



## Supporting Information for

# **DNA Aptamer Selected against Pancreatic Ductal Adenocarcinoma for in vivo Imaging and Clinical Tissue Recognition**

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**Table S1.** Truncation of aptamer XQ-2

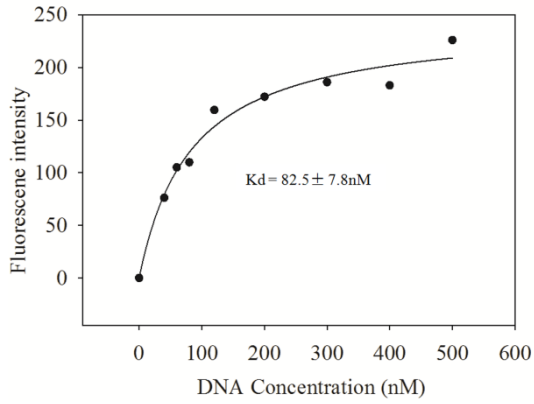
Name	Sequences (5' → 3')	Length (nt)
XQ-2	ACCGACCGTGCTGGACTCATAGGGTTAGGGGCTGCTGGCCAGAT ACTCAGATGGTAGGGTACTATGAGCGAGCCTGGCG	1 - 80
XQ-2a	GCTGGACTCATAGGGTTAGGGGCTGCTGGCCAGATACTCAGATG GTAGGGTACTATGAGCGAGC	10 - 74
XQ-2b	ACCGACCGTGCTGGACTCATAGGGTTAGGGGCTGCTGGCCAGAT ACTCAGATGGTAGGGTACTA	1 - 65
XQ-2c	TAGGGTTAGGGGCTGCTGGCCAGATACTCAGATGGTAGGGTACT ATGAGCGAGCCTGGCG	20 - 80
XQ-2d	ACTCATAGGGTTAGGGGCTGCTGGCCAGATACTCAGATG GTAGGGTACTATGAGC	15 - 70
XQ-2e	TAGGGTTAGGGGCTGCTGGCCAGATACTCAGATGGTAGGGTACT AT	20 - 66
XQ-2f	TAGGGTTAGGGGCTGCTGGCCAGATACTCAGATGGTAGGGTT	20 - 61

**Table S2.** Mutation of XQ-2d

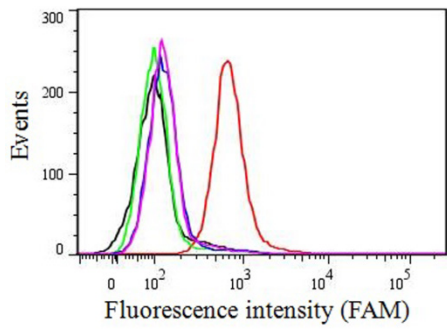
Name	Sequences (5' → 3')
XQ-2d	ACTCATAGGGTTAGGGGCTGCTGGCCAGATACTC AGATG GTAGGGTACTATGAGC
XQ-2d with stem replaced with random bases	NNNNNNNNGGTTAGGGGCTGCTGGCCAGATACTC AGATGGTAGGGTTANNNNNNNN
XQ-2d with with stem replaced with other base pairs	<u>ATAGTCT</u> GGGTTAGGGGCTGCTGGCCAGATACTC AGATGGTAGGGTTAC <u>AGACTAC</u>
XQ-2d with loop replaced with random bases	ACTCATANNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN NNNNNNNNNNNNNNNNNTATGAGC

**Table S3.** Aptamer XQ-2d with artificial bases

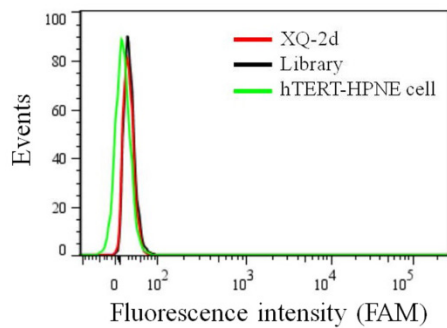
Name	Sequences (5' → 3')
XQ-2d	ACTCATAGGGTTAGGGGCTGCTGGCCAGATACTC AGATG GTAGGGTACTATGAGC
Phosphorodithiate XQ-2d	A*C*T*C*ATAGGGTTAGGGGCTGCTGGCCAGATA CTCAGATGGTAGGGTACTAT*G*A*G*C
2'-O-methyl-modified XQ-2d	/i2OMeA//i2OMeC//i2OMeU//i2OMeC/ATAGGGTTAG GGGCTGCTGGCCAGATACTCAGATGGTAGGGTTA CTAT/i2OMeG//i2OMeA//i2OMeG//i2OMeC/



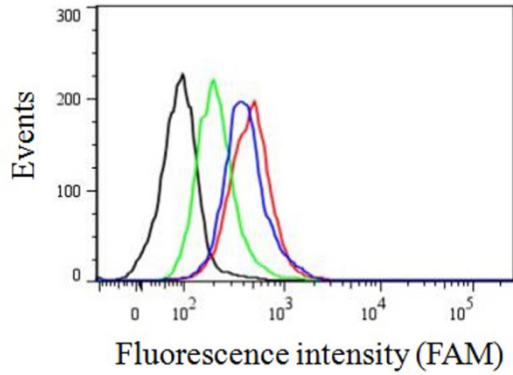
**Figure S1.** Dissociation constant of truncated XQ-2 for target PL45 cells.



