

**Supplementary Table S2.** List of the genes categorized into orthologous group shared among all bacilli except for *G. kaustophilus*

I.D.	category	gene name	product
ACHSI-1	1.2	ybaR	sulfate permease
ACHSI-2	1.2	ybbF	sucrose phosphotransferase enzyme II
ACHSI-3	5	ybbI	unknown conserved protein
ACHSI-4	5	ybbJ	unknown conserved protein
ACHSI-5	3.2	adaB	O6-methylguanine-DNA methyltransferase
ACHSI-6	1.2	ybcL	chloramphenicol resistance protein
ACHSI-7	2.2	ybgJ	glutaminase
ACHSI-8	4.2	ybcJ	macrolide 2'-phosphotransferase
ACHSI-9	1.6	tatAD	putative component of the twin-arginine translocation pathway
ACHSI-10	1.6	tatCD	component of the twin-arginine translocation pathway
ACHSI-11	3.8	pcp	pyrrolidone-carboxylate peptidase
ACHSI-12	2.4	lip	extracellular lipase
ACHSI-13	5	ycgF	unknown conserved protein
ACHSI-14	5	ycgJ	unknown conserved protein
ACHSI-15	5	yciC	unknown conserved protein
ACHSI-16	1.2	yckA	ABC transporter (permease) amino acid
ACHSI-17	1.2	yckB	ABC transporter (binding protein) amino acid
ACHSI-18	4.3	sfp	phosphopantetheinyl transferase (surfactin production)
ACHSI-19	1.2	yckJ	ABC transporter (permease) glutamine
ACHSI-20	1.2	yckK	ABC transporter (glutamine-binding protein) glutamine
ACHSI-21	1.2	yclN	ABC transporter (permease) ferrichrome
ACHSI-22	1.2	yclO	ABC transporter (permease) ferrichrome
ACHSI-23	1.2	yclP	ABC transporter (ATP-binding protein) ferrichrome
ACHSI-24	1.2	yclQ	ABC transporter (binding protein) ferrichrome
ACHSI-25	2.2	gabT	4-aminobutyrate aminotransferase
ACHSI-26	2.2	gabD	succinate-semialdehyde dehydrogenase
ACHSI-27	1.2	ycnJ	copper export protein
ACHSI-28	5	ycsE	unknown conserved protein
ACHSI-29	1.1	pbpC	penicillin-binding protein 3
ACHSI-30	4.4	ydcL	integrase
ACHSI-31	4.1	cspC	cold-shock protein
ACHSI-32	5	ydeD	unknown conserved protein
ACHSI-33	3.5.2	ydeE	transcriptional regulator (AraC/XylS family)
ACHSI-34	1.2	ydfA	arsenical pump membrane protein
ACHSI-35	1.2	ydfL	multidrug-efflux transporter regulator
ACHSI-36	1.2	expZ	ATP-binding transport protein
ACHSI-37	1.2	ydhL	chloramphenicol resistance protein
ACHSI-38	2.5	thiL	thiamine-monophosphate kinase
ACHSI-39	3.2	ydiP	DNA-methyltransferase (cytosine-specific)
ACHSI-40	2.1.1	ydjL	L-idoitol 2-dehydrogenase
ACHSI-41	5	yebE	unknown conserved protein
ACHSI-42	1.2	yesQ	lactose permease
ACHSI-43	3.5.2	citT	two-component response regulator involved in the response to the environmental Mg-citrate complex
ACHSI-44	5	yfIP	unknown conserved protein
ACHSI-45	1.2	yfIA	aminoacid carrier protein
ACHSI-46	1.4	yfKO	NAD(P)H-flavin oxidoreductase
ACHSI-47	5	yfiE	unknown conserved protein
ACHSI-48	3.5.2	padR	transcriptional repressor of padC
ACHSI-49	2.4	lipB	extracellular esterase
ACHSI-50	5	yfhC	unknown conserved protein
ACHSI-51	1.2	ygaD	ABC transporter (ATP-binding protein)
ACHSI-52	5	ygaJ	unknown conserved protein
ACHSI-53	3.5.2	yhcF	transcriptional regulator (GntR family)
ACHSI-54	1.2	yhcG	ABC transporter (ATP-binding protein)
