

**Supporting Information  
for  
Fluorescent Detection of HCl in Halogenated Solvents via  
Photoinduced Electron Transfer: Towards Efficient Gamma  
Radiation Detection**

Shumei Gao, Li Yang, Qianqian Chen, Keke Guo, Ji-Min Han\*

State Key Laboratory of Explosion Science and Technology

Beijing Institute of Technology

5 Zhongguancun South Street, Haidian District, Beijing, 100081 (China)

E-mail: [hanjimin@bit.edu.cn](mailto:hanjimin@bit.edu.cn)

Figure S1:  $^1\text{H}$  NMR spectra of octadecanyl symmetric diimine (a) and Mono Octyl dodecyl unsymmetrical Perylene imide anhydride (b)

Figure S2:  $^1\text{H}$  NMR spectra of **PDI 1-5** (a-e)

Figure S3:  $^{13}\text{C}$  NMR spectra of **PDI 1-5** (a-e)

Figure S4 Mass spectra of **PDI 1-5** (a-e)

Figure S5 Absorption spectra of **PDI 1-5**

Figure S6 Curves of molar extinction coefficient of **PDI 2**, **PDI 4** and **PDI 5** at concentrations of 1  $\mu\text{M}$  and 10  $\mu\text{M}$

Figure S7 Fluorescence emission spectra of **PDI 2-5**

Figure S8 Fluorescence enhancement (measured at 542 nm) of **PDI 1-4** as a function of HCl concentration, in which the data points in the low concentration range (0-2.0  $\mu\text{M}$ ) are fitted with a linear relationship.

Figure S1:  $^1\text{H}$  NMR spectra of octadecanyl symmetric diimine (a) and Mono Octyl dodecyl unsymmetrical Perylene imide anhydride (b)

