

EXPA Tree

>CcEXPA1 [A]

W--SQ----AHATFYGGSD--ASGTN----N-GACGYS-NVFALGYGTMTAALS-----
APLFNDGLACGACFQIQC

TGDP-----ACYS---NSIVVTATNLCPQ-----GS--NGGWC-DYPKAHFDLSQPAFSQFA-----
QTIA-

GHVTVNYQRVNCN-RRGGVHFKI----DGHTY-FMQVLLYNVGGPGDVQSVQVK-GTNT-G-WI--
GMTRGWGQNWQ-TG

QV---LDGQSLSFAVKTS-DGRTLYHNNVADSNWRYGQTFE-G---SQF

>CcEXPA10 [AB]

W--TD----SHATFYGSQD--GQGST----G-AACGYGDNLEKMGYGMMENTALS-----
TTLFNQGLTCGACFEIKC

RVEE-----SRWCYP-DAGSVKVTATNFCPP-NANRPID----GWC-NPPRTHFDMSVPMFTKLA-----
QYVG-

GIPIKFRRIPCV-KQGGIRFVM----NGNPW-FNLVLVYNVAGDGNVMKMEIK-GTNT-A-WL--
SMKANWGWQNWE-LH

RI---LRGQALSFRVTDQ-SGKVIEAKDVVPSDWEFTQTFE-AT--TNF

>CcEXPA11 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NLHARGYGLQTAALS-----
STLFNKGLTCGACFEIKC

KVKD-----TRWCYP-NAGSIKVTATNLCPA-NPNRPTN--NGGWC-NPPRTHFDLAVPMFTKLA-----
-KYVG-

GIIPVQFRRIPCV-KTGGIRFVL----NGNPW-FNLVLVYNAAGGGNVNMQMK-GSKT-T-WY--
IMRQNWGWQNWE-LK

QK---LQGQALSFRVTTG-NGKVLVATNVAPANWKFGQTFE-DD--KNF

>CcEXPA12 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NLHSRGYGLQTAALS-----
STLFNKGLTCGACFEIKC

KVKD-----TRWCYP-NAGSIKVTATNLCPA-NPNRPTN--NGGWC-NPPRTHFDLAVPMFTTLA-----
KYVG-

GIIPVQFRRIPCV-KAGGIRFVL----NGNPW-FNLVLVYNVAGGGNVLMQMK-GSKT-T-WY--
TMRQNWGWQNWE-LK

QK---LQGQALSFRVTAG-NGKVLVATNVAPANWKFGQTFE-DD--KNF

>CcEXPA13 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NLHSRGYGLQTAALS-----
STLFNKGLTCGACFEIKC

KVKD-----TRWCYP-NAGSIKVTATNLCPA-NPNRPTN--NGGWC-NPPRTHFDLAVPMFTTLA-----
KYVG-

GIIPVQFRRIPCV-KAGGIRFVL----NGNPW-FNLVLVYNVAGGGNVNMQMK-GSKT-T-WY--
TMRQNWGQNWE-LK

QK---LQGQALSFRVTTG-NGKVLVATNVAPANWKFGQIFE-DD--KNF

>CcEXPA14 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NLHSRGYGLESAALS-----
STLFNKGLTCGACFEIQC

KVKD-----TKWCYP-NAGSIKVTATNMCPA-NPARPTN--NGGWC-NPPRTHFDLSVPMFTKLA-----
-KYVG-

GIIPVQFRRIPCL-KAGGIRFVI----NGNPW-FNLVLVYNVAGGGNVVTMQME-GTKT-A-WY--
TMRQNWGQNWE-LK

QK---LQGQAISFRVTTG-NGKVLVASNVAPANWKFGQTFE-DD--KNF

>CcEXPA15 [ABF]

W--TD----SHATFYGGND--GSETM----G-GACEYG-NLHSRGYGLETAALS-----
STLFNKGLTCGACFEILS

KVKD-----SRWCYP-NAGSIKVTATNLCPT-NPARSTN--NGGWC-NPPRIHFDLSEPMFTKLA-----
KYVG-

GIIPVQFRRIPRV-KAAGIRFVM----NGNPW-FNLALVYNVAKA-NVVNMQMK-----G-----
SRNWGQNPE-LK

EK---LQGRSLSFVRVTTG-NGKVLVVNNVALANWKFGQTFE-D---DNL

>CcEXPA16 [AB]

W--TN----SHATFYGGND--GSGTM----G-GACGFG-NLNLRGYGLETTALS-----
STLFNKGLTCGACFEIQC

RVNE-----TRWCYP-NAGSIKITATNLCPA-NPSRPTN--NGGWC-NPPRTHFDLSVPMFTKLA-----
KYVG-

GIIPVQFRRIPCV-KTGGIRFVL----NGNPW-FNLVLVYNVAGDGNVEAMQMK-GNNT-S-WF--
TMTRNWGQNWE-LK

QK---LFGQALSFKVTVG-NGTVLVANNVAPADWKFGQTFE-DD--KNF

>CcEXPA17 [AB]

W--TP----SHVTFYGDIT--GAATM----G-GSCGYG-NLWWRGYGLNTAALS-----
DTLLNYGLTCGACFEIKC

DISS----GTYSTRWCYP-QNPSIIVTATNHCPP-NWDRPTD--NGGWC-NPPRTHFDLPVVMFMRLA----
---QTIA-

GIIPVQYRRVPCV-KTGGLKFTL----NGNPW-FNLVLIWNVAGGGDVMNMQMR-GEKT-V-WY--
TMRRNWDGQYWE-CP

IR---FTGQKLSFIVTLG-NGQVRVNNLTPSIWYFGQSFE-AL--TNF

>CcEXPA18 [AB]

W--TD----SHATFYGNDS--GEATM----G-GACGYG-NLWWRGYGLSTTALS-----
DTLLNDGLTCGACFEMKC

DIDR---PNSDSTRFCHS-SNPVIKVTATNRCPP-NPDRPTD--NGGWC-NPPRTHFDLSLNMFRRIA----
---RPVA-

GIVPVQYRRTSCV-KTGGIKFYL----GGNPW-FNLVLVYNVGGWGSVSKMEMR-GSKT-D-WM--
TMTRNWDGQNWE-SG

IN---YTNQSLSFIVTLS-DGNVRVIRNLTPTVWYQGQTYE-AN--SNF

>CcEXPA19 [AB]

W--TP----SHATFYGSYD--GVETM----G-GACGYG-NLWWRGYGLNTAALS-----
DTLLNNGLTGACFQLRC

DLSH----DGYSTRWCYK-NVAPITVTATNHCPA-NWARPTN--DGGWC-NPPRTHFDLPLVMFNRMA--
-----QPVA-

GIIPVQYRRVPCK-KSGGIKFYL----GGNPW-FNLVLVYNVAGAGDVKSMRMR-GSKT-V-WY--
TMKRNWDGQFWE-CP

IK---FTGQRLSFQVTVS-SGYVRIINNLTPTNWFYQGQTYE-AS--TNF

>CcEXPA2 [A]

W--ND----AHATYYGGSD--ASGTN----N-GACGYS-NVFSLGYGTMSTAALS-----
APLFNEGKTCGACFQIRC

AGEE-----ACYG---NVITVTATNLCPQ-----GS--NGGWC-DYPKPHFDLSQPAFSQIA-----KTIA-

GHVTLQYQKVNCA-RTGGIRFNL----QGHTY-FIQALIYNVGGAGDVSAVSIK-GSKT-G-WI--
QMYRGWQNWQ-TG

TV---LDGQALSFMVTTT-DGRTVYSNNVADSYWQYQGQTFE-G---SQF

>CcEXPA20 [AB]

W--AD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSVGYGTSSTAALS-----
NALFNNGLSGACFQIIC

RLGE-----SKYCYQ--GASIVVTATNACPP-----GS--EGGWC-DPPKAHFDLSYPAFQRLA-----
QPVG-

GVIPVKYKRVSCN-RNGGIRFTM----RGNPY-FDLVLVTNVGEGFQSLQLK-GERT-G-WN--
YMRQNWGANWQ-SN

VN---VQQQALTFKVTLD-NGRTGEFVNVAPRNWGFQTFE-AD--YNF

>CcEXPA21 [A]

W--EV---AHATYYGGSD--AQGTN----G-GACGYQ-NVFALGYGAMTTAIS-----
PQLYGVGNTCGACFEVRC

SGDK-----ACYD---NSVAVTATNQGPQ-----WSTEYPGPHFDLSQPAFNKIA-----DLIA-

GHIPIQYRRVNCV-KKGGILFAV----SGQTY-FMQVLVYNVGGKGDVNALAVK-GERS-G-WI--
EMNRLWGQYWS-TQ

AI---LDGQAMCFRVTTSDGICLVSYNAAPSSWRYGQTYE-G---LQF

>CcEXPA22 [AB]

W--TD---AHATFYGGQD--ASGTM----G-GACGYG-NLYSRGYGTASTALS-----
NALFNAGLTCGACFQITC

KTSE-----TRWCYN-GGQSITVTATNQCPQ-----GS--EGGWC-DYPRSHFDLSFPMFQQLA-----
QRVG-

GVIPVLYRRVSCQ-RAGGIRFSI----NGNPY-FNLVLVTNVGGKGDVAAMWMR-GSKT-D-WQ--
PMKQNWGQNWQ-CD

TK---LVGQSLSFKAMLG-SGETKEFVNVADSNWGFQTFE-AD--YNF

>CcEXPA23 [AB]

W--TD---SHATFYGGND--GSGTM----G-GACGYG-NMYTTGYGLQTTALS-----
PTLFNDGLTCGACFQLKC

KVED-----TQWCYP---NRITVTATNLCPA-NPAKPND--DGGWC-NPPRTHFDLTYSMFSLA-----
QPVG-

GIIPVQFRRVSCI-KQGGVRFTL----NGNPW-FNLVLVYNVGGDGNIVSARMK-GSDT-S-WF--
TMTQNWGQNWE-LN

EE---LLGQALSFLTTG-FGKTMIFSNVADSNWGFQTFE-GE--TNF

>CcEXPA24 [AB]

W--TD---SHATFYGGND--GSGTM----G-GACGYG-NLYTTGYGLQTTALS-----
STLFNEGLSCGACFEIKC

KVDD-----TQWCYP-NAASITVTATNLCPE-NSDRPTD--NGGWC-NPPRTHFDLTYNMFSILA-----
KPVG-

GIIPVQFRRVSCI-KQGGLRFTL----NGNPW-FNLVLIHNVGGGGNIVSAQMK-GSDT-S-WF--
TMTQNWGQNWE-LK

QK---LQGQAISFQLTTG-LGRTIVFSNVADSNWSFDQTWE-AD--TNF

>CcEXPA25 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NLYNTGYSLQTTALS-----
PTLFNQGFSCGACFELKC

KVED-----TRWCYP-NATSITVTATNLCPA-NPDRPTD--NGGWC-NPPRTHFDLSYTMFSVLA-----
QPVG-

GIIPVQFRRVSCI-KQGGVRLTL----NGNPW-FNLVLIYNVAGDGNIVSAQLK-GSNT-A-WF--
TMTQNWGQNWE-LK

QK---LQGQALSFQLTTG-LGETMIFANVADSNWSFGQTWE-AD--TNF

>CcEXPA26 [AB]

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NMYNTGYGLETTALS-----
STLFNEGLSCGACFEIKC

KVDD-----SRWCYP-SAGSITITATNLCPA-NPDRPTD--NGGWC-NPPRTHFDLAYTMFSVLA-----
QPVG-

GIIPVQFRRVTCI-KQGGVRFTL----NGNPW-FNLVLIYNVAGDGNIVSAQMK-GSDT-A-WF--
TMTQNWGQNWE-LK

QK---LQGQALSFQLTTG-LGTTMVFANVADSNWSFSQTWE-AD--TNF

>CcEXPA27 [AB]

M---D----AKATFYGGTD--ASGTM----S--GCGYA-NPFSLGYGAAQTAALS-----
TPLWNKGLTCGGCFEIKC

KITA----TDYARKWCYS-NAPSIYITATNLCPP-----GS--YGGWC-DPPKLHFDLAYAAFTKLA-----
NQAA-

GVIPVQYRRTPCR-KTGGVKFQM----NGNPY-WALVLIYNVAGGGNIHAAAIK-GSNT-N-FY--
TMNQNWGMNWE-AY

VS---LRGQALTFRLLTG-NGRSVTFYNVCPSYWQIGQTCQ-SA--YNF

>CcEXPA28 [AB]

M---D----AKATFYGGQD--ASGTM-----GCGYA-NPFTLGYGAAQTAALS-----
TPLWNKGLTCGACFQIRC

KISA----SAYAKKWCYA-SNPAITITATNLCPP-----GS--YGGWC-DPPKLHFDLAQAAFTRLA-----
NQVA-

GVIPIQYRRTPCR-KSGGIKFTM----NGNAY-WILALVHNVAGGGNVHAMQIK-GSRT-N-FM--
SMRQNWGQNWE-SY

SQ---LVGQSITFKVTLG-NGRTITFWNVVSGSWRFGQTWQ-AR--YNF

>CcEXPA29 [AB]

W--GE----AHATFYGGQD--ASRTM----G-GACGYG-
NLYSTGYGTANTELIIQRWTYMRSMLYSGLQIGGKHMVLF

-----GGKSIIVTATNSCPP-----GS--EGGWC-DPPRLHFDLSYPMFQALA-----QPVG-

GVIPVRYKRVPKA-GQGGVRFNL----LGNQW-FNYVLIYNVKGGDNVASILIK-GTKT-N-WV--
EMYHNWGQFWS-AN

EN---LVGQALSFKVILG-DGSSLVFQDVTPDHWQFGQTYE-ADNNQNF

>CcEXPA3 [AB]

F--GD----ATATFYGGND--AAGTA----G-GSCGYE-NPFTRGYGVTTAALS-----
NSLLRDNLNCGACFQVKC

KYYA----SAYTQKWICY--DKTAIVTATNQSP-----GL--NGEHH-----FDLTYPMFTKIS-----NSIA-

GRIPQYRRVPCK-KQGGIKFTL----NGNR--FNLVLVYNVGGAGNVYAMSMK-GSKT-G-WY--
PMGRNWGQNWQ-AM

VR---LTGQSLSFRVSLG-NGKSKDFYNVAAAGWNFGQSYM-AS--SNF

>CcEXPA30 [AB]

W--GD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSTGYGTSTTALS-----
KRLFNHGLTCGACFMLVC

KLEQ-----AEWCYS-GGKSITVTATNACPP-----NS--EGGWC-DPPRLHFDLSYPMFQKLA-----
SPIA-

GAIPKYKRVSCV-RHGGVRFDL----LGNPW-FNYVRVYNVAGGGDVASASIK-GSKT-N-WV--
EMYHNWGQYWS-SS

PC---LVGQALSFKITLG-NGNSQVFWDITPENWKFGETYQ-ALNPQNF

>CcEXPA31 [AB]

W--GD----AHATFYGSED--GSQTM----G-GACGYG-DLYSTGYGIAANTALS-----
NGLFNNGFTCGACFKLVC

KLEE-----TKWCYP-GEKSITVTATNACPP-----GS--EGGWC-DPPRLHFDLSYPMFRILA-----
QPIG-

GVIPVMYKRVSCI-KQGGIRFYT----LGHPT-FNYFLVYNVGGGGDVGAVSIK-GSKT-S-WL--
ELNHNWGQYWS-GN

EY---LIGQALSFKVTLG-DGEFLLIFDVIPENWQFGMTYE-APNNQNF

>CcEXPA32 [AB]

W--SN----ATATWYGGVD--GSGTM----G-GACGYG-DLYSTGYGLATAALS-----
STLFKQGLTCGACFELKC

RLNE-----SRWCYP-NVGSIKITATNFCPE-NLNRPTD----GWC-NGDRLHFDLTNKMFTTLA-----
QYVA-

GIIPVNYRRVPCV-KQGGIRFTI----NGNAH-FNLVLVHNVGGSGNVLSVQMK-GLKT-M-WY--
TMNHNWGQYWD-CG

IT---FVGQSLSFRVTTG-YGQNFTFWNVASQSWLFGQTYE-AS--SNV

>CcEXPA4 [AB]

W--TS----AHATFYGGAD--ASGTQ----G-GACGYG-NMYTRGYGLKTTALS-----
YSLFNKGLTCGACFQIKC

DLAL-----KPRWCYT-NNPSVTVTATNSCPP-NWSKPSN--DGGWC-NPPRVHFDLSYPMFTQLS-----
---QAVA-

GIIPVRYKRVKCY-KTGGIRFTV----NGNPY-FNLVLVHNVGGYGNVVAIYIR-NTNS-V-YY--
KMTQNWGANWE-DH

HK---LVGQKLTFKATLG-TGQTMIFKDVTDTYWRHGQTWE-AS--NNF

>CcEXPA5 [B]

F--GD----ATATFYGGND--AAGTA----G-GFCGYE-NPFTRGYGVTTVAIS-----
DGLLQNGINCGACFEVKC

KWDS----SDYTKKWCYK--DKTTVVTATNLSP-----GL--NGEYH-----FDLTYPMTQIS-----
NMIA-

GRIPYRRVPCV-KQGGIRFTV----VGNPF-WNLVLVFNVAGGGNVHSLYAI-NQNY-D-WC--
YMNRNWGQNWQ-TS

TM---LTGRSLSFRVALG-NGVTQDFYDVADSNWRHGQTYE-AN--SNF

>CcEXPA6 [AB]

Y--GD----ATATFYGGND--ASGTM----G-GSCGYQ-NPFTLGYGVNATAALS-----
NSLLSDNLNCGACFEVKC

KYDA----SAYTRKWCYP-NSPTAITATNLSP-----GLN---GEHHFDLTYPMTKIA-----NSIA-

GRIPQYRRVRCY-RSGGIKFTM----TGNPF-FNLVLVYNVGGAGNVHGMAIK-GSST-N-FY--
PMSRNWGQYWQ-AM

VK---LTGQSVTFRVTLG-NGKTTTFWNVCPNWWQFGLTYA-AT--YNF

>CcEXPA7 [AB]

W--AD----AHATFYGGSD--ASGTM----G-GACGYG-NLYSLGYGTQSTALS-----
NALFNNGLSGACFMIQC

KLDG-----SKYCYP--GQSITVTATNACPP-----GS--EGGWC-DPPRSHFDLSYPMFQKLA-----
KPVG-

GVIPVRYKRTSCV-KSGGVRFTL----HGNPY-FNYVLVHNVAGWGDVSAVSIK-GDQT-G-WY--
YMSQNWGQYWS-AS

TK---LTGESLSFKVTLG-DGKSLEFYNVADKNWGFQTYE-TD--YNF

>CcEXPA8 [AB]

W--KA----GHATFYGGSN--AAGTM----G-GACGYG-NLYNTGYGLKTAALS-----
PTLFNDGLTCGACFEMYC

NYRM-----ESRWCFA-SMPRIRVTATNLCPA-NWNRPTN--RGGWC-NPPRVHFDLPQPMFTKMA---
----RYVG-

GIVPVYRRVSCV-KQGGVKFTI----NGNPW-FNLILITNVGGPGDIKAVSVK-GSAQ-KYWT--
YAKQNWGQKWE-VK

QK---LQGQALSFRITSA-NGKVLVLYSAVPRTWRFQTYQ-AR--SNW

>CcEXPA9 [AB]