ACHSI-55	4.2	yhdA	azoreductase
ACHSI-56	1.2	yheI	ABC transporter (ATP-binding protein)
ACHSI-57	5	yhaH	unknown conserved protein
ACHSI-58	1.1	pbpF	penicillin-binding protein 2C
ACHSI-59	2.4	yhfJ	lipoate-protein ligase
ACHSI-60	5	yhfO	unknown conserved protein
ACHSI-61	5	yhjR	unknown conserved protein
ACHSI-62	5	yisX	unknown conserved protein
ACHSI-63	5	yitL	unknown conserved protein
ACHSI-64	5	yitT	unknown conserved protein
ACHSI-65	1.2	appD	ABC transporter (ATP-binding protein) oligopeptide
ACHSI-66	1.2	appF	ABC transporter (ATP-binding protein) oligopeptide
ACHSI-67	1.2	appA	ABC transporter (oligopeptide-binding protein) oligopeptide
ACHSI-68	1.2	appB	ABC transporter (permease) oligopeptide
ACHSI-69	2.4	yjdA	3-oxoacyl-acyl-carrier protein reductase
ACHSI-70	2.1.1	yjeA	chitoooligosaccharide deacetylase
ACHSI-71	4.4	xhlA	involved in cell lysis upon induction of PBSX
ACHSI-72	5	ykcA	unknown conserved protein
ACHSI-73	4.2	ykFA	immunity to bacteriotoxins
ACHSI-74	2.1.1	ykFB	chloromuconate cycloisomerase
ACHSI-75	2.4	ykhA	acyl-CoA hydrolase
ACHSI-76	4.2	ykkB	N-acetyltransferase
ACHSI-77	3.9	ykkC	molecular chaperone

ACHSI-78	2.2	metE	cobalamin-independent methionine synthase
ACHSI-79	5	ykoV	unknown conserved protein
ACHSI-80	4.2	ykoY	toxic anion resistance protein
ACHSI-81	1.2	ykrM	Na <sup>+</sup> -transporting ATP synthase
ACHSI-82	1.8	spIB	spore photoproduct lyase
ACHSI-83	3.5.2	ccpC	transcriptional regulator mediating carbon catabolite repression
ACHSI-84	5	yknX	unknown conserved protein
ACHSI-85	1.2	yknY	ABC transporter (ATP-binding protein)
ACHSI-86	5	yknZ	unknown conserved protein
ACHSI-87	5	ykyA	unknown conserved protein
ACHSI-88	5	yktA	unknown conserved protein
ACHSI-89	5	yktB	unknown conserved protein
ACHSI-90	5	ylbP	unknown conserved protein
ACHSI-91	5	ylmC	unknown conserved protein
ACHSI-92	5	ymcC	unknown conserved protein
ACHSI-93	1.9	yndE	spore germination protein
ACHSI-94	4.2	yndN	fosfomycin resistance protein
ACHSI-95	1.2	alsT	amino acid carrier protein
ACHSI-96	5	yoeA	unknown conserved protein
ACHSI-97	5	yoeD	unknown conserved protein
ACHSI-98	5	yoaR	unknown conserved protein
ACHSI-99	5	yoZL	unknown conserved protein
ACHSI-100	1.6	csaA	molecular chaperone involved in protein secretion
ACHSI-101	4.2	yocD	immunity to bacteriotoxins
ACHSI-102	1.3	yocF	two-component sensor histidine kinase [YocG]
ACHSI-103	3.5.2	yocG	two-component response regulator [YocF]
ACHSI-104	5	yodD	unknown conserved protein
ACHSI-105	2.4	yodR	butyrate-acetoacetate CoA-transferase
ACHSI-106	2.4	yodS	3-oxoadipate CoA-transferase
ACHSI-107	3.2	mtbP	modification methylase Bsu
ACHSI-108	5	yomG	unknown conserved protein
ACHSI-109	5	yolD	unknown conserved protein
ACHSI-110	3.8	yppQ	peptide methionine sulfoxide reductase
ACHSI-111	4.2	mrsA	peptidyl methionine sulfoxide reductase
ACHSI-112	5	yppP	unknown conserved protein
ACHSI-113	4.6	yplQ	hemolysin III homolog