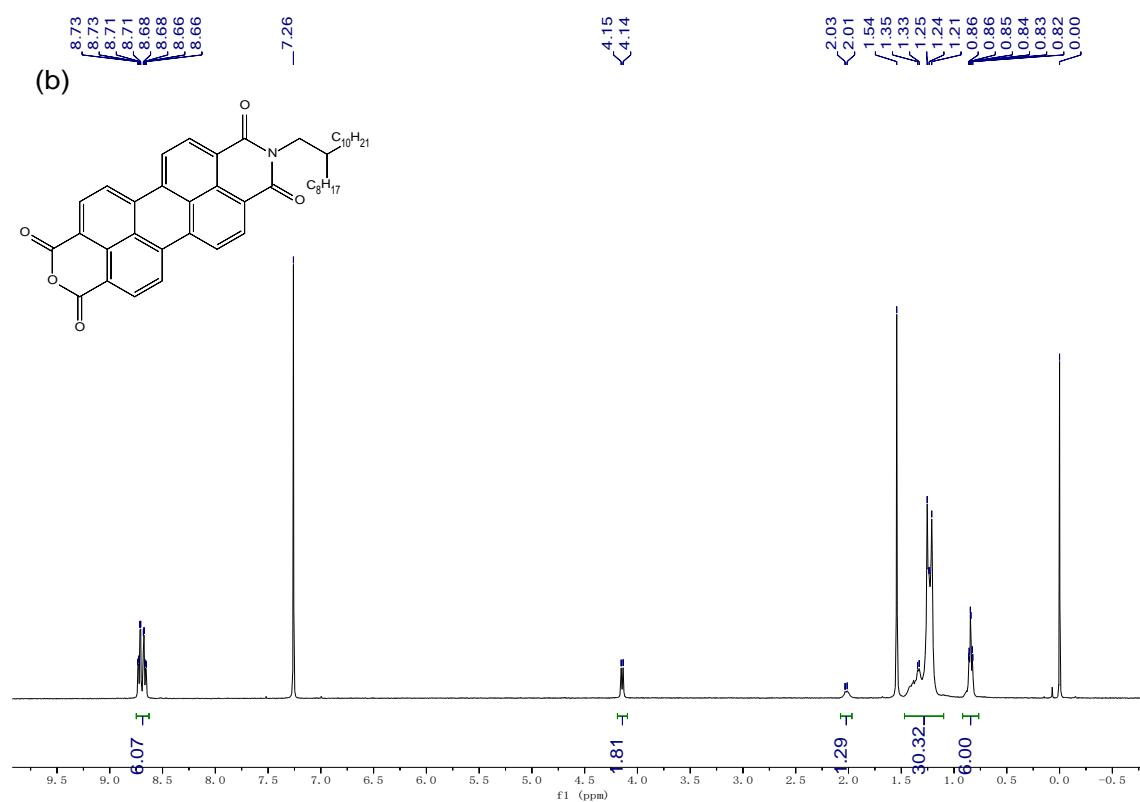
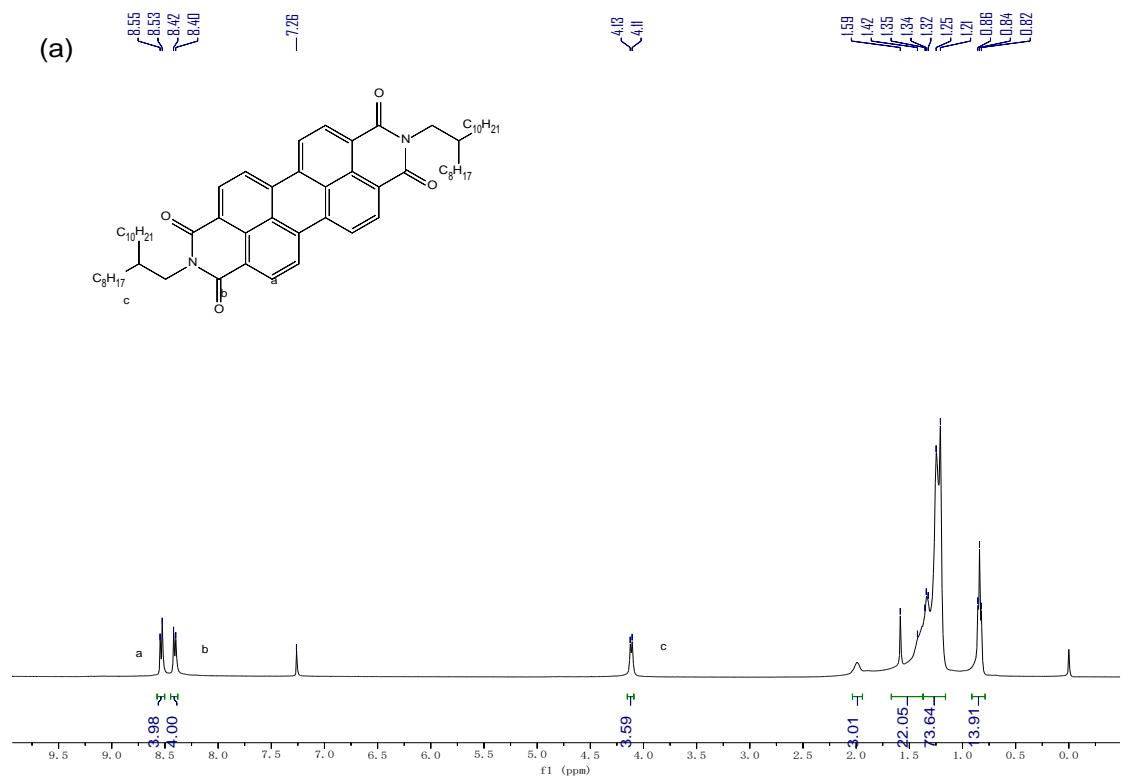
