

## Supplementary information

### Multiplexed detection of pathogen-specific DNA with engineered zinc finger proteins without target amplification

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### Sequences of target DNA oligonucleotide

#### **Stx2-233 and Stx2-268**

5'-GAC GGC TTG ATG TCT ATC AGG CGC GTT TTG ACC ATC TTC GGG TTTT CCC GAA GAT  
GGT CAA AAC GCG CCT GAT AGA CATCAA GCC GTC-3'

#### **SEB400 and SEB435**

5'-GAC GGT GTG ACC GAG CAT GAT GGA AAT CAA ATA GAT AAA CCC TTTT GGG TTT ACT  
TAT TTG ATT TCC ATC ATG CTC GGT CAC ACC GTC-3'

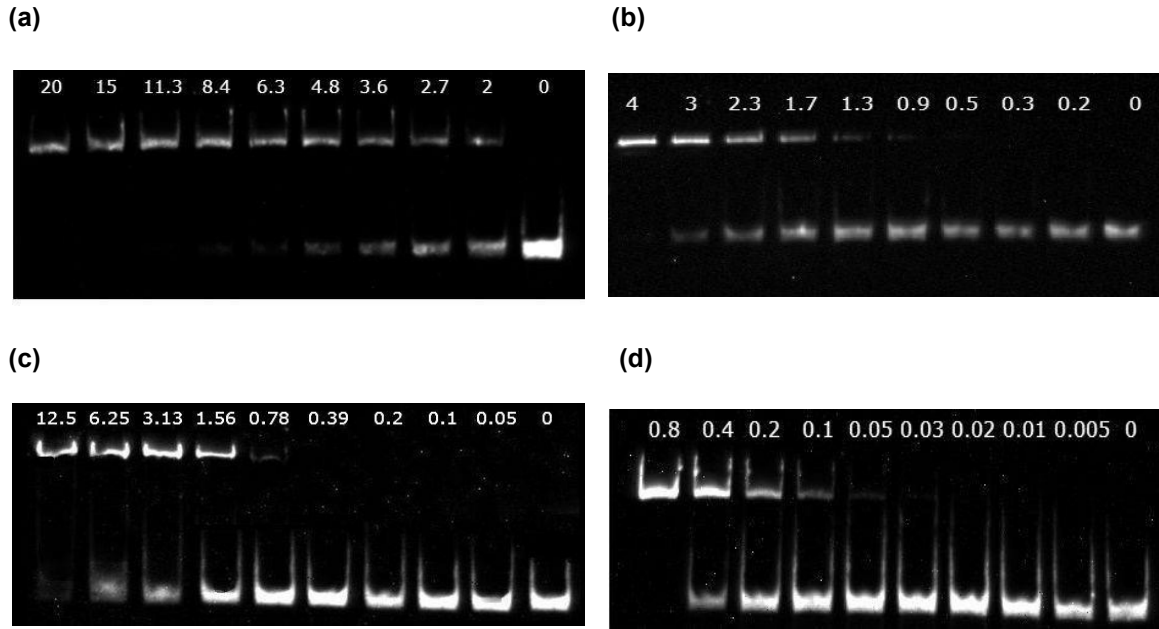
(a)

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1 atgtataata gattatattgt ttcacgtgta attttgatat tcgcactgat actagttatt
61 tatacaccca acgttttagc agaaagccaa ccagatccta aaccagatga gttgcacaaa
121 gcgagtaaat tcaactggtt gatggaaaat atgaaagttt tatacagatga taatcatgta
181 tcagcaataa acgttaaate tatagatcaa tttctatact ttgacttaat atattctatt
241 aaggacacta agttagggaa ttatgataat gttcagatcg aatttaaaaa caaagattta
301 gctgataaat acaaagataa atacgtagat gtggttggag ctaattatta ttatcaatgt
361 tatttttctg aaaaaacgaa tgatattaat tcacatcaa ctgataaacg aaaaacttgt
421 atgtatgggtg gtgtaactga gcataatgga aaccatttag ataaatatag aagtattact
481 gttaggggat ttgaagatgg taaaaattta ttgtcttttg acgtacaaac taataagaaa
541 aaagtgactg ctcaagaatt agattaccta actcgtcact atttggtgaa aaataaaaaa
601 ctctatgaat ttaacaactc accttatgaa acgggatata ttaaatttat agaaagtgag
661 aatagctttt ggtatgacat gatgcctgca ccaggagata aatttgacca atctaaatat
721 ttaatgatgt acaatgataa taaattggtt gattctaaag atgtgaagat tgaagtttat
781 cttacgacaa agaaaaagtg a
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(b)

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1 atgaagtgta tattatthaa atgggtactg tgccctgttac tgggtttttc ttcggtatcc
61 tattcccggg aatttacgat agacttttctg actcaacaaa gttatgtctc ttcgttaaat
121 agtatacggg cagagatata gaccctctct gaacatataat ctcaggggac cacatcgggtg
181 tctgttatta accacacccc accgggcagt tattttgctg tggatatacg agggcttgat
241 gtctatcagg gcggttttga ccactcttgt ctgattattg agcaaaataa tttatatgtg
301 gccgggttcg ttaatacggc aacaaatact ttctaccggt tttcagattt tacacatata
361 tcagtgcccg atgtgacaac ggtttccatg acaacggaca gcagttatac cactctgcaa
421 cgtgtcgcag cgtggaacg ttccggaatg caaatcagtc gtcactcact ggtttcatca
481 tatctggcgt taatggagtt cagtggtaat acaatgacca gagatgcac cagagcagtt
541 ctgcgttttg tcaactgtcac agcagaagcc ttacgcttca ggcagatata gagagaattt
601 cgtcaggcac tgtctgaaac tgctcctgtg tatacagatga cgccgggaga tgtggacctc
661 actctgaact gggggcgaat cagcaatgtg cttccggagt atcggggaga ggatgggtgc
721 agagtgggga gaatatcctt taataatata tcagcgatac tgagtactgt ggccgttata
781 ctgaattgcc atcatcaggg ggccgcttct gttcgcgccg tgaatgaaga gagtcaacca
841 gaatgtcaga taactggcga caggcccgtt ataaaaataa acaatacatt atgggaaagt
901 aatacagcag cagcgtttct gaacagaaag tcacagtttt tatatacaac gggtaaataa
961 aggagttaag tatgaagaag atgtttatgg cggttttatt tgcattagtt tctgttaatg
1021 caatggcggc ggattgcgct aaaggtaaaa ttgagttttc caagtataat gagaatgata
1081 cattcacagt aaaagtggcc gggaaagaat actggaccag tcgctggaat ctgcaaccgt
1141 tactgcaaag tgctcagctg acaggaatga ctgtcacaat caaatccagt acctgtgaat
1201 caggctccgg atttgctgaa gtgcagttta attttgaatg a
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**Fig. S1** Location of target regions of ZFP pairs SEB400/SEB435 and Stx2-233/Stx2-268. (a) 400-435 bp in *seb* gene (801 bp) and (b) 233-268 bp in *stx2* gene (1241 bp). Target sites are highlighted.



**Fig. S2** Illustration of EMSA (electromobility shift assay) of engineered zinc finger proteins (ZFPs) to target different sequences within *stx2* gene and *seb* gene. (a) Stx2-233, (b) Stx2-268, (c) SEB400, and (d) SEB435. The ZFP concentrations (nM) are given at the top. Top bands indicate the ZFP and DNA complex and the bottom bands show free DNA.