

Suppl. Table 6. The Fur regulon in alpha-proteobacteria

Locus ID	Operon	Position	Score	Fur-box	Function
<i>Caulobacter crescentus</i>					
CC2928	<i>OMP1</i>	-32	5.85	ATTGCGACgCACTCGCAAT	TonB-dependent receptor
CC0028	<i>OMP2-piuC</i>	149	5.33	ATTGCGACGGCGcCGCAAc	TonB-dependent receptor, iron uptake factor piuC
CC0139	<i>OMP3</i>	-97	5.42	ATTGCaAGTCAGTCGCAtc	iron(III) dicitrate receptor fecA
CC2194	<i>OMP4</i>	-44	5.10	gTTGCGAGcCAATCGCAtg	TonB-dependent receptor
CC2367		-130	5.05	tTTGCGAtTGA CTCGCAAT	hypothetical protein
		-96	4.82	cTTGCGAagCA TCTCAA g	
CC3263	<i>bfd-bfr</i>	-375	4.82	gaTGaGAaTGACa CtCAAT	bacterioferritin
CC0155		-31	<u>4.45</u>	ATTGaGAacCA TCTCAA a	COG3205:short transmembrane protein
CC0711	<i>feoAB</i>	-144	<u>4.05</u>	AcTGatAaTCgtTCG CAAT	Fe2+ transport system
CC3059	<i>piuB</i>	-63	<u>4.23</u>	ATTGCaAtTCgtT CTCAA g	iron-uptake factor
<i>Zymomonas mobilis</i>					
ZMO0795	<i>OMP1</i>	-136	5.99	ATTGAaAATCAaTAT CAAT	probable iron transport receptor
ZMO1631	<i>OMP2</i>	-74	5.88	ATTGAcAATCAaTAT CAAT	TonB-dependent receptor
ZMO0318		-125	5.57	AgTGATAtTGATTtT CAAa	dehydrogenase/reductase family
ZMO1851	<i>nifF</i>	-89	5.48	ATTGATAtTGATaAT CA tT	flavodoxin
ZMO0188	<i>OMP3</i>	-209	5.36	taTGATAtTGATTt gCAAT	ferric-pseudobactin receptor
ZMO1495		-132	5.24	ATTGATAtTGATTATt AtT	conserved hypothetical protein
ZMO1822	<i>OMP4</i>	-79	5.21	tgTGATAtTGATT cTCA tT	TonB-dependent receptor
ZMO0022		-237	5.17	AaTGAAaAATCtTTAT CA tT	Fe-S oxidoreductase
ZMO1860		-159	4.97	tTTGATAtTGATTATt AcT	nodulin 21 like protein
ZMO1540	<i>feoAB</i>	-159	4.94	ATTGATAAgCAgTt gCA tT	Fe2+ transport system
ZMO1753	<i>fpr</i>	-274	4.79	ATTGAgAtTtATT cgCAA a	ferredoxin-NADP reductase
ZMO1263	<i>adhA</i>	-240	4.78	tTTGcaAATGATTtT AtT	alcohol dehydrogenase I
ZMO1410	<i>bfr</i>	-370	4.78	ATTGATAcTtgTTAT CA tT	bacterioferritin
ZMO0031	<i>OMP5</i>	-233	<u>4.59</u>	tTcGATAtT CcTatTCAAT	TonB-dependent receptor
<i>Gluconobacter oxydans</i>					
GOX0536	<i>OMP1</i>	-145	6.22	AATGAGAATCATTt gCATT	Hydroxamate-type ferrisiderophore receptor
GOX0532	<i>exbBD-tonB</i>	-59	6.04	AgTGAGAATGAcT CTCATT	components for TonB-dependent iron transporters
GOX1246	<i>OMP2</i>	-100	5.89	AATGAGAATCtT TcGCAaT	TonB-dependent receptor
		-67	5.45	AtTGAGAATtAg TCgCATT	
GOX0673	<i>feoAB</i>	-106	5.79	gATGcaAATCATT CTCA cT	Fe2+ transport system
GOX0641	<i>OMP3</i>	-58	5.62	gtTGAGAATaATTa TCATT	Hydroxamate-type ferrisiderophore receptor
GOX1417	<i>OMP4</i>	-60	5.28	gtTGcGAATaAc TCgCATT	Ferrichrome receptor FcuA
<i>Erythrobacter litoralis</i>					
ELI2992	<i>feoAB</i>	-46	5.75	ATTGaGAATGAgTT GCAAT	Fe2+ transport system

