

	110	120	130	140	150
<i>Bordetella pertussis</i> _Tohama_I	AAINADQRR..	LARDQAWFMGVVFKV	ALGLLAF	AWKP..	WLGLEFLAVYGLVY
<i>Aeromonas veronii</i>	RAIDGEVQRE..	IGRDQRWFMGIFL	VATALGLV	AFTGKS..	WLAPLFLVYLVY
<i>Bordetella pertussis</i> _Mn_resister	AAINADQRR..	LARDQAWFMGVVFKV	ALGLLAF	AWKP..	WLGLEFLAVYGLVY
<i>Bordetella bronchiseptica</i>	AAINADQRR..	LARDQAWFMGVVFKV	ALGLLAF	AWKP..	WLGLEFLAVYGLVY
<i>Escherichia coli</i>	AKIRVDYAR..	MSHDQAFVAVVFKV	ALGLLAF	VFTLKP..	WLGVLFLVAYALVY
<i>Clostridium perfringens</i>	LVIKKHIKND	IVNLIATFILYVFT	.FTGLIG	SKNSLSRI	DGGILVLMCITYII
<i>Methanocaldococcus jannaschii</i>	IIVDKN....	LQKNILVYLLVFAA	VIGIDG	FS....	WIDGVVLLIL..
<i>Chlamydomonas reinhardtii</i>	MYHSVQTFN..	AMSNRACSSLLMLA	.CIGIS	.IPSA...	.ASMLLVTDPALRA
<i>Dictyostelium discoideum</i>	RNRKGGSFQ..	LQPPVKKQCLILL	..LSLL	.IP....	.LFLSLVGYNVFFG
<i>Saccharomyces cerevisiae</i>	YNRVQOTFN..	QTAAQTMSSLLATA	.CASLL	.IPAA...	.FRATLPHGKEDHFIDGK
<i>Caenorhabditis elegans</i>	RPFKAIEVFS..	SIRDLAFYLVAF	.LAFCFV	.YYDHVEI	WMPITFLGVYLIYVCTVIL
<i>Arabidopsis thaliana</i>	RDVSIIDRNS..	VIRDLVFFLLVALC	.CLGLI	IFIGVIT	WVALCYLSIYLVYV
<i>Drosophila melanogaster</i>	QPTKLDWWP..	VTRDTAWYLIATAS	.LTYVL	.WDSLVMW	YEAVALLLYISYVI
<i>Danio rerio</i>	AVGRLLSCWP..	LFRCVAYISISVAA	.VIAII	.SDNRVY	WDGACLFLVYGVYVA
<i>Xenopus laevis</i>	SISRLTQWP..	LFRCVAYAISVAA	.VIAIT	.FDNRIY	WESASLLIYGIYIV
<i>Gallus gallus</i>	QVVCLTQWA..	VFRDSVYVYTLVVI	.LIVFI	.HDEKIEW	WESLVLITMYSFYIL
<i>Mus musculus</i>	MVSTLSCWP..	LFRCVAYAVSVGA	.VFGII	.FDNRIY	WEGAGLLIYGLYVL
<i>Homo sapiens</i>	QVVRLLTWWA..	VCRDSVYVYTLVVI	.LIVFI	.YDEQIV	WVEGLVLLIYVYVYIL