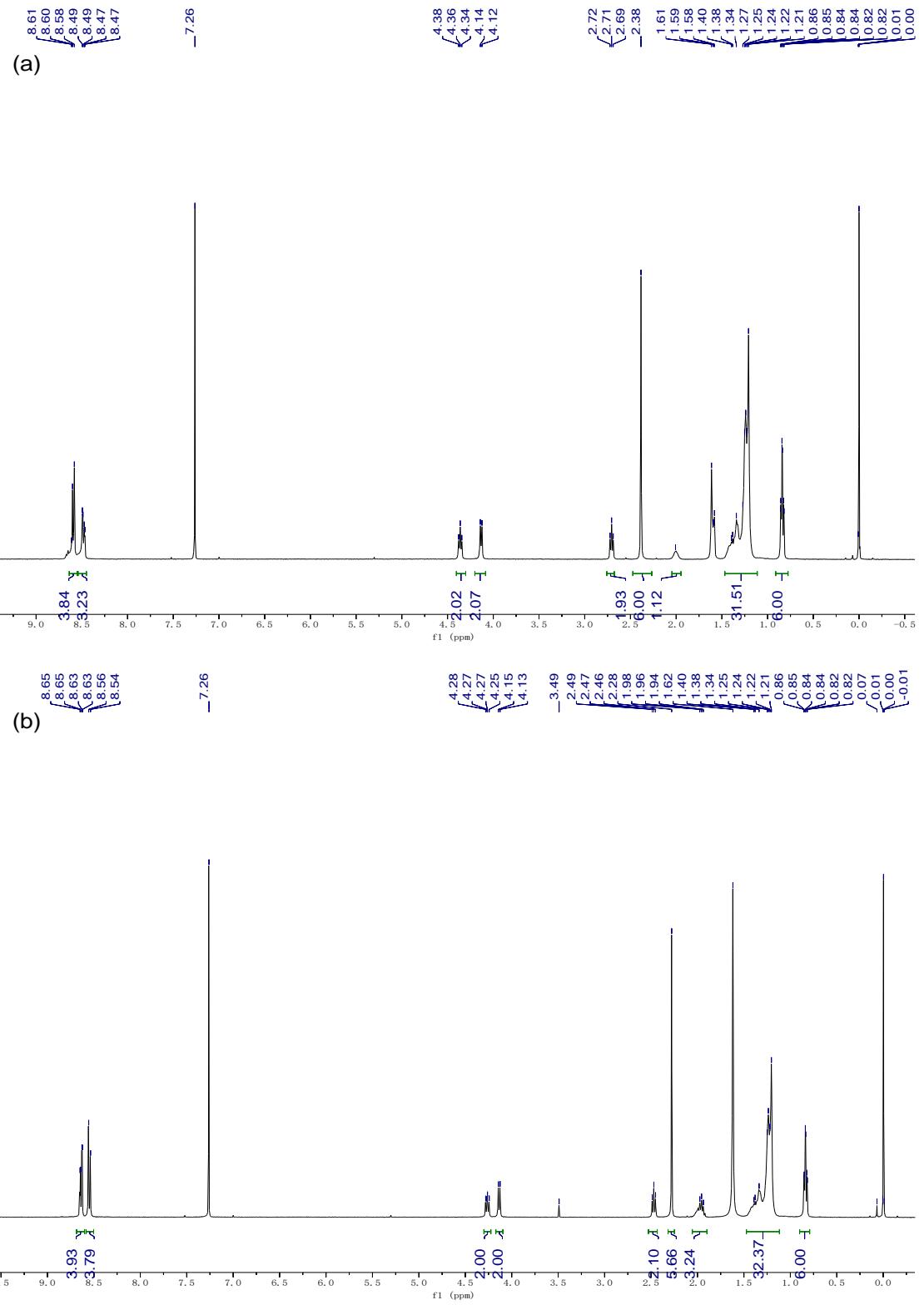
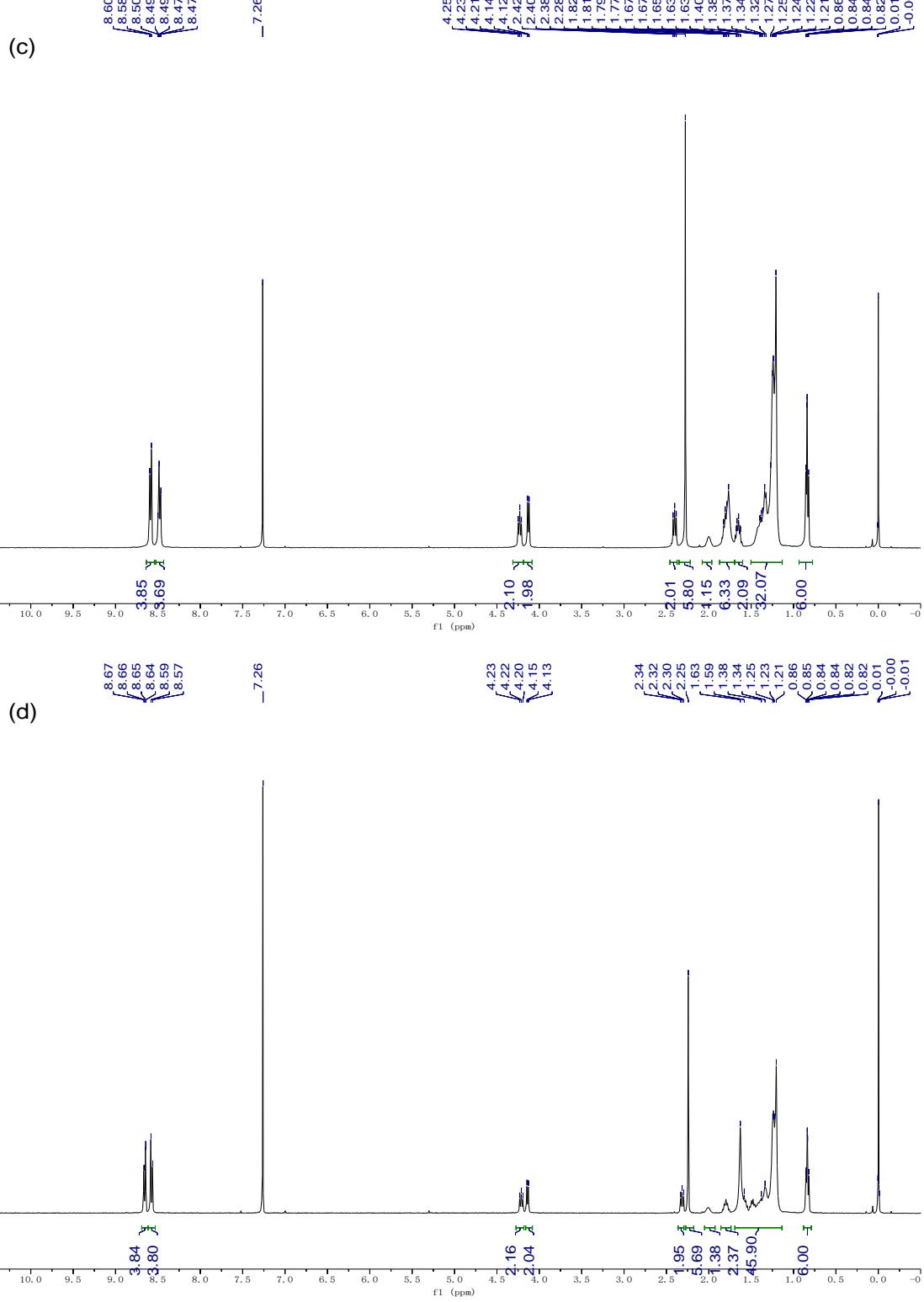


