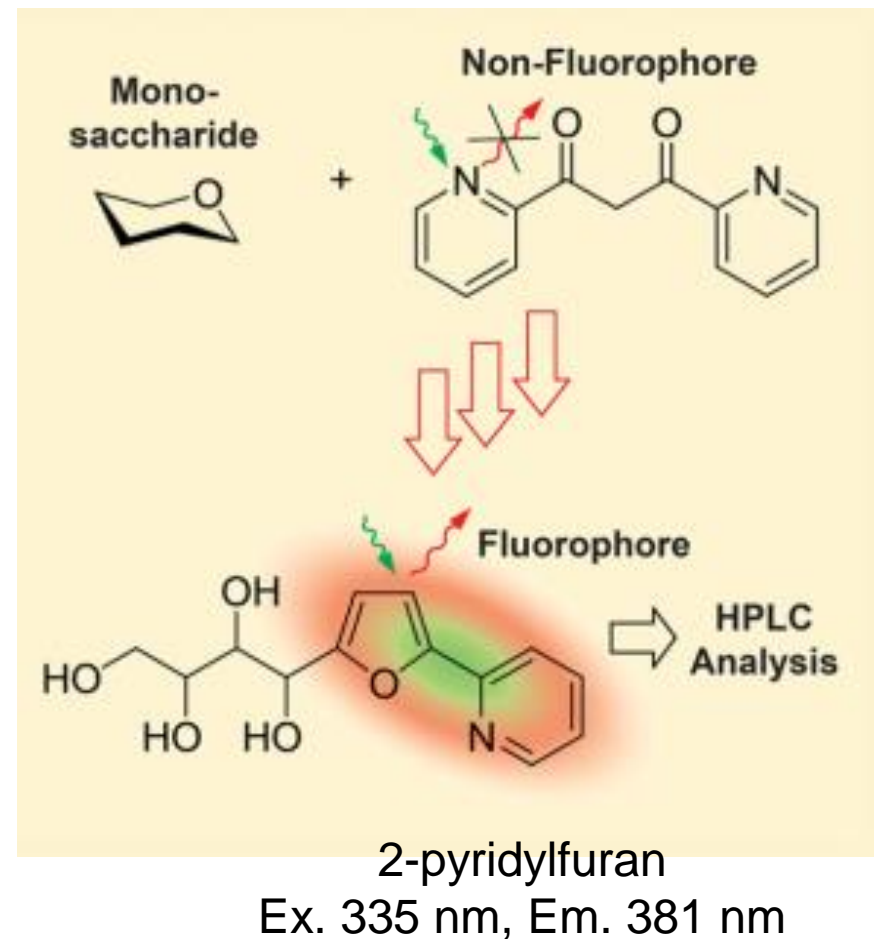
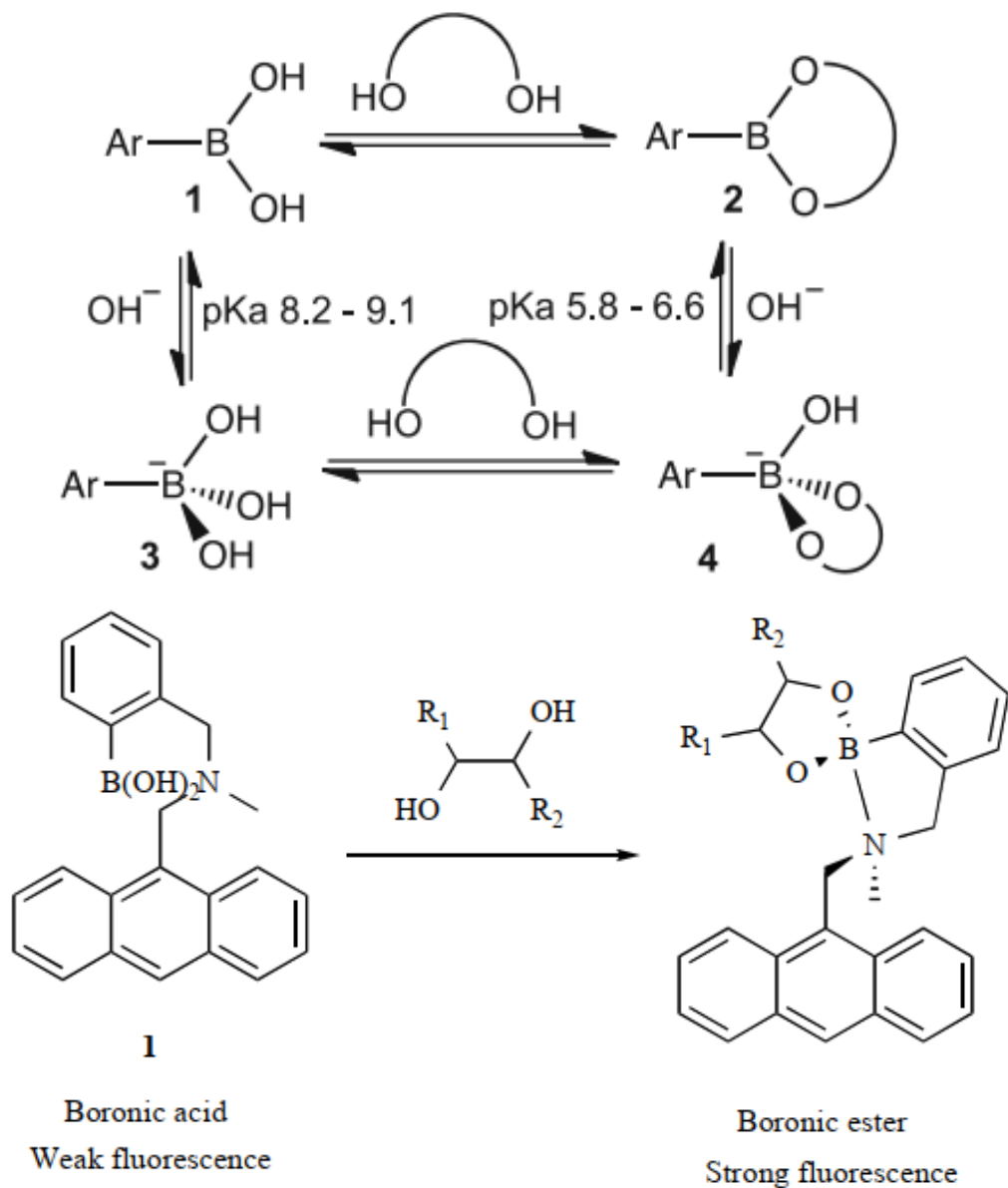
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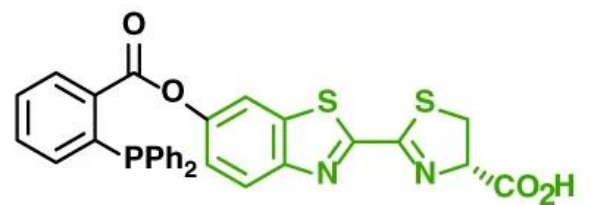
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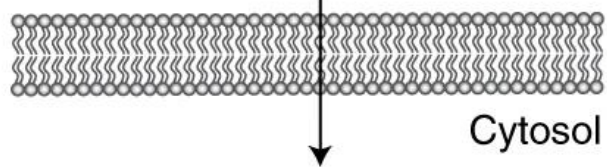
- fluorescent detection of carbohydrates