	160	170
<i>Bordetella pertussis</i> _Tohama_I	.....KRELTREEE..	.....CLDCEDLE..
<i>Aeromonas veronii</i>	.....RRELKQSDS..	.....HEVELPE..
<i>Bordetella pertussis</i> _Mn_resister	.....KRELTREEE..	.....CLDCEDLE..
<i>Bordetella bronchiseptica</i>	.....KRELTREEE..	.....CLDCEDLE..
<i>Escherichia coli</i>	.....WREIRNSDT..	.....APEEEMI..
<i>Clostridium perfringens</i>	..YL...IYTVKRSNK..	..KEDEVALTAEIED..
<i>Methanocaldococcus jannaschii</i>	..YL...RWTVKNGSA..	..VKNV...EIEE..
<i>Chlamydomonas reinhardtii</i>	..DW...ILDVSRGTA..	..VIMLICACYLTF..
<i>Dictyostelium discoideum</i>	.....IFG.....	..IYYLIFIGYSLFHKLPE..
<i>Saccharomyces cerevisiae</i>	.....ILELSRGT.S..	.....IVILIVYVLFYFQ..
<i>Caenorhabditis elegans</i>	SQILHNRHKKDEEKVDEKTVDTDSLEDDDDIYVSHGHVHLHAHEVMKMEAEIEAVE..	..RMSDQLRSREDLAE..
<i>Arabidopsis thaliana</i>	..FLSVSHFFDRKK..	.....RMSDQLRSREDLAE..
<i>Drosophila melanogaster</i>	..QL...SFDRIQNLV..	..RHEHAESLLEDDEPDM..
<i>Danio rerio</i>	..VL...CFDLKISEY..	..VMQRFSPCCWCLKPRDR..
<i>Xenopus laevis</i>	..IM...CFDIKISKY..	..VVRRFSPCCACCAEAMVBE..
<i>Gallus gallus</i>	..IM...KYNVRMQNF..	FTLKSXNVGNGDITVDNEMEDGNKCYDSSCDDPSIPLLWKKVKG
<i>Mus musculus</i>	..LL...CFDVTISRH..	.....VMKTCSPCCCLARAMEE..
<i>Homo sapiens</i>	..IM...KYNVQKMAFF..	.....TVKQKSIANGNPVNSELEAVKE

<i>Bordetella pertussis</i> _Tohama_I	.....	PLK.....
<i>Aeromonas veronii</i>	.....	PLKL.....
<i>Bordetella pertussis</i> _Mn_resister	.....	PLK.....
<i>Bordetella bronchiseptica</i>	.....	PLK.....
<i>Escherichia coli</i>	.....	PLK.....
<i>Clostridium perfringens</i>	.....	.....FE
<i>Methanocaldococcus jannaschii</i>	.....	.....
<i>Chlamydomonas reinhardtii</i>	.....	QLK.....
<i>Dictyostelium discoideum</i>	.....DEKKEDRD..	.....IEMGERKNGANEQTFAST..
<i>Saccharomyces cerevisiae</i>	.....	LG.....
<i>Caenorhabditis elegans</i>	.....	PLKTWSFRGVVHDFKEHLKPW.....
<i>Arabidopsis thaliana</i>	.....	MGVSLLYIAEKLALPEKTT.....
<i>Drosophila melanogaster</i>	.....TREEE.....	PLKGFDRDHVCAKPK.....
<i>Danio rerio</i>	.....SGEQQ.....	PLVGWSDSSLRVQRRSR.....
<i>Xenopus laevis</i>	.....NTEHA.....	PLLGWKEESLPVIRRHRS.....
<i>Gallus gallus</i>	VQOYGNKNSVVMVDEIICSSPPKYRFPEAGLRIMITNKFGPRTMRMASRIIINERQLIQ	.....SDSGIFQ
<i>Mus musculus</i>	.....RIEQQ.....	TLLGWEDESOLFIRQSR.....
<i>Homo sapiens</i>	KPQYGNKNSVVMVDEIIMSSPPKFTFPEAGLRIMITNKFGPRTLRMASRIIINERQLIN	.....TDSGIFQ

<i>Bordetella pertussis</i> _Tohama_I	.....
<i>Aeromonas veronii</i>	.....
<i>Bordetella pertussis</i> _Mn_resister	.....
<i>Bordetella bronchiseptica</i>	.....
<i>Escherichia coli</i>	.....
<i>Clostridium perfringens</i>	EQ.....
<i>Methanocaldococcus jannaschii</i>	.....
<i>Chlamydomonas reinhardtii</i>	GDD.....
<i>Dictyostelium discoideum</i>	DDEDTDE.....
<i>Saccharomyces cerevisiae</i>	QOEEETDEV.....
<i>Caenorhabditis elegans</i>	EMNIFQKVI...AVLNTIPNLFKLTIPHSQPWSKPIITLLQCLICPVFLLFCIQVCS
<i>Arabidopsis thaliana</i>	EDSPKRRHRSFVSVLVSITIGLPLYLPRRLTIPVVCEEKWSKPCAVVSTATAVLLTLEYCS
<i>Drosophila melanogaster</i>	.....
<i>Danio rerio</i>	DDSGYSHLS...LSLHGLNEI.....
<i>Xenopus laevis</i>	EDSDYSQLS...ISLSGLKEP.....
<i>Gallus gallus</i>	SANGSSK.P...LQNGRHQNIENGNIPVVNQEEEN.....
<i>Mus musculus</i>	EDSGYS.....
<i>Homo sapiens</i>	SANGVSSKP...LQNGRHENIENGNVPVENPEDPQONQEQPPPPQPPPEPEPEV EADF

