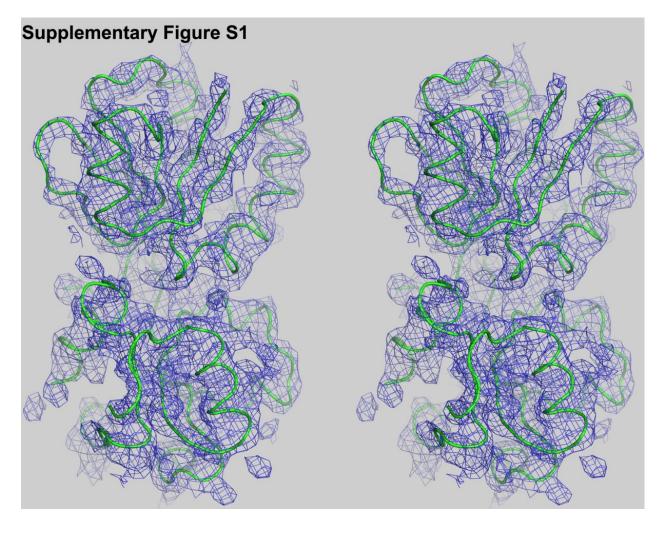
Figure S1. Stereo view of electron density map of reduced OxyR.

Stereo view of 2Fo-Fc electron density map of reduced *P. gingivalis* OxyR-RD monomer contoured at 1σ level (resolution 4Å). The map can be traced for all polypeptide main chain except the 210-219 segment. The reduced form has the same fold as the reduced *P. gingivalis* OxyR-RD C199S mutant.

Figure S2. Sequence alignment of disulfide loop and adjacent regions of OxyRs from different bacterial species.

A non-redundant set of randomly picked OxyR sequences from different bacterial species were aligned (Geneious software) and displayed alphabetically by organism to highlight the insertion region at residue 215 (*E. coli* OxyR numbering).





## Figure S2

Supplemental Figure S2	180	190	200	210	220	230	240	250
<ol> <li>Acetobacter aceti obligatory aerobic</li> <li>Achromobacter piechäudii ATCC 43553</li> <li>Acinetobacter biechäudii ATCC 43553</li> <li>Acinetobacter actinomycetemcomitans D115-1</li> <li>Alcantvorax borkumensis SK2 aerobic</li> <li>Alivibrio salumoticida LF1238</li> <li>Azoarcus sp. BH72</li> <li>Azoarcus sp. BH72</li> <li>Azoarcus sp. BH72</li> <li>Azoarcus sp. BH72</li> <li>Bermanella marisrubri</li> <li>Bruckella abortus</li> <li>Burkholderia mallei 2002721280</li> <li>Caporyebacterium yolaceum</li> <li>Burkholderia mallei 2002721280</li> <li>Caporyebacterium yolaceum</li> <li>Chromobacterium yolaceum</li> <li>Chromobacterium yolaceum</li> <li>Chrynebacterium gleum ATCC 35910</li> <li>Corynebacterium ammoniagenes DSM 20306</li> <li>Corynebacterium animoniagenes DSM 20306</li> <li>Corvipaga hutchinsonii ATCC 34640</li> <li>Cytophaga hutchinsonii ATCC 35316</li> <li>Erwina chrysanthemi</li> <li>Escricterium subsp. mediasiatica FSC147</li> <li>Gardnerella vaginalis 5-1</li> <li>Giuconobacter oxydans 621H</li> <li>Haemophilus influenzae</li> <li>Janthinobacterium sp. Marseille</li> <li>Klebsiella pneumoniae subsp. meumoniae MGH</li> <li>Legionella pneumoniae subsp. multocida str. Pm70</li> <li>Partoea ananatis LMG 20103</li> <li>Pantoea