

## Supporting Information

### **Selection and analysis of DNA aptamers to berberine to develop label-free light-up fluorescent probe**

Jine Wang <sup>1#</sup>, Yajie Zhang <sup>1,2#</sup>, Hongyan Wang <sup>1</sup>, Yang Chen <sup>1,3</sup>, Lijun Xu <sup>1,2</sup>, Tian Gao <sup>1</sup>, Renjun Pei <sup>1\*</sup>

<sup>1</sup>Key Laboratory of Nano-Bio Interface, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, 215123, China

<sup>2</sup>University of Chinese Academy of Sciences, Beijing, 100049, China

<sup>3</sup>School of Pharmacy, Xi'an Jiaotong University, Xi'an, 710061, China

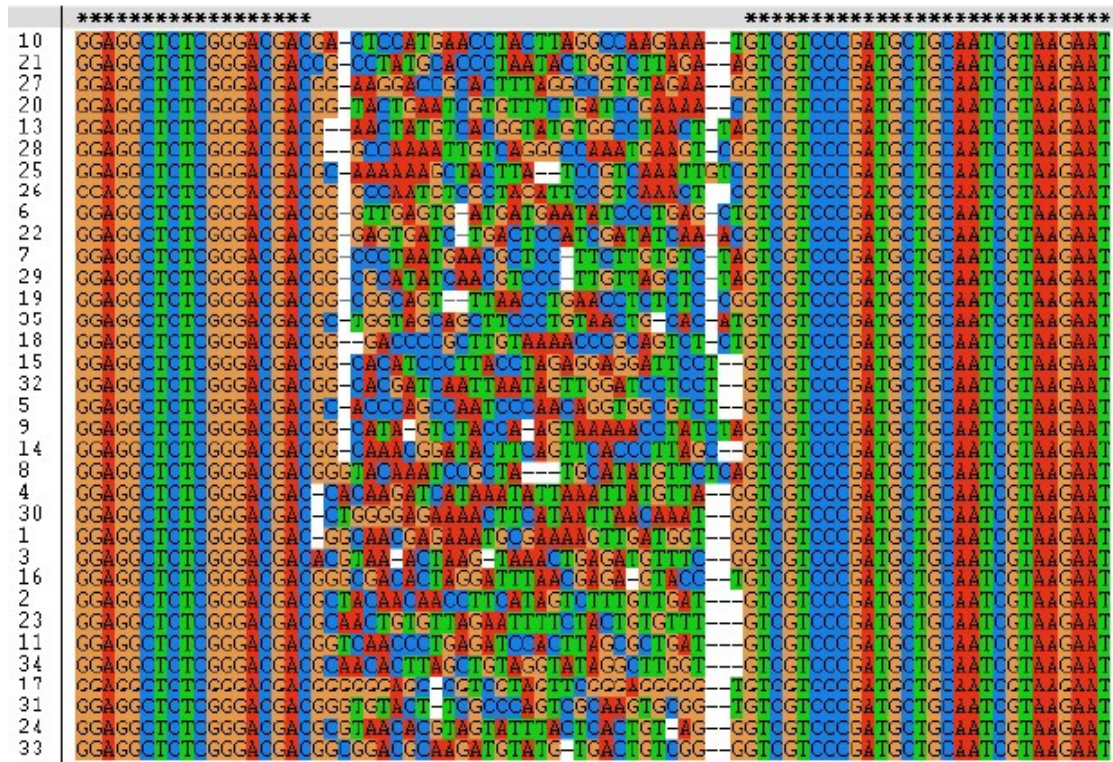
#These authors contributed equally to this work.

\*Corresponding author. Key Laboratory of Nano-Bio Interface, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, 215123, China.

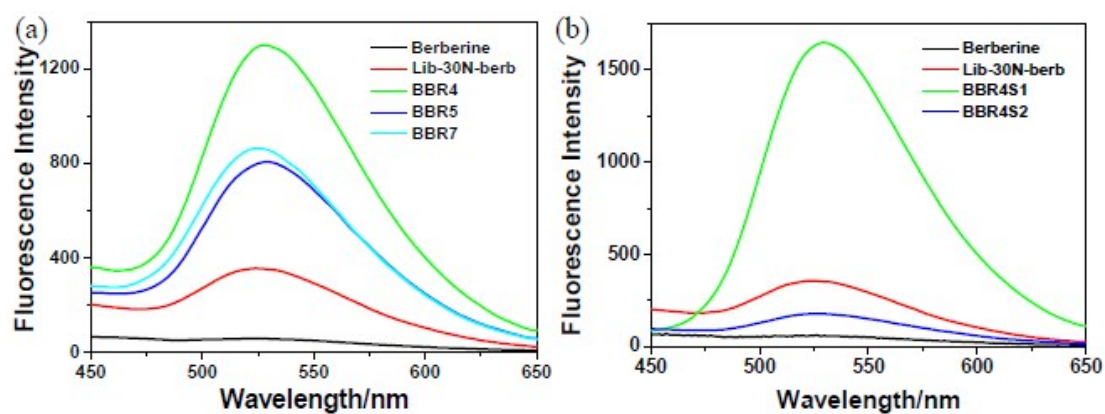
Tel: +86-512-62872776, E-mail: [rjpei2011@sinano.ac.cn](mailto:rjpei2011@sinano.ac.cn).

**Table S1** The detailed sequences of i-motif structure, various G4 structures, random dsDNA and ssDNA used in this paper.

Name	Sequence (5' to 3')
C29	CCCCCTTCCCCCTTCCCCCTTCCCC
G3T4	GGGTTTTGGGTTTTGGGTTTTGGG
G3TG4T	TGGGTGGGGTGGGGTGGGT
G3T4TT	GGGTTTTGGGTGGGTGGG
Hum21	GGGTTAGGGTTAGGGTTAGGG
T30695	GGGTGGGTGGGTGGGT
PS2.M	GTGGGTAGGGCGGGTTGG
(dsDNA)	1st strand: TATAATACACGTAGCATCTGACA 2nd strand: TGTCAGATGCTACGTGTATTATA
A20	AAAAAAAAAAAAAAAAAAAAAAAAA
T20	TTTTTTTTTTTTTTTTTTTTTTT
G20	GGGGGGGGGGGGGGGGGGGGG
C20	CCCCCCCCCCCCCCCCCCCCC



**Fig. S1** Sequence alignment analysis using Clustalx 1.8.3 software.



**Fig. S2** Fluorescence spectra of berberine alone and in the presence of initial ssDNA library, and different aptamers in SELEX buffer, respectively (a). Fluorescence spectra of berberine alone and in the presence of initial ssDNA library, BBR4S1 and BBR4S2 in SELEX buffer, respectively (b). The concentrations of berberine and DNA sequences all were 1  $\mu$ M.