	180	190	200
Bordetella pertussis Tohama_I	..LRPRDPS	PSLFWA...CAQT	VLAALAVTAAAS
Aeromonas veronii	..APDAVI	P..P.VGKV.LLQT	LALAVVVALAA
Bordetella pertussis Mn_resister	..LRPRDPS	PSLFWA...CAQT	VLAALAVTAAAS
Bordetella bronchiseptica	..LRPRDPS	PSLFWA...CTQT	VLAALAVTAAAS
Escherichia coli	..IRPSAIE	PPMGWI...VLQI	VLSLIVIAAAS
Clostridium perfringens	..NKS	P..NSTVKN.IILS	IVGVIILGG
Methanocaldococcus jannaschii	..NNDKNN	P...SVVFSVLVLL	IIGLIGVLVGA
Chlamydomonas reinhardtii	..DDAVPM	..MTVGT.S.IGAL	TVITAVVAVCS
Dictyostelium discoideum	..EDEHDE	P..LYKGVF...YLF	LGGLLICYFSS
Saccharomyces cerevisiae	..MSTISR	PHHSLSVKSSLVLL	LGTTVITISFCA
Caenorhabditis elegans	..LHKEP	P..FYKSLISYAGF	LMSIAWYLLIS
Arabidopsis thaliana	..KKSHP	P..KKSFLVWL.LGGF	TMSVTWTYMLIA
Drosophila melanogaster	..ACTVP	P..SARSIF.FLSM	ISAILWLSLIS
Danio rerio	..FVKRR	P..FVKRR.MLTF	LMSAVWISAFIT
Xenopus laevis	..TKKWF	P..TKKWF.IILTF	VMSAVWISAVIT
Gallus gallus	..RWESWF	P..RWESWF.MFTF	ILSTLWIALFS
Mus musculus	..QLSL	P...QLSL.LHGL	SLHGLSQQVSS
Homo sapiens	..RWEKFF	P..RWEKFF.MVTF	ITATLWIAVFS

	210	220	230	240	250	260
Bordetella pertussis Tohama_I	HVFVRQTELE	GLGAMGASPH	VAAALLAPVATE	LPEIMNALLI	WVRQGER...	LALANISGA
Aeromonas veronii	QLFVHQLES	MGEELFG	LSPVLAALLSP	VATEPELMNV	LWVRQGNR...	LALANISGA
Bordetella pertussis Mn_resister	HVFVRQTELE	GLGAMGASPH	VAAALLAPVATE	LPEIMNALLI	WVRQGER...	LALANISGA
Bordetella bronchiseptica	HVFVRQTELE	GLGAMGASPH	VAAALLAPVATE	LPEIMNALLI	WVRQGER...	LALANISGA
Escherichia coli	HIFISQLENI	GTIMHWP	PHLVGLF	SPVATELPE	IMNALLI	WVRQGER...
Clostridium perfringens	KIVVDSAS	ATALGLGL	LSEKLVGLT	IVAVIGTS	LPELVTS	LVAAKKGG...
Methanocaldococcus jannaschii	ELFVDGAK	KIATALD	ISDKVIG	FTLVAF	GTSLPEL	MVSLAAAKR
Chlamydomonas reinhardtii	EFLTDSIE	VSAHTG	ISETFI	GLLPIAGN	ACEHLTAC	IVAMRNKMD...
Dictyostelium discoideum	KPFDISIV	LASSWE	INPIL	LAF	FLA	IAS
Saccharomyces cerevisiae	DFLVGTID	NVESTG	LSKTFI	GLF	VI	IVGNAAEH
Caenorhabditis elegans	SEVVNV	VMLGVVSR	VSHVGL	GLT	IL	LAWSNS
Arabidopsis thaliana	QELVSL	LISLGNIFG	ISPSV	GLT	TVLAWGNS	LGDLIAN
Drosophila melanogaster	YLLTWF	LTLGYNLN	IPDAI	MGLT	TVL	LAAGT
Danio rerio	YVLVWM	VTVG	ETLGP	DT	VM	GMLL
Xenopus laevis	YILVWM	VTVG	ETLGP	DT	VM	GMLL
Gallus gallus	YFMVWM	VTVG	ETLGP	DT	VM	GMLL
Mus musculus	E...GETL	GP	DT	VM	GMLL	LAAGT
Homo sapiens	YIMVWL	VTVG	ETLGP	DT	VM	GMLL

