

D0ZV89 S.typhimurium	AAWWSLRPIEALAREVRELEDDHREMLNPETTRELTSLVRNLNLLKSERERYNKYRTTL	272
Q7CJ04 Y.pestis	AAWWSLRPIKALASIQSLEKGEREQLDENPPRELQSLVRNLNLLMNERQRYTKYRTTL	269
S5U8Y3 P.mirabilis	AAHWSLRPIKSIIEQISALEKGTDRNLDENPPKELKGLVYNLNLRRNRNRYSKYRTSL	271
L7ZKQ8 S.marcescens	AAWWSLRPIKALVNVQVLEENGERDQLDENPPSELRGLVLRNLNLLVRNERQRYTKYRTTL	270
P23837 E.coli	AAWWSLRPIEALAKEVRELEHNRRELLNPATRELTSLVRNLNLLKSERERYDKYRTTL	272
Q83RR1 S.flexneri	AAWWSLRPIEALAKEVRELEHNRRELLNPATRELTSLVRNLNLLKSERERYDKYRTTL	272
W9BNY9 K.pneumoniae	AAWWSLRPIESLAKVRELEHHRREKLNPNTRRELTRVSNLNRLLRVSERERYDKYRTTL	272
D4GC75 P.ananatis	AAHWSLRPIGHLTLQVRELEFGQRENLDNPPQELRSLVRNLNLLTNERQRYTRYRTTL	273
W0HJT3 C.Sodalis	AAHWSLRPIKDLVQRVRELEVGGERERLDENPPRELDIIVRNLNLLNNERQRYQYRTTL	272
I2EJT1 C.sakazakii	AAWWSLRPIEALAREVRELEHHRREKLNPNYPTRELTSLVHNLNLLKSERERYKYRTTL	272
AOA076LLK5 E.tarda	AAWWSLRPIKALATQVRELEKQGRDLSLENPPHELRLGLVLRNLNLLSNERQRYTRYRTTL	274
Q7N3B1 P.luminescens	AAHWSLRPIKSLIHQISSLEKGEREKLDENPPTELRLGLVLRNLNLLNNERNRYTKYRTTL	272
G8LJP2 E.cloacae	AAWWSLRPIESLAREVRELEHHRREKLNPNETRELTSLVRNLNLLKSERERYDKYRTTL	272
X5EY00 P.aeruginosa	GLTWGFRAMRGLSSELDQIEEGGERESLSEHPRELLRLTSHLNRLLSSEHKQRYRYRSHL	243
I4L2U0 P.synxantha	GLTWGLQALRRLSQELDQIEEGGTRESLSEHPRELLRLTGSNLRLLSHSEQRTRYRDSL	243
L8NBB2 P.syringae	GLTWGLRALRRLSQELDQIEEGGVRDLSSEHPSELLRLTDSNLRLLSRERQRTYRDSL	243
E4R7S8 P.putida	GLTWGLRRLRSLSHLDEVEESGARDLSSEHPRELLRLTRSLNRLLSRERQRTYRDSL	243
G8Q5P1 P.fluorescens	GLTWGLRALRRLSQELDEIESGARESLSEHPRELLRLTGSNLRLLSYSEREQRSYRDSL	243
Q87AY5 X.fastidiosa	ILQWWSLRPI SHVINELAKVQGGQRMSEQHHPPELPTQSIINAFIESERENLDRQRNTL	272
AOA088P3F0 P.stuartii	AAWWSLRPIKSLVQSISLSEKGEREMLDENPPYELRGLVLRNLNLLTNERKRYSKYRTTL	253
AOA093SV58 P.atrosepticum	GAHWSLRPIQHVLQVIAELKGTTRDQLDENPPRELFSLVKNLNLLNNERQRYHKYRTTL	268
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D0ZV89 S.typhimurium	TDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	331
Q7CJ04 Y.pestis	ADLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	329
S5U8Y3 P.mirabilis	SDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	331
L7ZKQ8 S.marcescens	SDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	330
P23837 E.coli	TDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRG-G	330
Q83RR1 S.flexneri	TDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRG-G	330
W9BNY9 K.pneumoniae	TDLTHSLKTPLAVMQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	331
D4GC75 P.ananatis	ADLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	333
W0HJT3 C.Sodalis	SDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	332
I2EJT1 C.sakazakii	TDLTHSLKTPLSVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	331
AOA076LLK5 E.tarda	ADLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	334
Q7N3B1 P.luminescens	ADLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	332
G8LJP2 E.cloacae	TDLTHSLKTPLAVMQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	331
X5EY00 P.aeruginosa	GDLAHSKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	301
I4L2U0 P.synxantha	DDLAHSKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	301
L8NBB2 P.syringae	DDLAHSKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	301
E4R7S8 P.putida	DDLAHSKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	301
G8Q5P1 P.fluorescens	DDLAHSKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	301
Q87AY5 X.fastidiosa	ADLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	327
AOA088P3F0 P.stuartii	SDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	313
AOA093SV58 P.atrosepticum	TDLTHSLKTPLAVLQSTLRSLRNEK-MSVSKAEPVMLEQISRISQQIGYYLHRASMRGSG	328
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D0ZV89 S.typhimurium	VLLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	391
Q7CJ04 Y.pestis	NVLGREIHSVPAALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	389
S5U8Y3 P.mirabilis	DITTRKHLHSLGGLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	391
L7ZKQ8 S.marcescens	TVLTHREIHSVPAALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	390
P23837 E.coli	TLLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	390
Q83RR1 S.flexneri	TLLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	390
W9BNY9 K.pneumoniae	TLLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	391
D4GC75 P.ananatis	NPLQRDLHVSGLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	393
W0HJT3 C.Sodalis	NVLSRELHVSVPALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	392
I2EJT1 C.sakazakii	MLLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	391
AOA076LLK5 E.tarda	SVLNREVHVSVAIALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	394
Q7N3B1 P.luminescens	STIMRKSVPALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	392
G8LJP2 E.cloacae	ALLSRELHPVAPLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	391
X5EY00 P.aeruginosa	--LVRHREKLAFLVETLCDALDKVYRDKRVSLQDRFSPSFSVPVERGALLELGNLLENA	359
I4L2U0 P.synxantha	--LVRHQVRLPEVLSQSLCTLKDYRDKRVVTFDLPPECDVPIEKGALLELGNLLENA	359
L8NBB2 P.syringae	--LVRHVMRLRPFVLESCDNLTKDYRDKRVVTFDLPPECDVPIEKGALLELGNLLENA	359
E4R7S8 P.putida	--LVRHVSLLRPLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	359
G8Q5P1 P.fluorescens	--LVRHQVPLRPFVLSQSLCTLKDYRDKRVVTFDLPPECDVPIEKGALLELGNLLENA	359
Q87AY5 X.fastidiosa	--LFSAPVLIINFATAEIIVRGLEKVIYAAKGVLCFEFIDPKACFYGEPGDLQELLELGNLLENA	385
AOA088P3F0 P.stuartii	NLMLREISSVPSLLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	373
AOA093SV58 P.atrosepticum	NLLIREVHVSVPALLDNLISALNKVYQRKGVNISMDISPEISFVGEQNDFFVEVMGNVLDNA	388
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**Figure S5.** ClustalO primary sequence alignment of several PhoQ homologs. For simplicity only the neighboring regions to residues at positions 232 and 336 in *S. Typhimurium* are shown. The glutamate at

position 232 and the arginine at position 336 in *S. Typhimurium* and at equivalent positions in the other PhoQ sequences are indicated in red and blue respectively.