ACHSI-114	5	ypgQ	unknown conserved protein
ACHSI-115	3.1	ypdQ	RNase HI
ACHSI-116	2.3	xpt	xanthine phosphoribosyltransferase
ACHSI-117	5	ypsA	unknown conserved protein
ACHSI-118	1.8	cotD	spore coat protein (inner)
ACHSI-119	5	yppC	unknown conserved protein
ACHSI-120	5	yqjX	unknown conserved protein
ACHSI-121	3.2	yqjH	DNA-damage repair protein
ACHSI-122	4.2	bmrU	multidrug resistance protein cotranscribed with bmr
ACHSI-123	3.5.2	bmrR	transcriptional activator of the bmrUR operon
ACHSI-124	2.1.1	yqiQ	phosphoenolpyruvate mutase
ACHSI-125	5	mmgE	unknown conserved protein
ACHSI-126	2.1.3	mmgD	citrate synthase III
ACHSI-127	3.5.2	sinR	transcriptional regulator of post-exponential-phase responses genes
ACHSI-128	1.8	tasA	translocation-dependent antimicrobial spore component
ACHSI-129	1.6	sipW	signal peptidase I
ACHSI-130	5	yqgC	unknown conserved protein
ACHSI-131	5	yqxD	unknown conserved protein
ACHSI-132	3.5.2	arsR	arsenic resistance operon repressor
ACHSI-133	5	yqaC	unknown conserved protein
ACHSI-134	3.5.2	bltR	transcriptional regulator of the bltD operon
ACHSI-135	3.5.2	azlB	transcriptional repressor of the azlBCD operon
ACHSI-136	3.5.2	yraN	transcriptional regulator (LysR family)
ACHSI-137	3.5.1	sigV	RNA polymerase ECF-type sigma factor
ACHSI-138	5	ysfB	unknown conserved protein
ACHSI-139	1.2	araQ	L-arabinose transport (integral membrane protein)
ACHSI-140	1.3	lytS	two-component sensor histidine kinase involved in the rate of autolysis
ACHSI-141	5	ysaA	unknown conserved protein
ACHSI-142	5	ytzA	unknown conserved protein
ACHSI-143	5	ytCJ	unknown conserved protein
ACHSI-144	5	yttP	unknown conserved protein
ACHSI-145	1.5	ytxE	motility protein
ACHSI-146	1.5	ytxD	flagellar motor apparatus
ACHSI-147	1.4	ytpP	thioredoxin H1
ACHSI-148	1.2	opuD	glycine betaine transporter
ACHSI-149	2.1.1	ytiB	carbonic anhydrase
ACHSI-150	2.1.1	glgP	glycogen phosphorylase
ACHSI-151	2.1.1	glgA	starch (bacterial glycogen) synthase
ACHSI-152	2.1.1	glgC	glucose-1-phosphate adenyltransferase
ACHSI-153	5	yuaJ	unknown conserved protein
ACHSI-154	5	yubA	unknown conserved protein
ACHSI-155	1.5	tlpB	methyl-accepting chemotaxis protein
ACHSI-156	1.5	mcpA	methyl-accepting chemotaxis protein

ACHSI-157	1.5	tlpA	methyl-accepting chemotaxis protein
ACHSI-158	1.5	mcpB	methyl-accepting chemotaxis protein
ACHSI-159	1.8	kapB	activator of KinB in the initiation of sporulation
ACHSI-160	1.3	yufL	two-component sensor histidine kinase [YufM]
ACHSI-161	3.5.2	yufM	two-component response regulator [YufL]
ACHSI-162	1.2	maeN	Na <sup>+</sup> /malate symporter
ACHSI-163	5	yueI	unknown conserved protein
ACHSI-164	5	yukA	unknown conserved protein
ACHSI-165	5	yukB	unknown conserved protein
ACHSI-166	5	yukE	unknown conserved protein
ACHSI-167	5	yuiF	unknown conserved protein
ACHSI-168	3.5.2	paiA	transcriptional repressor of sporulation, septation and degradative enzyme genes
ACHSI-169	2.2	yurG	aspartate aminotransferase
ACHSI-170	1.2	yurN	sugar permease