Figure S2:  $^1\text{H}$  NMR spectra of PDI 1-5 (a-e)





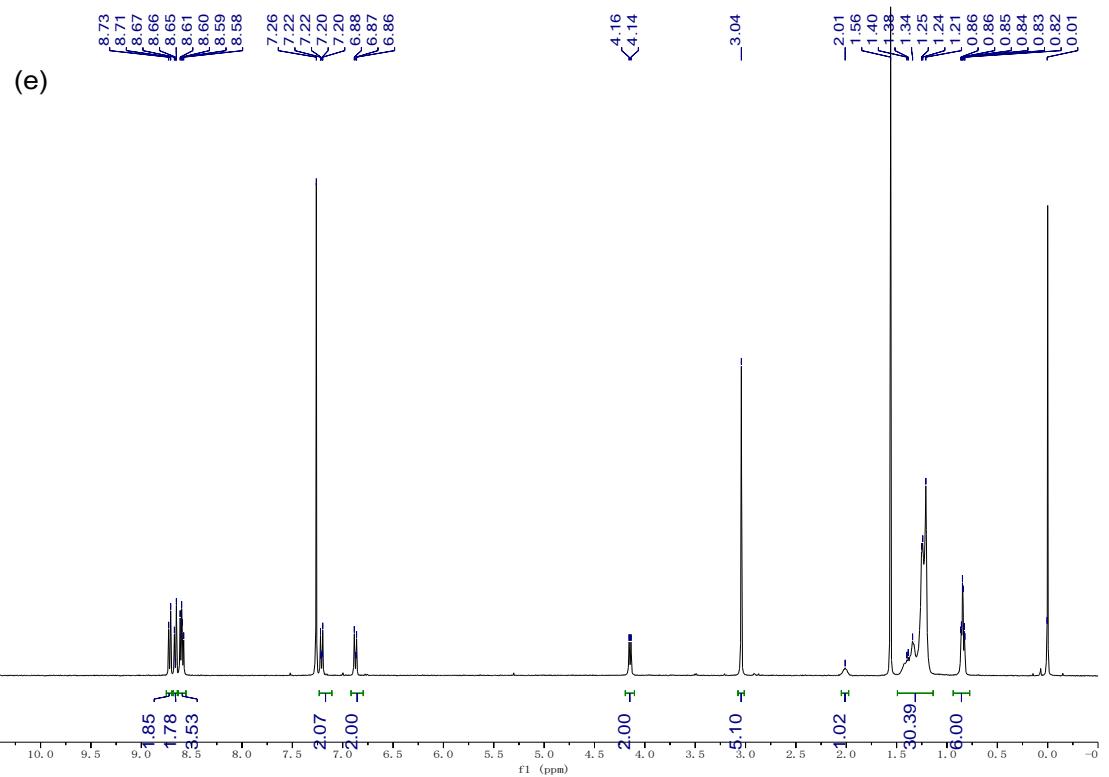
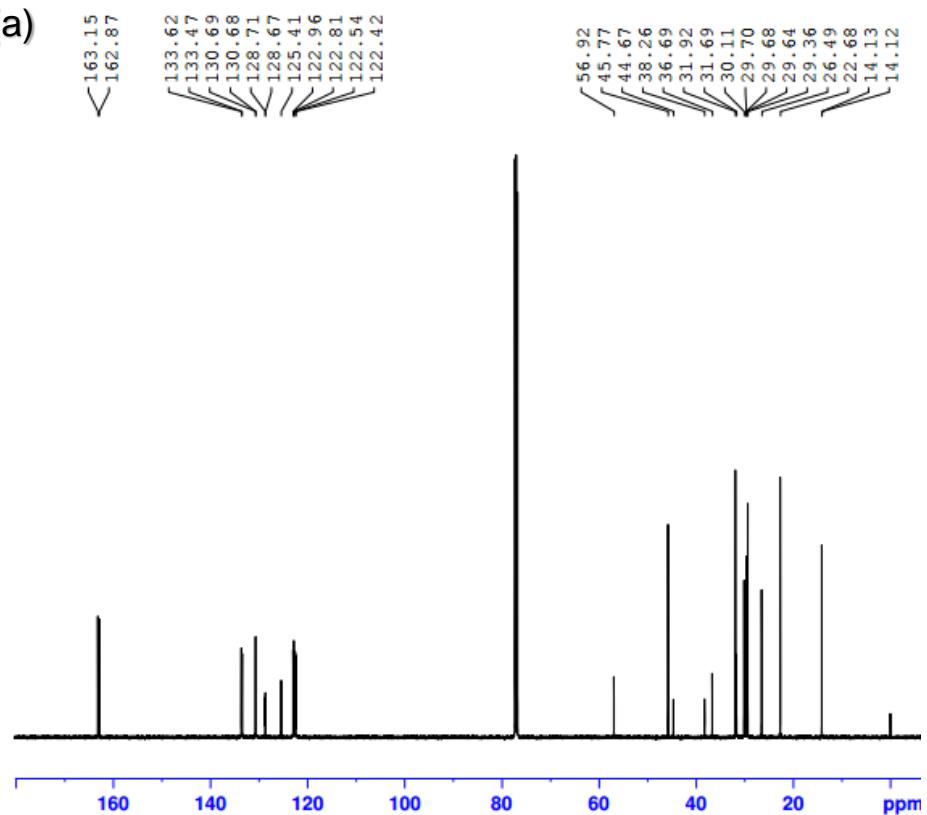
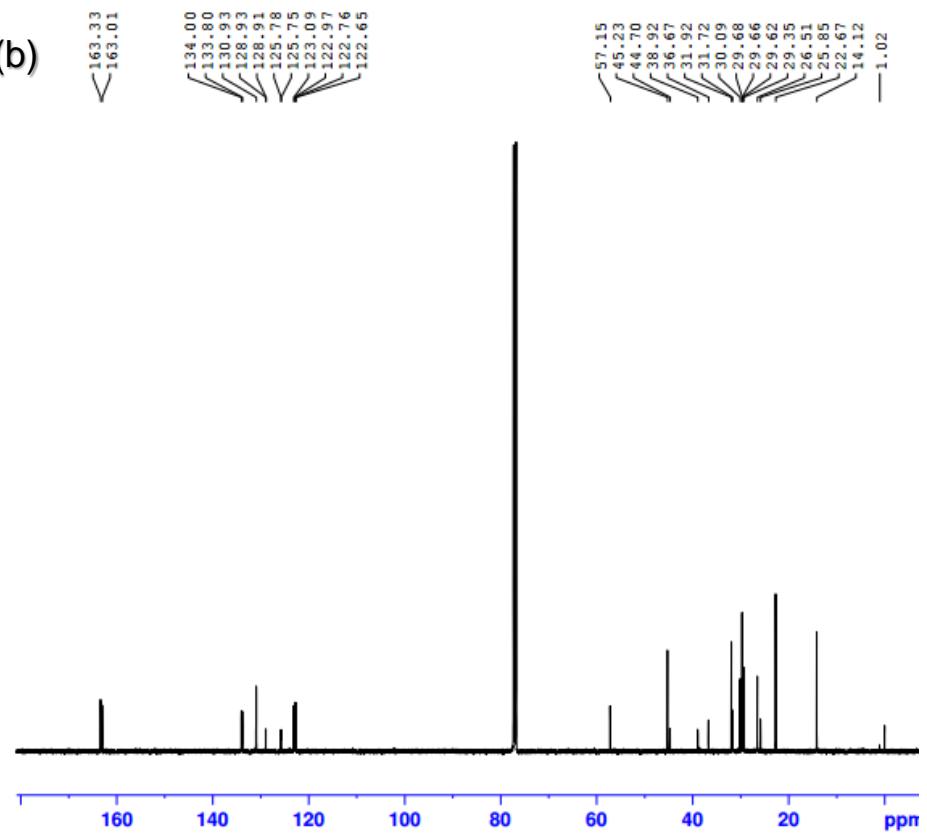


