

Supporting Information

Dual-functional protein for one-step production of a soluble and targeted fluorescent dye

Yunjie Xiao^{1,*}, Qian Zhang^{2,*}, Yanyan Wang^{3,*}, Bin Wang¹, Fengnan Sun², Ziyu Han³,
Yaqing Feng⁴, Haitao Yang^{1,5}, Shuxian Meng²✉ and Zefang Wang¹✉

1. School of Life Sciences, Tianjin University, Tianjin 300072, China.
2. School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China.
3. College of Precision Instrument and Opto-electronics Engineering, Tianjin University, Tianjin 300072, China.
4. Collaborative Innovation Center of Chemical Science and Engineering, Tianjin University, Tianjin 300072, China.
5. Tianjin International Joint Academy of Biotechnology and Medicine, Tianjin 300457, China.

* These authors contributed equally to this work.

✉ Corresponding Authors : Prof. Zefang Wang; School of Life Sciences, Tianjin University, Tianjin 300072, China; Tel: +86-22-27403096; E-mail: zefangwang@tju.edu.cn;

Prof. Shuxian Meng, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China; Tel: +86-1303433353; E-mail: msxmail@tju.edu.cn.

This file includes:

Table S1, Figure S1-S8

Table S1. Zeta potential of RGD-HFBI- and native HFBI-treated BODIPY dye in serum.

Formulation	Concentration (mg/mL)	Zeta Potential (mV)
RGD-HFBI/BODIPY	0.05	-16.4 ± 0.96
	0.10	-25.1 ± 1.87
	0.15	-31.7 ± 1.93
	0.20	-19.3 ± 1.08
HFBI/BODIPY	0.05	-16.1 ± 1.02
	0.10	-28.4 ± 2.12
	0.15	-23.3 ± 1.25
	0.20	-9.82 ± 0.51

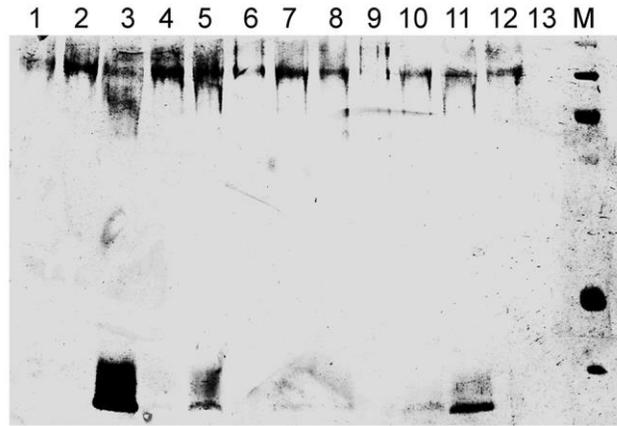


Figure S1. Tricine-SDS-PAGE results of selected positive clones of RGD-HFBI.

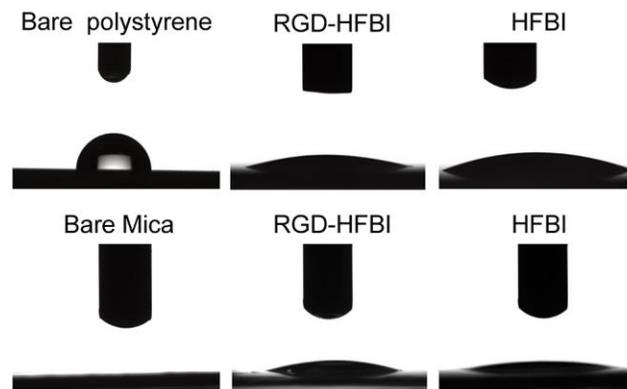


Figure S2. WCA measurements (after extensive washing by pure water) of polystyrene and mica before and after modification with RGD-HFBI and native HFBI.