ananatis LMG 20103</li> <li>Pantoea ananatis LMG 20103</li> <li>Parabeacteroides sp. D13</li> <li>Pasteurella multocida subsp. multocida str. Pm70</li> <li>Pectobacterium profundum SS9</li> <li>Porobacteria P. RED65</li> <li>Photobacteria PSM 4562</li> <li>Previdencia rettgeri DSM 4532</li> <li>Prevella buccae D17</li> <li>Providencia rettgeri DSM 4532</li> <li>Prevella buccae D17</li> <li>Providencia rettgeri DSM 4532</li> <li></li></ol>	PA-VPASO			A CHOSPSES		FTAMSLHSM	A EMV ELGLGIA	
3. Actinetobacter baumannii AB307-0294 pleomorphic	NSDDD		EGHCLEDEVL	SACPIGERK-	NDNR	ASSLPTL	RHMVAAGIGVT VEMVSSDIGET	
5. Aeromonas hydrophila subsp. hydrophila ATCC	A-MPLSN	KGKK-LLMLA	DGHCLHDQA	GFCFAAGIG-	EDQR	FKGTSLETL	NMVSAGNGIS NMVAAGSGMT	
<ol> <li>Aggregatibacter actinomycetemcomitans D11S-1</li> <li>Alcanivorax borkumensis SK2 aerobic</li> </ol>	NS-VSMSL KK-TAPEQ	LSET-LLLG	EGHCERDQVL	ECPATDSQE	QENLVQ	EGGSLETL	INMWAAN IGNI IMMVAGGLGIT	VLPNSAL
8. Aliivibrio salmonicida LFI1238 9. Azoarcus sp. BH72	DS-DMSR	NGE <mark>S-VLMLO</mark> AEDO-LLLLO	DGHCLEDQA SGNCEEEOVI	GECEAAGAN- ENCPHCENNG		EKATSLETL EGSSLETL	NMVAAGGG T HMVATGLGVT	UPYLSNP VLPSSAAD
10. Azospirillum brasilense	TT-PRPSD	ALDŐ-LLLLE PESD-LLLLE	DGHCLEDHAL	AACSMEGAR-	QŜAA	FOGTSLHTL	QMVANGLGVT	
12. Brucella abortus	PMTQN	AALE <b>R</b> -LLLLE	EGHCMEDQAL	AMCTLPSQR-		YGATSMSTL		LIPEIAM-
14. Caphocytophaga gingivalis ATCC 33624	QK-IQMSD	HIND-ILMLÇ	DGHCFRESVL	NICQENGSSD	KGRDNSLE	LEGSSEE ETL	KLANEGMGMT	
15. Chromobacterium violaceum 16. Chryseobacterium gleum ATCC 35910	GA-TAANQ N <mark>SYIIP</mark> ED	ADE <mark>S-VLLL</mark> NME <mark>K-WWLL</mark> E	QGNCEEDQVL EGNCLENOFE	QACSDLASHQ NLCHLKENT	S-HGGTLAAN KPKNLD	E Q G S S L N T L F L A S N L O T L	HMVA SGMGVT HMVD KVGGUS	VMPSTSI-
<ol> <li>Corýnebacterium ammoniagenes DSM 20306</li> <li>Coviella burnetii 'MSU Goat Q177'</li> </ol>	TD-MTLSQ			D CRRADENP EACSMTAAMT	ADATNST	TRASSLTT ARATSLET		L PESALA
19. Cronobacter sakazakii ATCC BAA-894	DR-MPMGE	AGEK-LLMLE	DGHCLEDÕA	GECEEAGAD-	EDT	FRATSLETL	NMVAAGSGIT	
21. Edwardsiella tarda ATCC 23685	ER-LAMPE	AGEH-LLMLE	DGHCLRDQAM	GFCFEAGAD-		FRATSLETL	NMVAAGSGIT	LLPDLAVP
