

D0ZV89 S.typhimurium	AAWWSLRPIEALAREVRELE	EDHHREMLNPETTRELTSVRNLNQLLKSERERYNKYRTTL	272
Q7CJ04 Y pestis	AAWWSLRPIKALASQISQLE	KGEREQLDENPRLQSLVRNLNILLMNERQRYTKYRTTL	269
S5U8Y3 P.mirabilis	AAHWSLRPIKSIIEQISALE	KGTRDNLDENPKELKGLVYNLNILLRNERNRYSKYRTSL	271
L7ZKQ8 S.marcescens	AAWWSLRPIKALVNQVGEL	ENGARDQLDENPPSELRLGLVRNLNILVRNERQRYTKYRTTL	270
P23837 E.coli	AAWWSLRPIEALAKEVRELE	EHNRELLNPATTRELTSLVRNLNRLLKSERERYDKYRTTL	272
Q83RR1 S.flexneri	AAWWSLRPIEALAKEVRELE	EHNRELLNPATTRELTSLVRNLNRLLKSERERYDKYRTTL	272
W9BNY9 K.pneumoniae	AAWWSLRPIESLAKEVRELE	EHHREKLNPNTTRELTRLVSNLNRLLVRSERERYDKYRTTL	272
D4GC75 P.ananatis	AAHWSLRPIGHLTQVRELE	ETGQRENLDDNPPQELRSVRLNLLNLLTNERQRYTRYRTTL	273
W0HT3 C.Sodalis	AAHWSLRPIKDLVRQVRELE	VGERERLDENPRELDILVRNLNILLNNERQRYQKRYRSTL	272
I2EJT1 C.sakazakii	AAWWSLRPIEALAREVRELE	EHHREQLNPYTTRELSLVHNLNRLLKSERERYEKYRTTL	272
AOA076LLK5 E.tarda	AYAWSLQPIKALATQVRELE	KGQRDSLSENPPHELRLGLVRNLNILLSNERQRYTRYRTTL	274
Q7N3B1 P.luminescens	AAHWSLRPIKSLIHQISSLE	KGEREKLDENPPTELRLGLVRNLNVLLNNERNRYTKYRTTL	272
G8LJP2 E.cloacae	AAWWSLRPIESLAKEVRELE	EHHREKLNPETTRELTSVRNLNRLLKSERERYDKYRTTL	272
X5EY00 P.aeruginosa	GLTWGFRAMGRGLSSELDQI	ESGERESEHPPRELLRLTHSLNRLNLLSEHKQRERYRHSL	243
I4L2U0 P.synxantha	GLTWGLQALLRLSQE LDQI	EGGTRESLSEEHPPRELLRTGSNLNRLHSERERQRTRYRDSL	243
L8NBB2 P.syringae	GLTWGLRALRGLSQE LDQV	ESGVRDSLSEHPSELLRTDSLNRLLRSEREQRIRYRDSL	243
E4R7S8 P.putida	GLTWGLRSLRRLSHELDVE	ESGARDGLSHEPRELLRLTRSLNRLLRSEREQRTRYRDSL	243
G8Q5P1 P.fluorescens	GLTWGLRALRGLSHELDIE	ESGARSLSTEHPPRELLRTGSNLNRLLYSEREQRSRYRDSL	243
Q87AY5 X.fastidiosa	ILQWSLRPISHVINELAKVQRGQAQRMSQEHPPELEPLTQSINAFIESERENLDRQRNTL		272
AOA088P3F0 P.stuartii	AAWWSLRPIKSLVSQISSL	EKGGERMLENDENPPYELRLGLVRNLNNLLTNERKRYSKYRTTL	253
AOA093SV58 P.atrosepticum	GAHWSLRPIQHVKQTAEL	EKGTRDQLDENPPRELFSLVKNLNLILLNNERQRYHRYRTTL	268
	*...: : : : : : : : : : :	** * . : * : : . : * : * : *	
