

Supporting information for:

**Benzindole substituted carbazole cyanine dye: a novel targeting
fluorescent probe for parallel c-myc G-Quadruplex**

Dayong Lin^a, Yingchun Gu^{*b,c}, Xuening Fei^{*a,b}, Cuihong Wang², Yalin Tang^{c*}, Ran Li^b, Jianguo Zhou^b

^aSchool of Environmental Science and Engineering, Tianjin University, Tianjin, 300072, China.

^bSchool of Science, TianJin Chengjian University, Tianjin, 300384, China.

^cInstitute of Chemistry, Chinese Academy of Sciences (ICCAS), Beijing, 100190, China.

Corresponding authors: [xuening fei@126.com](mailto:xuening_fei@126.com) (X, Fei), jvgugugu@126.com (Y, Gu), tangyl@iccas.ac.cn (Y, Tang)

1. Comparation of some carbazole sensors

Table S1 Data of sensors of carbazole

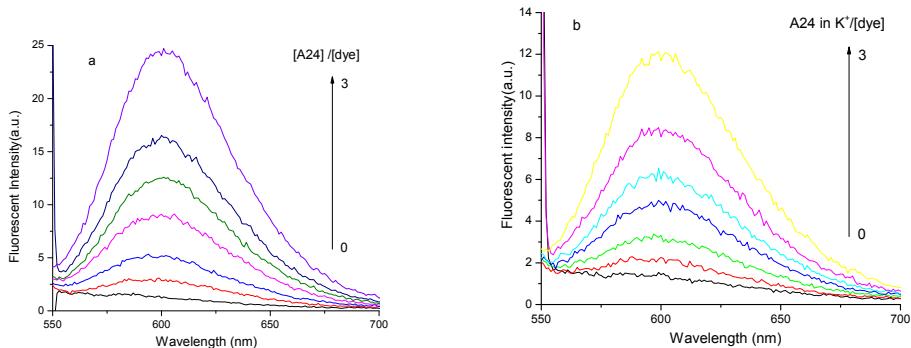
Entry	Sensor	Absorption wavelength (nm)	Fluorescent emission wavelength (nm)
1	9E BMVC	460	575
2	BPBC	400	462
3	dimeric carbazole-benzimidazole	365	460

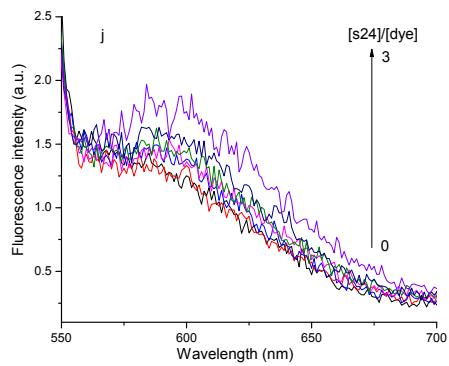
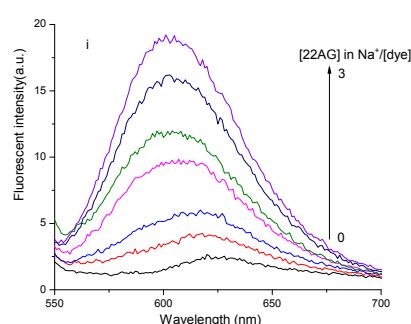
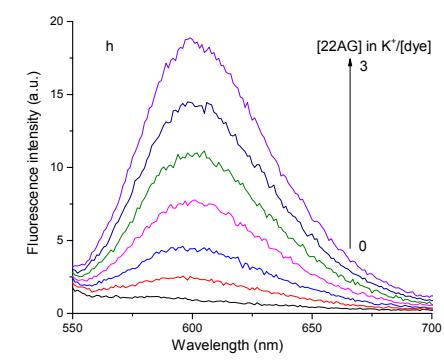
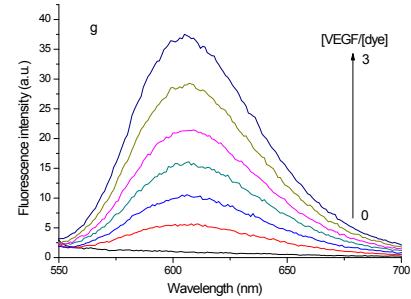
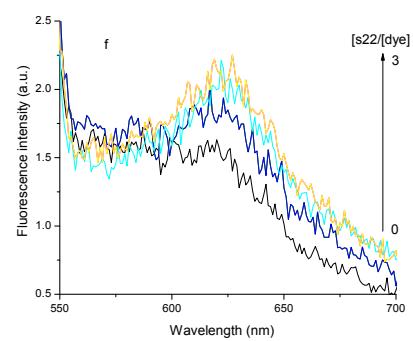
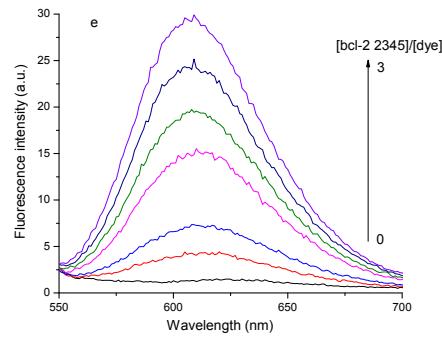
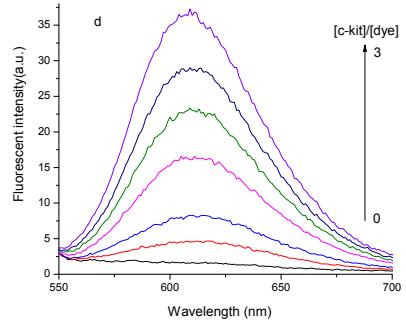
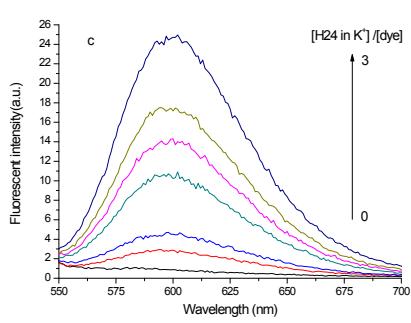
2. Oligonucleotides used in the manuscript