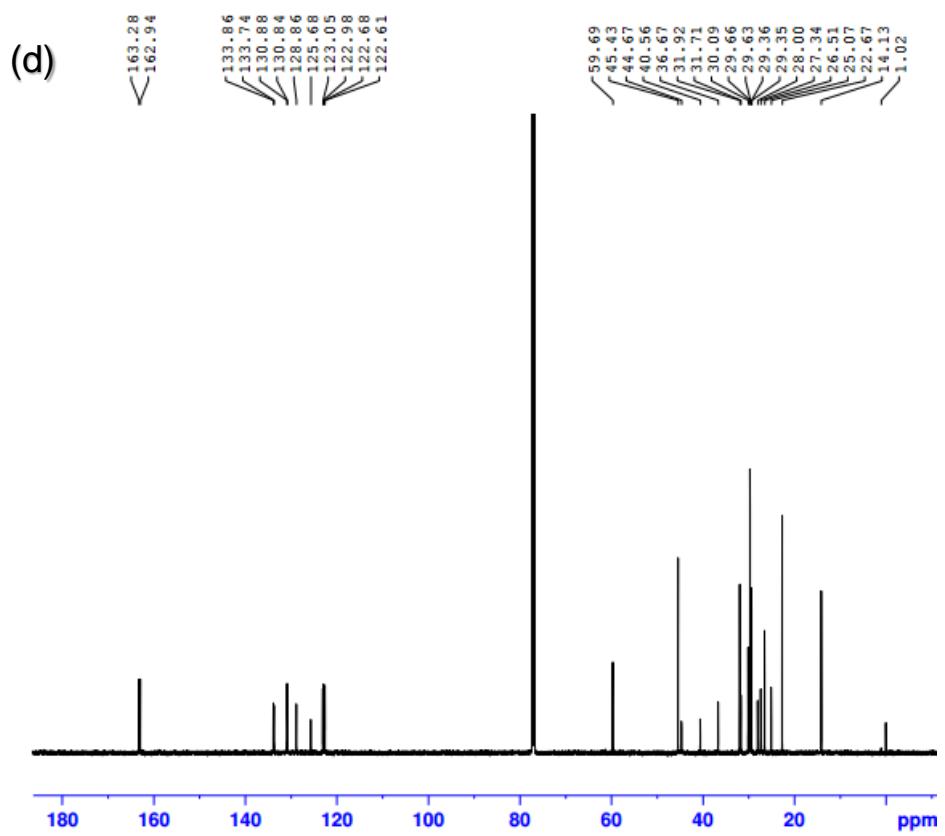
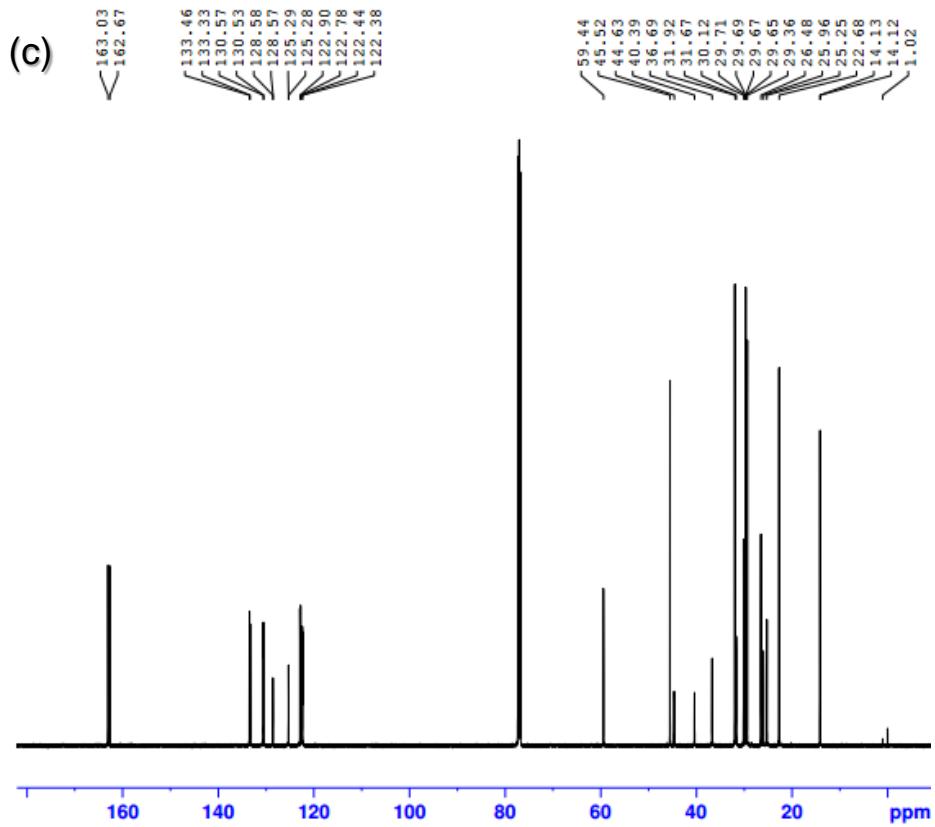
Figure S3: <sup>13</sup>C NMR spectra of PDI 1-5 (a-e)

(a)



(b)