ELI2950	<i>OMP1</i>	-65	5.59	ATTGCGAcTtATTCTCAAT	TonB-dependent receptor
		-31	4.55	ATcGaGAATCgTTCGCAAg	
ELI2144	<i>OMP2</i>	-61	5.17	ATTGCGAATacgTCTCAAT	outer membrane receptor for Fe ³⁺ -dicitrate
ELI1365		-126	5.06	gTTGCAAcTCATTCTCaT	no hits, small CDS
ELI2069	<i>hemA</i>	-71	4.95	gaTGCGAATCATTTCGCAAA	haem biosynthesis
ELI0967	<i>COG3182</i>	-46	4.9	gTTGCAAgTGATTatCaT	uncharacterized iron-regulated membrane protein
ELI2935	<i>OMP3</i>	-243	4.8	AaaGCAAgTCAGTTtCAAT	TonB-dependent receptor
ELI1371		-30	4.78	ATcGCGAcTGcTTCGCGAT	hypothetical protein
ELI0014	<i>OMP4</i>	-235	4.71	ATTGctgATcTTaGCAAA	TonB-dependent receptor
ELI0267	<i>exbBD-tonB</i>	-8	4.57	cTcGCAAATGATTatCgAa	components for TonB-dependent iron transporters
ELI2812	<i>bfd-bfr</i>	-31	4.29	cTTGCGAATCAcTCGCAgg	bacterioferritin
<i>Novosphingobium aromaticivorans</i>					
Saro02000513	<i>OMP1</i>	-34	5.08	AgTGCGAtTGAgTCGCAaT	TonB-dependent receptor
		-6	4.27	ctTGCGAATGATTatCgTg	
Saro02001528	<i>OMP2-fegB</i>	-82	4.89	AATGCGAATGATTCTtAgT	TonB-dependent receptor, iron-uptake factor
		-53	4.31	ctTGaGAACGAcTCGCAcT	
Saro02002319	<i>feoAB</i>	-46	4.89	AtTGCGAAcGAcTTGCAaT	Fe ²⁺ transport system
Saro02003622	<i>OMP3</i>	-153	4.53	AATGCAAtTGggcaGCATT	TonB-dependent receptor
Saro02003557	<i>OMP4</i>	-228	4.28	tAcGCAAATGATTTtCgca	TonB-dependent receptor
<i>Rhodospirillum rubrum ATCC11170</i>					
Rru_A2597	<i>ptr2-chpA2-COG2837</i>	-63	5.61	AtTGATAATTAaTCTCATT	High-affinity Fe ²⁺ transport component and permease, peroxidase
Rru_A0841	<i>araX3</i>	-180	5.41	AAcGATAATTAaTATCATT	siderophore uptake AraC-type regulator
Rru_A2799	<i>Rru_A2799-2796</i>	-199	5.28	AATGAaAgTCATTcGCAaT	COG0581: ABC-type phosphate transport system
Rru_A2763		-96	5.19	AATGAGAgTGATTCTCATg	Putative diguanylate cyclase/phosphodiesterase
Rru_A0880	<i>OMP2</i>	-170	5.07	AAcGAGAcTTATTAgCAaT	TonB-dependent receptor
Rru_A2321		-59	5.07	AATGcTAtTGAaTATCgaT	chemotaxis protein
Rru_A1054	<i>amb3711</i>	-119	4.97	AAcGATtATCAaTAgCATT	hypothetical protein
Rru_A0879	<i>araX2</i>	-99	4.94	AtTGcaAATGAcTtgCAaT	siderophore uptake AraC-type regulator
Rru_A1438	<i>fecIR1 -OMP1</i>	-59	4.85	ttTGcGAATAATTCTCAaa	iron transport sigma factor and sensor, TonB-dependent receptor
Rru_A0845	<i>OMP7-fegB</i>	-131	4.85	tATGATAATAAgaAgCATT	TonB-dependent receptor, iron-uptake factor
Rru_A2196	<i>bfd-bfr</i>	-74	4.74	AATGcGAtTGAcTtgCAaa	COG2906: Bacterioferritin-associated ferredoxin, bacterioferritin
Rru_A1456	<i>araX1</i>	-114	4.61	cATGAGAcgCATTtTCATT	siderophore uptake AraC-type regulator
Rru_A2155	<i>exbBD-tonB</i>	-196	4.48	AtTaATAgTCAaTtgCATT	iron transport components
Rru_A0769	<i>fbpABC</i>	-77	4.45	tcTGcGttTCATTCTCAaT	ferric cations ABC transporter
Rru_A2372	<i>fecIR4 -OMP4</i>	18	4.43	AATGcGAAGcGTTtgCATT	iron transport sigma factor and sensor, TonB-dependent receptor
Rru_A2397	<i>fecIR2</i>	-102	4.4	AATGATAgTCgTTCGCAaa	iron transport sigma factor and sensor
Rru_A2809	<i>ptr-chpA</i>	-60	4.35	AATGAaAATGcaTggCtTT	High-affinity Fe ²⁺ transport component and permease
Rru_A2395	<i>OMP5-piuB</i>	-52	4.34	cATGcGAACAAgTCgCATT	TonB-dependent receptor, iron-uptake factor
<i>Magnetospirillum magneticum AMB-1</i>					

