

**TABLE S5.** Genes encoding DNA repair related proteins within the *P. aminophilus* JCM 7686 genome.

Gene	Genes in <i>E. coli</i> *	Genes in <i>C. crescentus</i> **	Description	Replicon
<b>Base excision repair</b>				
JCM7686_2055	<i>alkA</i>	CC_2201	3-methyl-adenine DNA glycosylase II	chromosome
JCM7686_0666	<i>fpg (mutM)</i>	CC_3707	formamidopyrimidine DNA glycosylase	chromosome
JCM7686_3073	<i>mutY</i>	CC_0377	adenine glycosylase	chromosome
JCM7686_0624	<i>nth</i>	CC_2272 CC_3731	endonuclease III; specific for apurinic and/or apyrimidinic sites	chromosome
JCM7686_0517	<i>tag</i>	CC_0382	3-methyl-adenine DNA glycosylase I	chromosome
JCM7686_0757 JCM7686_pAMI4p331	<i>ung (udg)</i>	CC_1333 CC_1549 CC_2084 CC_2333	uracil-DNA glycosylase	chromosome pAMI4
JCM7686_2891 JCM7686_3402	<i>xthA</i>	CC_2011 CC_3706	exodeoxyribonuclease III	chromosome
<b>Nucleotide excision repair</b>				
JCM7686_2156	<i>mfd</i>	CC_1844	transcription-repair coupling factor	chromosome
JCM7686_2515	<i>uvrA</i>	CC_2590	DNA damage recognition protein	chromosome
JCM7686_2310	<i>uvrB</i>	CC_2981	DNA damage binding protein	chromosome
JCM7686_3046	<i>uvrC</i>	CC_2881	excision nuclease	chromosome
JCM7686_0943	<i>uvrD</i>	CC_1528	DNA-dependent ATPase I and helicase II	chromosome
<b>Mismatch repair</b>				
JCM7686_3269	<i>mutL</i>	CC_0695	DNA mismatch repair protein	chromosome
JCM7686_3143	<i>mutS</i>	CC_0012	DNA mismatch repair protein	chromosome
<b>Direct repair</b>				
JCM7686_0623 JCM7686_pAMI5p076	<i>ada</i>	CC_0709 CC_3729	O6-methylguanine-DNA methyltransferase; transcription activator/repressor enzyme	chromosome pAMI5
JCM7686_pAMI5p075	<i>alkB</i>	CC_0009	1-methyladenine and 3-methylcytosine repair protein	pAMI5
JCM7686_2048	absent	CC_1330	DNA repair photolyase (SplB-like)	chromosome
JCM7686_2677	<i>ogt</i>	CC_0659 CC_0689	O-6-alkylguanine-DNA/cysteine-protein methyltransferase	chromosome
<b>Recombinational repair</b>				
JCM7686_3439	absent	CC_3538	ATP-dependent helicase/nuclease (AddA)	chromosome
JCM7686_3440	absent	CC_3537	ATP-dependent nuclease (AddB)	chromosome
JCM7686_2060	<i>radA</i>	CC_1660	DNA repair protein	chromosome
JCM7686_2538	<i>recA</i>	CC_1087	DNA strand exchange and renaturation, DNA-dependent ATPase, DNA- and ATP-dependent coprotease	chromosome
JCM7686_0660	<i>recF</i>	CC_0159	DNA replication and repair protein	chromosome
JCM7686_2217	<i>recG</i>	CC_1437	DNA helicase, resolution of Holliday junctions, branch migration	chromosome
JCM7686_1078	<i>recJ</i>	CC_1386	single-stranded-DNA-specific (5'→3') exonuclease	chromosome
JCM7686_0693	<i>recN</i>	CC_1983	recombination and repair protein	chromosome
JCM7686_0658	<i>recO</i>	CC_1564	recombinational repair protein	chromosome
JCM7686_0328	<i>recQ</i>	CC_3465	ATP-dependent DNA helicase	chromosome
JCM7686_1942	<i>recR</i>	CC_0269	recombination and repair protein	chromosome

JCM7686_0483	<i>ruvA</i>	CC_3237	Holliday junction helicase subunit A; branch migration	chromosome
JCM7686_0481	<i>ruvB</i>	CC_1283 CC_3236	Holliday junction helicase subunit B; branch migration	chromosome
JCM7686_0484	<i>ruvC</i>	CC_3238	Holliday junction nuclease; resolution of structures	chromosome
JCM7686_0280	<i>sbcB</i>	absent	exodeoxyribonuclease I	chromosome
JCM7686_2161 JCM7686_pAMI8p047	<i>ssb</i>	CC_1468	ssDNA-binding protein	Chromosome pAMI8
<b>Other repair related proteins</b>				
JCM7686_1991 JCM7686_2612 JCM7686_2906	<i>dinB</i> ( <i>polIV</i> )	CC_2466	polymerase IV (damage-inducible protein B)	chromosome
JCM7686_1318 JCM7686_1972 JCM7686_pAMI8p132 JCM7686_pAMI8p203	<i>dnaE</i>	CC_1926 CC_3211	subunit alpha of DNA polymerase III	chromosome pAMI8
JCM7686_2872	<i>dut</i>	CC_3713	dUTPase	chromosome
JCM7686_0753	<i>lexA</i>	CC_1902	regulator for SOS regulon	chromosome
JCM7686_2218	<i>ligA</i>	CC_1522	DNA ligase NAD-dependent	chromosome
JCM7686_pAMI4p364	absent	CC_3610	DNA ligase ATP-dependent	pAMI4
JCM7686_pAMI4p365	<i>lhr</i>	CC_2040	Lhr-like helicases	pAMI4
JCM7686_0135 JCM7686_2983 JCM7686_2998 JCM7686_pAMI5p033	<i>mutT</i>	CC_0266 CC_0407 CC_0418 CC_0833 CC_1126 CC_1346 CC_1554 CC_2652 CC_3382 CC_3440 CC_3650	mutT/NUDIX family hydrolase	chromosome pAMI5
JCM7686_3038 JCM7686_pAMI8p117	<i>radC</i>	CC_2680 CC_2744	DNA repair protein	chromosome pAMI8
JCM7686_pAMI8p201	absent	CC_3213	ImuA repair protein	pAMI8
JCM7686_1973 JCM7686_pAMI8p202	absent	CC_3212	ImuB, Y-family DNA polymerase	chromosome pAMI8

\* representative of *Gammaproteobacteria*

\*\* representative of *Alphaproteobacteria*