

## Supplementary data

Colorimetric aptasensor for detecting *Bacillus carboniphilus* using aptamer isolated with a non-SELEX-based method

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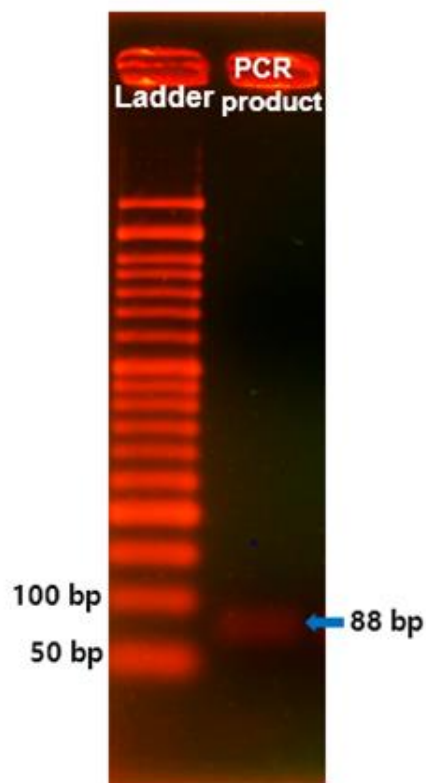
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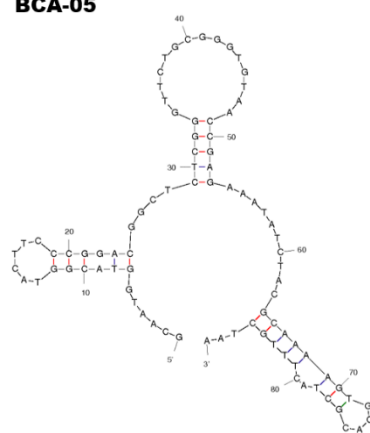
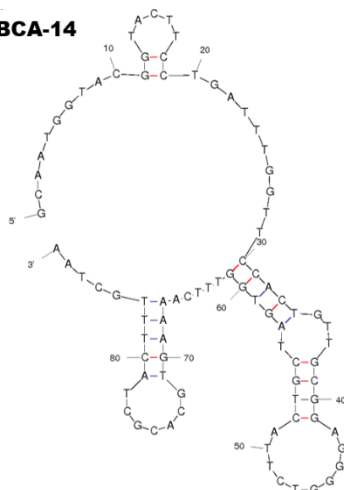
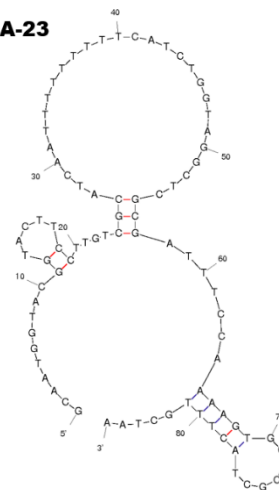
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**Table S1.** Sequences of the *B. carboniphilus*-specific aptamers isolated using the centrifugation-based partitioning method.