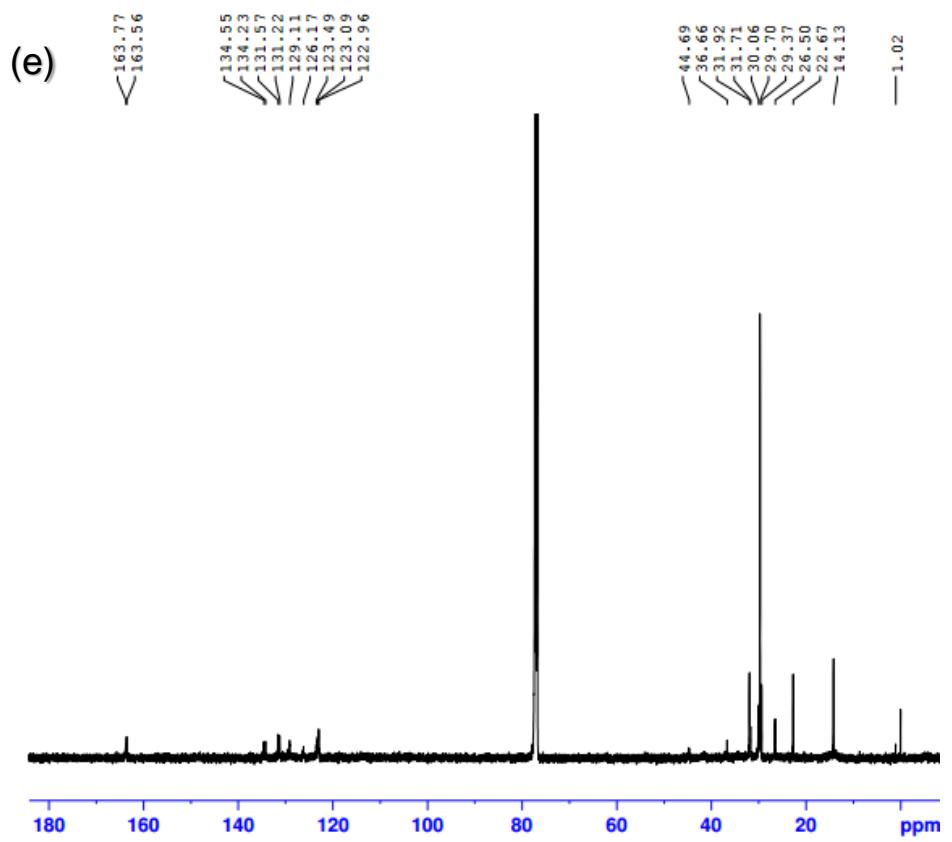
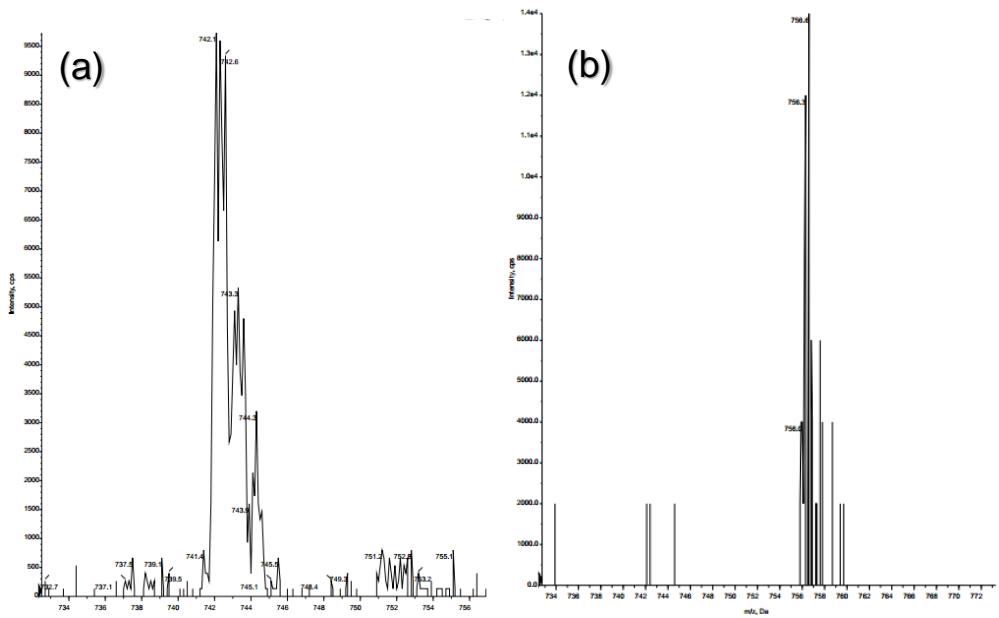


Figure S4 Mass spectra of PDIs 1-5 (a-e)