<i>amb1811</i>		-35	5.99	AtTGCGAGTCAtTCGCATT	hypothetical protein, predicted transcriptional regulator
<i>amb3711</i>		-39	5.99	AtTGCGAGTAAAtTCGCATT	hypothetical protein, ortholog of Rrub02001888
<i>amb1662</i>	<i>~irr - bfr1-bfr2</i>	-33	5.58	gtTGCGAGTAAaTCGCAaT	regulator, bacterioferritin
<i>amb1681</i>	<i>ptr2</i>	-70	5.42	AATGCGAGcTAtTtGCAaT	High-affinity Fe ²⁺ permease
<i>amb1008</i>		-38	5.22	gATGCGAtTTgtTCGCAaT	unknown hypothetical short ORF
<i>amb3013</i>	<i>cycC -nirB-nrfAB</i>	-154	5.22	gtTGCGAtcGAtTCGCATT	cytochrome, nitrite reductase
<i>amb0918</i>		-175	5.18	gATGCaAGTTAaTCGCAac	CheY-like receiver
<i>amb4411</i>	<i>chpA1-oprB1- COG0348</i>	-2	5.88	AATGCGAGTCACTtGCATT	protein involved in high-affinity Fe ²⁺ transport, porin, polyferredoxin
<i>amb0954</i>	<i>mms6-mms7-mms13</i>	-174	4.94	cATGCaAaTCACTCtCAac	bacterial magnetic particle formation proteins
<i>amb0955</i>	<i>amb0955- mms6</i>	-91	4.94	gtTGaGAGTGAtTtGCATg	bacterial magnetic particle formation proteins
<i>amb1424</i>	<i>amb1424- bfd</i>	-41	4.83	gATGCGAGTCAtTatCATg	?, COG2906: Bacterioferritin-associated ferredoxin
<i>amb0936</i>	<i>amb0936-ptr1- COG0348 -chpA2</i>	-41	4.78	AATtCGAGTCAtTaGCAaa	High-affinity Fe ²⁺ transport component and permease, ferredoxin
<i>amb2978</i>	<i>sodC</i>	-146	4.72	ctTGCGcGTGAaTCGCATc	Cu/Zn superoxide dismutase
<i>amb1022</i>	<i>oprB2- feoAB2</i>	-42	4.69	gATGCGAGcCAgTCGCAcT	porin, Fe ²⁺ transport system
<i>amb0940</i>	<i>chpA3-oprB3</i>	-2	<u>4.31</u>	AATGCGtctCACTCtCgTg	protein involved in high-affinity Fe ²⁺ transport
<i>amb2732</i>	<i>feoAB1</i>	-33	<u>4.27</u>	gATGCGAtgCgCTtGCATc	Fe ²⁺ transport system
<i>amb3546</i>	<i>X- fepA-exbB-tonB- tolQ -exbD1-ex</i>	-30	<u>4.2</u>	gtTGatAaTCAtTCGCAgc	TonB-dependent receptor, iron transport components