W--RN----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGTDTTALS-----
TSLFDNGAKCGACFAITC

YRSK-----WCLP-GKITIEVTATNFCPS-NPNVPSD--YGGWC-NPPRRHFDLSQPAFTRIA-----
VYQG-

GIVPVLKRVSCV-RSGQIRYTI----NGQRY-FNLVLISNVGGVGDVSAVSVK-AANS-KYWE--
PMRRNWGQNWQ-SN

TI---LVGQSLSFQVTTT-DGKTVSVQDAVDSNWEFGQTFE-G---GQF

>MpEXPA1PRO

W--RN----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGTDTTALS-----
AALFDNGAKCGACFAITC

YRSR-----WCLP-GKPILQVTATNFCPS-NPNLPND--NGGWC-NPPRRHFDLAQPAFTQIA-----
IYEG-

GIVPVLKRVPCV-RSGPIRYTI----NGQRY-FNLVLISNVGGVGDVSAVSVK-GANS-NYWE--
PMRRNWGQNWQ-SD

TI---LVGQSLSFQVTTT-DGSTVTVLDAVASNWEFGQTFE-G---GQF

>MpEXPA2PRO

W--AD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSVGYGTSSTALS-----
NALFNNGLSGACFQIVC

RLAE-----SKYCYP--GGSVVVTATNACPP-----GS--EGGWC-DPPKAHFDLSYPAFQRLA-----
QPVG-

GVIPVRYKRVSCS-RNGGIRFTI----RGNPY-FDLVLVTNVGEFGAVQSLQIK-GERT-G-WT--
YMRQNWGANWQ-AN

VN---VQGQALAFKVTLTLD-NGRSLEFYNVAPKNWGFQTFE-AD--YNF

>MpEXPA3PRO

W--TP----SHATFYGEYN--GVETM----G-GACGYG-NLWWRGYGLETAALS-----
DTLLNNGLTGACFQLKC

DLDH----GGYSTRWCYK-NVAPITVTATNHCPA-NWARPTN--NGGWC-NPPRTHFDLPLVMFNMA-
-----QPVA-

GIPIEYRRVPCE-KSGGLKFYL----SGNPW-FNLVLVYNVAGAGAVTSMKMR-GSQT-V-WY--
SMKRNWQYWE-CP

IK---FSNQRLSFQVTLTLD-SGHVRVINNLTPTNWYFGQTYE-AA--TNF

>MpEXPA4PRO

W--TP----SHATFYGDDS--GAATM----G-GACGYG-NLWWRGYGLATAALS-----
DTLLNNGLTGACFEIKC

NITG-----GESGKWCIQ-SNPSIKITATNQCPP-NFDRPTD--NGGWC-NPPRTHFDLSLNMFRRLA-----
--QTQA-

GIIPISYRRTRCI-KTGGIRFYL----GGNAH-FNLVLVYNVGGWGDVMKMQMR-GTKT-G-WI--
TMKRNWQNWQ-SS

IN---YTGQSLSFIVTLG-NGQVRVIRNLTPTVWYFKQTYE-AD--TNF

>MpEXPA5PRO

W--TD----SHVTFYGASD--GIETM----G-GACGYG-NLWWRGYGLETAALS-----
DTLLNDGLTGCACYQIKC

NIAS----GGYSTKWCYK-SNPTIQVTATNRCPP-NWDRPTN--AGGWC-NPPRTHFDLPLVMFERMA---
----QAVA-

GIIPVKYRRVPCV-KSGGIKFFL----GGNPW-FNLVLVYNVAGGGNVKNMQMR-GDKT-V-WY--
TMKRNWQWFWE-CP

IG---FRGQKLSFIVTLTLD-NGQVRVINNLTELWYFGQTYE-AL--TNF

>MpEXPA6PRO

W--ST----AHATFYGGSD--ASGTN----N-GACGYS-NVFALGYGTMTAALS-----
APLFNDGLSCGACFQIQC

SGDA-----ACYS-N--SITVTATNLCPQG-----S--YGGWC-DYPNAHFDLSQPAFSQLA-----
QTVA-

GHVTVNYQRVNCN-RQGGVRFQI----DGHTY-FMQTLIYNVGGSGDVVAVQVK-GSKT-G-WI--
SMTRGWGQNWQ-TG

TV---LDGQALSFSVKTS-DGKTLYHNNVADSNWKYGQTFE-G---AQF

>MpEXPA7PRO

F--GD----ATATFYGGND--AAGTA----G-GSCGYE-NPFTRGYGVTTVALS-----
NSLLSNNLNCGACFEVKC

KYTA----SAYTKKWCYN--NKSVVVTATNLSP-----GL--NGEHH-----FDLTYPMFTKIS-----NMIA-

GRIPQYRRVPCK-KQGGIKFTL----NGNPY-FNLVLVYNVGGAGNVYAMSMK-GSKS-D-WY--
PMARNWGQNWQ-AM

VR---LTGQSLSFRVTLG-NGKTQTFSNVAAADWKFGQTYQ-AS--SNF

>MpEXPA8PRO

W--TK----AHATFYGGDD--ARGTQ----G-GACGYG-NMYTRGYGVKTVALS-----
YTVFNEGLTCGACFQIKC

DLSM-----KPRWCYA-NGGIITVTATNSCPP-NWARPTN--NGGWC-NPPRVHFDLSYPMFAQLA----
---QKVA-

GIPIQYKRVKCV-RSGGIRFTI----NGNPY-FNIVLVHNVGGYGNVVTLYIK-GTNS-P-WF--
KMKQNWGANWE-DH

NK---LTNQKLSFKATLG-TGETMIFKDITGTYWWSHGQTYE-AN--NNY

>MpEXPA9PRO

W--SP----AHATFYGGSD--AQGTQ----G-GACGYG-NLYRIGYGINTAALS-----
TALFANGLSCGACFELKC

NSPR-----WCKS-GRNPIRITATNLCPQ-NHAHPNN--AGGWC-NMPLQHFDMAQPAYEQIA-----
-IYRA-

GIVPVMYRRVQCI-KFGGIHFTM----NGNRW-EVLVLLTNVGGAGNVHAVSVK-GPHT-N-WL--
YMRRNWGQNWQIND

KQ---LAGATLSFRVTTE-DGRVVTSDVVPYHWRFGQTFE-G---LNF

>MpEXPA10PRO

W--NY----AHATFYGDET--AQDTM----Q-GACGYG-NMYQQGYGTATTALS-----
STLFDNGFACGRCFEIRC

VASW-----ACYL-GNPSTIVTATNFCPA-NWLKPTN--NGGWC-NPPRQHFDMSKPAFEKIA-----
AWRA-

GIVPVAYRRVPCS-KQGSMEFRI----EGNPW-WHIVFITNVGGPGDIGEVYIR-GSGT-KRWW--
RMSHNWGVGFQ-VF

GG---YLGQGLSFMVISSSNLETVMAWNVVPANWRLGQTFS-G---GQF

>MpEXPA11PRO

W--MS----AKATFYGGQD--ASGTM----N-GGCGYA-NPFTLGYGTAALS-----
NALFNKGLTCGACFEIKC

AITA----TAYAKQWCYA-NSPSIYTATNLCPQ-----GS--YGGWC-NGANLHFDLAYAAFTKLA-----
RENA-

GVIPVNYRRTPCCK-KSGGIKFQL----NGNTY-WNLVLIYNVGGGGNVAAAAIK-GSRS-N-FY--
TMNQNWGMNWE-SY

SN---LVGQALTFKITLG-NGRSATFYNVAPAGWRFGQTYQ-AA--YNF

>MpEXPA12PRO

M---D----AKATYYGGND--ASGTM----N-GGCGYA-NPFALGYGDQTVALS-----
TALWNKGLTCGACFEIKC

KISA----TAYAKKWCYP-KAGSIKITATNLCP-----GS--HGGWC-DPPKSHFDLAYAAFTRLA-----
NFQA-

GVIPIQYRRTPCR-KNGGVKFSM----NGNPY-WHLVLVHNVAGGGNVHAMQIK-GSRT-G-FM--
QMKQNWGQNWE-AY

CN---LVGQSVTFKVTLG-NGRTVTFWNAVASNWKFGQTYQ-TK--YNF

>MpEXPA13PRO

W--AE----AHATFYGGQD--AGGTM----G-GACGYG-NLYSLGYGTATTALS-----
NALFHNLSCGACFLIEC

ILQG-----SKWCYP--GKSIVVTATNACPP-----GS--EGGWC-DPPRPHFDLSFPMFQMLA-----
QPVA-

GVIPVRYRRVSCS-KQGGVRFTL----HGNPY-FNYILVHNVGGSGDVAAVALR-GENS-R-WN--
RMNQNWGQYWS-CG

GW---YLGQALSFKVTLG-SGRSLEFWNVVDKNWGFQTYE-SD--YNF

>MpEXPA14PRO

W--AD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSTAYGTASTALS-----
NALFNGLSCGACFQIMC

KLDG-----SKYCYT-GGKSITVTATNACPP-----GS--EGGWC-DPPKAHFDLSYPMFQQLA-----
EPVG-

GVIPVQYKRVSCQ-KNGGIRFTI----NGNAW-FDLVLVTNVGGGGDIKLEMK-GAST-D-WC--
PMSQNWGQNWQ-AS

GHPE-LCGQTLFRATLG-DGRSQEFYDVAPSNWGFQTFE-AN--TNF

>MpEXPA15PRO

W--AD----AHATFYGGSD--ASGTM----G-GACGYG-NLYSLGYGTSSTALS-----
NALFNGLSCGACFLIQC

KLEG-----SKYCYP--GQSITVTATNACPP-----GS--EGGWC-DPPRSHFDLSFPMFQKLA-----
QPVG-

GVIPIVRYKRVSCT-KQGGVRFTL----HGNPY-FNYVLVHNVAGWGDVSSLAIK-GDQT-G-WY--
YMSQNWGQYWS-AS

AK---LTGQALSFKVTLG-NGKSLEFYNVADKNWGFQQTYE-SD--YNF

>MpEXPA16PRO

W--GD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSVGYGVSTAALS-----
YAMFNKGLTCGACYELVC