ACHSI-171	2.2	yusX	oligoendopeptidase
ACHSI-172	3.5.2	cssR	two-component response regulator involved in the control of cellular responses to protein secretion stress
ACHSI-173	1.9	gerAB	germination response to L-alanine
ACHSI-174	5	yvqG	unknown conserved protein
ACHSI-175	1.2	fhuG	ABC transporter (permease) ferrichrome
ACHSI-176	4.4	yvaN	immunity repressor protein
ACHSI-177	4.4	yvaO	immunity repressor protein
ACHSI-178	5	yvbK	unknown conserved protein
ACHSI-179	3.5.2	yvfU	two-component response regulator [YvfT]
ACHSI-180	1.3	yvfT	two-component sensor histidine kinase [YvfU]
ACHSI-181	3.9	yvdS	molecular chaperone
ACHSI-182	5	yvdQ	unknown conserved protein
ACHSI-183	2.1.1	yvdA	carbonic anhydrase
ACHSI-184	5	yvIC	unknown conserved protein
ACHSI-185	5	yvIB	unknown conserved protein
ACHSI-186	3.5.2	yvkB	transcriptional regulator (TetR/AcrR family)
ACHSI-187	1.1	tuaG	biosynthesis of teichuronic acid
ACHSI-188	1.9	gerBB	germination response to the combination of glucose, fructose, L-asparagine, and KCl
ACHSI-189	3.5.2	ywtF	transcriptional regulator
ACHSI-190	5	ywtE	unknown conserved protein
ACHSI-191	1.2	ywrK	arsenical pump membrane protein
ACHSI-192	3.5.2	ywrC	transcriptional regulator (Lrp/AsnC family)
ACHSI-193	5	ywpJ	unknown conserved protein
ACHSI-194	3.5.2	glcR	transcriptional repressor involved in the expression of the phosphotransferase system
ACHSI-195	1.3	ywpD	two-component sensor histidine kinase
ACHSI-196	5	ywkB	unknown conserved protein
ACHSI-197	1.2	ywjA	ABC transporter (ATP-binding protein)
ACHSI-198	5	ywgB	unknown conserved protein
ACHSI-199	1.8	spsL	spore coat polysaccharide synthesis
ACHSI-200	1.8	spsK	spore coat polysaccharide synthesis
ACHSI-201	1.8	spsI	spore coat polysaccharide synthesis
ACHSI-202	1.8	spsD	spore coat polysaccharide synthesis
ACHSI-203	2.1.1	ywdH	aldehyde dehydrogenase
ACHSI-204	2.2	vpr	minor extracellular serine protease
ACHSI-205	1.2	licA	PTS lichenan-specific enzyme IIA component
ACHSI-206	1.2	licB	PTS lichenan-specific enzyme IIB component
ACHSI-207	4.2	katX	major catalase in spores
ACHSI-208	1.2	cydD	ABC transporter (ATP-binding protein) required for expression of cytochrome bd
ACHSI-209	1.2	cydC	ABC transporter (ATP-binding protein) required for expression of cytochrome bd
ACHSI-210	1.2	yxkJ	metabolite-sodium symport
ACHSI-211	5	yxjH	unknown conserved protein
ACHSI-212	5	yxjG	unknown conserved protein
ACHSI-213	2.4	scoB	probable succinyl CoA:3-oxoacid CoA-transferase (subunit B)
ACHSI-214	5	yxjC	unknown conserved protein
ACHSI-215	4.2	katE	catalase 2
ACHSI-216	5	yxjO	unknown conserved protein
ACHSI-217	5	yxjH	unknown conserved protein
ACHSI-218	5	yxbF	unknown conserved protein
ACHSI-219	5	yxaC	unknown conserved protein
ACHSI-220	3.5.2	yybA	transcriptional regulator (MarR family)
ACHSI-221	5	yyaB	unknown conserved protein

Gene is assigned based on *B. subtilis* genome database (SubtiList, <http://www.pasteur.fr/Bio/SubtiList.html>).