D0ZV89 S.typhimurium	TDLTHSLKTPLAVLQSTLRSLRNEK	-MSVSKAEPVMLEQKISRISQQIGYYLHRASMRSG	331
Q7CJ04 Y pestis	ADLTHSLKTPLAVLQTTLRSRTGQTTIEVEPIMLEQKISRISQQIGYYLHRASMRSEH		329
S5U8Y3 P.mirabilis	SDLTHSLKTPLAVLQSTLRLAGRAGKMSIEQAEPIMQSQIERISQVGGYLYLHRASLHGHD		331
L7ZKQ8 S.marcescens	SDLTHSLKTPLAVLQSTLRSRGKQTTIEAEPIMLQMDQIRGISQQIGYYLHRASLHSQ		330
P23837 E.coli	TDLTHSLKTPLAVLQSTLRSLRSEK	-MSVSDAEPVMLEQKISRISQQIGYYLHRASMRG-G	330
Q83RR1 S.flexneri	TDLTHSLKTPLAVLQSTLRSLRSEK-MSVSDAEPVMLEQKISRISQQIGYYLHRASMRG-G		330
W9BNY9 K.pneumoniae	DLTHSLKTPLAVMQSTLRSRGEK-IVSDEAEPVMLEQKISRISQQVGGYLYLHRASMRSG		331
D4GC75 P.ananatis	DLTHSLKTPLAVLQTTLRSLRGEK-IVSDEAEPVMLEQKISRISQQVGGYLYLHRASMRSG		331
W0HT3 C.Sodalis	DLTHSLKTPLAVLQTTLRSRTDRTNIEMAEPIMLEQKISRISQQIGYYLHRATVHSDH		332
I2EJT1 C.sakazakii	TDLTHSLKTPLAVLQSTLRSRTDRTNIEMAEPIMLEQKISRISQQIGYYLHRASMRSGN		331
AOA076LLK5 E.tarda	ADLTHSLKTPLAVLQSTLRSRNGKAQNVEQAEPIMLEQKISRISQQIGYYLHRASAHEH		334
Q7N3B1 P.luminescens	ADLTHSLKTPLAVLQSTLRSRDSKQMTIQQAEPMILEQKISRISQQIGYYLHRASMRSEH		332
G8LJP2 E.cloacae	TDLTHSLKTPLAVMQSTLRSMRSSK-LSVDDAEPVMLEQKISRISQQIGYYLHRASMRSG		331
X5EY00 P.aeruginosa	GDLAHSLKTPLAVLQGVGDQLAEEPGN-RE-QVRVLQGQIERMSQOIGYQLQRASLRKSG		301
I4L2U0 P.synxantha	DDLAAHSLKTPLAVLQGVSEDMAQRPEE-RS-QAWVLQSQIERMSQOIGYQLQRASLRKSG		301
L8NBB2 P.syringae	DDLAAHSLKTPLAVLQGVSENIAKRPED-VE-QAWVLQSQIERMSQOIGYQLQRASLRKSG		301
E4R7S8 P.putida	DDLAAHSLKTPLAVLQGVGESILQQRSGE-RE-QARVLQSQIERMSQQIDYQLQRASLRKSG		301
G8Q5P1 P.fluorescens	DDLAAHSLKTPLAVLQGVSEDMMARPED-RG-QAWVLQSQIERMSQOIGYQLQRASLRKSG		301
Q87AY5 X.fastidiosa	ADLAHSLKTPLAVLRTQLDGSASENL-----REELDVQLRMMNNLVSYQLARAASSGHK		327
AOA088P3F0 P.stuartii	SDLTHSLKTPLAVLQSTLRSRTGKQMTIEQAEPVMLEQKISRISQQVGGYLYLHRASAQGDN		313
AOA093SV58 P.atrosepticum	TDLTHSLKTPLAVLQTTLRAUTGKETIDQAEPIMLAQKISRISQQIGYYLHRASVRSEH		328
	:**:***:	: * : * : : * * ***:	
D0ZV89 S.typhimurium	VLLSRELHPVAPLLDNLISALNKVYQRKGVNISMIDISPEISFVGEQNDFVEVMGNVLDNA		391