KLEG-----SKYCYP--GKSITITATNSCPP-----GS--EGGWC-DPPKLHFDLSYPMFQKLA-----
QPVG-

GVIPIKYKRVACA-KSGGVRFTI----HGNPY-FNYILVHNVAGAGDVSAIAIK-GEKT-G-WY--
YMSQNWGQFWS-AS

AN---VVGQALSFKITLG-NGVSTEFNSVAPKDWKFGQTFE-AD--NNF

>MpEXPA17PRO

WEVTEFTRGARATYYGGND--ASGTL----G-GACGYG-NLFENGYGVETTALS-----
TALFNDGLTCGGCFQIQC

IASE-----SDWCLANGTVSITVTATNFCPP-----GS--FGGWC-DPPQPHFDLSYPMFATLA-----
QPVG-

GVIPVQYRRVSCL-KQGGVRFQI----NGNNW-FFLVLMNVAGAGDVQAVAIK-GTRS-E-WI--
SMQRNWGQNWA-SD

GPPE-LVGQALSFRVTLGLTKETLDFIDVAPADWQFGQTFE-DDSGLNF

>MpEXPA18PRO

C--IP----ATATFYGGND--ASGTN----T-GACAYP-NVLAMGYGTMNAALS-----
SAIFDHGKTCGACFQLVC

TYVP-----YGNLRCLR---GRITVTATNYCPQ-----GS--KGGWC-DAPRSHFDLAEPFVQIA-----
PYNA-

GVVHVDYQRVNCQ-RSGEIRYRL----YGFTY-FLQVLVYNVAGTGDVTAMSIK-GSSE-GRWI--
SMTRSWGQLWT-TG

VV---LEHQALSFMVTIS-DGRTITVNDVANNEYWRYGQTYE-G---GQF

>MpEXPA19PRO

W--TD----SHATFYGGNN--AQGTM----G-GACGYG-NMYSRGYGLETTALS-----
STLFNKGLTCGACFEIKC

KVAD-----TRWCYA-NAGSIKVTATNLCPA-NPARPTN--NGGWC-NPPRTHFDLSYPMFTRLA-----
KAVG-

GIIPVQFRRVPCV-KVGGIRFVM----NGNPW-FNLVLVYNVAGAGNVVNMQMK-GSKT-N-WF--
TMKQNWGQNWE-LK

QK---LKGQSSIFRVTLG-NGKVMIANNVAPANWNFQQTFE-SD--NNF

>MpEXPA20PRO

W--MD----AHATFHGGSA--VADTM----G-GACGYG-NLISRGYGLHTSALS-----
SSLFNSGLTCGACFKVRC

KAAS-----SMRCHA-TAGSITVTATDLYSE-NLATLIE--DERRS-NPSQPQFDLAVSAFQMLA-----
RPMV-

GLIPIEQRVPCV-KEGGIRFTL----NGNSW-FNLVLVHNVGGDGNVAVQVK-GSRA-SSWS--
MMNRRWGQNWE-LR

EN---LQGQILSFRITTG-FGKTVLLPDVAQADWRFGQTYE-SE--GNF

>MpEXPA21PRO

W--TD----SHATFYGGND--GSGTM----G-GACGYG-NMYSRGYGLKTAALS-----
STLFNNGLSGACFELKC

KVAE-----SRWCYA-NAGSITVTATNLCPA-NPARPTN--NGGWC-NPPRTHFDLAYAMFIIMA-----
KPVG-

GIIPVQYRRVSCV-KTGGVRFTL----NGNPW-FNLVLVYNVAGDGNVVTIKMK-GSKS-NTWY--
PMKHNWGQNWE-LK

QK---LAGQALSFQLTTG-YGKTMFTNCAANWQFGQTYE-AD--GNF

>MpEXPA22PRO

W--TA----SDATFYGGNS--GAGTM----G-GACGYG-NMYNTGYGLNTAALS-----
PVLFNGLSCGACFELKC

NLTG-----TKWCYP-SAGSITVTATNLCPA-NPARTD----GWC-NPPRTHFDLSYTMFAILA-----
QPVA-

GIPIQYRRVSCV-KTGGVRFVI----NGNPW-FNLVLIYNVGGDGNVVTAMMK-GENT-E-WY--
SMTRNWWGQNWQ-LS

QK---LHGQALSFQLTTG-YGTTLVCSDEVAPANWQFGQTFE-AY--TNM

>MpEXPA23PRO

A--IP----ATATFYGGND--ASGTN----T-GSCGY-P-NVLTID-GPMNTALS-----
GALYNGGEACGACFKIQC

VSIP-----FGNLQCLP---GSIVVTATNLCQP-----GS--TGGWC-DEPRSHFDLAEPAFQHLA-----
PPVA-

GVVNVEYERVSCV-RSGGIRFLI----QGHPY-FMQVLVYNVGGMGDVTAVSVK-GSSS-D-WI--
QMDRNVWGQLWT-TG

TV---LDGQALSFSVTTS-DGRTVASNGVADSDWQYQGQTFE-G---NQF

>MpEXPA24PRO

A--IP----ATATFYGGND--ASGTN----TAGSCGY-P-NVLTID-GPMNTALS-----
GALYNGGEACGACFKIQC

VSIP-----FGNLQCLP---GSIVVTATNLCQP-----GS--TGGWC-DEPRSHFDLAEPAFQHLA-----
PPVA-

GVVNVEYERVSCV-RSGGIRFLI----QGHPY-FMQVLVYNVGGMGDVTAVSVK-GSSS-D-WI--
QMDRNVWGQLWT-TG

TV---LDGQALSFSVTTS-DGRTVASNGVADSDWQYQGQTFE-G---NQF

>MpEXPA25PRO

W--TN----ATATFYGGDD--GAGTM----G-GACGYG-NMFTRGYGLETAALS-----
TVLFNNGLTGACFMLKC

RLNE-----SRWCYS-NVSSITISATNFCPP-NLNRTTD----GWC-NLPRSHFDLSVKMFTTLA-----
RAVG-

GIIPVLYKRVPCV-KTGGVRFTL----NGNPW-FNLVLISNVGGQGNVVAQMK-GSKT-A-WF--
NMRQNVWGQNWQ-LG

QK---LINQTLFRLTLG-LGQTLTFNNLTTPDWKFGQTFE-AD--TNF

>MpEXPA26PRO

F--GD----ATATFYGGSD--ASGTQ----G-GSCGYQ-NPFALGYGIKTAALS-----
NSLLANNMNCGACFEVKC

KYDA-SAY---TKKWCYP-NSPTIIVTATNQSP-----GL--NG-----EHHFDLTEPMFMKIA-----NRIG-

GRIPIQYRRVRCY-KPGGIKFTL----TGNPF-FNLVLVYNVGGAGNVYGMAIK-GSRT-D-FY--
PMSRNWGQYWQ-AF

VK---LTGQSLTFRVTLG-NGKSTTFWNVAPANWQFGQTVA-AT--YNF

>MpEXPA27PRO

F--GD----ATATFYGGTD--AAGTA----G-GSCGYE-NPFTRGYGVTTAALS-----
NSLLSDGLNCGACFEVKC

NFGA----SDYTRKYCYN-GK-SVVITSTNLSP-----GLH---GEHHFDLTYPMFTQIS-----NMIA-

GRIPVQYRRVPCK-KQGGIKFNI----NGNPY-FNLVLVYNVAGGGNVYAMAMK-GGNS-A-WC--
TMGRNWGQNWQ-SS

VK---LTGQGLSFRVTLG-SGKMLVFNNVAPSSWQFGQTYQ-AS--SNF

>MpEXPA28PRO

F--GD----ATATFYGGSD--AAGTA----G-GFCGYE-NPFTRGYGVTTVALS-----
DSLLSNGLNCGACYEVKC

KWEA----SDYTKKYCYQ--GMTTIVSATNLSP-----GL--NGEHH-----FDLTYPMFVKIS-----NPES-

GRIPIQYRRVPCQ-KQGGIRFSM----VGNPF-WNLVLVYNVGGWGNVHSLYVR-GSRT-D-WY--
YMNRNWGQNWQ-CS

VN---LTGQKLSFRVVLG-NGQTSVFNNVADSNWKHGQTYE-AS--SNF

>MpEXPA29PRO

W--TD----SHATFYGGNN--AQGTM----G-GACGYG-NMYSRGYGLETTALS-----
STLFNKGLTCGACFEIKC

KVAD-----TRWCFCP-KAGSIKVTATNLCPA-NPARPTN--NGGWC-NPPRTHFDLSYPMFTRLA-----
KAVG-

GIIPVQFRRVPCV-KVGGIRFVM----NGNPW-FNLVLVYNVAGGGNVVNMQMK-GSKT-N-WF--
TMRQNWGQNWE-LK

QK---LKGQSSIFRMTLG-NGKVMIANNVAPANWNFQQTFE-SD--SNF

>MpEXPA30PRO

W--TD----SHATFNDGNN--AQGTM----G-GACGYG-NISSRGYGLETTALS-----
STLFNSGLTCGACFEIKC

KVEN-----STWCFCP-NAGSIKVTATDLCPA-NPAMPTN--NGGWC-NPPRTHFDLSYQMFTRLA-----
-KAEG-

AIIPVQFRRVPCV-KVGGIRFTM----NGNPW-FNLVLVSNVAGAGNVVNLQMK-SSET-N-
WFWMTARQISGQYWE-LN

QN---LMGQNISFRVTLG-NGKVMIANNVVPANWNFQQTFE-SD--INF

>MpEXPA31PRO

W--TD----SHATFYGGNN--AQGTM----G-GACGYG-NMYSRGYGLETTALS-----
STLFNKGLTCGACFEIKC

KLAD-----SRWCFP-KAGSIKVTATNLCPA-NPARPTN--NGGWC-NPPRTHFDLSYPMFTRLA-----
KAVG-

GIIPVQFRRVPCV-KVGGIRFVM----NGNPW-FNLVLVYNVAGAGNVVNMQMK-GSKT-N-WF--
TMRQNWGQNWE-LK

QK---LKGQSSIFRVTLG-NGKVIIANNVAPANXNFQQTFE-SD--SNF

>MpEXPA32PRO

W--TD----AHATFYGGQD--ASGTM----G-GACGYG-NLYSRGYGTASTALS-----
NALFNSGLSCGACFEIIC

KLSE-----TKWCYT-GGKSIVTATNQCPQ-----GS--EGGWC-DYPRSHFDLSFPMFQSLA-----
QAVG-

GVIPVQYRRVSCS-RSGGIRFTI----NGNAY-FNLVLVTNVGGKGDVAALWMR-GSNT-D-WQ--
PMKQNWGQNWQ-CD

TK---LVGQALSFKAMLG-SGETKEFYNVADSNWLFQTYE-GD--YNF

>MpEXPA33PRO

G--LK----AHATFLGGSD--AVGTN----N-GACGYS-NVLAMGYGTRTAALS-----
APIFREGKSCGACYKLRC

RGSE-----SVGCRS--NDGVVVTVDVCPE-----RS--VGGWC--DGQPHFRLSEPAFAQIA-----
EPKSG

GLVEVDYKVS CD-RRGGMHFLL----VGHTH-FLQILVHNVGCGDVAASVK-GGTG-P-WI--
RMSRSWGQLWH-TG

EV---LDGQALSISVTMA-DGKVCVSNNFAGADWKYGQTFE-G---AQL

>MpEXPA34PRO

A--LP----AHATFYGGSD--ASGTN----N-GACGYS-NVLSTPFGTMTAALS-----
SPLFNEGLSCGSCYKVR

SGSS-----TGGCID---NEIMVTATNLCPH-----GS--EGGWC--DGKPHFDMSQPAFSQIA-----
KPVA-

GVVEVEYTKVPCP-RKGGMQFTV----MGHTY-FLQVLIFNVGGSGDVTAVKVR-GGNG-E-WI--
AMTRSWGQLWQ-TG

KV---LDGQALSFQVTTT-NGKTCVSNYVAGSHWKYGQTFE-G---SQY

>MpEXPA35PRO

W--TD----SHATWYGGKD--GAGTM----G-GACGYG-NMNARGYGMKTAALS-----
TKLFNDGFTCGACFEIRC

KSSQ-----SKYCYS-STASVIVTATNYCPA-NPNRPTD----GWC-NGDRTHFDLTYQMFTTLA-----
IYEA-

GIIPVQYRRVPCA-KKGGIRFTI----NGNPN-FNLILLSNVGGSGNVVSVQMK-GENSYSGWV--
PMKQNWGMWE-CG

TK---VTGQSISFKVTVG-YGQTFTFWTVAPKTWQFGQTYE-AS--SNV

>MpEXPA36PRO

W--GD----AHATFYGGND--ASGTM----G-GACGYG-NLYSLGYGTASTALS-----
NGLFNGLSCGACYTIEC

KLEG-----SKWCYP--GKSITVTATNACPP-----GS--EGGWC-DPPRLHFDLSYPMFQTLA-----
QPVG-

GVIPVKYKRVSCN-RQGGIRFTL----HGNAW-FNYVLVHNVAGDGDVAGVSIK-GDNG-G-WT--
TMYQNWGQFWS-AS

EH---LVGQALSFRVTLG-SGRTQEFYDVASPNWYFGQTYE-ADNNQNF

>MpEXPA37PRO

W--GN----AHATFYGGND--ASGTM----G-GACGYG-NLYSRGYGTATTALS-----
NGLFNGLTCGACFTLVC

KLDG-----SRWCYS-GGKQITVTATNACPP-----GS--EGGWC-DPPRLHFDLSYPMFQKLA-----
QPVG-

GVIPVRYKRVPCV-KQGGIRMSL----YGNPW-FDYVLVHNVAGGGDVAASIK-GSKT-N-WV--
VMHQNWGQYWS-AS

SY---LVGQALSFKVTLG-NGKSIVFWDIAPKNWQFGQTYE-ADNNQNF

>MpEXPA38PRO

W--KA----AHATFYGGSN--AQGTM----G-GACGYG-NLYNTGYGLETAALS-----
STLFNNGKTCGACYEMFC

NYRQ-----QSRWCYK-AQPHIKVTATNLCPA-NWNRPTN--RGGWC-NPPRVHFDLPQPMFIKMA---
----RYVG-

GIVPVAYRRVPCV-KKGGVKFTM----NGNPW-FNLILISNVAGPGDIKAVAVK-GSKQ-KSWT--
SARQNWGQKWE-VK

QK---LQGQALSFRLTSG-SGKVLVLYNAVPRTWRFGSTYM-AR--SNW

>PpEXPA1PRO

W--RK----AHATFYGGAD--ASGTM----G-GACGYG-NLYSTGYGVDSTALS-----
TALFNNGAKCGACFAIQC

YRSQ-----YCVP-GSPVITVTATNFCPP-NHKGDGT---PGWC-NPPMRHFDLAQPSFTKIA-----
KYRA-

GIVPVLFRVPCE-KKGGVRFTI----NGNKY-FNLVLVHNVGGKGDVHAVDIK-GSNT-E-WI--
PMKRNWGMNWQ-TD

AV---MTGQALSFRVTTSDGKTIVSMNATPSHWSFGQTFE-G---GQF

>PpEXPA2PRO

W--KE----AHITYYG TAN--GGGTQ----G-GACGYG-NTFAMGYGVMTAALS-----
YPLFQGGKSCGACYQLKC

KWLA---PTRTVHNWCWS-YSRTITATNSCPP-----GS--HGGWC--DWKPHFDLPMPAFMTLA-----
-RREG-

GVAPVYYRKVRCA-KRGGIRFTL----GGNPY-FMMILIHNVGGAGDLRAVKIK-GRNG-Y-WV--
PMWQNW GALWT-CK

TK---LSG-ALSFQITTG-DGRTVTVNRAVG DYWKFGQTWE-G---SQF

>PpEXPA3PRO

WISGV----AHATFYGGVD--AQGTQ----G-GACGYG-NLYSTGYGTSTTALS-----
SALFNAGLSCGACFELKC

DSAN-----SKYCLP-GDKSITVTATNYCPQ-----GS--DGGWC-DSPKQHFDLSHPMFTSLA-----
QEVG-

GVIPVTYRRAPCA-KKGGMRFTI----NGNPW-FVMILVTNCGGAGDVQQLQIR-GSDT-P-WY--
PCVRNWGMWQ-MT

SDPN-LPGKALSFRATLS-DGSVAESLNAAPSNWGWGQTFE-GV--ATY

>PpEXPA4PRO

W--KD----AHITYYGSPN--GGGTQ----G-GACGYQ-NTYALGYGSFTAALS-----
APLFQGGAACGGCYQLKC

APVR---ETRTVHNWCWS-YSRSIVVTATNLCPP-----GS--HGGWC--AWRPHFDLPMPAFTSLA-----
-KQVG-

GVAPVFYRRVRCA-KRGGVRFTI----GGNPY-FLMVLIHNVGGAGDIRSVRIK-GQYS-G-WV--
TMFRNWGSLWT-CR

TK---LSG-PLSFMITTS-DGRTLVSNRAVGSWWKFGQTWE-G---SQF

>PpEXPA5PRO

W--GR----AHATFYGGAD--ASGTQ----G-GACGYG-NLYSTGYGTNTAALS-----
SSLFNSGLSCGACYELTC

DPSC-----SQYCLP--GGSIIATNFCPT-----GS--NGGWC-NPPKQHFDLAQPVFSKIA-----
RTVG-

GVIPINYRRVPCS-KSGGMRFTV----NGNPY-FLLVLVTNVGGAGDVQQLYIK-GAST-G-WL--
PLKRNWGMWQ-FT

GNSG-MHGQAISFKAVTS-DGAEAISPNVAPANWGFQTFE-G---SNF

>PpEXPA6PRO

W--RN----ARSTFYGGMD--AAGTM----S-GACGYG-NLYASGYGVHTTALS-----
SALFKNGMACGACFEVQC

GGKG-----KCKP---GSVVVTATNFCPP-NPGQSAN--NGGWC-NPPNEHFDLSYPAFVKIA-----
DPKA-

GAVPLQYRRVPCQ-KQGGIRFTI----NGNCN-FILVTITNVGGSGVTAAYLK-GDKT-E-WS--
PLSRNWGANWQ-CR

RN---YCGQGISIKIVTS-DNKVSVT-KLAKSDWCFGKTFI-G---KQV

>PpEXPA7PRO

W--GY----AHATYYXGAD--ASGTQ----GGGACGFG-NLYSTGYGTNTAALS-----
AALFNSGLSCGSCYELAC

DPNG-----SKYCLP-GGPTVTVTATNFCPP-----GS--LGGWC-DAPKQHFDLAHPMFVSLA-----
REVG-

GVIPIKYRRVPCV-KSGGMRFTI----NGNPW-FLLVLVTNVAGAGDVQHMYIK-GSNT-P-WE--
PMSRNWGSMWQ-FT

GDSK-MKGQALSFKAVTS-DGSVAVSMDAAPGNWQFGQTFE-G---VNF

>PpEXPA8PRO

W--NE----AHATFYGGSD--AGGTTGTR-G-GACGYG-DLYSTGYGTSTVAIS-----
SALFDRGLACGACYQVKC

AGSS-----SECRS-DSPAIVTNTNFCPP-NPSLPED--NGGWC-NLPLHHFDMSPAFEQIA-----
TYKA-

GIVPVMYRRTSCV-RTGGIHFTM----SGHNF-MNLVLVTNVGGMGDVQSVSIR-GSKT-S-WV--
TMTRNFGQIWQ-ST

VN---MSGQSLFMVTTS-DGKTVVSNNVAPPDWAQFGQTYE-G---SQF

>PpEXPA9PRO

W--TD----AHATFYGGAD--ASGTQGGCAG-GACGFG-NLYSTGYGTNTAALS-----
QALFNSGLTCGACFELVC

DSSG-----SRYCVT--SSSVVVTATNFCPT-----GS--TGGWC-DYPRQHFDLSQPVFTRIA-----
QPVG-

GVVTLKYRRVRCQ-KSGGIRFTI----TGNPY-FILVLVTNVGGAGDVQQLYIK-GSST-G-WN--
AMSRNWGQLWEIRN

AA---LMGQALSFRVVTs-DRAEVASFDAVPANWAFSQTFE-G---SNF

>PpEXPA10PRO

WVSGR----AHATFYGGAD--ASGTQ----G-GACGYG-NLYSTGYGTSTAALS-----
SALFNSGLSCGACYELTC

DTSG-----SKYCLP-GNPSIILTATNYCPQ-----NS--NGGWC-DAPKQHFDLAHPMFVSLA-----
EERG-

GVIPVNYRRVPCA-KKGGMRFQM----NGNPW-FLLVLVTNVGGAGDVQQLSIK-GSNS-G-WY--
QMKRNWGMWQ-LT

GNSN-MPGQALSFRVVLs-DGTTVESLDAAPANWHFGQMFE-G---SQA

>PpEXPA11PRO

W--GR----AHATYYGGAD--ASGTQ----G-GACGFG-NLYSSGYGTDTAALS-----
SALFNSGLSCGACYELTC

DPSG-----SKFCIP--GGSIIITVTNFCPT-----GS--NGGWC-NPPKQHFDLAQPVFRKIA-----
RTVG-

GVVPINYYRRVSCL-KDGGMRFTV----NGNPY-FLLVLVTNVGGAGDVQQLYMK-GSST-N-WQ--
PLKRNWGMWQ-FT

GNSR-MHGQAISFKAVTS-DGSVAVSNNVAPPNWGFGQTF-----

>PpEXPA12PRO

W--ND----AHATYYGGAD--AS-----G-GACGFG-NLYSTGYGTSTAALS-----
QALFNSGLTCGACFELAC

DPSG-----SKYCYK--GSSIVVTATNFCPS-----GS--EGGWC-DSPKQHFDLSQPVFNKIA-----
QQAG-

GVIPVKYRRVPCR-KSGGMRFTI----NGNPY-FILVLVTNVGGAGDVQQLSLK-GSST-G-WY--
TMSRNWQQWE-FR

GNSA-LVGQALSFRVVTs-DGAEAVSYDAASENWSFSQTFE-G---INF

>PpEXPA13PRO

W--NE----ARATFYGGSD--AGGTT----G-GACGYG-DLYSTGYGTNTVATS-----
SAIFDRGLACGACYQVKC

AGSA-----SECQP-GTPAIQVTVTNFCPP-NPSLPEG--NGGWC-NLPLHHFDMAMPAFQQIA-----
SYRV-

GIVPILYRRASCV-RTGGIRFTM----SGHKF-MNLVLVTNVGGMGDVQTVFIQ-GSKT-K-LV--
AMIRNFGQIWQ-SS

VN---VSGQRLSFMVMTS-DGESVSRNVAPSDWAYGQTYE-G---SQF

>PpEXPA14PRO

W--DK----GHATYYGEGD--ARGTM----G-GACGYS-NLYSTGYGVNTAALS-----
GPLFNGGATCGACYELTC

ILNE-----SKWCYR--GKNIIVTATNFCPS-----GS--TGGWC-NPPQKHFDLSEPMFTTLA-----
NRVG-

GVIPVNFRRVACY-KQGGMRFIT----NGNPY-FFIVLVYNVAGAGDVQQVYIK-GPKT-Q-WL--
QMYRNWGSQWT-FN

GGPNNIVGSALSFRVHTS-DGRQVISYXAAPANWWFGXTFS-SG---AN

>PpEXPA15PRO

W--GY----AHATYYGGAD--ASGTQ----GGGACGFG-NLYSTGYGTNTAALS-----
AALFNGLSCGSCYELAC

DPNG-----SKYCLP-GGRTVTVTATNFCPH-----GS--LGGWC-DSPKQHFDLAHPMFVTLA-----
KEVG-

GVIPIKFRRVPCV-KSGGMHFTI----NGNPW-FLLVLVTNVAGAGDLQQVYIK-GSNT-P-WE--
PMSRNWGSMWQ-FT

GNSK-MKGQALSFKTITS-DGAVAISYDAAPNNWQFGQTFE-G---VNF

>PpEXPA16PRO

W--DT----AHATYYGGRD--AGGTM----G-GACGYG-NLYNTGYGVKTAALS-----
APLFKGGATCGACYELTC

ILSQ-----SKYCYQ--NKKILITATNFCPT-----GS--TGGWC-NPPRKHFDLSEPMFTTLA-----
NRVG-

GVIPVNFRRVHCY-KKGGMRFIT----NGNPY-HMMVLVYNVAGAGDVQQMFIK-SPTT-G-WL--
QMSRNWGQIWT-YK

GGPRNIVGFALSFRVYTS-DRRQVVSYNAPANWRFGQTFE-SG---AN

>PpEXPA17PRO

W--GR----AHATYYGGAD--ASGTQ----G-GACGFG-NLYSSGYGTSTAALS-----
SSLFNSGLSCGACYELTC

DPSG-----SQYCLP--GGSAILVTNFCPT-----GS--NGGWC-NPPRQHFDLAQPVFSKIA-----
RTVG-

GVIPINYRRVSCL-KSGGMRFTV----NGNPY-FLLVLVTNVGGAGDVQQLYIK-GSST-A-WL--
PLKRNWGMWQ-FT

GNSG-MHGQAISFKAVTS-DGAEAISNNVASSNWGFGQTFE-G---SNF

>PpEXPA18PRO

W--NE----AHITYYG TAN--GGGTQ----G-GACGYP-NTFAMGYGAMTAALS-----
YPLFQGGKACGGCYQLRC

KWVT---PTRTVHNWCWS-YSRTITVTATNSCPP-----GS--HGGWC--NWRPHFDLPMPAFLTLA-----
-RREG-

GVAPVYYRKVRXA-KRGGIRFTI----GGNPY-FLMILIHNVGGAGDLKAVKVR-GGNG-Y-WV--
PMWRNW GALWT-CK

TR---MSG-ALSFQITG-DGRTLTTYKAVGGYWRFGQTWE-G---SQF

>PpEXPA19PRO

W--GD----AHITYYGSPN--GAGTE----G-GACGYQ-NTYKLGYSMTAALS-----
SRLFQGGKACGGCYQLRC

APNR-----GRNWCWS-YARAI VVTATNLCPQ-----GS--HGGWC-DYPKSHFDLPMPAFTSLA-----
RREG-

GVAPVWYRKVRCA-KRGGVRFTI----GGNPW-FLMVLIHNVGGAGDVSVKVK-CPYT-G-WV--
SAYRNW GCLWT-VR

TK---MTG-PLSFTLVTS-DGRTLYSMNAVRNGWKFGQTWE-G---SQF

>PpEXPA21PRO

X--RD----AHITYYGSPN--GGGTE----G-GACGYQ-NTYSLGYGFMTAALS-----
SSLFQGGSSCGACYQIRC

EPIR---VTRTVKNWCWS-YSRTITVTAINLCP-----RS--SGGCC-NPPLQHFDLPMPAFLSLA-----
RREG-

GVAPVXYTKVRSE-KRGGIRFTM----GGNLW-FLTILIHNVGGAGDVRSVRIK-SPHS-G-LI--
SMYRNW GSLWT-VR

AR---MSG-ALFFMITTS-HGRVLITRNAVGSGWRFGQTWE-----GNF

>PpEXPA22PRO

W--QD----AHITYYGSPN--GGGTQ----G-GACGYQ-NTVSLGYGFMTAALS-----
SPLFQGGKACGACFQLQC

ARVQ---ETRTVKNWCHD-YSKAITVTATNLCPP-----GS--EGTWC-DPPRHHFDLPMPAFLSLA-----
RQEG-

GVAPVYYRRVQCL-KKGGIRFTM----GGNPW-FLMVLVHNVXGAGDVVXVKVK-CPSS-G-WY--
DMYRNWGALWT-VQ

KK---MVG-PLSFLTTG-DGRRLTAYNAVGNWTFGQTWE-G---AQY

>PpEXPA23PRO

W--IN----GRITYYGSPN--GGGTQ----G-GACGYQ-NTVSLGYGFMTAALS-----
TTLFKGGAACGACYQLQC

APVSETPSGLLKRNWCWQ-VGRSILVTATNLCPP-----GS--SGGWC-NPPQHHDLPMPAFLALA-----
---RREG-

GVVPVYYRKVNCA-RKGGIRFTV----GGNPW-FLMILIHNVGGAGDVVAVKVK-CPTS-G-WY--
DMYRNWGALWT-VQ

KK---MNG-PLSFAITS-DGRTVTTYNAVGNWKFQQTWE-G---AQY

>PpEXPA24PRO

W--SS----GRITYYGSPN--GGGTQ----G-GACGYQ-NTVSLGYGFMTAALS-----
TPLFNGGAACGACYQLQC

APVHETPKNLLQRNWCWK-VGRRITITATNLCPP-----GS--EGGWC-DPPQHHDLPMPAFTALA-----
--KREG-

GVVPIYYRRVRCA-KQGGIRFTM----GGNPW-FLMILIHNVAGAGDVVAVKIK-CPTS-D-WC--
DMYRNWGAFWT-VQ

KK---MEG-PLSFQITX-DRRKVTTHNAVGHGWQFGQTWE-G---AQY

>PpEXPA25PRO

W--RD----AHITYYGSPN--GGGTQ----G-GACAYQ-NTFSLGYGAMTAALS-----
SPLFEGGAACGACYQLQC

KRVQ---ETRTVKNWCWS-YSRTITITATNLCPP-----GS--AGAWC-DPPRHHFDLTMPAFLTLA-----
RREG-

GVAPVLYRRVKCV-KRGGIRFTI----GGNPW-FLMILIHNVAGAGDVRAVRIK-TPST-D-WI--
PMYRNWGALWT-VQ

RK---LSG-PLSFQITAG-DRRQITINSAVGNAWKFGQTWE-G---HNF

>PpEXPA26PRO

W--NF----GRITYYGSPN--GGGTQ----G-GACGYQ-NTFALGYGTNTAALS-----
SRLFQGGGAACGACYQLRC

IAPK-----WGKNWCWN-YARSIVVTATNLCPS-----GS--NGGWC--PSQAHFDXPMPAFTSLA-----
RKEG-

GVTPIMYRRVRCA-RRGGIRFTI----GGNPF-FLMVLHNVGGAGDVRAVSIK-GQYT-G-WV--
GMYRNWWSLWT-CT

TK---IDG-ALTFRITTG-DGKTLILYNAVRKGWRFGQTWE-G---SQF

>PpEXPA27PRO

W--AT----ATATFYGGAD--AG-----G-GACGYG-NLYSTGYGASTTALS-----
APLXNGGSACGACYQLQC

ARSN-----HCYA--GRSITVTATNFCPT-----GS--EGGWC-NPPRKHFDSLMPMFTTLA-----
RQVA-

GVVPVDYRRVACN-KKGGQRFLM----TGNPY-FIMVLVYNVAGAGDVQRFFVK-GSMT-G-WY--
ELRRNWGQIWT-CT

ADSR-LKGQALSFRQTQS-DGRQVVSIDAAPANWNFGQTFS-SG---VN

>CpEXPA1 [AB]