22. Enterobacter cancerogenus ATCC 35316 23. Erwinia chrysanthemi	DR-MPMAD ER-MAMSD	AGEK-LLMLE SGEK-LLMLE	DGHCLEDQAM DGHCLEDQAM	GECEEAGAD- GECEQAGAD-	ED <b>TE</b>	FRATSLETL	NMVAAGSGIT NMVAAGSGIT	LLPALAVP
24. Escherichia coli 25. Francisella tularensis subsp. mediasiatica ESC147	EA-VPMAD	AGEK-LLMLE VKON-LMLLE	DGHCLEDŐAM EGHCLEDŐTI	GECEËAGAD-	EDT	ERATSLETL	NMVAAGSGIT OMVSIDEGIT	LUPALAVP
26. Gardnerella vaginalis 5-1	SKPLESD	STÕK-VLLLE	DCHCMRRSML	DMCQKVGAK-	QSE	FRATSLETL	YMVVGSKDVT	
28. Haemophilus influenzae	SK-LPMNQ	NGQE-MLMLI	DGHCLHNQAL	DYCETAGAK-	ĒNS	DQATSLETL	NMVAANAGIT	EMPÉLAVL
30. Klebsiella pneumoniae subsp. pneumoniae MGH	DS-MSTDD D <b>R-MPMS</b> D	AGE <mark>K</mark> -LLMLE	DGHCLRDQAM	GFCFEAGAD-	EDTH	FRATSLETL	NMVASGIGIT NMVAAGSGIT	LLPALAVP
31. Legionella pneumophila str. Corby 32. Mannheimia succiniciproducens MBEL55E	KS-MNIND KS-IKMHA	QGHE-VLMLIE	EGHCLEEQAM DGHCLEDQAL	AMCQSAMAD- GYCFTAGA <b>H</b> -	D <b>A</b> D	FOATSLETL	LMVQAGMGNT NMLAANAGMT	LLPALST- LMPELAML
33. Marinomonas sp. MED121 34. Moritella sp. PE36		STDN-LLILG	HGHCESDŐMT	EACPILNEDE		MNGSSLET	MVSSGLGVT	VLPKSAA-
35. Neisseria cinerea ATCC 14685	DA-VSSKM	GEEQ-VLLL1	EGNCMEDŐVL	SSCSELAAKO		OGSSINTI	HMVASGLAIS	VLPATAL -
37. Neptuniibacter caesariensis	ER-INSEE	PNTP-LLLLC	EGHCERDQVL	ESCPTL TQA		TEGSSEET	MMVGSGLGCS	VLPQSAV-
38. Oceanobacter sp. RED65 39. Pantoea ananatis LMG 20103	DA-THPDE DR-MPMSD	AGEK-LLMLE	EGHCERDONL DGHCERDQAM	EMCPADAKHQ GECEEAGAD-		EGSSLETL EBATSLETL	NMVASGMGUT NMVAAGSGUT	LLPALAVP
40. Parabacteroides sp. D13 41. Pasteurella multocida subsp. multocida str. Pm70	DL-TRTAD RT-TAMNE	NDE <mark>R</mark> -LWLDI NGCE-MLMDI	EGHCEBDOLM	COMEKVK- Gycesagak-	ENA	POATSLETL	IRMVESGNGTT NMVASNTGTT	
42. Pectobacterium atrosepticum SCRI1043	ER-VAMSD	AGEK-LLMLE	DGHCLHDQAM	GECEQAGAD-	EDT	FATSLETL	NMVAAGSGIT	LLPALSVP
44. Phaeobacter gallaeciensis 2.10	DVGLEGAD		QGHCLHRĤAL	SAEPERDOQ-	ÕDES	FAATSLSTL	SMVSEGLGIT	LIPDLAID
46. Porphyromonas endodontalis ATCC 35406	EMDMAS - <mark>SVVRSS</mark> E	DASR-LWLLI	EGHCERDQLV	RYCQ <b>LS</b> ASA-	KRAIR	Y S EGNLLSE	MHLVEGGQGMT	FIPKLAE-