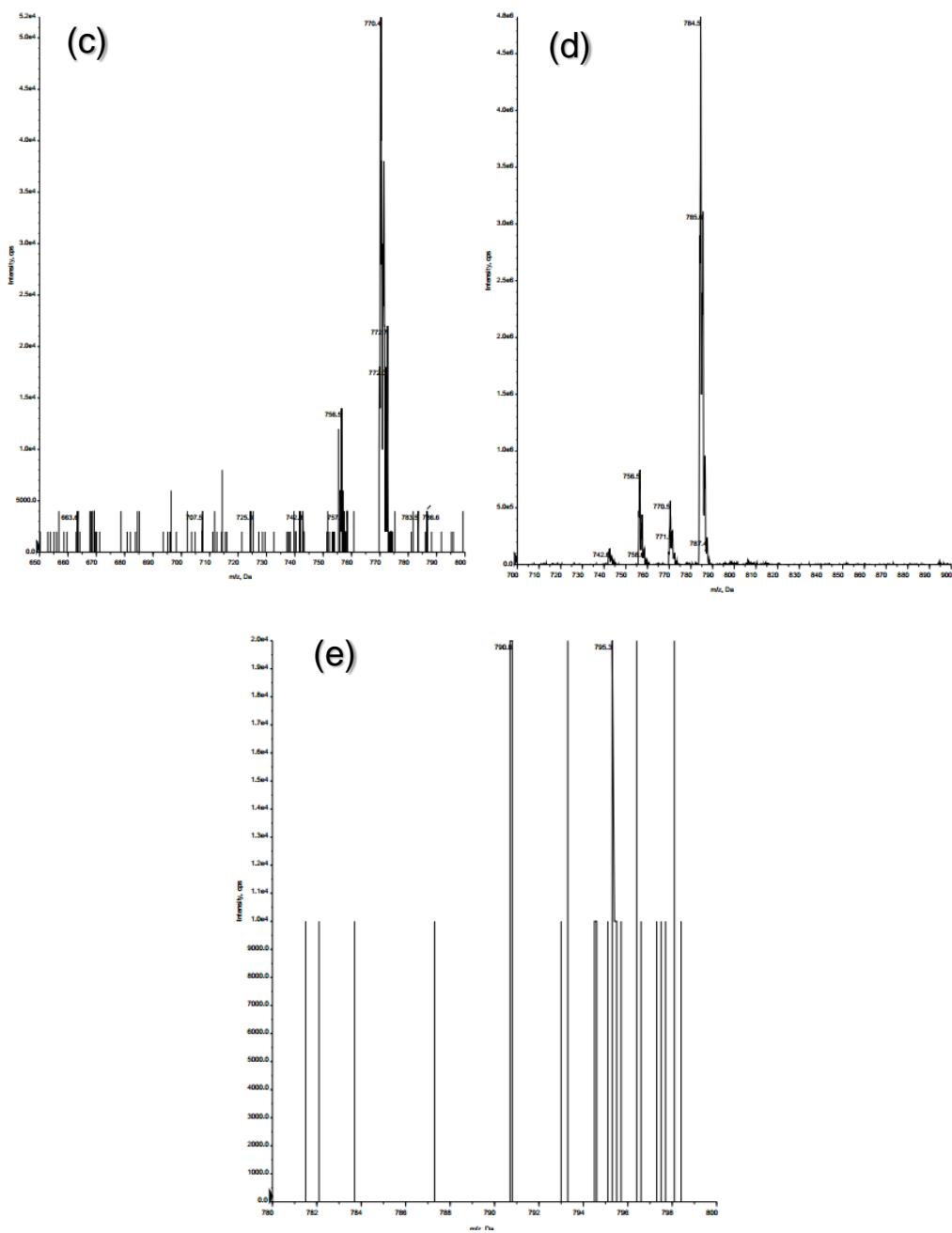
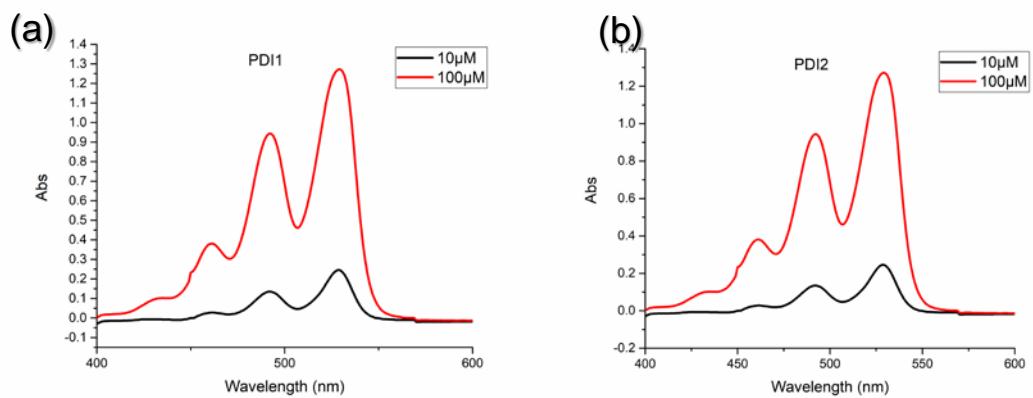


Figure S5 Absorption spectra of PDI 1-5



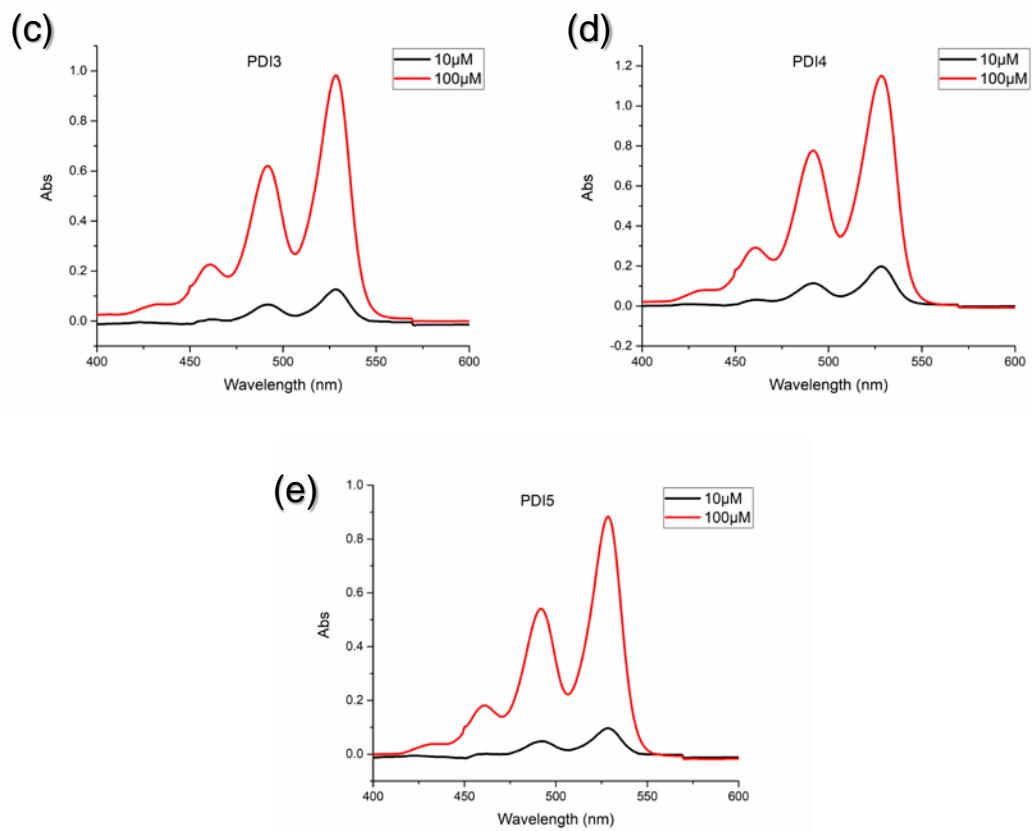
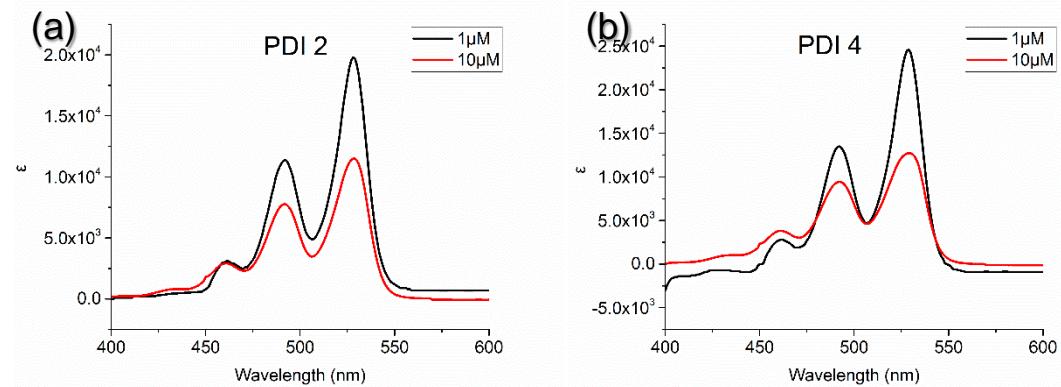