WIGGN----AHATYYGGVD--ASGTQ----G-GACGYG-NLYSTGYGTNTAALS-----
SALFNSGLTCGACYELQC

DSTG-----SKYCLP-GNPSITITATNYCPQ-----NS--LGGWC-DAPRQHFDLAHPMFVSLA-----
QEGG-

GVIPVNYRRVPCV-KKGGMRFQL----NGNPW-FVLVLVTNVGGAGDVQQLYIK-GDKT-G-WY--
PMKRNWGMWQ-LT

GNSN-MPGQALSFRVLS-DGTNVESMDVAPANWRFSQLFE-G---SQA

>CpEXPA2 [X]

S--GT----GHITFYGTPN--GGGQA----SRGACGYQ-NTYALGYGSMTAALS-----
SPLYQGGGAACGACFQLTC

MRIR---ETKTAKNWCWS-YRSITVTATNLCPP-----GS--RDGWC-NPPRNHFDPYPAYLSLA-----
KREG-

GVAPVTWRRVPCR-KRGGIRFTV----GGNPW-FFMILHNVGGAGDVRSVKIG-CPYT-G-WV--
PMYRNWGALWT-VR

RQ---MRGQ-LSFLITTS-DGRSVVARNVAVGKYWKFGQTWECG---AQF

>CpEXPA3 [X]

S--GT----GHITFYGTPN--GGGQA----SRGACGYQ-NTYALGYGSMTAALS-----
SPLYQGGAACGACFQLTC

MRIR---ETKTAKNWCWS-YRSITVTATNLCPP-----GS--RDGWC-NPPRNHFDLPYPAYLSLA-----
KREG-

GVAPVTWRRVPCR-KRGGIRFTV----GGNPW-FFMILIHNVGGAGDVRSVKIG-CPYT-G-WV--
PMYRNWGALWT-VR

RQ---MRGQ-LSFLITTS-DGRSVVARNVAVGKYWKFGQTWECG---AQF

>CpEXPA4 [AB]

W--GK----GKCTFYGGMD--AAGTM----S-GACGYG-NLYASGYGAYTAALS-----
SALFKNGMACGACYEVAC

SGNA-----KCKR---GSVLVTITNFCPP-NPGRSAN--NGGWC-NGANQHFDLSYPAFAKIA-----
DPKA-

GVVDLNYRRVPCQ-KKGGIRFTL----NGNCN-FNIVTITNVGGSGVVTQAYMK-GDGM-D-WA--
PMTRNWWGANWQ-CS

RN---YCGKGISIKIVTS--DKKVSVSRLADKTWAFGKTYI-G---QQV

>CpEXPA5 [AB]

W--NS----AHATYYGGAD--ASGTQGERRG-GACGFG-NLYSTGYGTSTAALS-----
QALFNSGLTCGACFELAC

DSSG-----SKYC-E-GAPSVVVVATNFCPS-----GS--NGGWC-DQPKQHFDLAMPVFDKIA-----
QEVG-

GVIPVKYRRVPCQ-KKGGMRFTI----NGNPY-FILVLVTNVAGAGDVQQISIK-GDNT-D-WF--
AMKRNWQQWQ-FS

GNSA-LVGQALSFKVVTS-DGAVATSMNAAPANWQFSQTFE-G---VNY

>CpEXPA6 [B]

W--RG---GGHITFYGGPN--GAGTQ----A-GACGYQ-NTYKLGYSMTAALS-----
SPLFQGGAACGACFQLRC

APVR---RSRTARNWCYS-YAKTITVTATNLCPS-----GS--TGGWC-NPPRAHFDLPMPAFLTLA-----
RREG-

GVAPVFYRRVRCA-KRGGIRFTI----GGNPW-FLMVLIHNVGGAGDVRSVRIK-GQYT-G-WY--
PMYRNWGALWT-VR

TK---LSG-ALTFAVTTTS-DRRTVITRSV-GGNWRFGQTWE-G---ANF

>CpEXPA7 [B]

W--KG---GAHITFYGSPN--GGGTQ----A-GACGYQ-NTYKLGYSMTAALS-----
SPLFRGGSACGACYQIRC

APVR---RTRTARNWCYS-YARTITITATNLCPP-----GS--TGGWC-NPPRAHFDLPMPAFLTLA-----
RREG-

GVAPVYYRKVRCA-KRGGIRFTI----GGNPW-FLMVLHNVGGAGDMRSVRVK-GQYT-N-WY--
PMYRNWGALWT-VR

TK---LSG-ALSFAVTTT-NGRTVVARNVVGKWWKFGQTWE-AR--TNF

>CpEXPA8 [X]

W--GY----AHITFYGTPN--GGGQA----SRGACGYQ-NTYALGYGAMTAALS-----
SPLYKGGAACGACFELKC

IRIR---ESRSAKNWCWS-YRSITITATNLCPP-----GS--TGGWC-NPPKHHFDLSYPAYATLA-----
RREG-

GVAPVNYRRVPCR-KRGGVRFTV---GGNPW-FFMILIHNIAGAGDVRSVKIM-CPYT-G-WV--
PMYRNWGALWT-VR

KQ---MRG-PLSFAITTS-DGRTIISRNAVGNYWKFQQTWE-GR--AQF

>CpEXPA9 [AB]

W--NT----AHATFYGGSD--AGGTE----G-GACGYG-DLYSSGYDTNTVAIS-----
SALFDRGLACGACYQVKC

AGKA-----SECHP-DSPSIQVTVTNFCPP-NPSLPDN--NGGWC-NLPLHHFDMSEPAFQRIA-----
TYKS-

AIVPVMYRRTACM-KSGGIRFTM----SGHNF-MNLVLVTNVGGMGDVQSVYIR-GSKT-K-WV--
AMARNFGQIWQ-ST

VN---MSGQSLSFMTTS-DGQTVVSNEVAPPDWAQFQTYE-G---SQF

>CpEXPA10 [AB]

W--RK----AHATFYGGAD--ASGTM----G-GACGYG-NLHSTGYGLDTTALS-----
TALFNNGAKCGACFAIQC

YRSK-----YCLP-GTPIITVTATNFCPP---NRQGD-GTPGWC-NPPLRHFDLAQPSFVKVA-----
KYRA-

GIVPVLFRRVPCQ-KKGGVRFTL----NGNKY-FNLVLVHNVGGKGDVRSVDIK-GSDT-E-WM--
PMKRNWGMNWQ-TH

TV---MVGKALSFRVTTT-DGVTVTSMDAAPPQWRFGQTFE-G---AQF

>CpEXPA11 [AB]

W--SP----AHATFYGGAD--ASGTQ----G-GACGYE-NLYNQGYGINTAAVS-----
APLFNDGAGCGACFELVC

DSSQ-----SDYCYS-NASSIIVTTTNFCPK---APEGT--ENAWC-DPPRIHFDLSEPIFLTFA-----
QKVA-

GIVPVNYRRVPCL-KDGGIKFTI----NGHKY-FFLVLTNVAGAGDIQELYIK-ASNT-D-WQ--
PLTRNWGDNWE-LN

QNTLNFVGQALSFKAVAS-DKSEVVSMNVTPVDWEFSQTFE-G---SNF

>CpEXPA12 [A]

WTSGQ----AHATYYGGAD--AAGTQ----G-GACGFG-NLWSTGYGTDTAALS-----
AALFNSGLSCGACYELKC

DTAG-----SKYCLP-GNPSITVTATNYCPQ-----GS--EGGWC-DTPKQHFDLAHPAFTKLA-----
HEGG-

GVFPVYRRVPCA-KQGGMRFQI----NGNPW-FLLVLVTNVGGAGDVQQLQVK-GERT-G-WY--
QMVRNWGMWQ-FT

GDHT-LPGQALSFRATLS-DGSVVESWNCAPKNWGFQQVFE-GT--PAH

>CpEXPA13 [X]

W--RD---DGHITYYGSPN--GHGTQ----G-GACGYQ-NTFSLGYDHLTAALS-----
TPLFQGAACGACYELRC

KFIK---ESKTAKNWCWN-YRSITSTATNLCPP-----GS--TGGWC-DPPRNHFDLPMPAFLTLA-----
RQNG-

GVAPVHYRRVPCQ-KKGGIQFTI----GGNPW-FYMILIHNVAGAGDVVRVQIK-SPTT-G-WT--
PMYRNW GALWT-VR

KQ---LKG-ALSFIQITS-DGRVVVTHNAVGHGWRFGQTWE-G---AQY

>CpEXPA14 [AB]

L--GR----AHATYYGGPD--GQGTM----G-GACGYG-NLYNTGYGLSTAALS-----
APLYNGGRACGACYRLTC

DTSG-----SKYCYG-GGKSITITVTNFCPS-----GS--TGGWC-NPPKQHFDLSYPMFTTLA-----
QAAG-

GVIPVNYRRVACN-KKGGMRFTI----SGNPY-FYQVLVFNVGGAGDVQRLFMK-GPRT-G-WI--
AMKRNWGQVWQ-YR

GGPKGLVGQPLSFRAHTS-DGRYVISPNATPANWRFGQTFE-G---KNF

>CpEXPA15 [AB]

W--GY----AHATYYGGAD--ASGTQ----G-GACGFG-NLYSTGYGTNTAALS-----
AALFNTGLSCGSCYELAC

DPNG-----SKYCLP-GGRTVTVTATNFCPH-----GS--LGGWC-DSPKQHFDLAHPMFVSLA-----
KEVG-

GVIPIKYRRVPCI-KSGGMRFTL----NGNPW-FILVLVTNVAGAGDVQQLYIK-GSRT-Q-WE--
RMSRNWGSWMWQ-FT

GNSN-MKGQALSFKAITS-DGSVAISTDAAPGNWQFGQTFE-G---SNF

>CpEXPA16 [AB]

W--DN----GHATFYGGDN--GAGTM----G-GACGYG-NLYNTGYGLKTAALS-----
APLFNGGRACGACYQLTC

VTSG-----TKYCYG-GGKSITITATNFCPT-----GS--TGGWC-NPPKKHFDLSYPMFAVLA-----
KKVG-

GVIPVNFQRVPCS-RKGGMRFTI----NGNPY-FFLVMVYNVAGAGDVQRLFIK-GPST-G-WF--
EMKRNWGWQVWQ-YN

GGPKGMVGQALSFRITS-DGRQVISTNAAPGNWRFGQTFE-G---RNX

>CpEXPA17 [AB]

W--GQ----AHATYYGGAD--ASGTQ----G-GACGFG-NLYNTGYGTNTAALS-----
AALFNGLSCGACYELTC

DPSG-----SQYCLP--GGSIIITATNFCPT-----GS--NGGWC-NTPKQHFDLAQPVFSKIA-----
RTVG-

GVIPINYRRVSCS-KSGGMRFTI----NGNPY-FLLVLVTNVGGAGDVQQLYIK-GAST-N-WL--
PLKRNWGMWQ-FT

GNSG-MHGQAISFKAVTG-DGATAVSDNVAPPNWGFGQTFE-G---ANF

>CpEXPA18 [B]

W-RTD----GHITFYGSPN--GGGTQ----A-GACGYQ-NTYALGYGSMTAALS-----
TALFQGAACGGCFEIKC

IPPR-----SGKNWCFS-YAKSIIVTATNLCPP-----GS--TGGWC-NPPRAHFDLPMPAFLTLA-----
QKTG-

GVAPVAFRRVRCL-KKGGVRFTV----GGNPY-FLMVLISNVGGVGDIRSVMKIK-GSYT-N-WI--
PMYRNWGS�WT-VR

SK---ITG-ALSFLITLS-DGSTLPCTNAVQANFRFGQTWE-AR--ANL

>CpEXPA19 [X]

W--KD---DGHITFYGSPN--GGGTQ----A-GACGYQ-NTYKLGYSMTAALS-----
TPLFQGGLACGACFELRC

KFIR---ETKSAKNWCYN-YRSIIITATNLCPP-----GS--TGGWC-DPPRKHFDLPMPAFETLA-----
KRVG-

GVAPVYHRRVPCQ-KKGGIRFTM----AGNPW-FFMILIHNVGGAGDVVAVKIK-DPSS-A-WA--
PMYRNWGAIWV-VR

KQ---MKG-ALSFQITTG-DGRTVTTNNAVGNGWKFGQTWE-G---AQM

>CpEXPA20 [X]

W--KD---DGHITFYGSPN--GGGTQ----G-GACGYQ-NTVSLGYGYMTAALS-----
TTLFQGAACGACFELKC

KFIK---ETNSAKNWCYS-YKSIVITATNLCPP-----GS--TGGWC-NPPRHFDLPMPAFNTLA-----
KQVG-

GVAPVLFRRVPCQ-RKGGIRFTV----GGNPW-FFMILIHNVGGAGDITKVMIK-CPYT-P-WY--
PMYRNWGSWV-VR

TQ---MRG-SLSFQITTS-DGRTVTTNNAVGNGWKFGQTWE-G---AQM

>CpEXPA21 [B]

W-RND----GHITFYGSPN--GGGTQ----A-GACGYQ-NTYALGYGSMTAALS-----
SSLFQGAACGACFQLQC

IRAN-----RGKNWCYS-YARTITVTATNLCPP-----GS--TGGWC-NPPRAHFDLPMPAFLTLA-----
QRVG-

GVAPVRFRRVRCA-KRGGVRFTI----GGNPW-FMMILIHNVGGAGDIRAVQIK-GPRT-G-WV--
PMYRNWGALWV-CR

TK---ISG-ALTFRITTS-DGRTLVTGG-PGNSWRFGQTWE-G---RNY

>CpEXPA22 [X]