a Step 1: administration of CLP

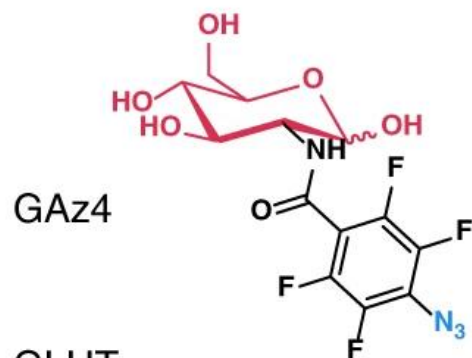


CLP



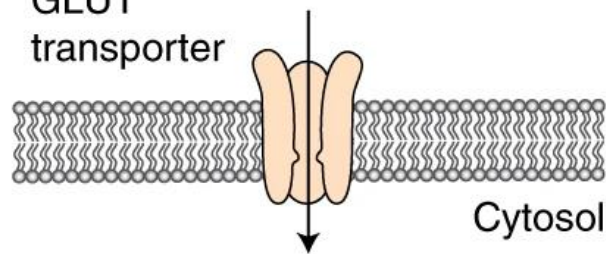
Cytosol

Step 2: administration of GAz4



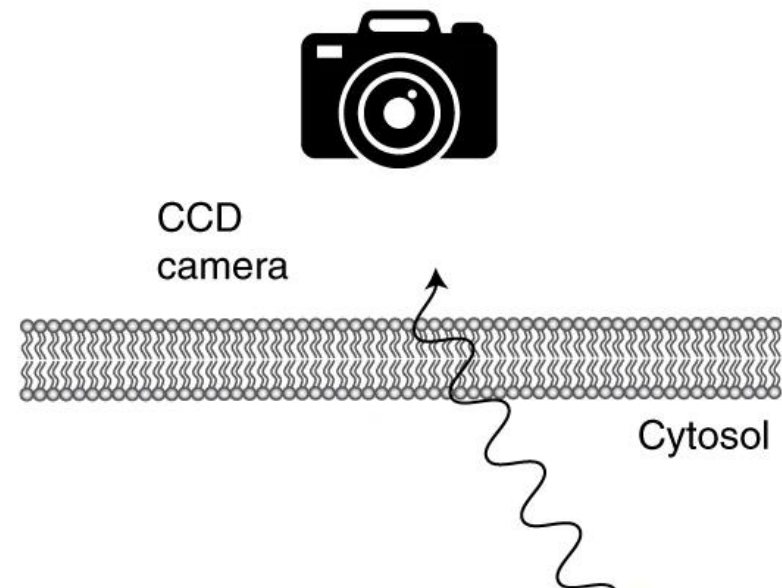