Expression data Iron up-regulated genes (Suzuki et al., 2006)

Magnetospirillum magnetotacticum MS-1

<i>Magn03009213</i>	<i>chpA</i>	-48	5.83	AtTGCGAGTCACTtGCATT	protein involved in high-affinity Fe ²⁺ transport
<i>Magn03009755</i>	<i>amb1811</i>	-80	5.84	AtTGCGAtTCACTCGCATT	hypothetical protein, predicted transcriptional regulator
<i>Magn03007091</i>	<i>amb1008</i>	-38	5.45	gATGCGAGTTgtTCGCAaT	unknown hypothetical short ORF
<i>Magn03010317</i>	<i>ptr2</i>	-77	5.32	AATGCaAtTCgCTCGCATT	High-affinity Fe ²⁺ transport permease
<i>Magn03010302</i>		-90	5.02	ttTGctAtTGACTCGCAaT	Methyl-accepting chemotaxis protein
<i>Magn03011341</i>	<i>Magn03011341-Magn03011342</i>	-129	5.06	ttTGCGAtcAAtTCGCATT	Predicted Fe-S oxidoreductases
<i>Magn03007981</i>	<i>mms6-mms7-mms13</i>	-174	4.94	cATGCaAaTCACTCtCAac	bacterial magnetic particle formation proteins
<i>Magn03007982</i>	<i>amb0955- mms6</i>	-91	4.94	gtTGaGAGTGAtTtGCATg	bacterial magnetic particle formation proteins
<i>Magn03009364</i>	<i>oprB-feoAB2</i>	-230	4.79	gATGCGAGcTAaTCGCAcT	porin, Fe ²⁺ transport system
<i>Magn03007972</i>	<i>amb0936-ptr1</i>	-63	4.78	AATtCGAGTCAtTaGCAaa	High-affinity Fe ²⁺ transport component and permease
<i>Magn03007235</i>		-97	4.75	gtTGCGAtTTAtTtGCAcT	Methyl-accepting chemotaxis protein
<i>Magn03006859</i>	<i>mxkB</i>	-411	4.43	AcTtCGAaTAAaTCTCAaT	siderophore-interacting protein
<i>Magn03008031</i>	<i>bfd</i>	-51	<u>4.35</u>	gtTGCGAcTGAtTatCATa	COG2906: Bacterioferritin-associated ferredoxin
<i>Magn03007374</i>	<i>feoAB</i>	-7	<u>4.27</u>	gATGCGAtgCgCTtGCATc	Fe ²⁺ transport system

Sphingopyxis alaskensis RB2256

<i>Sala_2282</i>	<i>OMP1</i>	-48	4.78	tTTGCGAATGtTgTCGCAcT	TonB-dependent siderophore receptor
		-8	4.84	gTTGatAATGAaTCGCAaa	
<i>Sala_2061</i>	<i>OMP2</i>	-63	5.19	AaTGCAcTaATTGCAcT	TonB-dependent siderophore receptor
<i>Sala_1475</i>	<i>OMP3</i>	201	5	gTTGCaAtTCgCTCGCAcT	TonB-dependent siderophore receptor
<i>Sala_1279</i>	<i>feoAB</i>	-261	5.04	ATTGatAATCgCTCGCAaa	Fe ²⁺ transport system