W--RD---DGHITYYGSPN--GHGTQ----G-GACGYQ-NTFSLGYDHLTAALS-----
TPLFQGAACGACYELRC

KFIK---ESKTAKNXCWN-YRSITSTATNLCPP-----GS--TGGWC-DPPRNHFDLPMPAFLTLA-----
RQNG-

GVAPVHYRRVPCQ-KKGGIQFTI----GGNPW-FYMILIHNVAGAGDVVRVQIK-SPTT-G-WT--
PMYRNWGALWV-VR

KQ---LKG-ALSFQITTS-DGRVVVTHNAVGHGWRFGQTWE-G---AQY

>AaEXPA1PRO

W--QD----GHATFYGGSD--ASGTM----G-GACGYS-NLYSQGYGLATAALS-----
TALFNNGLSGACFEIKC

NQPE-----WCVA-GASSIVVTATNLCPP-NPSLPND--NGGWC-NEPLQHFDMSQPAFQQIA-----
-QYKA-

GIVPVSYRRVSCV-KKGGVHFTV----NGHSY-FNLVLVSNVGGAGDVHAVSIK-GSNT-G-WE--
PMSRNWGQNWQ-SN

SK---LDGQSLSFQVTTT-DGQTLTFYDVASDNWSFGQTFE-GD--SNF

>AaEXPA2PRO

W--SS----AHATFYGGND--ASGTL----G-GSCGYG-NLYDRGYGTSTAALS-----
TALYNNGASGACFEIQC

TGSR-----WCKG--SAPITVTATNFCPQ-NPALPNN--AGGWC-NLPLQHFDMSVPAFLEIA-----
EQVG-

GIVPVNYRRVSCV-KKGGIHFTI----NGHAY-FNLVLITNVGGAGDVHAVSVK-GSKT-G-WE--
PMTRNWGQNWQ-CN

SY---LNGQSLSFQVTTT--GGTLISYDVTPAGWSFGQTFS-G---AQF

>AaEXPA3PRO

W--NS----AHATFYGGND--ASGTM----G-GACGYG-NLYSEGYGTNTAALS-----
TALFDNGLSCGACYEAC

DSSG-----TKYCTG--SNSITITATNFCPE-NLALPSD--NGGWC-NQPRQHFDMAVPAFDQLA-----
AHVA-

GIVPIKYRRVSCV-RKGGVRFHL----NGHDY-FLLLLVDNVGGNGAVHSVSIK-AGNG-P-WK--
ALSQNWGQNWQ-CN

DY---ISGQTLSISITTE-DGKTLVSNNVAPAGWKFGETYA-G---SQY

>AaEXPA4PRO

WVKGV----AHATFYGGSD--ASETN----G-GACGYG-NLYSQGYGTNTAALS-----
SALFGGGETCGACYQLKC

TGG-----CFS-GAPKIVVTATNYCPE-----GS--TGGWC-NAPRVHFDLSEPAFTRMA-----
AAVT-

GVVPVNYRRVKCV-KEGGIKFQI----NGHSY-FNLILITNVGGVDVKEVYIQVSGS-S-WK--
ACKRNWGQNWQ-ND

DY---LDGKSFSIKVITS-DNRFCSNPVIPAGWKFGTTYE-G---RQF

>AaEXPA5PRO

W--KA----AHATFYGGND--ASGTN----G-GACGYG-NIYSFGYGIANAALS-----
YALFNSGAQCGACYEIKC

YGSK-----WCLP-GNPSITITATNSCPP-NWALPSD--NGGWC-NPPREHFDMSVPAWTSLA-----
VYVG-

GIVPVNYRRVPCS-RKGGIRFTI----SGNPN-FDLVLVHNVAGDGVVTALSIK-GNGN---WV--
PMKRNWQGNWQ-CG

AV---LTGQPLSFMVRTS-DGRSLILYNVAPANWSFGSTYQ-SA--QNF

>AaEXPA6PRO

---ND----AHATFYGDPS--GSATF----G-GACGYG-DLMAQGYGLQTTALS-----
EVLFSNGFSCGQCYQIQC

IDSK-----WCIP--NAVITVTATNLCPA-DYSKPND--NGGWC-NPPLKHFDLSMPAFHQIA-----
QEVA-

GIVPVTYRRVPCV-KLGGVKFTI----LGNTW-WHLVLITNVGGAGDIDTASIK-GSNT-D-WI--
PMSHNWGASFQ-CF

QS---LVNQALSFQLTST-TGQVLTTFNVAPADWSFGTTYE-G---GQY

>AaEXPA7PRO

W--TT---GATATYYGGSD--ATATN----G-GACGYG-NQIAL-YGTVSTALS-----
SAFFQNGVTCGACYEIQC

TGSS-----YCYS--GKTVKVTATNLCPD-----GS--YGGWC-DGSKKHFDLSQPAFIQVA-----
QQVV-

GHFAAQYRRVPCT-RSGGVRFTI----NGNTY-YNLVLIQNVAGVDVKAVSIK-GTST-G-WL--
SMSRNVGENWE-CD

TK---LVGQALSFQVTLIS-DSTTKTFNIAASNWAFGSTYS-SS--VQF

>AtEXPA7PRO

W--RY----AHATFYGDET--GGETM----G-GACGYG-NLFNSGYGLSTAALS-----
TTLFNDGYGCGQCFQITC

SKSP-----HCYS--GKSTVVTATNLCPP-NWYQDSN--AGGWC-NPPRTHFDMAKPAFMKLA-----
YWRA-

GIIPVAYRRVPCQ-RSGGMRFQF----QGNSY-WLLIFVMNVGGAGDIKSMVAVK-GSRT-N-WI--
SMSHNWGASYQ-AF

SS---LYGQSLSFRVTSYTTGETIYAWNVPANWSGGKTYK-ST--ANF

>AtEXPA8PRO

W--QG----GHATFYGGED--ASGTM----G-GACGYG-NLYGQGYGTNTAALS-----
TALFNNGLTGACYEMKC

NDDP-----RWCLG---STITVTATNFCPP-NPGLSND--NGGWC-NPPLQHFDLAEP AFLQIA-----
QYRA-

GIVPVSFRRVPCM-KKGGIRFTI----NGHSY-FNLVLISNVGGAGDVHAVSIK-GSKT-QSWQ--
AMSRNWGQNWQ-SN

SY---MNDQSLSFQVTTT-DGRTLVSNDVAPSNWQFGQTYQ-G---GQF

>AtEXPA11PRO

L--TN----GHATFYGGSD--ASGTM----G-GACGYG-DLYSAGYGTMTAALS-----
TALFNDGASCGECYRITC

DHAA-----DSRWCLK--GASVVITATNFCPP-NFALPNN--NGGWC-NPPLKHFDMAQPAWEKIG-----
--IYRG-

GIVPVVFQRVSCY-KKGGVRFRI----NGRDY-FELVNIQNVGGAGSIKSVSIK-GSKT-G-WL--
AMSRNWGANWQ-SN

AY---LDGQALSFSITTT-DGATRVFLNVVPSSWSFGQIYS-SN--VQF

>AtEXPA12PRO

W--IR----AHATYYGVND--SPASL----G-GACGYD-NPYHAGFGAHTAALS-----
GELFRSGESCGGCYQVRC

DFPA-----DPKWCLR--GAAVTVTATNFCPT-----NN--NNGWC-NLPRHHFDMSSPAFFRIA-----
RRGNE

GIVPVFYRRVGCK-RRGGVRFTM----RGQGN-FNMVMISNVGGGGSVRSVAVR-GSKG-KTWL--
QMTRNWGANWQ-SS

GD---LRGQRLSFKVTLT-DSKTQTFLNVVPSSWWFGQTFS-SRG-RQF

>AtEXPA13PRO

W--RP----ARATYYAATN--PRDAV----G-GACGYG-DLVKSGYGMATVGLS-----
ETLFERGQICGACFELRC

VDDL-----RWCIP--GTSIILTATNFCAP-NYGFDPD--GGGHC-NPPNKH FVLPIEAFEKIA-----
IWKA-

GNMPVQYRRINCR-KEGSMRFTV----DGGGI-FISVLITNVAGSGDIAAVKIK-GSRT-G-WL--
PMGRNWGQNWQ-IN

AD---LRNQALSFEVTSS-DRSTVTSYNVSPKNWNYGQTFE-G---KQF

>AtEXPA14PRO

W--VN----ARATFYGGAD--ASGTM----G-GACGYG-NLYSQGYGTNTAALS-----
TALFNGGQSCGACFQIKC

VDDP-----KWCIG---GTITVTGTNFCPP-NFAQANN--AGGWC-NPPQHFDLAQPIFLRIA-----
QYKA-

GVVPVQYRRVACR-RKGGIRFTI----NGHSY-FNLVLITNVAGAGDVISVSIK-GTNT-R-WQ--
SMSRNWQGNWQ-SN

AK---LDGQALSFKVTTT-DGRTVISNNATPRNWSFGQTYT-G---KQF

>AtEXPA15PRO

W--VN----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGTNTAALS-----
TALFNNGLSGACFEIKC

QSDG-----AWCLP---GAIIVTATNFCPP-NNALPNN--AGGWC-NPPLHHFDLSQPVFQRIA-----
QYKA-

GVVPVSYRRVPCM-RRGGIRFTI----NGHSY-FNLVLVTNVGGAGDVHSAVK-GSRT-R-WQ--
QMSRNWQGNWQ-SN

NL---LNGQALSFKVTAS-DGRTVVSNNIAPASWSFGQTFT-G---RQF

>AtEXPA17PRO

W--LQ----AHATFYGGSD--ASGTM----G-GACGYG-NLYTDGYKTNTAALS-----
TALFNDGKSCGGCYQILC

DATK-----VPQWCLK--GKSITITATNFCPP-NFAQASD--NGGWC-NPPRPHFDMAQPAFLTIA-----
KYKA-

GIVPILYKKVGCR-RSGGMRFTI----NGRNY-FELVLISNVAGGGEISKVWIK-GSKS-NKWE--
TMSRNWGANYQ-SN

TY---LNGQSLSFKVQLS-DGSIKAALNVVPSNWRFGQSFK-SN--VNF

>AtEXPA20PRO

W--KI----ATATLSRDRD--GSSSVAT--G-GACGYG-DLRQSSFAGYSAGLS-----
GKLFNRGSSCGACLEVRC

VNHI-----RWCLQ-GSPSVVVTATDFCPP-NSGLSSD--YGGWC-NFPKEHLELSHAAFTGIA-----
ETRA-

EMIPQYRRVKCG-RRGGLRFSL----SGSSH-FFQVLISNVGLDGEVVGKVK-GHTT-A-WI--
PMARNWQGNWH-SS

LD---LIGQSLSFEVTLK-GGKTIASYDVAPPYWRFGMTYQ-G---KQF

>AtEXPA22PRO

W--YD----ARATFYGDIH--GGDTQ-----PCGYG-NLFRQGYGLATAALS-----
TALFNDGYTCGACYEIMC

TRDP-----QWCLP---GSVKITATNFCPA-NYSKTTD----LWC-NPPQKHFDLSLAMFLKIA-----
KYKA-

GVVPVRYRRIPCS-KTGGVKFET----KGNPY-FLMVLIYNVGGAGDIKYVQVK-GNKT-G-WI--
TMKKNWGQNWQ-TI

TV---LTGQGLSFRVTTS-DGITKDFWNVMPKNWGFGQTFD-GR--INF

>OsEXPA4PRO

W--QS----AHATFYGGGD--ASGTM----G-GACGYG-NLYSQGYGTNTAALS-----
TALFNDGAACGSCYELRC

DNAG-----SSCLP---GSITVTATNFCPP-NYGLPSD--DGGWC-NPPRPHFDMAEPAFLHIA-----
QYRA-

GIVPVSFRRVPCV-KKGGVRFTV----NGHSY-FNLVLVTNVAGAGDVRSVSIK-GSRT-G-WQ--
PMSRNWGQNWQ-SN

AF---LDGQSLSFQVTAS-DGRTVTSNNVAHPGWQFGQTFE-G---GQF

>OsEXPA5PRO

W--SS----AHATFYGGGD--ASGTM----G-GACGYG-NLYSQGYGTNTAALS-----
TALFNGLSCGACFEVRC

DAGG-----GGSHSCLP---GSVVVTATNFCPP-NNALPSD--DGGWC-NPPRAHFDMSQPVFQRIA-----
---LFKA-

GIVPVSYRRVACQ-KKGGIRFTI----NGHSY-FNLVLVTNVGGAGDVHAVAVK-SERS-AAWQ--
ALSRNWGQNWQ-SA

AL---LDGQALSFRVTTG-DGRSVVSNNVAPRGWSFGQTFS-G---AQF

>OsEXPA7PRO

W--QS----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGVNNAALS-----
TALFNSGQSCGACFEIKC

VNQP-----GWEWCHP-GSPSILITATNFCPP-NYALPSD--NGGWC-NPPRPHFDLAMPFLHIA-----
--EYRA-

GIVPVSYRRVPCR-KKGGVRFTI----NGFRY-FNLVLITNVAGAGDIVRASVK-GTST-G-WM--
PMSRNWGQNWQ-SN

SV---LVGQALSFRVTGS-DRRTSTSWNAAPAGWHFGQTFE-G---KNF

>OsEXPA10PRO

W--RS----AKASYAA-D--PEDAI----G-GACGFG-DLGKHGYGMATVGLS-----
TALFERGAACGGCYEVKC

VDDL-----KYCLP--GTSIVVTATNFCAP-NFGLPAD--AGGVC-NPPNHHFLLPIQSFEKIA-----
LWKA-

GVMPIQYRRVNCL-RDGGVRFAV----AGRSF-FLTVLISNVGGAGDVRSVKIK-GTES-G-WL--
SMGRNWWGQIWH-IN

SD---FRGQPLSFELTSS-DGKTLTNYNVVPKEWDFGKTYT-G---KQF

>OsEXPA11PRO

W--SS----GSATFYGGSD--ASGTM----G-GACGYG-NLYSAGYGTSTAALS-----
TALFNNGQSCGACFEVRC

GGGG-----SCLA---GTVAVTATNLCPP-NYALAGD--AGGWC-NPPRPHFDMAEPAFTRIA-----
QARA-

GVVPVQYRRVACA-KQGGIRFTI----TGHSY-FNLVLVTNVGGAGDVTAVSVK-GSRS-G-WQ--
AMSHNWWGANWQ-NG

AN---LDGQPLSFRVTAS-DGRTVTSNVPASGWSFGQTFS-G---GQF

>OsEXPA12PRO

A--LS----GTATFYGGSD--ASGTM----G-GACGYG-NLYSTGYGTNTAALS-----
SALFNDGAACGECYQITC

DQSN-----SKWCKA--GTSVTITATNLCPP-DYSKPSN--DGGWC-NPPRQHFDMAQPAWEQIG-----
--VYRG-

GIVPVNFQRVSCT-RKGGVRFTI----NGNSY-FELVLITNVGGPGSIKSVQIK-GTKT-G-WV--
TMSRNWWGANWQ-AN

NY---LNNQAISFSVTST-AGKTLVFEDVAPSNWQFGQTFT-SG--VQF

>OsEXPA16PRO

W--RM----GSATYIKESLGHPLNDG----G-GACGYG-DLDIFRYGRYTAGVS-----
GALFGRGSACGGCYEVRC

VNHV-----LWCLR-GSPTVVVTATDFCAP-NLGLSDD--YGGWC-NFPKEHFEMSEAAFLRVA-----
KAKA-

DIVPVQFRRVSCD-RAGGMRFTI----TGGAS-FLQVLITNVAADGEVAAVKVK-GSRT-G-WI--
PMGRNWWGQNWQ-CD

AD---LRGQPLSF EVTGG-RGRTVVAYSVAPPDWMFAQTFE-G---KQF

>OsEXPA30PRO

W--TP----AHATFYGDET--ASETM----G-GACGYG-NLYASGYGDTAALS-----
TTLFKDGYGCGTCYQMRC

VGTA-----SCYR-GSPAITVTATNLCPP-NWAEDPDRGGGGWC-NPPRAHFDLSKPAFMRMA-----
--DWRA-

GIVPVMYRRVPCA-RAGGLRFAL----QGNPY-WLLAYVMNVAGAGDVGDMWVKAGGGG-G-WV--
RMSHNWGASYQ-AF

AQ---LGGQALSFKVTSYTTGQTLAAGVTPASWCFLTYQ-AR--VNF

>OsEXPA32PRO

W--KQ----AHATFYGGRD--GSGTL----D-GACGYK-DTSKEGYGVQTVAVS-----
TPLFGAGAGCGACYEVKC

VDSP-----DGCKV-GAAPLVVTATNLCPP-NPGQSND--NGGWC-NPPREHFDLSMPAFLQIA-----
-QEKA-

GIVPISYRRVPCV-KVGGIRYTI---TGNPY-FNLVMSNVGGAGDVAGLSVK-GNKRVK-WT--
PLKRNWQGEWQ-TS

EV---LTGESLTFRVMTG-DHRKATSWHVLPPDWQFGVTYQ-AT--KNF

>OsEXPA33PRO

W--TP----ATATFYGGSD--GAGTM----G-GACGYG-NLYNAGYGLNNAALS-----
SALFNDGAMCGACYTIAC

DTSQ-----STWCKP--GTSITITATNLCPP-NYAKKSD--AGGWC-NPPRKHFDMSQPAWTSIA-----
IYQA-

GIVPVNFKRVPCQ-KSGGIRFTI---SGRDY-FELVTVFNVGSGVVAQVSIK-GSKT-D-WM--
AMSRNWGQNWQ-SN

AY---LNTQSLSFKVKLD-DAREVTVWNIAPSNWNFGTTYT-SN--INF

>SmEXPA1PRO

W--TS----AHATFYGGSD--AAGTM--V-G-GACGYG-NLYSQGYGNNAALS-----
TALFNSGLSCGACFEIRC

DSAA-----DPRWCIA--GTSVVVTATNFCPP-NYALANN--NGGWC-NPPLEHFDMAQPAWEQIG----
---IYRG-

GIVPVQYRRVSCV-KKGGIHFTM---NGHTY-FNLVLISNVGGXGDVHAVSIK-GSGT-G-WQ--
DMSRNWQNWQ-SN

XQ---FQQQSLSFKVTTS-DGKSVVSMDVAPADWQYGQTFE-G---SQF

>SmEXPA2PRO

W--TG----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGTNTAALS-----
TALFQSGLSGACFEVKC