GAz4

GLUT transporter



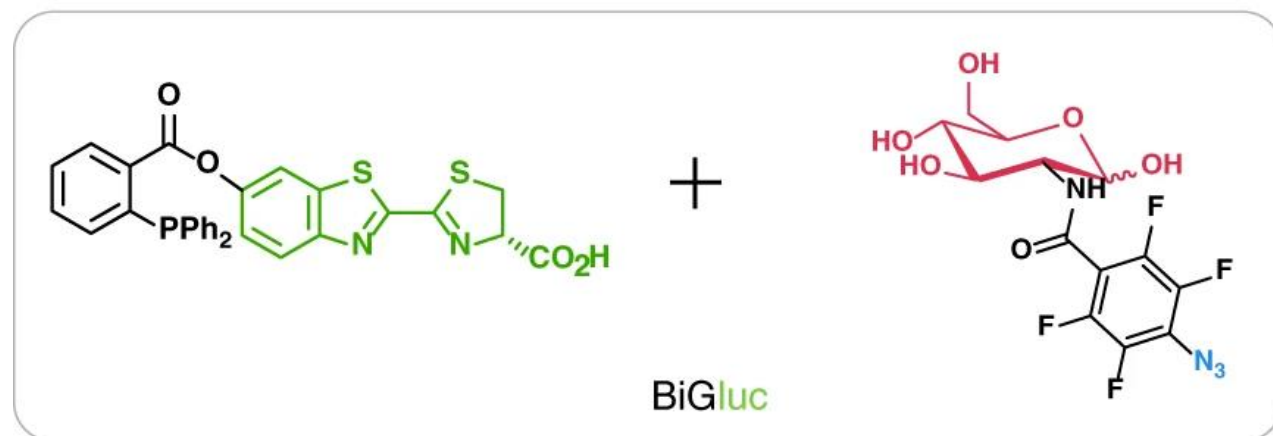
Cytosol

Step 3: bioluminescent imaging



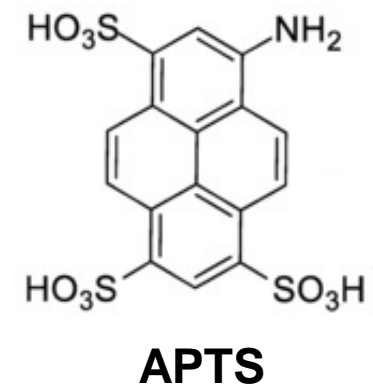
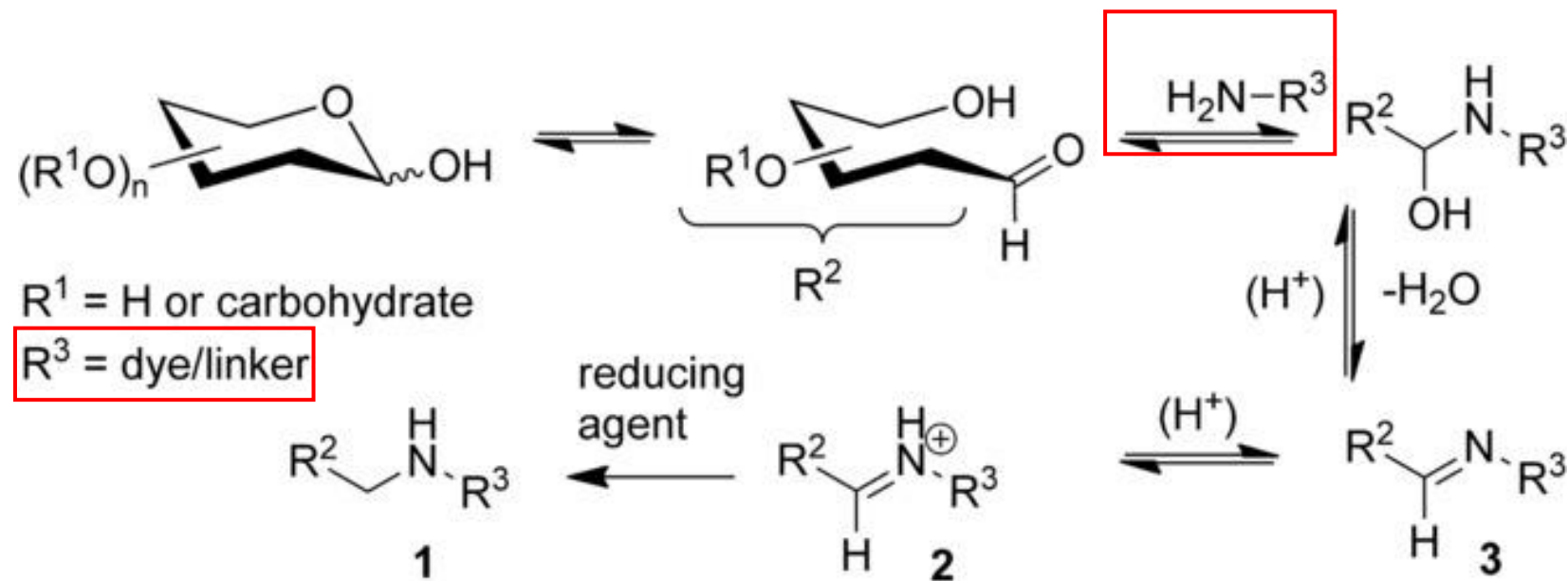
CCD camera

