Supplementary File

Physiological Function of Rac Prophage During Biofilm Formation and Regulation of Rac Excision in *Escherichia coli* K-12

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Table S1. Mass spectrometry results of the purified YdaQ protein used in Fig. 7D. Peptide fragments observed were highlighted in different colors, and their loci in YdaQ protein were also shown.

Matched Protein ID：gi|90111254|ref|NP_415862.4| Description： Rac prophage; conserved protein [*Escherichia coli* str. K-12 substr. MG1655] >gi|90111254|

Amino acid (aa) sequence: MAQVIFNEEWMVEYGLMLRTGLGARQIEAYRQNCWVEGFHFKRVSPLGKPDSKRGIIWYNYPKINQFIKDS

Num	Query_ID	Pep_exp_mz	Pep_exp_mr	Pep_calc_mr	Pep_ms_delta	Start position	end position	Miss	Icon_ score	E-value	aa before	Peptide	aa after	Retention_time
1	5666	395.23	1182.67	1182.67	-0.0046	44	54	1	56.5	8.95E-06	R	VSPLGKPDSKR	G	6.4
2	3015	482.76	963.5	963.5	-0.0048	64	71	1	27.27	0.016312452	K	INQFIKDS	-	18.87
3	5153	577.3	1152.59	1152.6	-0.003	55	63	0	43.86	0.000265192	R	GIIWYNYPK	I	42.9
4	1728	390.2	778.39	778.4	-0.0053	26	31	0	39.46	0.001239978	R	QIEAYR	Q	7.93
5	7414	437.24	1308.7	1308.7	-0.0011	54	63	1	39.47	0.000581845	K	RGIIWYNYPK	I	23.77
6	10576	402.69	1606.75	1606.75	-0.0006	32	43	1	69.84	6.90E-07	R	QNCWVEGFHFKR	V	22.7
7	12591	754.04	2259.09	2259.07	0.0179	2	19	0	34.86	0.002057503	M	AQVIFNEEWMVEYGLMLR	T	41.58
8	1614	381.73	761.44	761.44	-0.0049	64	69	0	45.25	0.000213455	K	INQFIK	D	13.12
9	11714	633.02	1896.03	1896.03	0.0016	55	69	1	45.86	7.91E-05	R	GIIWYNYPKINQFIK	D	35.98
10	7689	445.91	1334.7	1334.69	0.0051	20	31	1	23.9	0.030960901	R	TGLGARQIEAYR	Q	14.1
11	8827	484.88	1451.63	1451.63	-0.0016	32	42	0	36.14	0.001058009	R	QNCWVEGFHFK	R	29.48
12	3713	514.29	1026.56	1026.57	-0.0066	44	53	0	50.76	4.78E-05	R	VSPLGKPDSK	R	6.95
13	1608	381.69	761.37	761.37	-0.0036	26	31	0	27.43	0.019607839	R	QIEAYR	Q	15.98
14	10582	402.94	1607.73	1607.73	-0.0033	32	43	1	53.34	2.76E-05	R	QNCWVEGFHFKR	V	24.57

Table S2. Nucleotide sequences of primers used in this study. Restriction enzyme sites are underlined. F indicates forward primer and R indicates reverse primer. Primers used in qPCR used in this study are the same as previously described[1].

Primer Name/Purpose	Primer Sequence (listed 5' to 3')
DNA cloning and sequencing	
pCA24N-*ttcA*-F	GCCCAAGAAAATCAACAAATTACAAAGAAAG
pCA24N-*ttcA*-R	CCTTTCACTTCAACCACATTCAGC
pCA24N-*ttcA*'-F	CCCTCGCAAAATCAAGAAATTAGTAAGAAAG
pCA24N-F	GATAACAATTTCACACAGAATT
pCA24N-R	GTCAGAGGTTTTCACCGTCATCA
pET28b-*xisR*-F	CTAGCCATGGGCAGCAGCCATCATCATCATCATCACGCACAAGTAATCTTTAATGAAG
pET28b-*xisR*-R	CCCAAGCTTTCATGAGTCTTTGATAAACTGATT
pET28b-*hns*-F	CTAGCCATGGGCATGAGCGAAGCACTTAAAATTCTGAA
pET28b-*hns*-R	CCCAAGCTTTTAGTGGTGGTGGTGGTGGTGTTGCTTGATCAGGAAATCGTC
T7-F	TAATACGACTCACTATAGGG
T7-R	TATGCTAGTTATTGCTCAG
Amplify fragments for EMSA	
rac attR-F	TTTGGAATTTTTTTCGGTGG
rac attR-R	AGATTTCTTATGCTGGGCG
rac attM-F	CTATATGCCTTTGATGCGGAG
rac attM-R	GTAAGGGCAAAAATCACAACTC
qPCR	
e14-F	GTGCAAACATCGGTGACGAA
e14-R	TTCAGCAGCTTAGCGCCTTC
rac-F	CTCCAGCATGGTATAGCTGTCTTTAC

rac-R	CAGATTTCTTATGCTGGGCGTTCCG
CP4-6-F	GCATCGCCCGGTTAGTTTTA
CP4-6-R	CACCTGCACTGCCTGATGTC
CPS-53-F	CGTACTTACCCCGCACTCCA
CPS-53 -R	GGCAGTGGCCAAAAATTGAA
DLP12-F	CAAAAGCCATTGACTCAGCAAGG
DLP12-R	ACGGATAAGACGGGCATAAATGA
CPZ-55-F	AGCACATCCCCCGAACG
CPZ-55-R	TTGACGAAGTGATTGTCCGC
CP4-57- F	AAGCATGTAGTACCGAGGATGTAGG
CP4-57-R	TATGTCTCCTCACCGTCTGGTCGG
purA-F	GGGCCTGCTTATGAAGATAAAGT
purA-R	TCAACCACCATAGAAGTCAGGAT
qRT-PCR	
xisR qPCR-F	TGGTTGAATACGGCCTGATG
xisR qPCR-R	GTACCAGATAATCCCTCGTTTGCT
rrsG-qPCR-F	TATTGCACAATGGGCGCAAG
rrsG-qPCR-R	ACTTAACAAACCGCTGCGT

Reference

1. Wang, X. *et al.* Cryptic prophages help bacteria cope with adverse environments. *Nat. Commun.* **1**, 147 (2010).