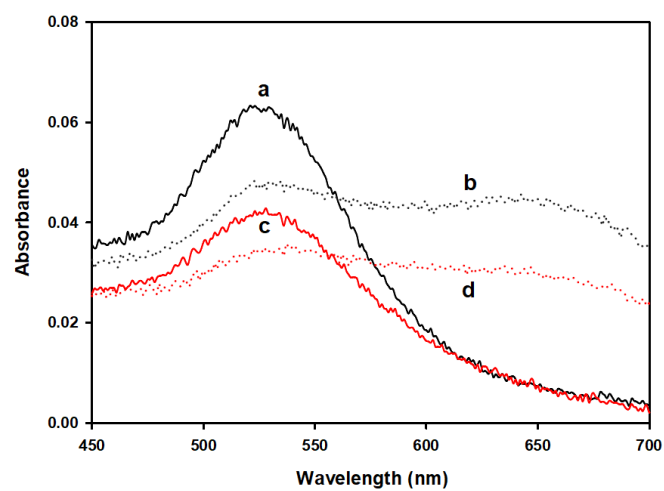
<b>Aptamer</b>	<b>Sequences of the random region</b>
BCA-01	TTG ATG TGA AGC TCG CAG CTT TCC GGG AGG CAT TGT TGA ACT TT
BCA-02	GCA TTC CGA GTG TTG GCT TAA GTT CCA TAC TCC TCG AAT GTG TAT
BCA-03	CCG CCT CTT GAT CGG CTG TTG CAT AGG TGC GTC AGC GGG CAT TCG
BCA-04	GCC ATC TCC CGG CTC AGG AGT AAC GCG CCC GCA TAC TTA GGG CAT
<b>BCA-05</b>	<b>CGG ACG GCT CTC GGG TTC TGC GGG TGT AAC CGA GAA ATA TCT ACG</b>
BCA-06	ATG GGA AAT CCC AAA TTC TCA ACC GTT GAA TGC AGC CTT TCT GGG
BCA-07	GGC CGT TCC CCT GCA TTG AAG GTG CGG TCT AGC GTT CAT CCT GAA
BCA-08	TCT TTT GGC TCC GGG GCC GAT GTT CTC CCA GTG CCC TTG CGC CAG A
BCA-09	AAA AGC TAA CCG GGA CGC TAT TTG TAA GCA GAT ATC CTG ACA CCT
BCA-10	AGA CTG GCA CGG TTG CGG GTG ACC TGC TAA CAA GCC CCA TTA TCT
BCA-11	CGT TAG GTG TCA ACC CTC GTC GGG TCT CGC AGC CAA GTA GTG TAC G
BCA-12	GGG CTG GTG AAG CCA AAC TGC TCC ATT GGT CCA GCT TCG TCC AGC
BCA-13	GCC GGA GTC CAC TGC TGT TCA CGA TCT TGT AAG GCC TTT CGC GAT
<b>BCA-14</b>	<b>TGA TTT GGT TCC ACT GTT GCG GAG GGG TCT TAC TGC TAG TGG TTT</b>
BCA-15	TGT GAT GGG GTG GGG GTT GTG AGG CCG GGT TGT TTG GTC TAC G
BCA-16	GTC TAC TTG GGG GTT TCC GCT TAT GTG TGT TAC GGG GGT TTT TGT
BCA-17	ACC GAG GGG GAG GCC ATC CGG GCA ATG TGT GGT GTT AGG GTC GGA
BCA-18	GGG TAC CTT CGT CAT GAC CAC AGG GTC TGC TAG TAC GGG TCT GTT
BCA-19	CGC CCA TTG GGG CTT GGT TAT TTT CAC CAA GTT GAG AAT TTT TGT
BCA-20	AGA AGG CTC GAA GTG CTC TAG AGA GTG GGC TAA TGT AAT TGC TCT
BCA-21	CAG CCA CGG TGT GGT TCA CCT TGG GTC CCT GGT TGG CGC CGC ATG
BCA-22	TCG GTT GTA AGT TCT TAC GTA TCC CGG GCG TTA CTC GTC TAT GGC
<b>BCA-23</b>	<b>TTG TCG CAT CAA TTT TTT TTT CAT CTG GTA GGC TCG CGA TTT C</b>
BCA-24	TAA TAT AGT ATG GCT TTC AGC CGT TTA CCT GTG AGA TTA GGT TTT
BCA-25	TCC CTA AAT CAG CAC CGA AAT GGT GAG GAT TAA TCG ACT AAG AT



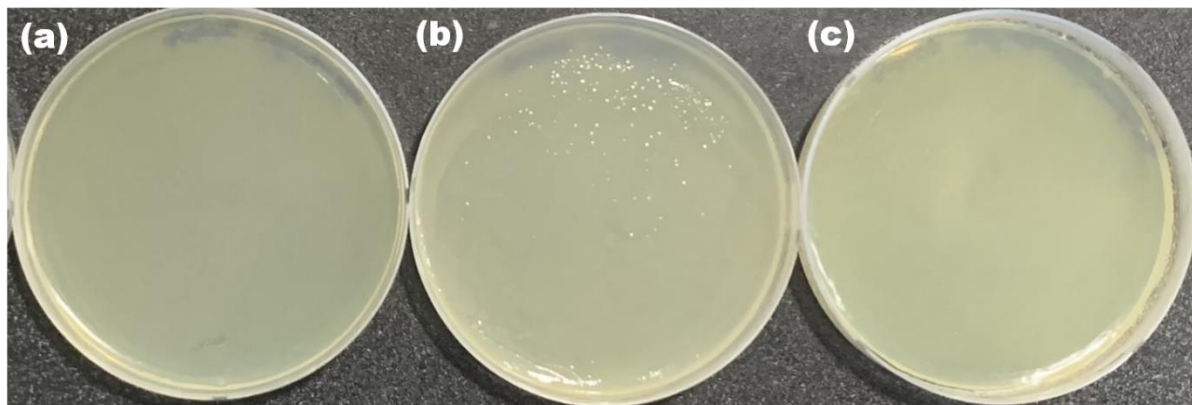
**Figure S1.** Agarose gel electrophoresis of the final PCR product. The band on lane 2 appeared between 50 and 100 base pairs(bp) is corresponding to the size, 88 bp of random DNA library used in aptamer selection

**BCA-05****BCA-14****BCA-23**

**Figure S2.** Secondary structures of isolated aptamers predicted by the Mfold algorithm.



**Figure S3.** Ultraviolet-visible absorption spectra of AuNPs at each experimental condition: (a) AuNPs only (solid black line); (b) AuNPs without aptamer (black dot line); (c) AuNPs with the BCA-05 aptamer (solid red line); (d) AuNPs with the flow-through solution after BCA-05 binding to *B. carboniphilus* (red dot line). 0.6 M NaCl was added to b, c, and d.



**Figure S4.** The formation of artificial biofilms on nutrient agar medium. (a) non-target bacterial mixture biofilm, (b) target bacterial biofilm, and (c) the target in bacterial mixture.