Table S2 Sequence of the Oligonucleotides

Name	Oligonucleotide sequence (from 5' to 3')	G4 structure
A24	ttagggttagggttagggtaggg	antiparallel
H24	ttgggttagggttagggtagggtaggg	mixed type/hybrid
c-myc2345	ttaggggtggggagggtggggaa	parallel
c-kit1	agggagggcgctgggaggagg	parallel
bcl-2 2345	gggcgcggaggagaattgggggg	mixed type/hybrid
s22	ccctaaccctaaccctaaccct	single stranded
VEGF	gggcgggccccgggggg	parallel
22AG in Na ⁺	AGGGTTAGGGTTAGGGTTAGGG	antiparallel
22AG in K ⁺	AGGGTTAGGGTTAGGGTTAGGG	mixed type/hybrid
s24	ccctaaccctaaccctaa	single stranded
ds26	CAATCGGATCGAATTGATCCGATTG	double stranded
d 24	A24+s24	double stranded

3. Fluorescent titration spectra of DNA with 9E PBIC.





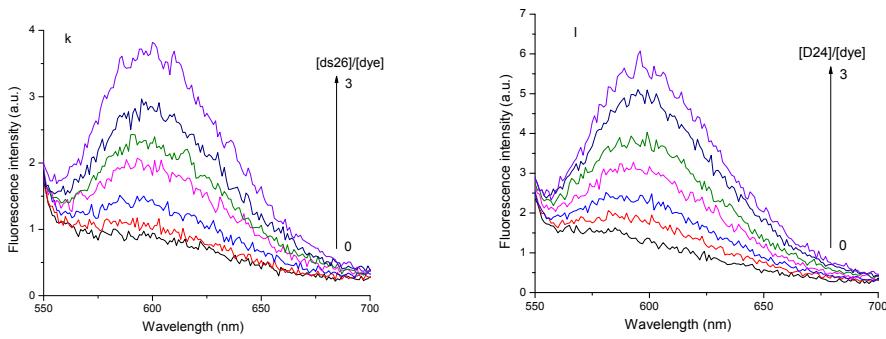


Fig. S1. Fluorescent titration spectra of DNA (a) A24 in Na^+ buffer, (b) A24 in K^+ buffer, (c) H24, (d) c-kit, (e) bcl 2 2345, (f) s22, (g)VEGF, (h) 22 AG in K^+ , (i) 22 AG in Na^+ , (j) s24, (k) ds 26, (l) D24.

