SUPPLEMENTAL MATERIAL

FIG. S1 Whole plasmid sequence of TAAK-A54. Colour-coded according to the plasmid map.

Legend

Ori	CAP binding site	lac promoter	lac operator
M13 rev	T3 promoter	**Signal peptide**	**Non-conserved region**
Auto chaperone region	**6x Histidine**	**Chitin-binding domain (CBD)**	**Linker region**
β – domain	f1 ori	AmpR promoter	AmpR

5'

TTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGCT
ACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAA
CTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTAGTTA
GGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCA
AGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGC
ACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTG
AGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGG
TAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAAC
GCCTGGTATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATT
TTTGTGATGCTCGTCAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGC
CTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGTT
ATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTC
GCCGCAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAG
CGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAGCT
GGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGT
GAGTTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTA
TGTTGTGTGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCTATGACCAT
GATTACGCCAAGCGCGCAATTAACCCTCACTAAAGGGAACAAAAGCTGGAGCTCC
ACCGCGGTGGCGGCCGCCTGCCGCCTTCAGGCGGGGGCGGCCCGGCGCAGGCT
GCCGAAGCGCTCGGCGAACTGCCGGGTGAAGACGGCGCCGAAGAAGAAAATCTG
CGCTGAATAATAGATCCACAGCAGCAGCGCGATCAGCGAACCCGCCGCCCCGTAC
GCCGATACCGCCGCGCCGCGTCCCAGGTACAGGCCGATGCCCCATTTGCCGGCC
AGGAACAGCGCCGCGGTCACGATCGCGCCGGGTATCACGTCGAGCCAGGGAATG
CGCTTGCTGGGCAGCAGCTTGTAGACCACGGCGAACAGCGCGGTCACCACCGCG
AACGAAAAGAGGTTCGACAGCCAGTCGGCCGCCATCGCGAAGGCCGATGTGCTC

CATAGATCGCCGTAGTATCCCTTGGCCGCGCCCAGCGCCGCGTTGAGGGTCAGC
GAAAGCAGCAGGAACAGCGCCAGCACCAGCACCAGGCCGAATGACAGCATGCGG
CTGCGCACCAGCCCCTGCAAACCGCTCTTGTCTTCCTTGACGTCGTGCGCAATTCT
CATAGGAAAGCACGGCTATTCAGGAAAGCTCTTGTTGGGCCTCGGACTTCATCCG
GCATTCATTATGACGTGGGCTTTGGATACTGCGCAAATCCCCGCATGGCTCGTGC
CTGATCCCGCCGGGACGCAGTCGTTTCCTTCGCGTCACCGGCGTCGTACGGCAG
GCGGGTCGGTTTGTTCAACTTCTCTTTTGGTGGCAC**ATGTATCTCGATAGATTCCG**
TCAATGTCCGTCTTCCTTGCAGATCCCGCGTTCCGCGTGGCGCCTGCATGCGCTG
GCCGCAGCTCTGGCGCTGGCCGGCATGGCCCGGCTGGCGCCCGCGGCGGCGCA
GGCGCCGCAGCCGCCCGTGGCCGCTAGAGAGGCCCATCATCACCATCACCACG
GTGGCGGTGGCAGCTTCCCGCAATGGCGTGAGAACCAGGCATATCGGGTCGAC
GATGGGGTGACCTACGAGGGTCTGCGCTATCTCTGCCTGCAGGCGCACACCTCC
AACAGCGGTTGGACGCCACCGGTAGCCTTCACCCTCTGGCGTCCGCTGGGTGGT
GGCGGTAGCGCCTCTTACAAGACCCTGACCCTGCAAACCCTGGACGGCAACGG
CGTGTTCGTGCTGAACACCAACGTCGCCGCCGGGCAGAACGACCAGTTGCGGGT
CACCGGCCGCGCCGATGGCCAGCACCGCGTGCTGGTGCGCAATGCCGGAGGCG
AGGCCGACAGCCGGGGCGCCCGCCTGGGCCTGGTGCATACCCAGGGGCAGGG
CAACGCCACCTTCCGGCTGGCCAACGTCGGCAAGGCGGTTGACCTGGGCACGT
GGCGCTACAGCCTGGCGGAGGATCCGAAGACGCATGTCTGGAGCTTGCAGCGC
GCGGGCCAGGCCCTGTCGGGGGCGGCCAATGCCGCCGTGAACGCGGCGGATCT
TTCCAGCATCGCCCTGGCCGAGTCCAACGCGCTGGACAAGCGCCTGGGCGAGC
TGCGCCTGCGCGCCGACGCCGGCGGGCCATGGGCGCGTACGTTCAGCGAGCGC
CAGCAGATCAGCAACCGCCACGCCCGCGCCTACGACCAGACGGTCAGCGGGCT
GGAGATCGGCCTGGACCGTGGCTGGAGCGCGTCGGGCGGGCGCTGGTACGCCG
GCGGCCTGCTCGGCTACACCTATGCCGACCGCACCTATCCCGGCGACGGTGGC
GGCAAGGTCAAGGGCCTGCACGTCGGCGGCTACGCCGCCTATGTCGGCGATGG
CGGCTACTATCTCGACACCGTGCTGCGGCTGGGCCGCTACGATCAGCAATACAA
CATTGCCGGCACCGATGGCGGCCGCGTCACCGCCGACTACCGCACAAGCGGCG
CCGCATGGTCGCTCGAAGGCGGGCGCCGGTTCGAGCTGCCCAACGACTGGTTC
GCCGAACCGCAGGCCGAGGTCATGCTGTGGCGCACGTCAGGCAAGCGCTATCG
CGCCAGCAATGGCCTGCGCGTCAAGGTGGACGCCAACACCGCCACGCTGGGCC
GCCTGGGCTTGCGCTTCGGCCGCCGCATCGCCCTGGCCGGCGGCAACATCGTG
CAGCCCTACGCCAGGCTCGGCTGGACGCAGGAGTTCAAAAGCACGGGCGATGT
GCGCACCAATGGCATTGGCCATGCCGGCGCAGGCCGCCACGGCCGCGTGGAAC
TGGGCGCGGGCGTCGACGCCGCGTTGGGCAAGGGGCACAACCTCTATGCTTCG
TACGAGTACGCGGCGGGCGACCGGATCAACATTCCGTGGTCGTTCCACGCCGGC
TACCGCTACAGCTTCTGAGCGAAGCTTATCGATACCGTCGACCTCGAGGGGGGGC
CCGGTACCCAATTCGCCCTATAGTGAGTCGTATTACGCGCGCTCACTGGCCGTCG
TTTTACAACGTCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCA
GCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGC
CCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGAAATTGTAAGCGTTAATATT
TTGTTAAAATTCGCGTTAAATTTTTGTTAAATCAGCTCATTTTTTTAACCAATAGGCC
GAAATCGGCAAAATCCCTTATAAATCAAAAGAATAGACCGAGATAGGGTTGAGTGT

TGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAG
GGCGAAAAACCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCTAATC
AAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCTAAAGGGAGC
CCCCGATTTAGAGCTTGACGGGGAAAGCCGGCGAACGTGGCGAGAAAGGAAGGG
AAGAAAGCGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCGGTCACGCTG
CGCGTAACCACCACACCCGCCGCGCTTAATGCGCCGCTACAGGGCGCGTCAGGT
GGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACAT
TCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGA
AAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCG
GCATTTTGCCTTCCTGTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGC
TGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGT
AAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAA
GTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCG
GTCGCCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAA
AAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCAT
GAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAG
CTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGA
ACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTA
GCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTTC
CCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTG
CGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGC
GTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTAT
CGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAG
ATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTA
CTCATATATACTTTAGATTGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTG
AAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCAC
TGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTC **3’**

FIG. S2 Amino acid sequence of CBD-BrkA. Colour-coded according to the plasmid map.

Legend

Signal peptide	Non-conserved region	Auto chaperone region	6x Histidine
Chitin-binding domain (CBD)	Linker region	β – domain	

N

MYLDRFRQCPSSLQIPRSAWRLHALAAALALAGMARLAPAAAQAPQPPVAAREAH
HHHHHGGGGSFPQWRENQAYRVDDGVTYEGLRYLCLQAHTSNSGWTPPVAFTLW
RPLGGGGSASYKTLTLQTLDGNGVFVLNTNVAAGQNDQLRVTGRADGQHRVLVRN
AGGEADSRGARLGLVHTQGQGNATFRLANVGKAVDLGTWRYSLAEDPKTHVWSLQ
RAGQALSGAANAAVNAADLSSIALAESNALDKRLGELRLRADAGGPWARTFSERQ
QISNRHARAYDQTVSGLEIGLDRGWSASGGRWYAGGLLGYTYADRTYPGDGGGKV
KGLHVGGYAAYVGDGGYYLDTVLRLGRYDQQYNIAGTDGGRVTADYRTSGAAWSL
EGGRRFELPNDWFAEPQAEVMLWRTSGKRYRASNGLRVKVDANTATLGRLGLRFG
RRIALAGGNIVQPYARLGWTQEFKSTGDVRTNGIGHAGAGRHGRVELGAGVDAALG
KGHNLYASYEYAAGDRINIPWSFHAGYRYSF*

