

## **Supplementary Information**

### **A New Strategy Involving the Use of Peptides and Graphene Oxide for Fluorescence Turn-on Detection of Proteins**

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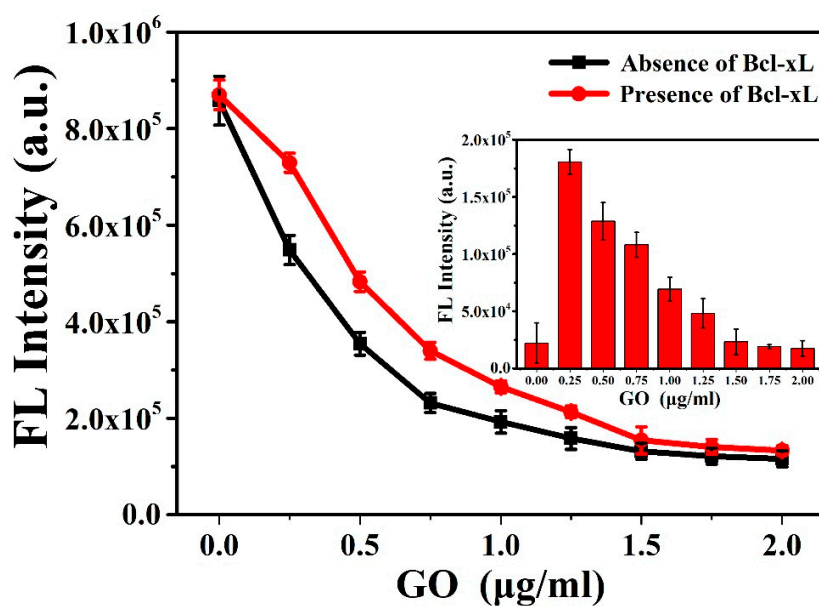
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**Table S1. Peptide probe sequences binding with Bcl-xL in the design.**

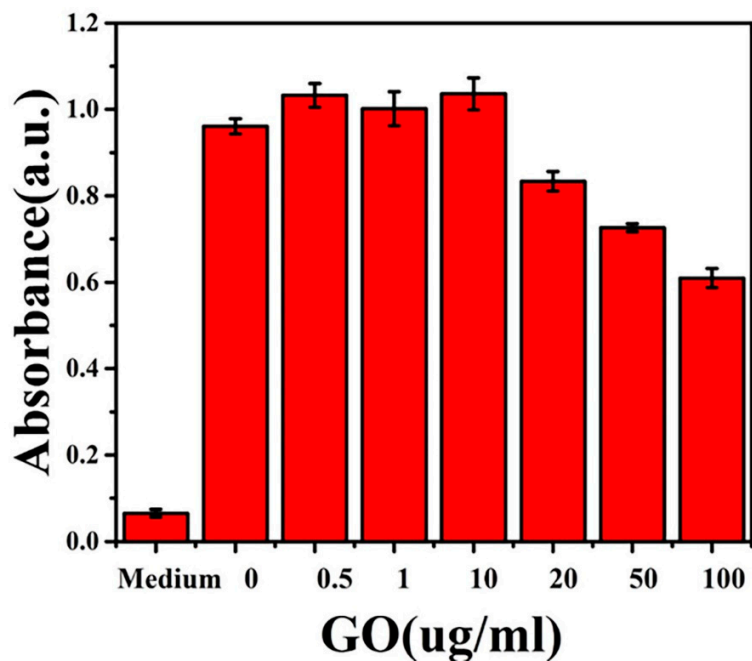
No.	Sequence
TAM-PEP (R4)	TAM- <u>RRRR</u> NLWAAQRYGRELRRMSDKFVD
TAM-PEP (R6)	TAM- <u>RRRRRR</u> NLWAAQRYGRELRRMSDKFVD
TAM-PEP (R8)	TAM- <u>RRRRRRRR</u> NLWAAQRYGRELRRMSDKFVD

## Figure Legends

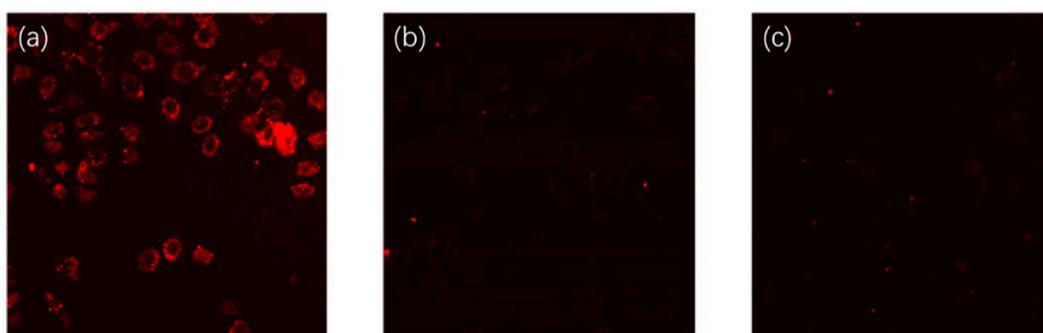
**Fig. S1** The Fluorescence intensity changes of GO-based aptasensor in the presence (red) and in the absence (black) of 5  $\mu\text{M}$  Bcl-xL with the increasing amount of GO in the 2% serum. The inset is the recovery ratio of the fluorescence intensity of TAM-PEP (R8) at the emission of 580 nm with different GO concentration, where F is the fluorescence intensity with Bcl-xL (5  $\mu\text{M}$ ), F<sub>0</sub> is the fluorescence intensity without Bcl-xL (5  $\mu\text{M}$ ). Experiment conditions: TAM-PEP (R8) 100 nM; Incubation time: 1 h; Room temperature. Excitation: 540 nm.



**Fig. S2** Cytotoxicity induced by GO in Hela cells



**Fig. S3** (a) Fluorescence images of TAM-PEP (R8) in Hela cells. (b) Fluorescence images of TAM-PEP (R8)/GO mixture in Hela cells. GO:  $5 \mu\text{g mL}^{-1}$  (c) Fluorescence images of TAM-PEP (R8)/GO mixture in Hela cells. GO:  $10 \mu\text{g mL}^{-1}$  Experiment conditions: TAM-R8-PEP:  $1 \mu\text{M}$ ; Excitation: 540 nm.



**Fig. S4** Western blotting determination and quantification of proteins expression in untransfected Hela cells (A) and transfected Hela cells (B)