Figure S6 Curves of molar extinction coefficient of **PDI 2**, **PDI 4** and **PDI 5** at concentrations of 1  $\mu\text{M}$  and 10  $\mu\text{M}$



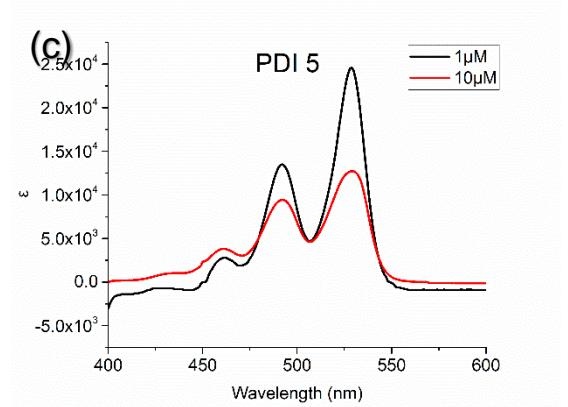


Figure S7 Fluorescence emission spectra of PDI 2-5

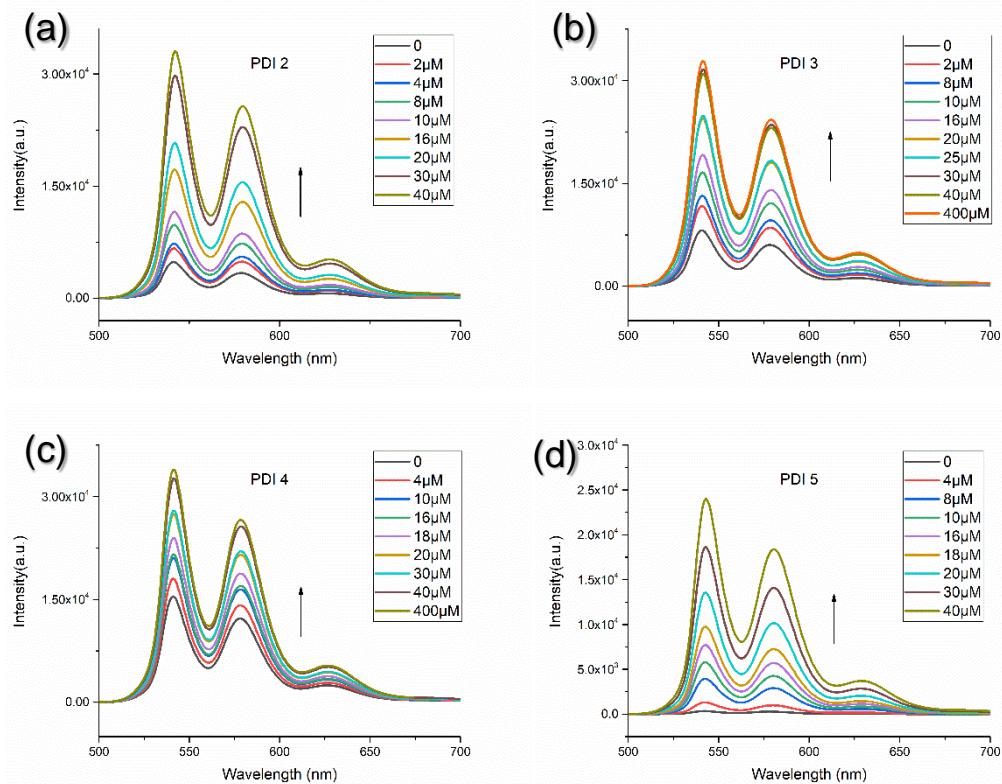


Figure S8 Fluorescence enhancement (measured at 542 nm) of PDI 1-4 as a function of HCl concentration, in which the data points in the low concentration range (0-2.0 μM) are fitted with a linear relationship.