47. Porphyromonas gingivalis 48. Prevotella buccae D17		N PHR – LWLLL LKGEY – LWML	EGHCERDQLV EGHCERDQLV	RECOMMODIE - KECHLMGAS -		YSGGSMEAFI YSLGSIETFI	IRLVESGQGUT IRMVESGRIGMT	FIPELAI -
49. Providencia rettgeri DSM 1131 50. Pseudoalteromonas haloplanktis TAC125	TIEMSE KVALRE	SGE <mark>M</mark> -LLMLE OGCS-LLMLS	DGHCERDQAN DGHCERDOAO	GECEQAGAM- OFCESAGMN-	EDT	FEATSLETL YOGNSLETL	NMVAAGSGIT ALVAMDDGVT	ELPDESMP FMPKLAC-
51. Pseudomonas fluorescens Pf-5	TIDANL	NDKS-LLLLG	EGHCEBDŐVÍ	ÊACPTLTKGN	DGAKHTŤ	VÊSSSLETI A TSI STV	HMVA SGLGIS	ILPLSAND WPESAMA
53. Roseobacter denitrificans OCh 114	PSPE		EGHCENDŐAL	SECKSMEAH-	<b>P</b>	MEGSSUSTLY	<b>ØMVG</b> A <b>GIGV</b> T	LIPEMAL-
55. Salmonella enterica subsp. arizonae serovar 62	-DALAPAA -D <mark>RVPMS</mark> D	AGE <b>K</b> -LLMLE	DGHCLHDQAM	GFCFEAGAD-	EDT	FRATSLETL	NMVAAGSGIT	LUPALAMP
56. Serratia odorifera DSM 4582 57. Shigella boydii Sb227	- ERMAMPD - ECNPMAD	AGEK-LLMLE AGEK-LLMLE	DGHCLHDQAM DGHCLHDQAM	GECEQAGAD- GECEEAGAD-	ED <b>TH</b>	FRATSLETL	NMVAAGSGIT NMVAAGSGIT	LLPSLAVP
58. Simonsiella muelleri ATCC 29453 59. Sodalis glossinidius str. 'morsitans'	-DEMTKED	IGQE <mark>R</mark> – LLLL AGE <mark>R</mark> – LLLL	EGNCMEDŐVL	GSCMELASEQ GECEOAGAD-		QGSSINTV FATSLET	HMVASGLGIS NMVAAGSGIT	VLPATAL -
60. Streptomyces coelicolor A3(2) 61. Streptosporangium roseum DSM 43021			EGHCLEDŐA	DECRÉAGRAG	MPATT	TTAAGLSTL		
62. Teredinibacter turnerae T7901	-KEHPDE	TQCN-VLLLC	EGHCEHDQVI	EACPNLEPSI	DDPRGN <b>INT</b> A.	AEGSSLETL	YMVA SGLGVT	ILPQSAAM
64. Xanthomonas campestris py. campestris str. 8004	-DEMDMLE -D <mark>SMTL</mark> DD	SEQ <mark>R</mark> -LLLE	DGHCLHDQAL DGHCLHEQAL	DMCHAGAN-	E <mark>KS</mark> E	FQATSLETL	QMVAAGAGUT	LLPMLAVK
65. Xylella fastidiosa Temecula1 66. Yersinia pestis Angola	- EEMTMEE - EEVEMHE	ADE <mark>R</mark> -LLLLQ AGE <b>K-LLM</b> LE	DGHCLHEQAL	DMCHMTGAS- GFCFQAGAD-	EDTH	EQATSLETL FRATSLETL	QMVVANVGIT NMVAAGSGIT	LLPLLSVK
67. Yersinia pestis CO92 68. Zunongwangia profunda SM-A87			DGHCLHDÔAM	GECEÕAGAD-	ED T	ATSLETL	NMVAAGSGIT IKLSNEGLGMT	
coanong/angla protential on /tor	2 0					£ 0 0 0		