

Electronic Supplementary Information

Rational design of sequestered DNzyme beacons to enable flexible control of catalytic activities

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Table S1 DNA oligonucleotide sequences.

Name	Sequence (from 5' to 3')
17E	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGT
S	CTCACTAT rA GGAAGAGAT
SDB (3'-B4)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGTTTACTTA
SDB (3'-B5)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGATTTACTT A
SDB (3'-B6)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACTTTACTT A
SDB (3'-B7)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACCTTTAC TTA
SDB (3'-B8)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACCGTTTA CTTA
SDB (3'-B10)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACCGGCAT TACTTA
SDB (3'-B12)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACCGGCTC TTTACTTA

SDB (5'-B4)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTCGGTTTACTTA
SDB (5'-B5)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTCTCGGTTTACTT A
SDB (5'-B6)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTGCTCGGTTTACT TA
SDB (5'-B7)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTGGCTCGGTTTAC TTA
SDB (5'-B8)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTCGGCTCGGTTTA CTTA
SDB (5'-B10)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTACCGGCTCGGTT TACTTA
SDB (5'-B12)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTCGACCGGCTCG GTTTACTTA
SDB (C-B4)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTCCGGTTTACTTA
SDB (C-B5)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTACCGGTTTACTT A
SDB (C-B6)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTACCGGCATTACT TA
SDB (C-B7)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTACCGGCTTTTAC TTA
SDB (C-B8)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTGACCGGCTTTTA CTTA
SDB (C-B10)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTCGACCGGCTCTT TACTTA
SDB (C-B12)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTCGACCGGCTCG TTTACTTA
SDB (B14)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTTCGACCGGCTC GGTTTACTTA
I	GAGGTAGGGTGAAGTAAGTAAACGAGCCGGTCGA
I*	TCGACCGGCTCGTTTACTTACTTCACCCTACCTC
SDB (C-B12-1)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTCGACCGGCTCG TTTACTTACTTC

SDB (t-DNA)	CATCTCTTCTCCGAGCCGGTCGAAATAGTGAGTTCGACCGGCTCG TTACTTA
t-DNA	TAAGTAAACGAGCCGGTCGA
DS-Probe	CCTCTACTCTCACCTCACCATCTCTTCTCCGAGCCGGTCGAAATAG TGAGTTTCGACGTGAGGTGAGAGTAGAGGTGAAGATT
Target	AATCTTCACCTCTACTCTCACCTCAC
G mutation	AATCGTCACCTCTACTCTCACCTCAC
C mutation	AATCCTCACCTCTACTCTCACCTCAC
A mutation	AATCATCACCTCTACTCTCACCTCAC
SDB (10-23/C-B1)	GCTCTCCAGGCTAGCTACAACGACCTGCACCA
SDB (10-23/C-B3)	GCTCTCCAGGCTAGCTACAACGACCTGCACCTAG
SDB (10-23/C-B4)	GCTCTCCAGGCTAGCTACAACGACCTGCACCGTAG
SDB (10-23/C-B5)	GCTCTCCAGGCTAGCTACAACGACCTGCACCGTAGC
SDB (10-23/C-B6)	GCTCTCCAGGCTAGCTACAACGACCTGCACCTGTAGC
SDB (10-23/C-B7)	GCTCTCCAGGCTAGCTACAACGACCTGCACCTGTAGCT
SDB (10-23/C-B9)	GCTCTCCAGGCTAGCTACAACGACCTGCACCTGTAGCTA
SDB (10-23/C-B12)	GCTCTCCAGGCTAGCTACAACGACCTGCACCCGTTGTAGCTAG
SDB (10-23/C-B15)	GCTCTCCAGGCTAGCTACAACGACCTGCACCTCGTTGTAGCTAGC C
S (10-23)	GGTGCAGG rA UGGAGAGC

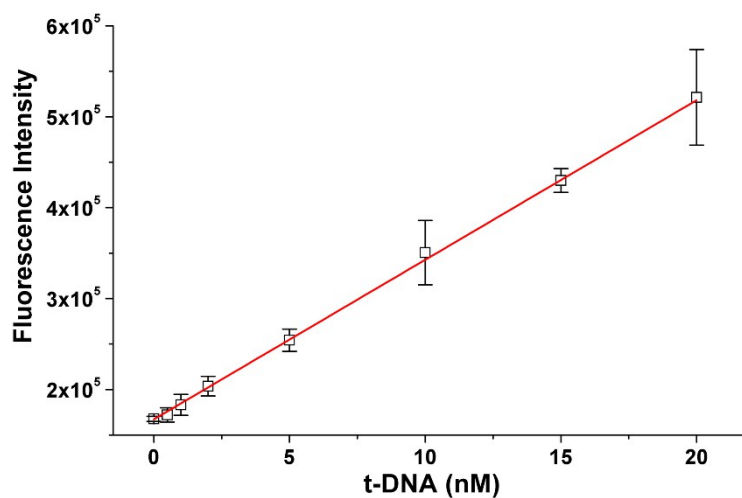


Fig. S1 The linear responses at low DNA trigger concentrations. A linear correlation is obtained in the range of 0.5–20 nM with a detection limit of 0.2 nM based on 3S/N (signal-to-noise). The error bars represent the standard deviation of three measurements.