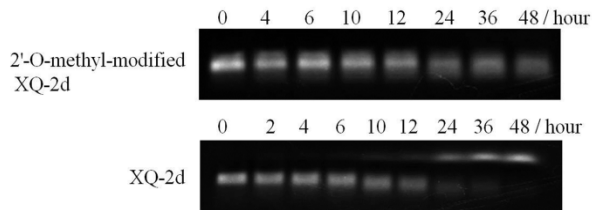
**Figure S2.** Binding ability of mutated aptamers to PL45 cells. Black line: library, red line: XQ-2d, green line: XQ-2d with stem bases replaced by random bases, blue line: XQ-2d with stem bases replaced with other base pairs, purple line: XQ-2d with loop replaced with random bases.



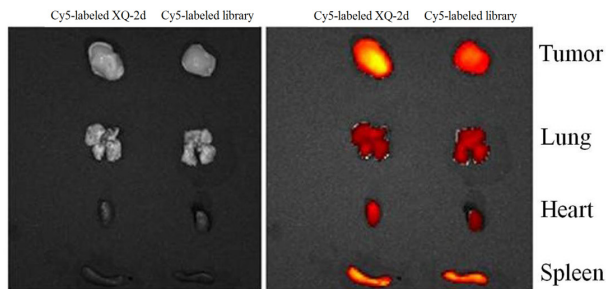
**Figure S3.** Binding ability of XQ-2d to hTERT-HPNE cells.



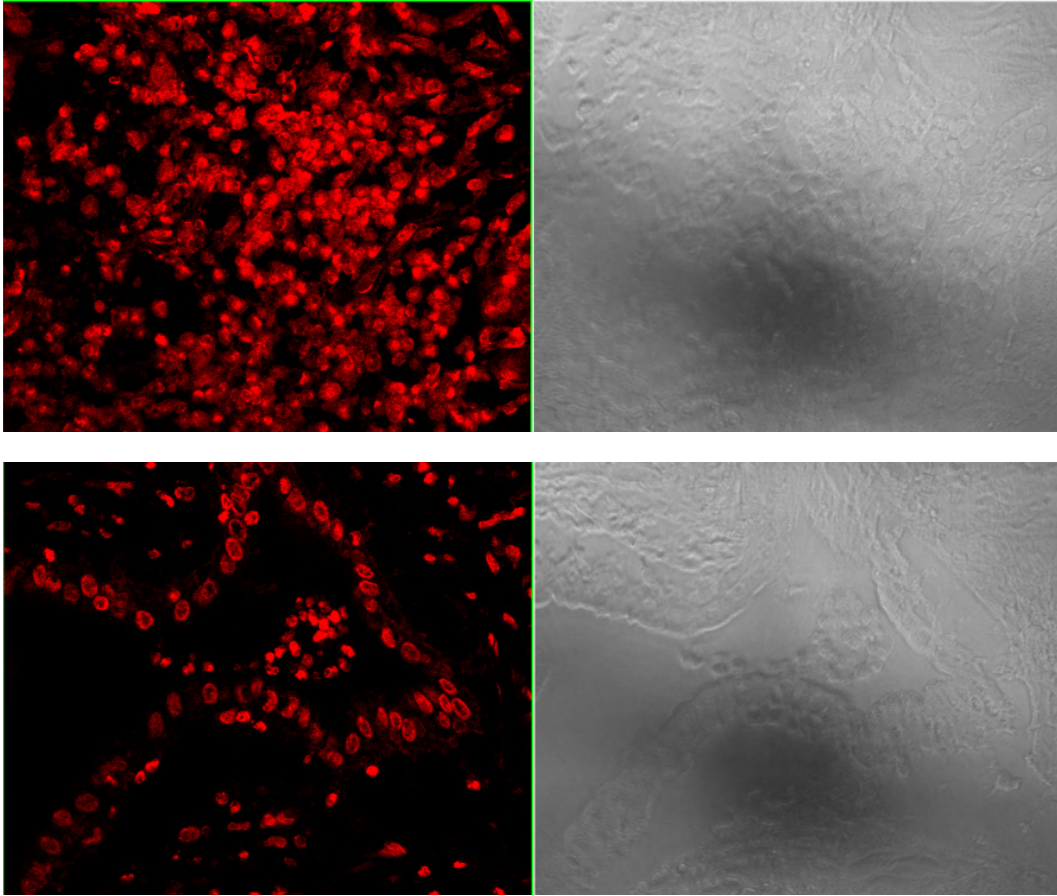
**Figure S4.** Binding ability of aptamer with chemical modifications to PL45 cells. Black line: library, red line: XQ-2d, green line: XQ-2d synthesized with phosphorodithiate oligonucleotides, blue line: XQ-2d synthesized with 2'-O-methyl oligonucleotides.



**Figure S5.** The stability of XQ-2d and 2'-O-methyl-modified XQ-2d in cell medium with 10% FBS.



**Figure S6.** Optical and fluorescent images of organ tissues isolated from PDAC-grafted mice injected with Cy5-labeled XQ-2d and Cy5-labeled library.



**Figure S7.** Representative images of clinical PDAC tissues stained with Cy5-labeled XQ-2 aptamer.