4. Plot of fluorescence intensity of 9E PBIC (6 μM)

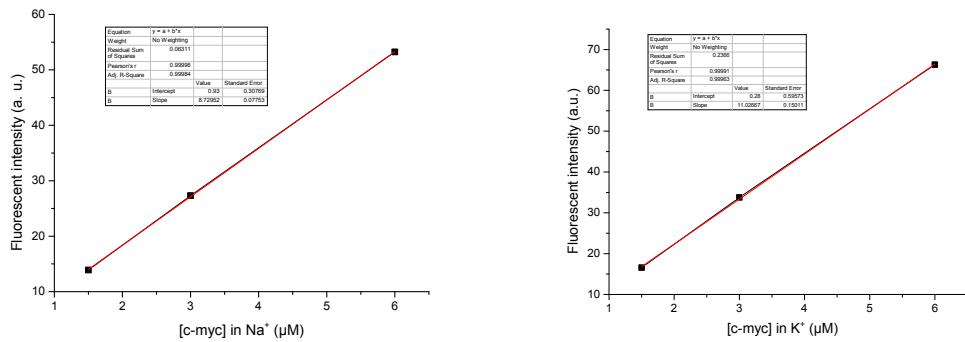


Fig. S2. Linear plot of fluorescence intensity of 9E PBIC (6 μM) versus the concentration (1.6–6 μM) of c-myc G4.

5. Jobs' plot experiment

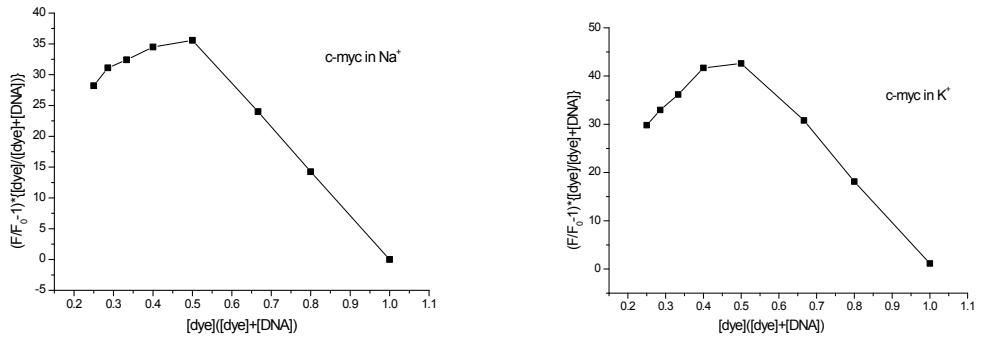


Fig S3. Job's plot obtained from fluorimetric analysis of mixture of 9E PBIC with c-myc G4 in Na^+ buffer and K^+ buffer.

6. Molecular docking experiment

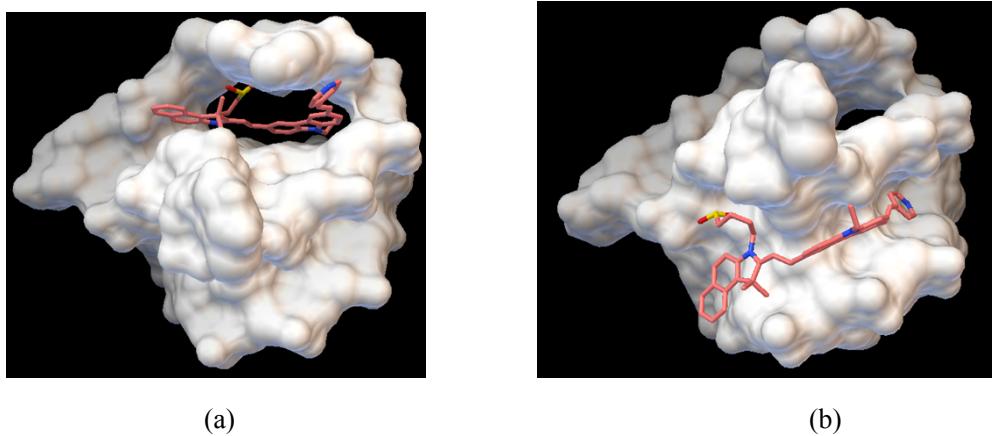


Fig.S4. Molecular models showing the interaction of 9E PBIC with G-quadruplex DNA c-myc:
(a) Stacking on the saface of G-quartet. (b) Binding to the groove of c-myc.