



Figure S1. Active site region in a 3D homology model of a unimodular QueF protein that lacks a cysteine homologous to the disulfide Cys99 of *Bacillus subtilis* QueF, but contains an alternative backdoor cysteine located in proximity to the catalytic cysteine in the active site loop. The model is of the *Aquifex aeolicus* QueF protein and shows the catalytic cysteine and the putative alternative backdoor cysteine in *A. aeolicus* residue numbers. The two interface subunits making the active site are shown in two shades of magenta.

Table S1. Examples of bacterial pathogens classified based on the subfamily their QueF proteins belong to and the presence/absence of the disulfide forming Cys99 (and the homologous Cys236 in bimodular QueF) in the protein sequence.

Human Pathogens				Plant Pathogens			Total Sequences
Uni No Cys99	Uni No Cys99 and No Cys53	Uni Cys99	Bi Cys236	Uni No Cys99	Uni Cys99	Bi Cys236	
5	1	23	56	2	13	41	140
<i>Campylobacter jejuni</i>	<i>Leptospira interrogans</i>	<i>Veillonella</i>	<i>Acinetobacter</i>	<i>Bacillus megaterium</i>	<i>Acetobacter aceti</i>	<i>Acidovorax avenae</i>	
<i>Campylobacter coli</i>		<i>lactobacillus</i>	<i>Actinobacillus</i>	<i>Burkholderia</i>	<i>Acetobacter pasteurianus</i>	<i>Bacillus megaterium</i>	
<i>Campylobacter lari</i>		<i>Eubacterium</i>	<i>Aeromonas caviae</i>		<i>Agrobacterium larrymoorei</i>	<i>Brenneria</i>	
<i>Campylobacter fetus</i>		<i>prevotella</i>	<i>Aeromonas hydrophila</i>		<i>Agrobacterium radiobacter</i>	<i>Burkholderia andropogonis</i>	
<i>Leptospira interrogans</i>		<i>Porphyromonas</i>	<i>Aeromonas veronii bovar sobria</i>		<i>Aagrobacterium rhizogens</i>	<i>Burkholderia cepacia</i>	
		<i>fusobacterium</i>	<i>Bordetella bronchiseptica</i>		<i>Agrobacterium rubi</i>	<i>Burkholderia gladioli</i>	
		<i>Bacillus anthracis</i>	<i>Bordetella parapertussis</i>		<i>Agrobacterium tumefaciens</i>	<i>Burkholderia glumae</i>	
		<i>Bacillus cereus</i>	<i>Bordetella pertussis</i>		<i>Agrobacterium ophel</i>	<i>Enterobacter cloacae</i>	
		<i>Bacillus subtilis</i>	<i>Burkholderia cepacia</i>		<i>Bacillus megaterium</i>	<i>Enterobacter cloacae subsp dissolvens</i>	
		<i>Bacillus thuringiensis</i>	<i>Burkholderia pseudomallei</i>		<i>Bacillus pumilus</i>	<i>Erwinia amylovora</i>	
		<i>Bacillus stearothermophilus</i>	<i>Citrobacter freundii</i>		<i>Gluconobacter oxydans</i>	<i>Erwinia mallotivora</i>	
		<i>Bacteroides fragilis</i>	<i>Edwardsiella tarda</i>		<i>Rhizobium rubi</i>	<i>Erwinia pyrifoliae</i>	
		<i>Brucella suis</i>	<i>Enterobacter aerogenes</i>		<i>Sphingomonas melonis</i>	<i>Erwinia tracheiphila</i>	
		<i>Citrobacter freundii</i>	<i>Enterobacter cloacae</i>			<i>Ewingella americana</i>	
		<i>Helicobacter pylori</i>	<i>Haemophilus ducreyi</i>			<i>Janthinobacterium agaricidammosum</i>	
		<i>Neisseria gonorrhoeae</i>	<i>Haemophilus haemolyticus</i>			<i>Pantoea agglomerans</i>	
		<i>Neisseria meningitidis</i>	<i>Haemophilus influenzae</i>			<i>Pantoea ananatis</i>	
		<i>Staphylococcus aureus</i>	<i>Haemophilus parahaemolyticus</i>			<i>Pantoea stewartii subsp indologenes</i>	
		<i>Staphylococcus epidermidis</i>	<i>Haemophilus parainfluenzae</i>			<i>Pantoea stewartii subsp. Stewartii</i>	
		<i>Streptococcus equisimilis</i>	<i>Klebsiella oxytoca</i>			<i>Pectobacterium atrosepticum</i>	
		<i>Streptococcus mutans</i>	<i>Klebsiella pneumoniae</i>			<i>Pectobacterium betavasculorum</i>	
		<i>Streptococcus salivarius</i>	<i>Kegionella pneumophila</i>			<i>Pectobacterium carotovorum</i>	
		<i>Streptococcus mitis</i>	<i>Koraxella catarrhalis</i>			<i>Pectobacterium wasabiae</i>	
			<i>Morganella morganii</i>			<i>Pseudomonas amygdali</i>	
			<i>Pasteurella multocida</i>			<i>Pseudomonas avellanae</i>	
			<i>Plesimonas shigelloides</i>			<i>Pseudomonas cichorii</i>	
			<i>Proteus mirabilis</i>			<i>Pseudomonas corrugata</i>	
						<i>Pseudomonas fuscovaginae</i>	
						<i>Pseudomonas mediterranea</i>	

Table S1. Cont.

<i>Proteus vulgaris</i>	<i>Pseudomonas meliae</i>
<i>Providencia alcalifaciens</i>	<i>Pseudomonas pseudoalcaligenes</i>
<i>Providencia rettgeri</i>	<i>Pseudomonas savastanoi</i>
<i>Providencia stuartii</i>	<i>Pseudomonas savastanoi</i>
<i>Salmonella choleraesuis</i>	<i>Pseudomonas syringae</i>
<i>Salmonella enterica</i>	<i>Pseudomonas syringae</i> pv. <i>Maculicola</i>
<i>Salmonella enteritidis</i>	<i>Pseudomonas tolaasii</i>
<i>Salmonella paratyphi</i>	<i>Pseudomonas viridiflava</i>
<i>Salmonella typhi</i>	<i>Ralstonia solanacearum</i>
<i>Salmonella typhimurium</i>	<i>Ralstonia syzygii</i>
<i>Serratia marcescens</i>	<i>Serratia marcescens</i>
<i>Shigella boydii</i>	<i>Serratia proteamaculans</i>
<i>Shigella dysenteriae</i>	<i>Xanthomonas albilineans</i>
<i>Shigella flexneri</i>	<i>Xanthomonas arboricola</i>
<i>Shigella sonnei</i>	<i>Xanthomonas axonopodis</i>
<i>Stenotrophomonas maltophilia</i>	<i>Xanthomonas campestris</i>
<i>Vibrio alginolyticus</i>	
<i>Vibrio cholerae</i>	
<i>Vibrio fluvialis</i>	
<i>Vibrio furnisii</i>	
<i>Vibrio hollisae</i>	
<i>Vibrio mimicus</i>	
<i>Vibrio parahaemolyticus</i>	
<i>Vibrio vulnificus</i>	
<i>Yersinia enterocolitica</i>	
<i>Yersinia pestis</i>	
<i>Yersinia pseudotuberculosis</i>	