Cytosol



- analysis of glycoconjugates

标记 \Rightarrow 毛细管电泳分离 \Rightarrow 质谱鉴定



1. pKa=3~4

2. 适合的电荷数

3. 水溶性

4. 化学稳定性

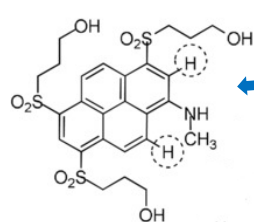
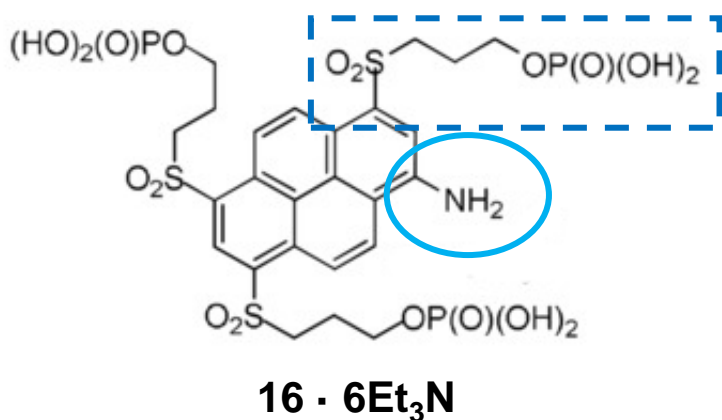
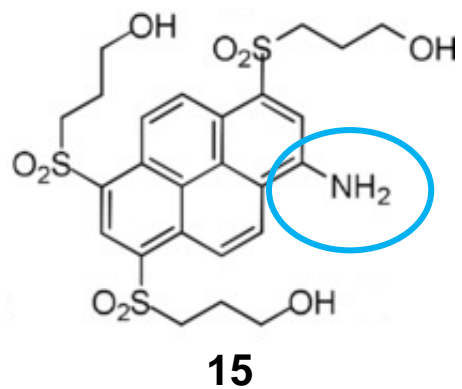
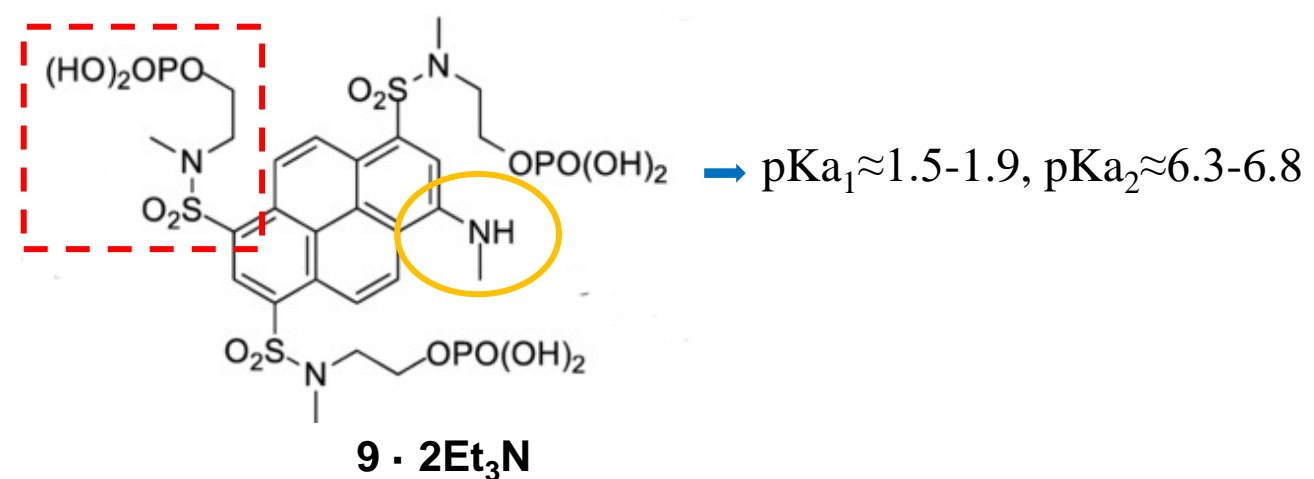
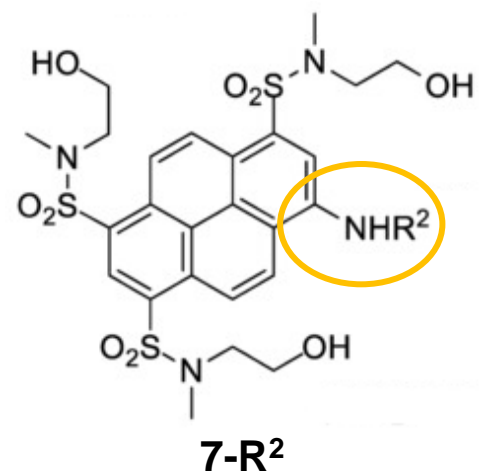
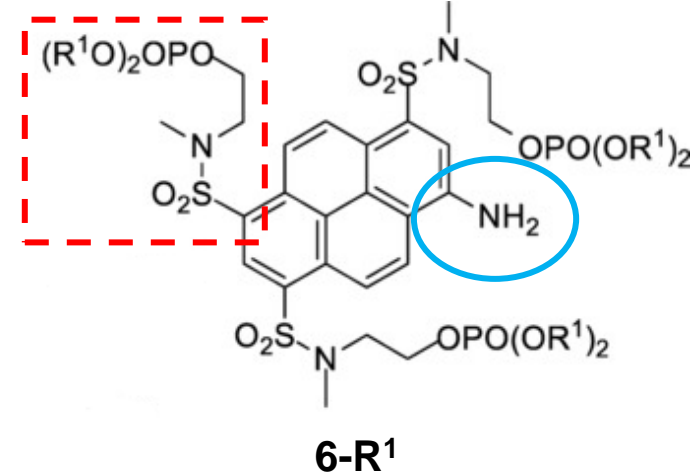
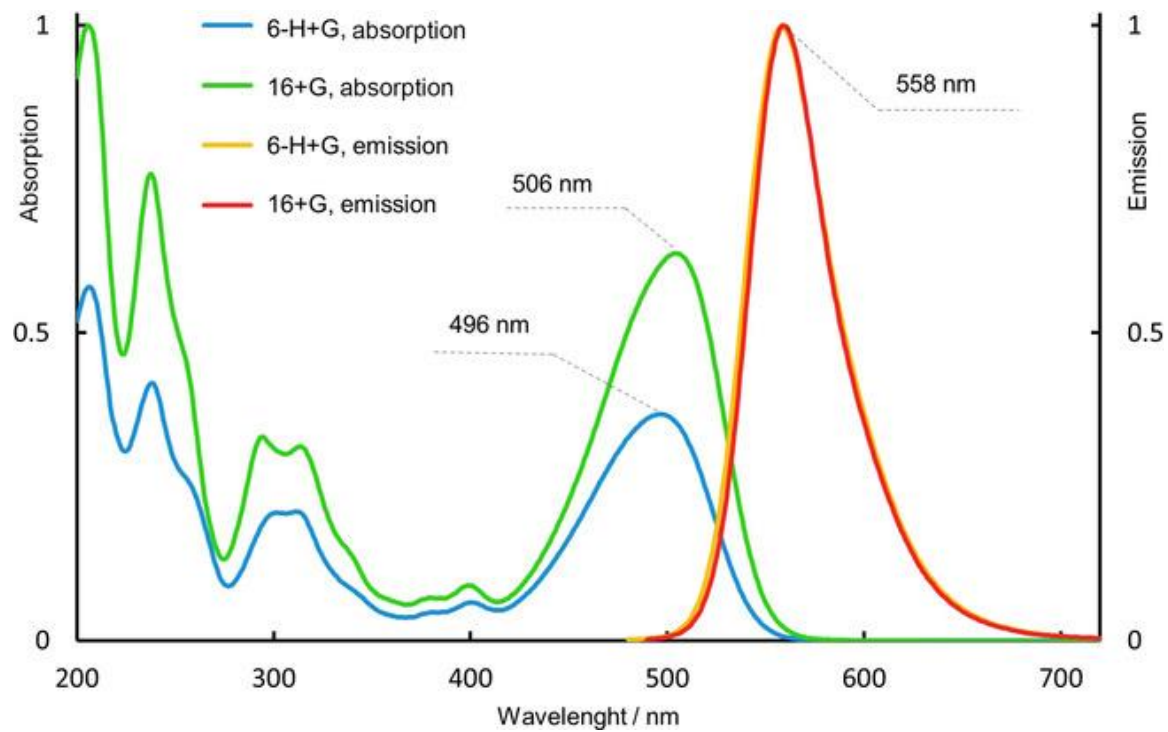


Table 1: Spectral properties of the dyes and their m/z ratios.

Dye (m/z)	Absorption λ_{\max} [nm] (ϵ , M ⁻¹ cm ⁻¹)	Emission λ_{\max} [nm] (Φ_{fl}) ^[a]	Solvent	Fluor. lifetime τ [ns]
APTS ^[b] (151)	424 (20 600)	500 (0.95)	aq. PBS	–
APTS-G₆ ^[c]	455 (17 000)	511	H ₂ O	–
6-H (144)	471	544 (0.88)	H ₂ O	5.9
7-H	477 (22 400)	535 (0.96)	MeOH	5.6
7-Me	493 (23 000)	549 (0.97)	MeOH	5.9
9	502	563 (0.85)	H ₂ O	3.6
13	502 (23 400)	550 (0.88)	MeOH	6.3
15	509 (19 500)	563 (0.67)	H ₂ O	6.4
15	486 (21 000)	534 (0.80) ^[d,e]	MeOH	4.9
16 (137)	477 (19 600)	542 (0.92)	TEAB ^[f,g]	5.8



488 nm激发时，**16-G**相比**APTS-G**亮度提升3倍