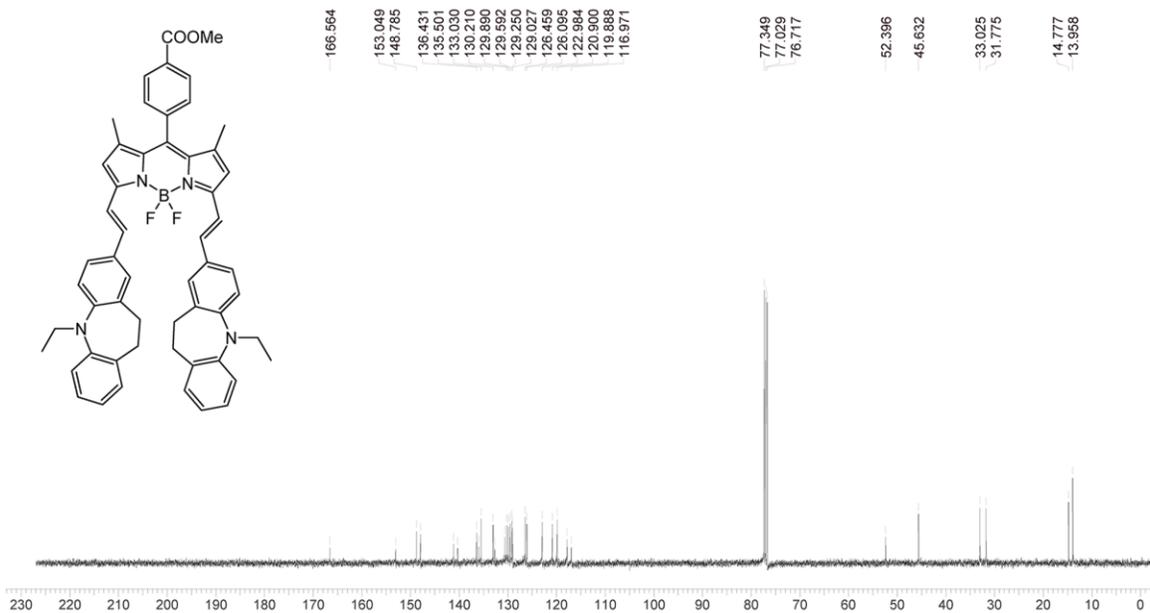


Figure S3. ¹³C NMR of the BODIPY derivative.

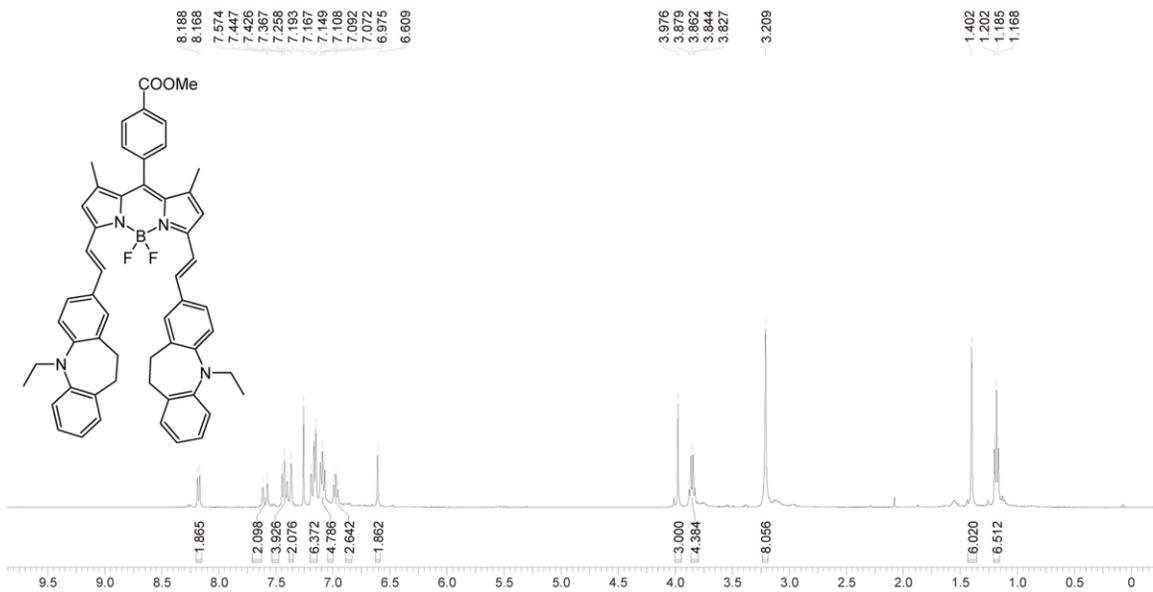


Figure S4. ¹H NMR of the BODIPY derivative.