C

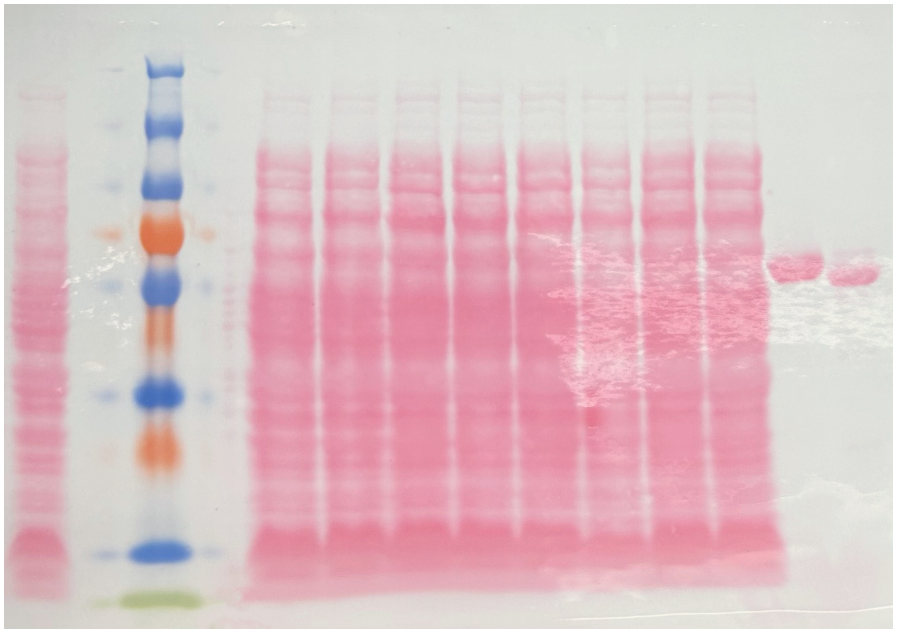

FIG. S3 Ponceau-S staining corresponding to the Western blot shown in Figure 2 indicates consistent protein loads across all lanes. Picture was taken with a digital camera.