Q7CJ04 Y pestis	NVLGREIHSVPA LLDSLYSALNKVYQRKGIALTLDISPEVTFLGEKNDFMEMVGNVLENA		389
S5U8Y3 P.mirabilis	DITTRKLHSLGGLNDLCSALNKVYQSKGVDTLNVSPEMMWLGEKNDFMEMVGNVLDNA		391
L7ZKQ8 S.marcescens	TVLTRIHSVPA LLDSLVA LNKVYQRKGV VITLDISPEVTFLGEKNDFMEMVGNVLENA		390
P23837 E.coli	TLLSRELHPVAPLLDNLTSALNKVYQRKGVNISLDISPEISFVGEQNDFVEVMGNVLDNA		390
Q83RR1 S.flexneri	TLLSRELHPVAPLLDNLTSALNKVYQRKGVNISLDISPEISFVGEQNDFVEVMGNVLDNA		390
W9BNY9 K.pneumoniae	NPLQRDLHSVSGLLDLC SLCALNKVYQRKGVEITLDISPETTFFGDQNDFMEMVGNVLDNA		393
D4GC75 P.ananatis	NVL SRELHPVAPLLDNLTSALNKVYQRKGVSLSLDISPEITFGEKNDFMEMVGNILDNA		392
W0HT3 C.Sodalis	MLLSRELHPVASLLDNLTSALNKVYQRKGVSITLDISPEIIVFIGEKNDFMEVGNILDNA		391
I2EJT1 C.sakazakii	SVLNRREVHSVSAILDALTSALNKVYQRKGVDISLDLIPPELTFIGEKNDFMEVGNLLDNA		394
AOA076LLK5 E.tarda	STIMRKVSSVPALLDLSLC SALKVYQRKSVS LTLDSPEITWLGEKNDFMEMVGNVLENA		392
Q7N3B1 P.luminescens	ALLSRELHPVAPLLDNLTSALNKVYQRKGVNISLDISPEISFVGKNDFMEMVGNLLDNA		391
G8LJP2 E.cloacae	--LVRHREKLA PLVETLCD ALDKVYRDKRVSLQRDFSPSFSPVVERGALLELLGNLLENA		359
X5EY00 P.aeruginosa	--LVRHQVRLPFLVQLSCLDTEK VYRDKVTVTFDLPPEC DVPIEKGALLEMLGNLLENA		359
I4L2U0 P.synxantha	--LVRHHVMLRPVSE LCNLTDK VYRDKQV KATLPEH CQVHMEEGALLEMLGNLLENA		359
L8NBB2 P.syringae	--LVRHSVLLRPLLDSLC STLA KVYREK RVDV LELPDAQ I P M E Q G A L L E M L G N L L E N A		359
E4R7S8 P.putida	--LVRHQVPLRPVLQSLCD TDKVYRDKRVNVSF DLP EC H C Q V P I E Q G A L L E M L G N L L E N A		359
G8Q5P1 P.fluorescens	--LF SAPV LINF TAEI IV R G LEK VY AAKGV LCE FEIDP KAC F Y G E P G D L Q E L L G N L L E N A		385
Q87AY5 X.fastidiosa	NLMLREISSVPSL L DS LAS AL HKV Y Q NK G VS IT V D IS PEV TWL G Q P N D FM EM V G N I M E N A		373
AOA088P3F0 P.stuartii	NLLIREVHSVPA LL D GLCSALNKVYQRKG VV L TLDI PPELTFVG EKND FM EV LGN I LDNA		388
	: : : * *** * : : .. : : : * : * : :		

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.