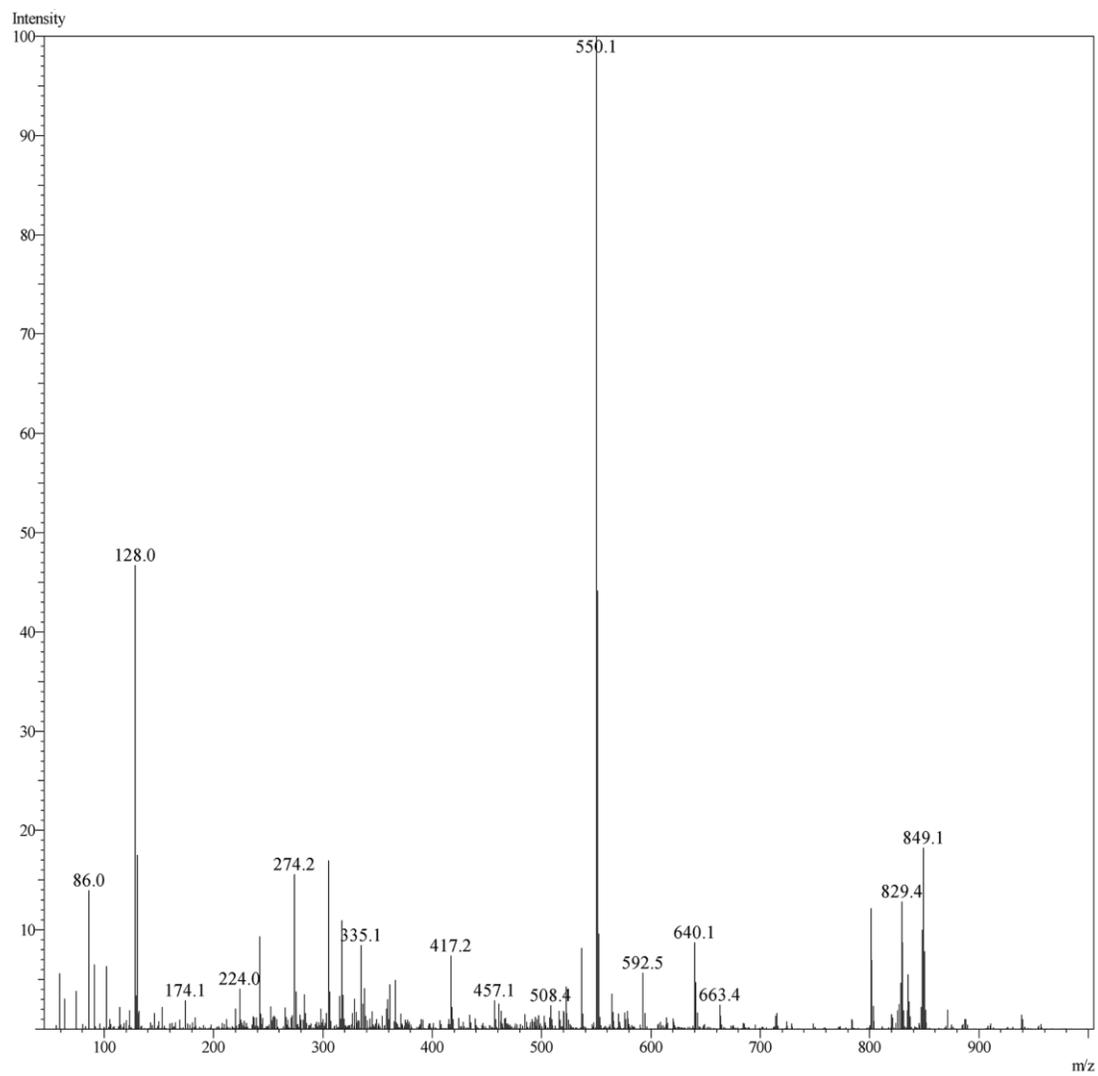


Figure S5. MS (ESI) of the BODIPY derivative.