Sala_1595	<i>hemA</i>	-118	5.52	AcTGCGAATCgTTCGCAcT	haem biosynthesis
Sala_1122	<i>sufS</i> -Sala_1121	-35	5.84	tTTGCGAATtGTTTCGCAAT	Fe-S cluster assembly, ferredoxin
Sala_1236	<i>iscR-sufBCDSA</i>	-35	5.16	gTTaaGAATCgTTCGCAAc	Fe-S cluster assembly
Sala_0415	<i>bfr</i>	-354	5.19	AcTGCGAAcCAgTCGCAtc	bacterioferritin
		-329	4.85	gTTGCGAATCtGTCGCAcT	
Sala_1982	<i>fpr</i>	-189	5.01	ATTGCaAATGAgTtGCACt	ferredoxin-NADP reductase
Parvularcula bermudensis HTCC2503					
PB2503_04802	<i>sdh</i>	-115	5.94	tTTGCGAATGATTatCAAT	succinate dehydrogenase
PB2503_07374	<i>OMP1</i>	-32	5.99	ATTGaGAATGATTatCAAT	TonB-dependent siderophore receptor
PB2503_08524	<i>OMP2</i>	-34	5.77	tTTGCaAgTCATTTCGCAAT	TonB-dependent siderophore receptor
PB2503_13539	<i>fbpCA</i>	-34	5.86	ATTGaGAAcTATTCGCAaa	ferric cations ABC transporter
PB2503_13544	<i>fbpB</i>	-71	5.86	tTTGCGAATagTTCtCAAT	ferric cations ABC transporter
PB2503_00005	<i>hmuR</i>	-32	5.87	ATTGaGAgTCATTTCGCAAg	TonB-dependent haemoglobin/transferrin/lactoferrin receptor
PB2503_00035	<i>hmuTUV</i>	-99	5.81	AaTGCGAATtATTCGCAta	hemin ABC transporter
PB2503_13529	<i>piuC</i>	-47	5.07	tTTGCaAATGccTCGCAaa	COG3128 Uncharacterized iron-regulated protein
Oceanicaulis alexandrii HTCC2633					
OA2633_01936	<i>hemA</i>	-144	4.46	tTGAGAAgCgTTgTCAag	haem biosynthesis
OA2633_02911	<i>nuoABCDEFGHIJLMN</i>	-220	4.77	tTGAGAggCATTcGCAaa	NADH ubiquinone oxidoreductase
OA2633_04511	<i>OMP1-X-piuC2</i>	-82	4.81	tCTGcaAtTCATTCTCATT	TonB-dependent siderophore receptor
OA2633_05321	<i>OMP2</i>	-38	4.54	AAcGAaAAgCATTCTCATc	TonB-dependent siderophore receptor
OA2633_11590	<i>piuC</i>	-26	4.73	ACTGcaAATCAcTCgCAGg	COG3128 Uncharacterized iron-regulated protein
OA2633_12420	<i>bfr</i>	-103	4.75	tCTGcaAcTCAGtTtTCAGT	bacterioferritin
OA2633_12430	<i>bfd</i>	-76	4.75	AtTGcGAATGATTtTCgGa	COG2906 Bacterioferritin-associated ferredoxin
OA2633_12925	<i>OMP3</i>	-537	4.79	tATGAGAATGATcCgCATT	TonB-dependent siderophore receptor
OA2633_08069	<i>OMP4-piuB</i>	-46	4.38	AtTGAtAATCAcTCTCAaa	TonB-dependent siderophore receptor, iron-uptake factor
OA2633_08249	<i>hugA</i>	-118	4.51	AgTGcGAAaGATTCTCAcT	TonB-dependent haemoglobin/transferrin/lactoferrin receptor
		-64	4.5	AtTGAGAAcTATTCgCAaT	
OA2633_09259	<i>sdh</i>	-133	4.88	ACTGAGAAcCgTTtGCAaa	succinate dehydrogenase
OA2633_15080	<i>fbpABC</i>	-88	4.41	ctTGcGAgaCgTTCTCAGa	ferric cations ABC transporter
OA2633_10854		-29	4.84	tTGcGAATGgTTCgCATg	COG3205:short transmembrane protein
Pelagibacter ubique HTCC1002					
PU1002_00070	<i>fbpABC</i>	-70	5.13	AtTGatAaTCAtTCGCAaT	ferric cations ABC transporter

Color code for functional roles of genes:

Genes involved in iron uptake

Genes involved in iron storage

Genes involved in iron utilization pathways (synthesis of Fe-S, heme; iron-containing enzymes)

Transcription factors (rirA, araX, fecIR, irr)

Genes with other or uncertain functional roles