	270	280	290	300	310
Bordetella pertussis Tohama_I	MMIQATIP	SAMMIQAT	IPSA	LGIFLTP	WLL...DAPL
Aeromonas veronii	MMIQGTIP	KAMMIQGT	IPKAF	CLFLTP	WLL...DGMT
Bordetella pertussis Mn_resister	MMIQATIP	SAMMIQAT	IPSA	LGIFLTP	WLL...DAPL
Bordetella bronchiseptica	MMIQATIP	SAMMIQAT	IPSA	LGIFLTP	WLL...DAPL
Escherichia coli	MMIQATIP	SAMMIQAT	IPSA	LGIFLTP	WLL...DAPL
Clostridium perfringens	SNITFN	ILLILL	LGLS	SVI	SPIT
Methanocaldococcus jannaschii	SNIAAD	IGGALAV	GV	SLF	MHPAE
Chlamydomonas reinhardtii	SSIQIAL	FALFAIP	FVAV	VGWAT	GHD
Dictyostelium discoideum	GITKTT	LLMGIF	V	CF	GUVK
Saccharomyces cerevisiae	SSLQV	ALFVTP	FMVL	VGWMI	DVPM
Caenorhabditis elegans	GQLFNL	LIG	FGLP	FTIA	KIQG
Arabidopsis thaliana	GPLFNT	VIG	LGVP	LV	ISSLAE
Drosophila melanogaster	SNITFD	ILVC	LGLP	WLL	KILI
Danio rerio	SNITFD	ILVC	LGLP	WLL	KILI
Xenopus laevis	SNITFD	ILVC	LGLP	WLL	KILI
Gallus gallus	SNITFD	ILVC	LGLP	WLL	KILI
Mus musculus	SNITFD	ILVC	LGLP	WLL	KILI
Homo sapiens	SNITFD	ILVC	LGLP	WLL	KILI

	320	330	340
Bordetella pertussis Tohama_I	L...WLRFR	AAMSVPALS	A...VG...GLY
Aeromonas veronii	L...WVGFR	GTMAGRLA	L...VG...LLYL
Bordetella pertussis Mn_resister	L...WLRFR	AAMSVPALS	A...VG...GLY
Bordetella bronchiseptica	L...WLRFR	AAMSVPALS	A...VG...GLY
Escherichia coli	L...WQVFR	GIADGRALI	I...VG...GGY
Clostridium perfringens	IGALIF	LNKKKEK	VLTKY...EG
Methanocaldococcus jannaschii	MSLLYL	FAKYS	KIGRW...QG
Chlamydomonas reinhardtii	AVCVIHAN	FVADAT	SHWL...LG
Dictyostelium discoideum	LLTI...CA	AASG	GYFNKIK
Saccharomyces cerevisiae	FI	AVFLSNYL	ILDG
Caenorhabditis elegans	FLA	ISLIF	TLIAM
Arabidopsis thaliana	VGL	LW...AL	VIMPK
Drosophila melanogaster	VVLA	AV...LY	LGLLARR
Danio rerio	LLS	IF...LF	LAVH
Xenopus laevis	LFS	IMF...IF	VAILH
Gallus gallus	LGS	VALT	TVILL
Mus musculus	NIS	ILF...LF	LAVH
Homo sapiens	LGS	VAL...TV	LGIHL

<i>Bordetella pertussis</i> _Tohama_I	...
<i>Aeromonas veronii</i>	...
<i>Bordetella pertussis</i> _Mn_resister	...
<i>Bordetella bronchiseptica</i>	...
<i>Escherichia coli</i>	...
<i>Clostridium perfringens</i>	...
<i>Methanocaldococcus jannaschii</i>	...
<i>Chlamydomonas reinhardtii</i>	...
<i>Dictyostelium discoideum</i>	PIA
<i>Saccharomyces cerevisiae</i>	NSL
<i>Caenorhabditis elegans</i>	...
<i>Arabidopsis thaliana</i>	...
<i>Drosophila melanogaster</i>	IQD
<i>Danio rerio</i>	D..
<i>Xenopus laevis</i>	D..
<i>Gallus gallus</i>	...
<i>Mus musculus</i>	V..
<i>Homo sapiens</i>	EDD