NGDP-----EWCLP--GSSVLVTATNFCPP-NXALPNN--NGGWC-NTPLQHFDMAQPAFEQIA-----
-KYRG-

GIVPVLXRRVPCQ-RKGGIRFTM----XGHNY-FNLVLVTNVGGAGDVHSVSIK-GSNT-D-WL--
PMSRNWQNWQ-SN

AI---LSGQSLSFKVTTT-DGRTVVSYDAAPPNWQYGQTYS-G---DQF

>SmEXPA3PRO

W--TD----AHATFYGGSD--ASGTM----G-GACGYG-NLYSQGYGXNTAALS-----
TXLFNSGLSGACFEIKC

NAXK-----DPQWCRA--GASVTVTATNFCPP-NYAQAND--NXGWC-NPPLEHFDMAQPXWEQIG---
----IYRG-

GIVPVQYRRVSCV-KKGGIHFTL----NGNKY-FMLVLVSNVGGAGDVRAVSIK-GPSG-D-WQ--
PLSRNWQNWQ-SD

SR---LIGQSLSFRVVTSD-DNRAVTSLNVAAGWSFGQTFS-G---EQF

>SmEXPA4PRO

W--TD----AHATFYGGSN--AAGTM----G-GACGYG-NLVSAGYGTNTAALS-----
TALFQDGLSGACFEVKC

ASGS-----DPKWCLP---GSVVVTATNFCPP--SSQPSN--DGGWC-NSPLQHFDMAQPAFLKIA-----
QYSA-

GIVPISYRRVSCS-RSGGIRFTM----NGHAY-FNLVLITNVGGAGDVHAVSIK-GSGT-D-WI--
PMSRNWQNWQ-SN

AL---LGGQALSFKVTTT-DGKTTIAYNVAGANWAYGQTFE-G---EQF

>SmEXPA5PRO

W--KQ----XFATFYGDET--ARETM----G-GACGYG-NLYQSGYGLMTAALS-----
STLFNSGYGCGQCYEITC

TLSK-----HCYF--GKSVVTATNLCPP-NWSKPSN--NGGWC-NXPRVHFDMSKPAFMKIA-----
FWRA-

GIIPVSYR-----RSGGMNFKL----XGNRW-WLMVFITNVGGSXDIKAVSVK-GSRT-G-WI--
AMTRNWGVGFQ-VF

KQ---LQGQSLSFMVTCYSTXKXXVHNNVAPANWQLGSTYS-A---KQL

>SmEXPA6PRO

W--RY----AHATFYGEYD--ALETM----G-GACGYG-NLYSQGYGTDTTALS-----
TVLFNSGYGCGGCYEISC

TQSK-----HCYP---GSTIVTATNLCPP-NWYKPSN--NGGWC-NPPRIHFDMSKPAFSKIA-----
YWRX-

GIVPVYRRVPCX-RKGXIKFEL----KGNRW-WLIVFVSNVGGPGDIKRMVAVK-GSKT-G-WL--
PMSRNWGVGFQ-VF

KS---LHGQSLSFMTSFTTGKTVTAYDVVPANWRIGQAYS-G---GQM

>SmEXPA7PRO

W--LD---GAHATYYGGSD--ASGTN----S-GACGYG-NQLSAGYGYITTALS-----
TPLFENGDICGACFEIRC

AGGA-----GCLP-GNPSTVVTATNLCPX-----GS--NXGWC-DPPKPHFDLSQPAFSRIA-----
SIXN-

GHVQLQYRRVACD-RQXGIRFTV----NGHTF-FNLVXVENVGGSGDVVAVEVK-GSAT-G-WR--
QMQRNWGQNWQ-DM

GD---LNGQALSXRVTGX-DGKVVTSMNVPADWQFXRTYS-G---GQF

>SmEXPA8PRO

W--LD----AHATYYGGSD--ASGTN----S-GACGYG-NQLSAGYGYITTALS-----
TPLFXXGDICGACYEIRC

AGTG-----XLP-RNPSTVVTATNLCPP-----GS--NGGWC-DPPKQHFDLXQPAFSQIA-----
SIPY-

GHVLLQYRRVPCQ-RQGAIHYTI----NGXTF-FNLVLIENVGGSGDVVGVEIK-GSNT-N-WM--
PMARNWGQNWQ-IG

GN---LGGQSLSFRTVGS-DGRKVTSLNVAPANWQFGRAYS-G---GQF

>SmEXPA9PRO

W--QD----AHATFYGGSD--ASGTM----G-GACGYG-NLYLQGYXVXAALX-----
TPLFXEGWSCGSCFELKC

NAEA-----DPEWCLP-GNPSIVVTATNFCPP-NFALPSD--XGGWC-NPPREHFDLSQPAFELIA-----
KYRX-

GIVPVQYRRVPCE-XEGGIHFSI----NGHAY-FMLVLVWNVGGAGDVHAVAVM-GSRT-RRWQ--
PLVRNWGQNWQ-SP

XV---LLGQSLSFMTTS-NGDTVTDYDVAPQDWKFGQTFV-G---NKN

>SmEXPA10PRO

W--TL----AHATYYGGSD--ASGTMGKX-S-GACGYG-NMYHEGFGVETTALS-----
TVLFQNGASCGACYELKC

HQDP-----KWCRP-GNLSITVTATNFCPP-NPARKSY--RGGWC-NXPQQHFDLSMPAFVHLA-----
-NRTA-

GIIPVIYTRVECK-RQGGIRFTM----RGNKW-FILVMISNVGGAGDVRSVVVK-GSRS-P-WT--
PATRAWGQNWHSN

RS---MLEQGLSFVVSTS-DGESRIALDAVPQNWKFGQTFT-TA--AQF

>SmEXPA11PRO

W--ES----GHATFYGGSD--AAGTM----G-GACGYG-NLYSQGYGTNNAALS-----
SALYNNGLSCGACFEVKC

DAAA-----DPQWCIX--GRXVTVTATNFCPP-----GSWC-NEPLKHFDMSQPAWEEIG-----
IYRG-

GIIPVYFRRVSCV-RKGGIXFTV----NGHAY-FNLILITNVGGAGDVHAVSVK-GSGT-G-WI--
PMSRNWQNWQ-TN

AQ---LGGQSLSFMTDS-SGKTVISNNAAPSNWQYGQTFE-G---EQF

>SmEXPA12PRO

W--SN----AHATFYGGSD--ASGTM----G-GACGYG-NVLSAGYGVNTAALS-----
TALFNGGATCGACFQMQC

VNSR-----WCRP--GKSVTVTATNFCPP--NNALXSD--NXGWC-NTPREHFDLSQPVWEQMA-----
--IYQG-

GIVPVQYRRVKCY-KQGGIIFTM----NXNPN-FNLVLIKNVAGWGLRAVSIK-GSNT-G-WL--
PMKRNWGSNWE-YH

GV---LVGQSLSFLLTPS-MGGSLISYDVXPRNWQFGQSYS-G---RQF

>SmEXPA13PRO

W--TD---GAHATYYGGSD--ASGT-----GACGYG-NQLSAGYGVLTALS-----
APLFNDGHVCGACFEVKC

SWGD-----SGCLA-GNPSIVVTATNLCPQ-----GS--NGGWC-DSPKQHFDLAQPAFALIA-----
VTLN-

GHVPIQYRRVSCK-RDGGLRFTI----NGHVY-FNLVLIENVGGTGDVSAVSIK-GSKT-G-WR--
PMTRNWQNWQ-DG

GD---LTGQSXSFEVTTT-DGNXITAYDVAPDYWQFGQTFS-G---GQF

>SmEXPA14PRO

W--G-----AHATYYGGSD--ASGTN----N-GXCGYG-NQLSAGYGTITTALS-----
TPLFRGGNVCGXCYQVRC

WGDP-----ACLP-GNPSVVVTATNLCXP-----GS--NGGWC-DPPKPHFDLSQPAFSRIA-----
RIPN-

GHAQIQYRRVKCQ-RQGGIRFTI----NGHTY-FNLVLVTNVGGMGDVVGVSIG-GSSS-G-WR--
SMSRNWQGNWE-EG

SN---LNGQALSFRVTTT-DGRTVTAYNVAPGDWQFGRITYT-GNTASQY

>PpEXPB1PRO

W--LG----GHATWYGDPY--GEGSS----G-GACGYT-QLTGTPIGSKIAAGN-----
APIFQEGKGCGQCYEVKC

NYPS-----CSP---QGTRIVITDLCP-----GGQYC-
STDQPAFDFSGAAITAMALPGRDGELRNI-

GLYDIQYKRVPCEYPNQNIQAFKV--DAGSSKY-WFSFTVKYLGGPGDINTVEVK-CGKN-GYFQ--
YAQHSWGANWM-LI

NYSGVPFQFPLTIKITTKLNDHTVVAEDVIPDWFGPGVQYE-SN--VQI

>CbEXP8 [AB]

W--TE---GATLTFYGDAN--GGGTL----A-GACGYG-NLLATPYKLMIAAGN-----
PPMFEEGLGCGRCWEIRC

VGNP-----GCTA---TVTITMTDLCP-----C-
GSDGVHFDMSQPAFHALASGPAAEQLVTA

GKLQGQYRRVPCD-LGLGKAFTAIVRAATNPS-FLSILMRDIPGAGDIKTAECAPGGGS-T-FS--
PMTQDFGAMYN-FN

GK----WTSPVSLRLTLG-DGQILTGISCIPAAWKPTTTYT-CK-----

>CbEXP10 [H]

W--IN----GHSTFYDDFG-----R----G-GACGYG-RIGSQLYRNRFAAGS-----
PRVYLGGLACGMCMEVKC

VNSP-----ACRP-G--SVRVTITDLCPP-KYP-----NLRWC-TGGKIHLDMARGAFPVIA-----
NPGA-

GHVPIQFRSVPKA-PFRLLKFTL----RGNRWGWLEVTTLTIPGSGRVLRLLEYAMKGGGA---WT--
GMSRAFGAAWA-TK

GK---FLRFPISIRIAVFGKFKLVAKDCIKGQFWNGQQLS-CS--YSV

>CbEXP11 [x]