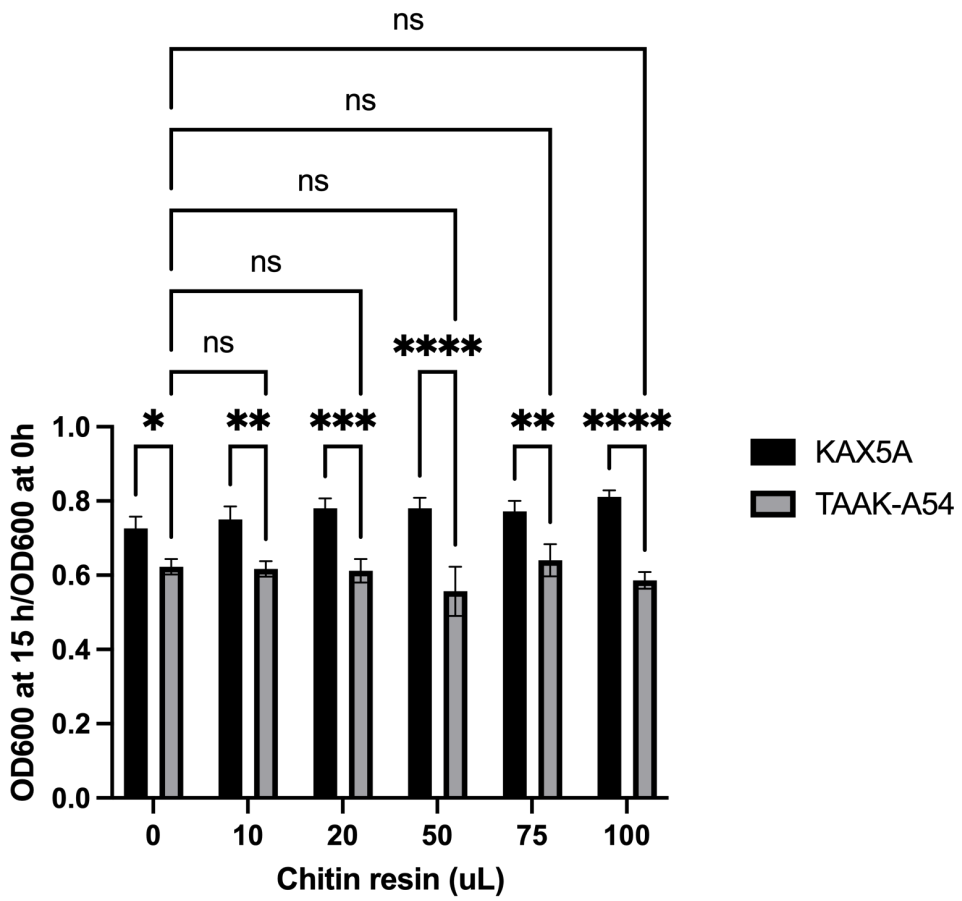

FIG. S4 Changes in OD_{600} of TAAK-a54 cultures incubated with different concentrations of chitin resin are not obvious. *E. coli* transformed with KAX5A (negative control) and TAAK-a54 plasmids are incubated with chitin resin (n=3) at 4 C for 15 hours. OD_{600} was recorded before and after the incubation. Statistical significance relative to KAX5A control and chitin resin-empty control were assessed by two-way ANOVA with multiple comparisons. ns: not significant; *P ≤ 0.0332; **P ≤ 0.0021; ***P ≤ 0.0002; ****P ≤ 0.0001. This experiment was the replica of the experiment with results presented in the paper, just with different concentrations of chitin resin and in triplicates. No significant OD_{600} change is observed as cell cultures are incubated with more chitin resin. Hence, results from the previous experiment were presented as the main figure.

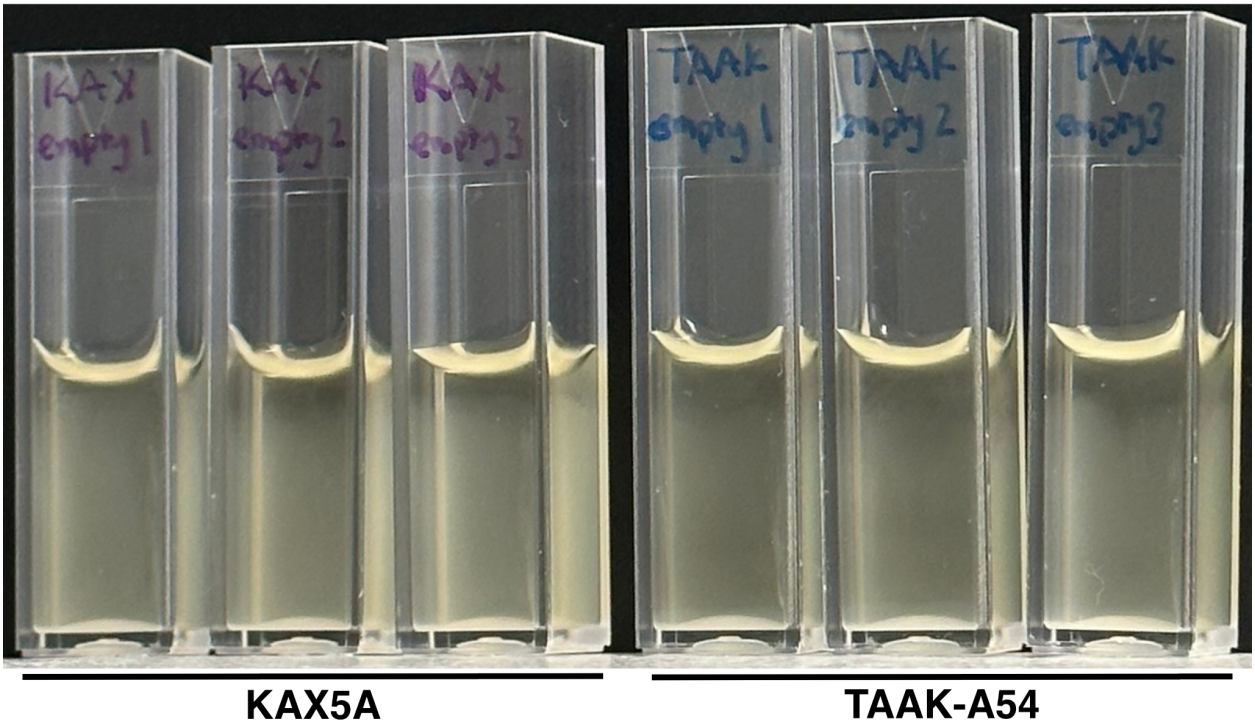

FIG. S5 TAAK-A54 cultures without chitin resin were less turbid and had a larger cleared portion on the top of the culture than KAX5A after a 15-hour incubation.