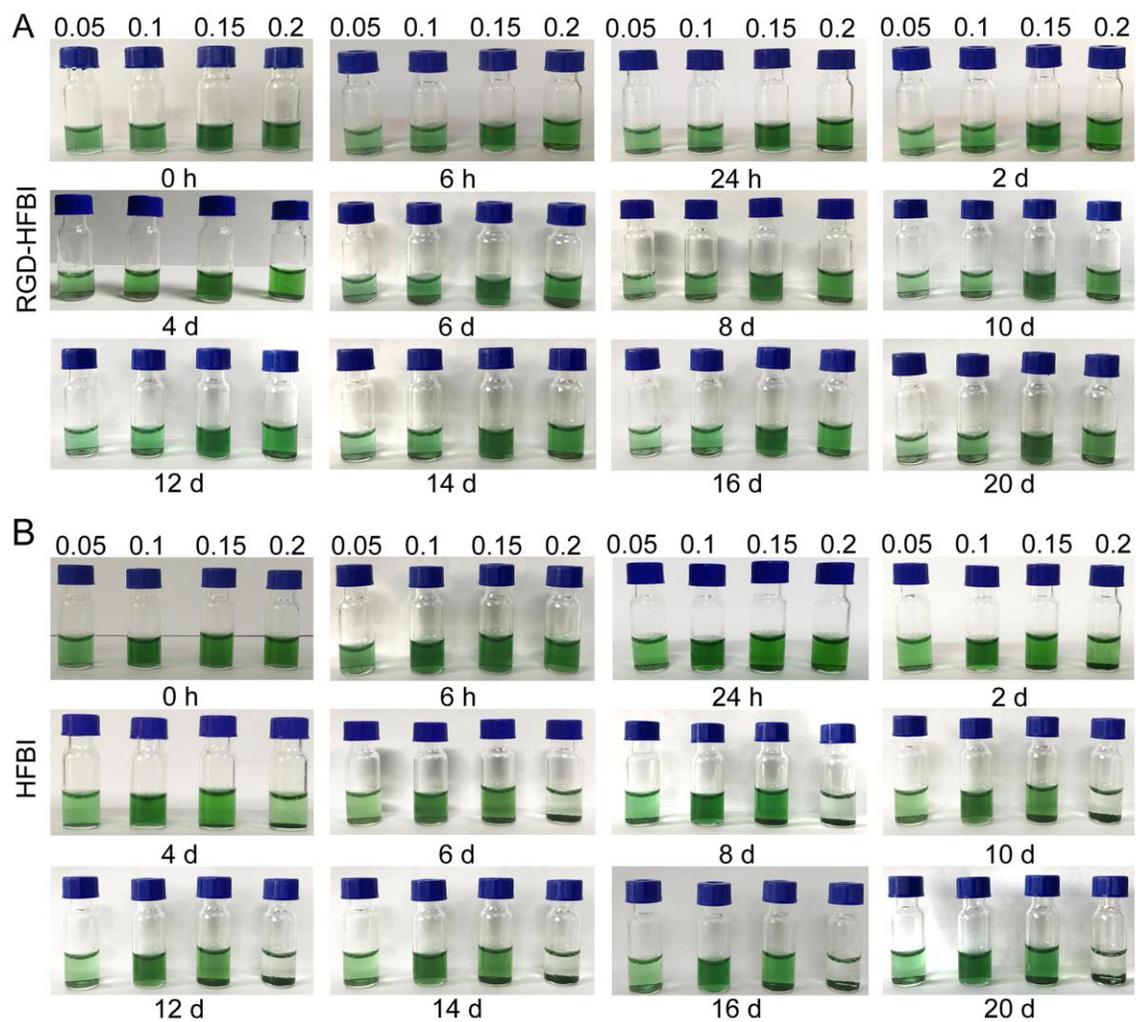


Figure S6. Stability analysis of RGD-HFBI- and native HFBI-treated BODIPY dye within 20 days.