W--TE---GATLTFYGDAN--GGGTL----V-GACGYG-NLLATPCKLMIAAGN-----
PPMFEEGFGCGRCWEIRC

VGNP-----GCTA---TVTITMTHLCP-----C-GSDTVHFDMSQPAFHALASGPAAEQLVTA

GKLQGGYRRVLC-D-LGLGKAFTAIVREATNPS-FLSILMRDIPGAGDIKTAECAPGGGS-T-FS--
PMTQDFGAMYN-FN

GK----WTSPVSLGLTLG-DGQILTGISCIPAAWKPATTYT-----CKX

EXPB Tree

>SmEXPB1PRO

WEPATA-TW--YG--SPNGAGT-D---GGACGYGSLPNT-PY-
GSDVGAGSPILFMNGIGCGTCFEVIYVKCVDGQ----

LCSPQP--VNVVITDECPGG-----YCSGGRTHFDLSGTAFGKMASGS--
ANIQHLLAAGVLNVLYRRAPCIYKS-Q

GVVFQVADGS-TPFWFETVIRYLDGPGDXATVELQQFGSS-----AWQPMSQVWGA--
NWCLNAGGGTPLRA-PFSI

RLTA--LQ---TGEKXIAHN-VIPANWA---PQHSYSTGVNF

>SmEXPB2PRO

WQLATA-TW--YG--SPSGAGT-D---GGACGYGELPNT-PY-GLDVGAGSPVLFKNGRGCGACYKV--
VRCLQQQ----

LCSGKA--VTVVITDECPGG-----YCAFGRTHFDLSGTAFGRMAM-A--
GRTNQLLGSXVQVLYKRXDCNYGS-R

PMEFQVNEGS-TPFWLSILVRYAAGPGDLGHVELMQGSR-----VWQPMTQVWGA--TWCFNNG--
-PLRG-PFSF

RVTT--LS---TSETVARN-VIPXNWA---SNTCYRSRVNF

>PpEXPB1PRO

WLGGHA-TW--YG--DPYGEYS-S---GGACGYTQLTGT-PI-GSKIAAGNAPIFQEGKCGQCYS---
VKCNYS-----

-CSPQG--TRIVITDLCPGGQ-----YCSTDQPAFDFSGAAITAMAL-P--
GRDGELRNIGLYDIQYKRVPCYEPN-Q

NIAFKVDAGS-SKYWFSFTVKYLGPGDINTVEVKCGKNG-----YFQYQHSWGA--
NWMLINYSXVPFQF-PLTI

KITT--KL---NDHTVVAED-VIPDWFG---PGVQYESNVQI

>PpEXPB2PRO

WVRARG-TW--YG--DPYGEES-S---GGNCGYTKLWGT-PI-GPKIVAGSRSIYANGQGCGQCYQ---
IRCVDPNGGPR

LCNPQG--TNVVVTDFCPGGT-----YCSTGENAFDMSGAAINAMAL-R--
GREGQLRNRGLYNLLYKRVPCRYRG-T

NIEFRVDNGS-SPFWLSILIKYVGGPGDIGQVYIRMANWY-----KFQPMRHAWGA--
NWMIPNYDGKPFRG-PMDI

RIVS--RL---NRHTVLARG-VIPAYFR---PGTSYRSRVQM

>PpEXPB3PRO

WLPGHA-TW--YG--DPYGEES-S---GGACGYTELAGT-PY-GLSVGAGSAVIYQNGQCGECYE---
VKCTYPS----

-CKPTP--SRIVITDFCPGGT-----FCSTGEPAFDLSGMAMTNMAL-P--
GRDQELRNGLYEIQYRRVPCYYPN-Q

NVAFKVDPGS-TPFWLSFTIEYQGGPGDIESVAIRQAGSS-----EFQQMQHNWGA--
NYMLICYSGKPFKG-PYDV

MITA--KL---NGHVLIQD-AIPEYFQ---PGGIYESNVQL

>PpEXPB4PRO

WVPGHA-TW--YG--DPYGEES-S---GGXCGYLQLTGT-PI-GNKIAAGNEAIFQKGKGGXXQCYE---
VKCNYPV----

-CRPEG--TRIVITDLCPGXQ-----FCSGGNPAFDLSGAAISAMAK-D--
GQDGALRNIGLYDIQYKRVPCYYPG-Q

NIVFKVDAGS-SPFWLSFTVKYMGPGDIESVSIQRDG-----SFIPAQHSWGA--
NWMLINYS GAPFQG-PYSV

KINC--ML---NGHTVVAKD-VIPAGFA---PGQEYESNVQI

>PpEXPB5PRO

WMAGHA-TW--YG--EPLGEES-S---GGACGYTKLADT-PY-GPKIAAGNDPIFQGGSGCGACFE---
VKCNYPs----

-CKSEP--TRIIITDQCPGGT-----YCSTSQPAFDLSGAAISDMAV-S--
GKDGE LRNIGLYDILYKRVPCYYPN-Q

NIAFQVDAGS-SAFWLSLLVKYMGPGDIESVEIRTTGSS-----SFQPAKHNWGA--
SWMLINTSGQPFKG-PYDV

KIVS--KL---NGHTVIAEK-AIPEFFE---PGKLYESNVQM

>PpEXPB6PRO

WVRARG-TW--YG--DPYGECS-S---GGNCGYTRLXGT-PI-GPKIVAGSRSIYXNGLGCGQCYQ---
NQCVDPPXXGXK

LXNSFX--TQXXXTDFCPGGX-----YCSTGENAFDMSGAAINAMAL-P--
SREGQLRNRGLYNLLYKRVPCRYRG-T

XIXXRVDXXS-SAYWLSILIKYVGGPGDIGQVYIKMANWF-----AFQPMKHAWGA--
NWMMPSYDGKPFKG-PMDI

KIVS--KL---NRHSVVARG-VIPGYFR---PGTTYNSRVQM

>AaEXPB1PRO

WKPATA-TW--YG--APDGAGT-D---GGACGYGNLVGT-PY-GKRVTAGSPVLFKGGLGCGACYQ---
VKCMIPK----

LCAKKA--VRVITDECPGG-----YCSGLNTHFDLSGTAFSGMAN-P--
GLGSSLLNLGVLPMLYKRVPCVYR--R

PMKIEVAAGS-SPFWFSVLIKFVRGAGELKSVELQGGTN-----YWYSMQHIWGA--NWSVNVGS--
GLKG-PFTL

RLTC--LL---TGQQIVIRN-VIPGNWA---PATTYLASVNF

>AaEXPB2PRO

WLSCKA-TF--YG--PQDGDGT-D---AGNCGYGALASS-PY-GKNIAAGSPELYQDGLGCGACFQ---
IKCTNDG----

-CKDEA--STVVITDQCPGGE-----WCGVGKPHFDLRGTAFANLAV-A--
GRSSDLFTRGVLDLQYQRVACSYGA-Q

TVAFAMDANC-NPNWIAFVVEFQAGDGDLSVELKDASS-----DWQAMSHNWGA--NWQFSG--
--SLTG-PISV

RLTS--NT---ANQVLVAQD-AIPANWK---PGQTYKSQDQF

>AaEXPB3PRO

WLSCKA-TF--YG--PQDGDGT-D---AGNCGYGALASS-PY-GKNIAAGSPELYQDGLGCGACFQ---
IKCTNDG----

-CKDEA--STVVITDQCPGGE-----WCGVGKPHFDLSGTAFANLAV-A--
GRSSDLFTRGVLDLQFQRVACSYGA-Q

TVAFAMDANC-NPNWIAFVVEFQAGDGDLSVELKDVSS-----DWQAMSHNWGA--NWQFSG--
--SLTG-PISV

RLTS--NT---ANQVLVAQD-AIPADWT---PGQTYQSQDQF

>AaEXPB4PRO

WLSCKA-TF--YG--PQDGDGT-D---AGNCGYGALASS-PY-GKNIAAGSPELYQDGLGCGACFQ---
IKCTNDG----

-CKDEA--STVVITDQCPGGE-----WCGVGKPHFDLSGTAFANLAV-A--
GRSSDLFTRGVLDLQYQRVACSYGA-Q

TVAFAMDANC-NPKWIAFVVEFQAGDGDLLSVELKDASS-----DWQAMSHNWGA--NWQFSG---
-SLTG-PISV

RLTS--NT---ANQVLIAQD-AIPANWK---PGQTYKSKQQF

>AaEXPB5PRO

WLSCKA-TF--YG--PQDGDGT-D---AGNCGYGALASS-PY-GKNIAAGSPELYQDGLGCGACFQ---
IKCTNDG----

-CKDEA--STVVITDQCPGGE-----WCGVGKPHFDLSGTAFANLAV-A--
GRSSDLFTRGILDLQYQRVACSYGA-Q

TVAFAMDANC-NPNWIAFVVEFQAGDGDLSVELKDASS-----DWQAMSHNWGA--NWQFSG--
--SLTG-PISV

RLTS--NT---ANQVLIAQD-AIPANWK---PGQTYKSQDQF

>AaEXPB6PRO

WLACKA-TW--YG--EQDGDGS-D---GGACGYGELSSK-PY-GKNIAAGSPVLYQDGLGCGSCYQ---
VKCTSDP----

ACSGDP--VTVLTDICPGGS-----LCGIGKPHFDLSGTAMGNMAA-A--
GKGSDLRGLGVVDILYKRVPCSYPE-Q

NVTIAVDQGS-NPSWLELTVLYEGGPGDLSALEVKDATS-----QWQPMVHKWGA--NWGYDKAA--
DLHG-ALSI

RLTS--GL---GSLPLVAQN-ALPADWA---PGQTYQTVAQF

>AaEXPB7PRO

WVACKA-TW--YG--EPDGDGS-DVNAGGACGYGELSSK-AY-GKSIAAGSPVLYQDGLGCGSCYQ---
VKCTSNP----

ACSGDP--VTIVLTDICPGGS-----LCGVGKPHFDLSGTAINMAA-A--
GKGSDLRGLGVVDILYKRVPCAYPE-Q

NVTIAVDQGS-NPSWLELTVLYEGGPGDLSALEVKVTSH-----SSNPALACRGs--QI-----VVC-
VFAP

ELTHAGL---GT---AQD-A-TSQWHRSGSRTLYIIPSRA

>AaEXPB8PRO

WLSCKA-TF--YG--PRDGDGT-D---AGNCGYGALASS-PY-GSNIFAGSPELYQDGLGCGDA-----
SRCTNDG----

-CNDTP--TTVMTDQCPGGE-----WCGIGKPHFDLSGTAFGSLAA-A--
GRSSDLFTLGVLDIQYQRVPCSYST-Q

TVAFAMDANC-NPNWIAFVVEFQAGDGDLSVELKQDATS-----DWQAMSHNWXA--NWQFSG--
--SLQG-PIPV

RLTS--NT---ANQVLVAKD-AIPADWT---PGQTYQFX---

>AtEXLA1PRO

LHRSKA-AY--FS--SASALSS-----GACAYGSMATS-FF-AGHIAAAIPSIYKDGAGCGACFQ---
VRCKNPK----

LCSTKG--TIVMITD-----LNKSNQTDLVLSRAFRAMAK-
PIVGADKDLLKQGIVDIEYQRVPCDYGN-K

NMNVRVEEASKKPNYLEIKLLYQGGQTEVVSIDIAQVGSSP-----NWGYMTRSHGA--VWVTDK----
VPTG-AIQF

RFVVTGGY---DGKMIWSQS-VLPSNWE---AGKIYDAGVQI

>AtEXLA2PRO

LHSSKA-AY--FS--SASALSS-----GACAYGSMATG-FF-AGHIAAALPSIYKDGSGCGACFQ---
VRCKNPT----

LCSSKG--TTVIVTD-----LNKTNQTDLVLSRAFRAMAK-
PVVGADRDLLKQGIVDIEYRRVPCDYGN-K

KMNVRVEESSKNPNYLAIKLLYQGGQTEVVAIYIAQVGSS-----HWSYMTRSHGA--VWVTDK----
VPNG-ALQF

RFVVTAGY---DGKMWWSQR-VLPANWE---AGKSYDAGVQI

>AtEXLA3PRO

LHRSKA-SY--FS--SASALSS-----GACAYGPMATS-FF-AGHIAAAIPSIYKDGAGCGACFQ---
VRCKNPK----

LCNSKG--TIVMVTD-----LNTSNQTDLVLSRAFRAMAK-
PVVGVDKYLLKQGIVDVEYQRVPCNYGK-R

NLNVRVEEASKKPNYLAIKLLYQGGQTEVVGIDIAQVGSS-----QWSYMSRSHGA--VWATDK----
VPTG-ALQF

KFTVTGGY---DGKTVWSKR-VLPANWN---SGRIYDAGVQI

>AtEXLB1PRO

FVNSRA-TY--YG--SPDCKAN-P---RGHCGYGEFGRD-IN-NGEVSGVSWRLWNNGTGCGACYQ---
VRCKIPP----

HCSEEG--VYVVATD-----SGEGDGTDFILSPKAYGRMAR-P--
GTENQLYSFGVVNVEYQRIPCRYAG-Y

NLVYKIHEKSYNPHYLAAILVLYVGGVNDILAVEVWQEDCK-----EWRRMRRVFGA--VHDLQN----
PPRG-TLTL

RFLVYGSA---GINWIQSPN-AIPADWT---AGATYDSNILL

>AtEXPB2PRO

WSIAGS-TW--YG--NPTGYGS-D---GGACGYGNAVAQPPF-SKMVSAGGPSLFKSGKGCGACYQ---
VKCTSKS----

ACSKNP--VTVVITDECPG-----CVKESVHFDLSGTAFGAMAI-S--
GQDSQLRNVGELQILYKKVECNIG-K

TVTFQVDKGS-NANSFAVLVAYVNGDGEIGRIELKQALDSD-----KWLSMSQSWGA--VWKLDVSS--
PLRA-PLSL

RVTS--LE---SGKTVVASN-VIPANWQ---PGAIYKSNVNF

>AtEXPB3PRO

WLPAVA-TW--YG--SPNGDGS-D---GGACGYGTLVDVKPL-HARVGAVNPILFKNGEGCGACYK---
VRCLDKS----

ICSRRA--VTVIITDECPG-----CSKTSTHFDLSGAVFGRLAI-A--
GESGPLRNRGLIPVIYRRACKYRG-K

NIAFHVNEGS-TDFWLSLLVEFEDGEEDIGSMHIRQAGAR-----EWLEMKHVWGA--NWCIIIGG---
PLKG-PFSI

KLTT--LS---AGKTLSATD-VVPRNWA---PKATYSSRLNF

>OsEXLA1PRO

VRRSRA-AY--YT--SSLTLTA-----GSCGYGTAAAT-FNGGGFLAAAGPALYRGGVGCGACYQ---
VRCKDKK----

LCSNAG--ARVVVTD-----RARTNRTGLVLSSPAFAAMAR-P--
GMAASLTELAADVVEYKRVPCRYR-R

SLSVRVDERSRGPNELTISFLYQGGQTDIVAVDVAQVGSS-----SWKFMTRHGP--SWSMAN----
APPG-PLQM

RLVVTGGY---DGKWWWADREVLPRRWR---AGEVYDTGVQI

>OsEXLA2PRO

VRRSKA-GF--RD--SSIALNA-----GSCGYGSLAAS-FN-GGHLAAASPALFRGGVGCGACFQ---
VRCKDGK----

LCSTAG--AKVVVTDE-----ARSTNRTDLVLSAAAYAAMAR-P--
GMAAQLRTRRAVDVEYKRVPC EYAAGR

NLSIRVEEKS RPPRELSIRFLYQGGQTDIVAVDVATVGSS-----NWKFMTRDYGP--AWSTAQ----
APAG-PLQF

RVVVTGGY---DGKWWWADGEVLP RRWT---AGR VYDAGVQI

>OsEXLA3PRO

VRNGKA-AY--SPSLSP LPPGG-----GGGCGYGAMAMEMELNGGFLAAGGPRQHRGGLGCGRCFQ---
MRCRNAE----

VCSNAG--VRVVLTD-----FHRSNSTDFLLGGPAFAGLAK-P--
GMAHKLKKLDALSVEYRRIPCDYKD-K

NLSILVEEQSKRPNNLVIKFLYQGGQTDILAVDVAQVGSS-----DWRFMTRVYGP--VWSIDR----
APNG-PLQF

RAVVTGGY---DGKWWWADREVLPANWQ---PGQVYDTGARI

>OsEXLA4PRO

WCTPRHSTVSILP--TPTHAAHLT---GGACGFGAA----PM-ELNVA AVTADLFRHGHACGACYQ---
LRCRDRR----

LCGEDG--VKVVVADMAKQPEQ-EGEMNRTAGGSLQFRITEDAFAAMAKQG--
VSAHELTRQRTLEVDFRRIPCEYRESR

RLAVRVEEASRNPTHLAIRFLYQGGQTDIAAVEIAQANATPPSSSYSSWRYMTRRDGAPGVWTTSR---
-APVG-PLRL

RVVVTAGS---GGKWLRSDGEVLPADWR---PGEVYDTGLRV

>OsEXLB1PRO

FTVSRA-AY--YP--NSDIKGT-E---NGACEYGAFGAT-LN-NGDVSA-SASLYRDGVGCGACYQ---
VRCTNPY----

YCSPNG--VTIVITD-----SGASDGTD FILSQHAFTRMAQST--
DAGTALLTLGVVGIEYRRVSC TYPN-K

NIVFKITESSNFPNYLEFEI WYQQGNQDIIAVQLCETVNL-----TCQLLSRTHGA--VWA AVS----
PPSG-PLSI

RMLFSSGAPRGGDTWLVP TN-IVPQ NWT---AGATYDSGVQV

>OsEXPB15PRO

WSNGGA-TW--YG--AANGAGS-D---GGACGYQGAVFQAPF-SSMIAAGSPSIYKSGLGCGSCYQ---
VKCTGNS-----

ACSGNP--VTVVLDECPCGG-----PCLSEPVHFDLSGTAFGAMAN-P--
GQADQLRAAGVLQIQYNRVPCNWGG-V

KLTFVVDVGS-NPNYFAVLVKYENGDDLSGVELMQTGAGA-----AWTQMQQSWGA--
VWKLNAGS--ALQA-PFSI

RLTS---S---SGKTLVASN-VIPSGWK---PGMSYISTVNF

>OsEXPB16PRO

WHPATA-TW--YG--SADGDGS-D---GGACGYGTLVDVPM-KTRVGAVSPVLFKGGEGCGACYK---
VRCLDAS-----

ICSRRA--VTVIVTDECPCGG-----VCAFGRTHFDLSGAAFARLAV-A--
GHGGQLQNRGEISVVYRRTACKYGG-K

NIAFHVNEGS-TTFWLSLLVEFEDGDDIGSMQLKQANSA-----QWQDMKHIWGA--TWSLTPG---
PLVG-PFSV

RLTT--LT---TRQTLAQD-VIPKNWT---PKATYTSRLNF

>CpEXPB1 [X]

WMAGHA-TW--YG--EPNGEGS-S---GGACGYTKLTGT-PY-GPRIAAGNDAIFQGGKGCQCQYE---
VKCSYAE-----

-CRQEA--TRIVITDQCPGGE-----YCSKAEPAFDLSGAAISAMAL-P--
DKDGALRNIGLYDILYKRVPCFQGG-Q

NIAFQVDQGS-TGFWLSFVVKFLGGPGDIDSVEIRHSGSS-----SFQPAKHNWGA--
SWMLINTSGQAFKG-PYDI

RVVS--KL---NGHAVTAEK-VIPEFFE---PGKLYESNVQL

>CpEXPB2 [A]

WVFGHG-TW--YG--DPYGEES-S---GGNCGYTKLAGT-PY-GPKIVAGSPAIIYANGLGCGQCQYQ---
VKCTDSKNGPR

LCNPSG--TQVVVTDFCPGGT-----YCSTGEKAFDFSGAALNAMAL-P--
GKDGQLRNRGLYNVLYKRVPCYKGG-Q

NIAFRVDPGS-SPYWLSVLIKYVGGPGDIGAVSIKMANSY-----KFMPMKHAWGA--
NWMLQNYDGKPFKG-PMDI

KIVS--RL---NGHSVAKG-VIPGYFR---PGTTYTSRVQM

>CpEXPB3 [A]

WVYGHG-TW--YG--DPYGEES-S---GGNCGYTKLAGT-PY-GPKIVAGSPAIIYANGLGCGQCYQ---
IKCLDSKYGPR

LCNSWG--TQVVVTDFCPGGT-----YCSSGQKAFDFSGAALNAMAL-P--
GKDGQLRNRGLYNVLYKRVPCYKQ-Q

NIAFRVDPGS-SPYWLSVLIKYVGGPGDIGAVYIKMANSY-----RFMPMKQAWGA--
NWMLQNYDGKPFKG-PMDI

KIVS--RL---NGHSVVAKG-VIPGYFR---PGTTYTSRVQM

>CpEXPB4 [X]

WMAGHA-TW--YG--EPNGEES-S---GGACGYTKLTGT-PY-GPRIAAGNDAIFQGGKGCGQCYE---
VKCSYAE----

-CRQEA--TRIVITDQCPGGE-----YCSKAEPAFDLSGAAISAMAL-T--
DKDGALRNIGLYDILYKRVPCFQG-Q

NIAFQVDQGS-TGFWLSFVVKFLGGPGDIDSVEIRHSGSS-----SFQPAKHNWGA--
SWMLINTSGQAFKG-PYDI

RVVS--KL---NGHAVTAEK-VIPEFFE---PGKLYESNVQL

>CpEXPB5 [A]

WMAGHA-TW--YG--DPYGEES-S---GGACGYTQLTGT-PI-GSKIAAGNNPIFQGGKGCGQCYE---
VKCNYPs----

-CNPEP--TRIVITDLCPGGT-----YCSTGNPAFDFSGAAITAMAL-P--
GRDGELKKIGLYDIQYKRVPCFQYQN-Q

NIAFKVDFGA-SAYWLSFTVKYLGGPGDIESVEIRQVGSNG-----SFQPCQHSWGA--
NWMLINYTGPFDG-PYDV

KITA--KL---NGHSVIAYR-AIPKWFQ---PGALYNSNVQF

>CpEXPB6 [ACnFn]

WIAGHA-TW--YG--DPYGEES-N---GGACGYTELAGT-PY-GLSVAAGSAIIFQNGQGCGQCYD---
VKCSYPS----

-CKQEP--TRVVITDSCPGGT-----YCSTGEPAFDLSGMAMSNMAL-P--
GRDQELRNGLYDIQYKRVPCYYPN-Q

NIAFKVDPGS-TPYWLSFTVKYQGGPGDIQNVIRQAGSS-----EFQPLQHNWGA--
NYMMICYSGQPFRG-PYDV

KITA--KL---NGHVLI AEH-AIPEYFQ---PGGLYESNVQL

>PpEXPA1PRO

WRKAHA-TF--YG--GADASGT-M---GGACGYGNLYST-GY-GVDSTALSTALFNNGAKCGACFA---
IQCYRSQ----

YCVPGSPVITVTATNFCPPNHKGDGTPGWCNPPMRHFDLAQPSFTKIAK-----
YRAGIVPVLFRRVPCCKG--

GVRFTING---NKYFNLVLVHNVGGKGDVHAVDIKGSNT-----EWIPMKRNWGM--NWQTDA----
VMTGQALSF

RVTTT-----DGKTIVSMN-ATPSHWS---FGQTFEGG-QF

>CbEXP8 [AB]

WTEGATLTF--YG--DANGGGT-L---AGACGYGNLLAT-PY-KLMIAAGNPPMFEEGLGCGRCWE---
IRCVGNP----

GCTAT---VTITMTDLCP-----CGSDGVHFDMSQPAFHALASGP--
AEAEQLVTAGKLQGQYRRVPCDLGLGK

AFTAIVRAAT-NPSFSLMRDIPGAGDIKTAECAPGGGS-----TFSPMTQDFGA--MYNFNG----
KWTS-PVSL

RLTLG-----DGQILTGIS-CIPAAWK---PTTTYTCK---

>CbEXP10 [H]

WINGHS-TF--YD--D---FGR-----GGACGYGRIGSQ-LY-RNRFAAGSPRVYLGGGLACGMCME---
VKCVNSP----

ACRPGS--VRVTITDLCPKPYP-NLR--WCTGGKIHLDMARGAFPVIAN-P--GA-----
GHVPIQFRSVPCAPF--R

LLKFTLRGN--RWGWLEVTTLTIPGSGRVLRLLEYAMKGG-----AWTGMSRAFGA--AWATKGK---
FLRF-PISI

RIAVFGKF-----CKLVAKD-CIKGQFW---NGQQLSCSYSV

>CbEXP11 [x]