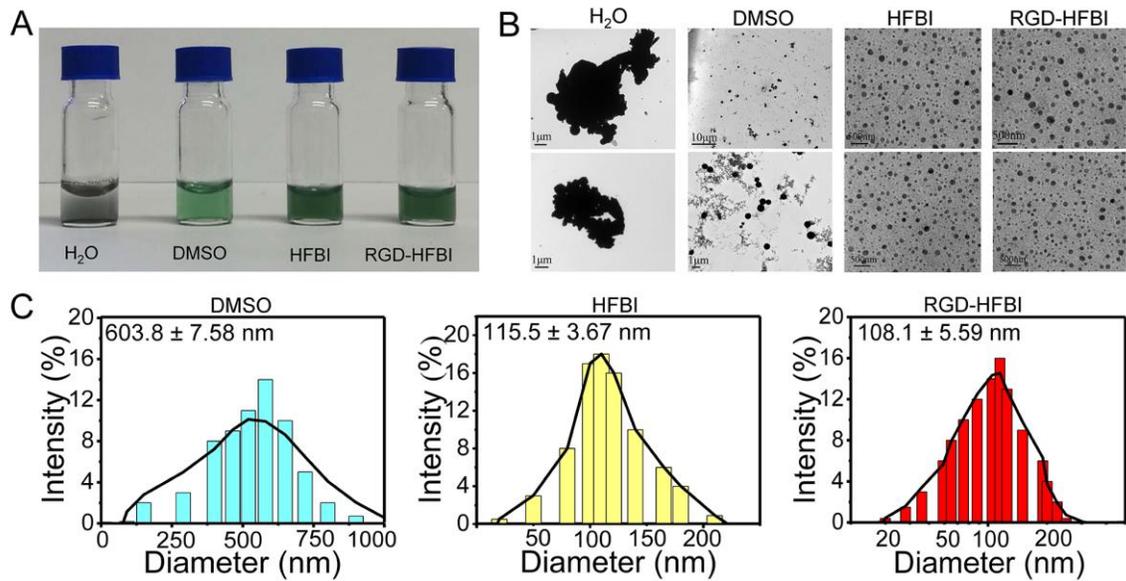


Figure S7. A) BODIPY dye was dispersed in H₂O, DMSO, HFBI and RGD-HFBI respectively. B) TEM images of BODIPY dispersed in different solvents (H₂O, DMSO, HFBI and RGD-HFBI). C) Particles size of DMSO, native HFBI- and RGD-HFBI-treated BODIPY dye.

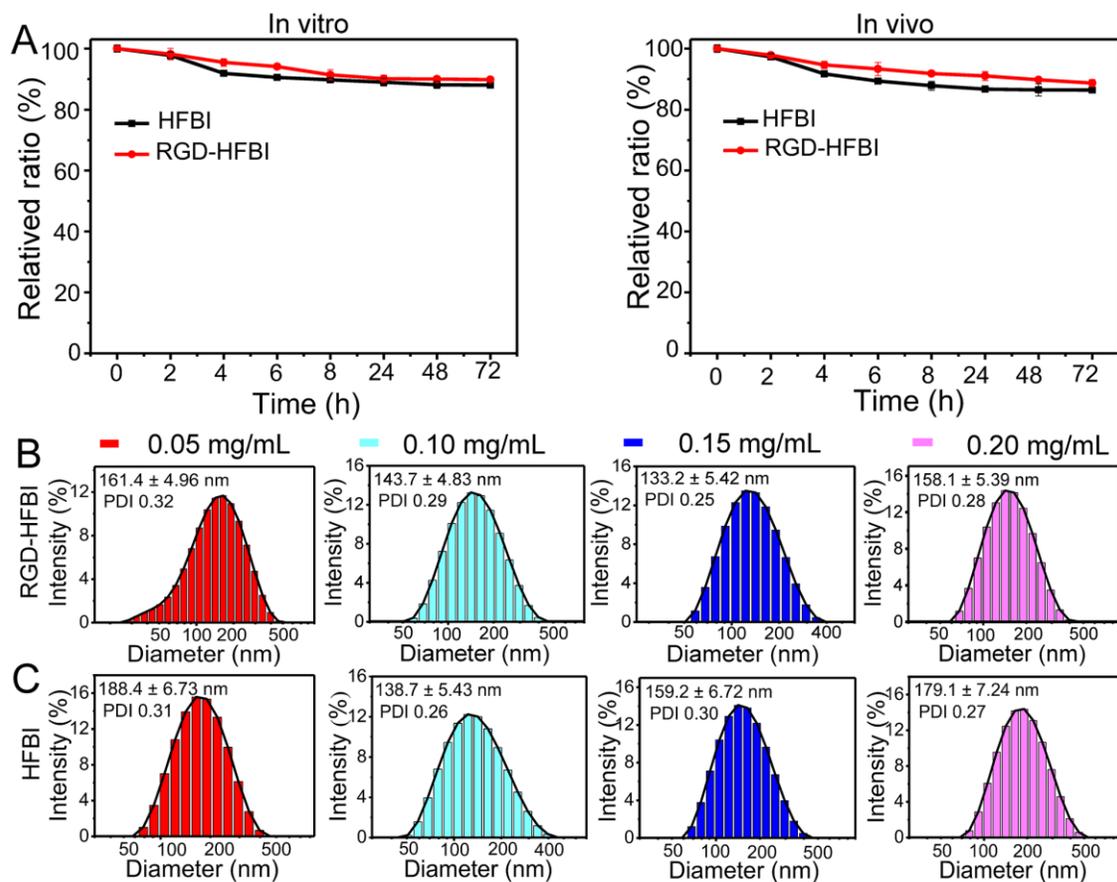


Figure S8. A) The stability assay of the RGD-HFBI/BODIPY and HFBI/BODIPY complex in vitro and in vivo. B-C) Particles size of RGD-HFBI- and native HFBI-treated BODIPY dye in serum.