WTEGATLTF--YG--DANGGGT-L---VGACGYGNLLAT-PC-KLMIAAGNPPMFEEGFSGCGRCWE---
IRCVGNP----

GCTAT---VTITMTHLCP-----CGSDTVHFDMSQPAFHALASGP--
AEAEQLVTAGKLQGQYRRVLCDLGLGK

AFTAIVREAT-NPSFSLMRDIPGAGDIKTAECAPGGGS-----TFSPMTQDFGA--MYNFNG----
KWTS-PVSL

GLTLG-----DGQILTGIS-CIPAAWK---PATTYTCKX--

Algae Tree

>PpEXPA1PRO

WR-----KA--HATFYGGADASGTM-G---GACGYGNLYS-TGYGVDSTALSTALFNNGAKCGACFA-IQCYRSQ----

-----YCVPGSP-VITVTATNFCPPNHK-GDGTPGWCNPPMR-HFDLAQPSFTKIAK-----
YRAGIVPVLFF-RRV

PCEKKG-GVRFT--I--NGNKY-FN---LVLVHNVGGKGDVHAVDIK-GSNT-EWIPMKRNWGMNWQ--
TD-AVMTGQAL

SFRVTTS-DGKTIVSMNATPSHWSFGQTF-EG-GQF

>PpEXPA6PRO

WR-----NA--RSTFYGGMDAAGTM-S---GACGYGNLYA-SGYGVHTTALSSALFKNGMACGACFE-VQCGGKGK---

-----PCKPGS---VVVTATNFCPPNPGQSANNGGWCNPPNE-HFDLSYPAFVKIAD-----
PKAGAVPLQY-RRV

PCQKQG-GIRFT--I--NGNCN-FI---LVTITNVGGSGVVTAAYLK-GDKT-EWSPLSRNWGANWQ--CR-RNYCGQGI

SIKIVT--SDNKVSVTKLAKSDWCFGKTF-IG-KQV

>PpEXPA7PRO

WG-----YA--HATYYXGADASGTQGG---GACGFGNLYS-TGYGTNTAALSAALFNSGLSCGSCYE-LACDPNGS--K

-----YCLPGGP-TVTVTATNFCP-----HGSLLGGWCDAPKQ-HFDLAHPMFVSLAR-----EVGGVPIKY-RRV

PCVKSG-GMRFT--I--NGNPW-FL---LVLVTNVAGAGDVQHMYIK-GSNT-PWEPMSRNWGSMWQF-TGDSKMKGQAL

SFKAITS-DGSVAVSMDAAPGNWQFGQTF-EG-VNF

>PpEXPA13PRO

WN-----EA--RATFYGGSDAGGTT-G---GACGYGDLYS-TGYGTNTVATSSAIFDRGLACGACYQ-VKAGSAS---

-----ECQPGTP-AIQVTVTNFCPPNPSLPEGNGGWCNLPLH-HFDMAMPAFQQIAS-----
YRVGIVPILY-RRR

SCVRTG-GIRFT--M--SGHKF-MN---LVLVTNVGGMGDVQTVFIQ-GSKT-KLVAMIRNFGQIWQ--SS-VNVSGQRL

SFMVMTS-DGESVVSARNVAPSDWAYGQTY-EG-SQF

>PpEXPA14PRO

WD-----KG--HATYYGEGDARGTM-G---GACGYSNLYS-TGYGVNTAALSGPLFNGGATCGACYE-LTCILNESK--

-----WCYRGK--NIIVTATNFCP-----SGSTGGWCNPPQK-HFDLSEPMFTTLAN-----RVGGVIPVNF-RRV

ACYKQG-GMRFT--I--NGNPY-FF---IVLVYNVAGAGDVQQVYIK-GPKT-QWLQMYRNVWGSQWTFNGGPNIVGSAL

SFRVHTS-DGRQVISYXAAPANWWFGXTFSSG-AN-

>PpEXPA24PRO

WS-----SG--RITYYGSPNGGGTQ-G---GACGYQNTVS-LGYGFMTAALSTPLFNGGAACGACYQ-LQCAPVHETPK

NLLQRNWCWKVGR-RITITATNLCP-----PGSEGGWCDPPQH-HFDLPMPAFTALAK-----REGGVVPIYY-RRV

RCAKQG-GIRFT--M--GGNPW-FL---MILIHNVAGAGDVVAVKIK-CPTS-DWCDMYRNVWGAFWT--VQ-KKMEG-PL

SFQITTX-DRRKVTTHNAVGHGWQFGQTW-EG-AQY

>AtEXPA8PRO

WQ-----GG--HATFYGGEDASGTM-G---GACGYGNLYG-QGYGTNTAALSTALFNNGLTGACYE-MKCND DPR---

-----WCLGST---ITVTATNFCPPNPGLSNDNGGWCNPPLQ-HFDLAEP AFLQIAQ-----YRAGIVPVSF-RRV

PCMKKG-GIRFT--I--NGHSY-FN---LVLISNVGGAGDVHAVSIK-GSKTQSWQAMSRNVWGQNWQ--SN-SYMNDQSL

SFQVTTS-DGRTLVSNDVAPSNWQFGQTY-QG-GQF

>AtEXPA14PRO

WV-----NA--RATFYGGADASGTM-G---GACGYGNLYS-QGYGTNTAALSTALFNNGGQSCGACFQ- IKCVDDPK---

-----WCIGGT---ITVTGTNFCPPNFAQANNAGGWCNPPQH-HFDLAQPIFLRIAQ-----YKAGVVPVQY-RRV

ACRRKG-GIRFT--I--NGHSY-FN---LVLITNVAGAGDVISVSIK-GTNT-RWQSMSRNVWGQNWQ--SN-AKLDGQAL

SFKVTTS-DGRTVISNNATPRNWSFGQTY-TG-KQF

>AtEXPA15PRO

WV-----NA--HATFYGGSDASGTM-G---GACGYGNLYS-QGYGTNTAALSTALFNNGLSCGACFE-
IKCQSDGA---

-----WCLPGA---IIVTATNFCPPNNALPNNAGGWCNPPLH-HFDLSQPVFQRIAQ-----
YKAGVVPVSY-RRV

PCMRRG-GIRFT--I--NGHSY-FN---LVLVTNVGGAGDVHSAVK-GSRT-RWQQMSRNWGWQNWQ--
SN-NLLNGQAL

SFKVTAS-DGRTVVSNNIAPASWSFGQTF-TG-RQF

>OsEXPA4PRO

WQ-----SA--HATFYGGGDASGTM-G---GACGYGNLYS-QGYGTNTAALSTALFNDGAACGSCYE-
LRCDNAGS---

-----SCLPGS---ITVTATNFCPPNYGLPSDDGGWCNPPRP-HFDMAEPAFLHIAQ-----
YRAGIVPVSF-RRV

PCVKKG-GVRFT--V--NGHSY-FN---LVLVTNVAGAGDVRSVSIK-GSRT-GWQPMSRNWGWQNWQ--
SN-AFLDGQSL

SFQVTAS-DGRTVTSNNVAHPGWQFGQTF-EG-GQF

>OsEXPA5PRO

WS-----SA--HATFYGGGDASGTM-G---GACGYGNLYS-QGYGTNTAALSTALFNNGLSCGACFE-
VRCDAGGGGSH

-----SCLPGS---VVVTATNFCPPNNALPSDDGGWCNPPRA-HFDMSQPVFQRIAL-----
FKAGIVPVSY-RRV

ACQKKG-GIRFT--I--NGHSY-FN---LVLVTNVGGAGDVHAVAVK-SERSAAWQALSRNWGWQNWQ--
SA-ALLDGQAL

SFRVTTG-DGRSVVSNNAVPRGWSFGQTF-SG-AQF

>OsEXPA11PRO

WS-----SG--SATFYGGSDASGTM-G---GACGYGNLYS-AGYGTSTAALSTALFNNGQSCGACFE-
VRCGGGG----

-----SCLAGT---VAVTATNLCPPNYALAGDAGGWCNPPRP-HFDMAEPAFTRIAQ-----
ARAGVVPVQY-RRV

ACAKQG-GIRFT--I--TGHSY-FN---LVLVTNVGGAGDVTAVSVK-GSRS-GWQAMSHNWGANWQ--
NG-ANLDGQPL

SFRVTAS-DGRTVTSNDVAPSGWSFGQTF-SG-GQF

>MpEXPA17PRO

WEVTEFTRGA--RATYYGGNDASGTL-G---GACGYGNLFE-NGYGVETTALSTALFNDGLTCGGCFQ-
IQCIASES--D

-----WCLANGTVSITVTATNFCP-----PGSFGGWCDPPQP-HFDLSYPMFATLAQ-----
PVGGVIPVQY-RRV

SCLKQG-GVRFQ--I--NGNNW-FF---LVLVMNVAGAGDVQAVAIK-GTRS-EWISMQRNWWGQNWAS-
DGPPELVGQAL

SFRVTLGLTKETLDFIDVAPADWQFGQTFEDD-SGL

>MpEXPA24PRO

AN-----AIPATATFYGGNDASGTNTA---GSCGYPNVLT-ID-GPMNTALSGALYNGGEACGACFK-
IQCVSIPFGNL

-----QCLPGS---IVVTATNLCP-----QGSTGGWCDEPRS-HFDLAEPAFQHLAP-----PVAGVVNVEY-
ERV

SCLRSG-GIRFL--I--QGHPY-FM---QVLVYNVGGMGDVTAVSVK-GSSS-DWIQMDRNVWGQLWT--
TG-TVLDGQAL

SFSVTTS-DGRTVASNGVADSDWQYGQTF-EG-NQF

>MpEXPA26PRO

FG-----DA--TATFYGGSDASGTQ-G---GSCGYQNPFA-LGYGIKTAALSNSLLANNMNCGACFE-
VKCKYDASAYT

----KKWCYPNSP-TIIVTATNQSP-----PGLNG-----EH-HFDLTEPMFMKIAN-----RIGGRIPQY-RRV

RCYKPG-GIKFT--L--TGNPF-FN---LVLVYNVGGAGNVYGMIAIK-GSRT-DFYPMSRNWGQYWQ--AF-
VKLTGQSL

TFRVTLG-NGKSTTFWNVAPANWQFGQTVAAT-YNF

>MpEXPA30PRO

WT-----DS--HATFNDGNNAQGTM-G---GACGYGNISS-RGYGLETTALSSTLFNSGLTCGACFE-
IKCKVENST--

-----WCFPNAG-SIKVTATDLCPANPAMPTNNGGWCNPPRT-HFDLSYQMFTRLAK-----
AEGAIIIPVQF-RRV

PCVKVG-GIRFT--M--NGNPW-FN---LVLVSNVAGAGNVVNLQMKSSSETNWFWMTARQISGQYWE--
LN-QNLMGQNI

SFRVTLG-NGKVMIANNVVPANWNFQQTIESD-INF

>MpEXPA36PRO

WG-----DA--HATFYGGNDASGTM-G---GACGYGNLYS-LGYGTASTALSNGLFNNGLSGACYT-
IECKLEGS--K

-----WCYPGK--SITVTATNACP-----PGSEGGWCDPPRL-HFDLSYPMFQTLAQ-----PVGGVIPVKY-KRV

SCNRQG-GIRFT--L--HGNAW-FN---YVLVHNVAGDGDVAGVSIK-GDNG-GWTTMYQNWGQFW---SASEHLVGQAL

SFRVTLG-SGRTQEFYDVASPNWYFGQTYEAD-NNQ

>AaEXPA2PRO

WS-----SA--HATFYGGNDASGTL-G---GSCGYGNLYD-RGYGTSTAALSTALYNNGASCGACFE-IQCTGSR----

-----WCKGSA--PITVTATNFCPQNPALPNNAGGWCNLPLQ-HFDMSVPAFLEIAE-----QVGGIVPVNY-RRV

SCVKKG-GIHFT--I--NGHAY-FN---LVLITNVGGAGDVHAVSVK-GSKT-GWEPMTRNWGQNWQ--CN-SYLNQSL

SFQVTT--SGGTLISYDVTPAGWSFGQTF-SG-AQF

>AaEXPA4PRO

WV-----KGVAHATFYGGSDASETN-G---GACGYGNLYS-QGYGTNTAALSSALFGGGETCGACYQ-LKCTG-----

-----GCFSGAP-KIVVTATNYCP-----EGSTGGWCNAPRV-HFDLSEPAFTRMAA-----AVTGVPVNY-RRV

KCVKEG-GIKFQ--I--NGHSY-FN---LILITNVGGVGDVKEVYIQVSGSGS-SWKACKRNWGQNWE--ND-DYLDGKSF

SIKVITS-DNRFCNSPNVIPAGWKFGTTY-EG-RQF

>AaEXPA6PRO

-N-----DA--HATFYGDPSGSATF-G---GACGYGDLMA-QGYGLQTTALSEVLFSNGFSCGQCYQ-IQCIDSK----

-----WCIPNA--VITVTATNLCPADYSKPNDNGGWCNPPLK-HFDLSMPAFHQIAQ-----EVAGIVPVTY-RRV

PCVKLG-GVKFT--I--LGNTW-WH---LVLITNVGGAGDIDTASIK-GSNT-DWIPMSHNWGASFQ--CF-QSLVNQAL

SFQLTST-TGQVLTTFNVAPADWSFGTTY-EG-GQY

>SmEXPA10PRO

WT-----LA--HATYYGGSDASGTM-GKXSGACGYGNMYH-EGFGVETTALSTVLFQNGASCGACYE-LKCHQDP---K

-----WCRPGNL-SITVTATNFCPPNPARKSYRGGWCNXPQQ-HFDLSMPAFVHLAN-----
RTAGIIPVIY-TRV

ECKRQG-GIRFT--M--RGNKW-FI---LVMISNVGGAGDVRSVVVK-GSRS-PWTPATRAWGQNWH--
ISNRSMLEQGL

SFVWSTS-DGESRIALDAVPQNWKFQQTFTTA-AQF

>SmEXPB2PRO

WQ-----LA--TATWYGSPSGAGTD-G---GACGYGELPN-
TPYGLDVGAGSPVLFKNGRGCGACYKVVRCLQQQ----

-----LCSGKA---VTVVITDECP-----GGYCAFGRT-HFDLSGTAFGRMAM-
AGRTNQLLGSGVXQVLY-KRX

DCNYGSRPMEFQ--VNEGSTPF-WL---SILVRYAAGPGDLGHVELMQGSRV--WQPMTQVWGATW---
CFNGGPLRGPF

SFRVTTLSTSETVVARNVIPXNWASNTCYRSR-VNF

>PpEXPB3PRO

WL-----PG--HATWYGDPYGEGSS-G---GACGYTELAG-TPYGLSVGAGSAVIYQNGQGCGECEY-
VKCTYP-----

-----SCKPTP---SRIVITDFCP-----GGTFCSTGEP-AFDLSGMAMTNMAL-PGRDQELRNGLYEIQY-
RRV

PCYYPNQNVAFK--VDPGSTPF-WL---SFTIEYQGGPGDIESVAIR-
QAGSSEFQQMQHNWGANMYMLICYSGKPFKGPY

DVMITAKLNHVLIAQDAIPEYFQPGGIYESN-VQL

>AtEXPB2PRO

WS-----IA--GSTWYGNPTGYGSD-G---GACGYGNAVAQPPFSKMVSAGGPSLFKSGKGCGACYQ-
VKCTSKS----

-----ACSKNP---VTVVITDECPG-----CVKESV-HFDLSGTAFGAMAI-SGQDSQLRNVGELQILY-
KKV

ECNYIGKTVTFQ--VDKGSNAN-SF---AVLVAYVNGDGEIGRIELKQALDSDKWLSMSQSWGAVWK--
LDVSSPLRAPL

SLRVTSLESgKTVVASNVIPANWQPGAIYKSN-VNF

>OsEXPB16PRO

WH-----PA--TATWYGSADGDGSD-G---GACGYGTLVDVPMKTRVGAVSPVLFKGGEGCGACYK-
VRCLDAS----

-----ICSRRA---VTVIVTDECP-----GGVCAFGRT-HFDLSGAAFARLAV-AGHGGQLQNRGEISVY-
RRT

ACKYGGKNIAFH--VNEGSTTF-WL---SLLVEFEDGDDIGSMQLK-QANSAQWQDMKHIWGATWS--
LTPGPLVG-PF

SVRLTTLTTRQTLAQDVIPKNWTPKATYTSR-LNF

>AaEXPB4PRO

WL-----SC--KATFYGPQDGDGTD-A---GNCGYGALAS-SPYGKNIAAGSPELYQDGLGCGACFQ-
IKCTND-----

-----GCKDEA---STVVITDQCP-----GGEWCGVGKP-HFDLSGTAFANLAV-
AGRSSDLFTRGVLDLQY-QRV

ACSYGAQTVAF--MDANCNPK-WI---AFVVEFQAGDGDLLSVELK-DASS-DWQAMSHNWGANW--
-QFSGSLTG-PI

SVRLTSNTANQVLIAQDAIPANWKPGQTYKSK-QQF

>CbEXP1 [x]

WQ-----DG--RATYYGSEAFGGDNEH--NGACGYGTLA-AFVGHNYAAASPVIFESGRACGGCFE-
VQCRGNGY---

-----PCRAGT---ARVTVTDLCPP---IPPNLRHCAGGKA-HLDLGVRFPIIAD-----PRAGVVDIRF-
RTV

PCGRFN-AITFF--I--RGNVYGWL---SLVVMGVPASGRVVGMEVK-ASGSTNWEALRHDYGAAY---
MRTGRPLRTP

SVRLSIFGKLCRMTAMNCIPTGFKDRQKVSCS-YRS

>CbEXP2 [H]

WI-----NG--HSTFY---DDHGR--G---GACGYGALGS-QLYGTRFAAGSPRVYLGGGLACGMCLE-
VRCVGSR----

-----ACRRSS---VRLTITDLCPP---GYPNTQWCGGGKL-HLDIGKDAFPIIAD-----PRAGHVPIQF-
RSV

PCAPYK-VLKLN--L--RGHRW-WL---EVTALAIPGSGRVLKMEVA-GKGG-RWVSMKRAFGAAW---
STAGSTLQTPI

SVRISIFGKLCKLIAKDCINGQIYNGRQLSCA-YTV

>CbEXP3 [H]

WI-----SG--HSTFY---DDHGR--G---GACGYGALGS-QLYGTRFAAGSPRVYLGGGLACGMCLE-
VRCVGSR----

-----ACRRSS---VRLTITDLCPP----GYPNTQWCGGGKL-HLDIGKDAFPPIAD-----PRAGHVPIQF-RSV

PCAPYK-VLKLN--L--RGHRW-WL---EVTVLAIPGSGRVLKMEVA-GKGG-RWVSLKRAFGAAW---STAGSTLQTPI

SVRISIFGKFCKLIAKDCIKGQIYNGRQLSCA-YTV

>CbEXP4 [H]

WI-----NG--HSTFY---DDYGR--G---GACGYGRLGS-QLYGTRFAAGSPRVYLGGLACGMCLE-VRCVGSR----

-----ACRRSS---VRLTITDLCPP----GYPNTQWC---QI-HLDIGKNAFPVIAD-----PRAGHVPIQF-RTV

PCAPYK-VLKLS--L--RGHRW-WL---EVTALAIPGSGRVLKMEVA-GRGG-RWVSLKRAFGAAW---ATAGATLQTPI

SVRISIFGKLCKLIAKDCIKGQIYNGRQLSCA-YFV

>CbEXP5 [H]

WL-----NG--HSTFY---DDYGR--G---GACGYGALGG-QLFGTRFAAGSPSVYLGGLACGMCLE-VRCVGST----

-----ACRRSS---VRLTITDLCPP----GYPNTQWCGGGKL-HLDIGKDAFPPIAD-----PRAGHVPIQF-RSV

PCAPYK-VLKLN--L--RGHRW-WL---EVTALAIPGSGRVLKMEVA-GKGG-PWVSMTRAFGAAW---STAGSTLQTPI

SVRISIFGKLCKLIAKDCIDGQIYNGRQLSCA-YTV

>CbEXP6 [H]

WI-----NG--HSTFY---DDHGR--G---GACGYGPLGS-QLFANRFAAGSPRVYLGGLACGMCLE-VRCVGSR----

-----ACRRSS---VRLTVTDLCPP----GYPNTQWCGGGKL-HLDISKNAFPPIAD-----PRAGHVPIQF-RSV

PCAPYR-ILRLN--L--RGHMW-WL---EVTALAIPGSGRILRMEVA-GRGG-RWRSMKRSFGAAW---STTGASLRLPI

SVRISILGKFCKLIARDCIKGQIYNGKQLSCR-YSV

>CbEXP7 [H]

WL-----SG--KATFY---SGGDQ-G---NACGYGRLTG-AIFGRNFAAVSPRIYLGGLACGMCLE-VKCVGHP----

-----GCRRGV---ARVTVTDLCPA----RPPNMAFCAGGKL-HLDLGRDVFPVICN-----PRVGVAPIRF-
RAV

PCARYR-TLNII--L--NGNRYGYM---AIVVMSIPGSGRVIRMDVR-GRGGRNWEPLRRDWGATF---
MRTGRPLRYPV

SIRVSILGKLCRLIARNCIKGQFFNGRKLSCS-YSA

>CbEXP8 [AB]

WT-----EG-ATLTFYGDANGGGTL-A---GACGYGNLLA-TPYKLMIAAGNPPMFEEGLGCGRCWE-
IRCVGNP----

-----GCTAT----VTITMTDLCP-----CGSDGV-HFDMSQPAFHALASGPAAEQLVTAGKLQGQY-
RRV

PCDLGL-GKAFTAIVRAATNPS-FL---SILMRDIPGAGDIKTAECAPGGGS-TFSPMTQDFGAMY---
NFNGKWTS-PV

SLRLTLG-DGQILTGISCIPAAWKPTTTYTCK----

>CbEXP9 [H]

WQ-----SG--TGTFY-----SGGH-G---GACGFAGLGY-SIFAENYVAVSTALWNSGAACGTCLE-
VRCKGPSS---

-----ACIAGA--TIKVTVTDFCPN----TYPNLAHCGTDKH-HLDLGENVFPKIAA-----RSVGVIDLEY-
RRV

PCVQAP-SITVS--V--EGNQYGYL---ALNLMRLPGAGTVAQLEIK-GANG-AYEQCRRDWGNTF---
VRTGKPIEAPL

SLRVSVG-GICTFEAKDCIKS-LNFGSSVTCS-YNX

>CbEXP10 [H]

WI-----NG--HSTFY---DDFGR--G---GACGYGRIGS-QLYRNRFAAGSPRVYLGGLACGMCME-
VKCVNSP----

-----ACRPGS---VRVTITDLCP-----KYPNLRWCTGGKI-HLDMARGAFPVIAN-----PGAGHVPIQF-
RSV

PCAPFR-LLKFT--L--RGNRWGWL---EVTTLTIPGSGRVLRLEYA-MKGG-AWTGMSRAFGAAW---
ATKGKFLRFPI

SIRIAVFGKFCKLVAKDCIKGQFWNGQQLSCS-YSV

>CbEXP11 [x]

WT-----EG-ATLTFYGDANGGGTL-V---GACGYGNLLA-TPCKLMIAAGNPPMFEEFGCGRCWE-
IRCVGNP----

-----GCTAT---VTITMTHLCP-----CGSDTV-HFDMSQPAFHALASGPAAEQLVTAGKLQGQY-
RRV

LCDLGL-GKAFTAIVREATNPS-FL---SILMRDIPGAGDIKTAECAPGGGS-TFSPMTQDFGAMY---
NFNGKWTS-PV

SLGLTLG-DGQILTGISCIPAAWKPATTYTCK-X--

>CbEXP12 [H]

WT-----GG--TATFY-----SGGR-G---GACGFGGLGY-AIYGERYAAASMKIWQNGAACGMCVE-
IKCMGPS----

-----GCYAGK--IVKVTITDFCPN----THPNLAHCGPEKN-HIDMGQNSFPVIAN-----PRVGVINIQY-
RVV

PCNAYG-NFQVQ--I--NGNQYGWL---SLLIAQIPGSGRVVGCEVQ-GAGMNYWEGLRRVWGSNW---
MRTGTPLKTP

HVRLSLLGQICKVTSRNCIPNGFYFGQAVKCN-LRX

>CbEXP13 [H]

WT-----SG--TATFY-----SGGS-G---GACGFGGLGY-AIYGERYAAASMRIWQNGAACGLCVE-
IRCTGPS----

-----GCYPGK--VVKVTITDFCPN----TPPNLAHCGPDKN-HIDMGQNSFPVIAD-----ARVGVIDIEY-
RTV

SCTPYS-NFQVQ--I--NGNQFGWL---SLLIAQIPGSGRVVGCEVQ-GSGNDNWEALKRTWGSNW---
VRTGTPLKAPI

HVRLTLWGQICKVTSHNCIPSGFSFGQVVQCN-LEX

>CbEXP14 [H]

WT-----AG--TATFY-----SGGR-G---GACGFGGLGY-AIYGERYAAASMKIWQNGAACGMCVE-
IKCMGPK----

-----GCYAGK--VVKVTITDFCPN----TPPNLAHCGPEKN-HIDMGQNSFPVIAN-----PKVGVINTQY-
RVV

PCNPYT-TFQVQ--V--NGNQFGWL---SLLIAQIPGSGRVVGCEVQ-GTGMNYWEGLKRTWGSNW---
VRTGKPLKAPI

NVRLSLLGQICKVTSRNCIPSGFYFGQVVKCN-LRX

>CbEXP15 [x]

WI-----SG--HATFY---DDHGR--G---GACGYGRLGS-ELFGGRYAAGSPRVYLGGMACGMCLE-
VKCVGVP----

-----ACKPAT---VRVTITDLCPP----RPPNTQWCGGGK-LHDMATAAFPVIAN-----PRAGHVPIQF-RSV

PCAPYK-MLKLH--L--RGNMFGWL---EVTALGIPGSGKVLKMEVA-GSDG-SWVVMKRAFGAAW---AVAGRPMRSP

SVRIAIFGKLCKLVAKNCISGQNFNGVDLSCA-YSV

>CbEXP16 [H]

WI-----NA--HATFY---DDGGR--G---GACGYGSLGS-QLFSNRFAAGSPAVYLGGTTCGMCVE-VKCVESP----

-----ACKAGS---VRLTITDLCPP----GAPNTQWCGGGKR-HLDLAKGAFPVIAN-----PGAGHVPIQF-RTV

PCAPYN-VLTLN--L--RGHQW-WL---EVTAVGIPGSGRILRVEVA-GNGS-PWTVMKRAYGAAW---ATAGSTLRSP

SVRVSIFGNLCKLTARDCIKGPIYNGRKVTCG-YSV

>CbEXP17 [H]

WI-----NA--HATFY---DDGGR--G---GACGYGSLGS-QLFSNRFAAGSPAVYLGGTTCGMCVE-VKCVGSR----

-----ACKAGS---VRVTITDLCPP----GAPNTQWCGGGKQRHLDLAKGAFPVVAN-----PGAGHVPIQF-RTV

PCAPYK-VLTLN--L--RGHQW-WL---EVTAVGIPGSGRILRVEVA-GNGS-PWRVMKRAYGAAW---ATAGSALRSP

SVRISIFGNLCKLTARDCIKGPIYNGRKVT-----

>CbEXP18 [H]

WI-----NA--HATFY---DNGGR--G---GACGYGSLGS-QLFSNRFAAGSPAVYLGGTTCGMCVE-VKCVGSR----

-----ACKAGS---VRVTITDLCPP----GAPNTQWCGGGKR-HLDLAKGAFPVIAN-----PGAGHVPIQF-RTV

PCAPYK-VLTLN--L--RGHQW-WL---EVTAVGIPGSGRILRVEVA-GNGS-PWRVMKRAYGAAW---ATAGSTLRSP

SVRISIFGNLCKLTARDCIKGPIYNGRKVTCG-YSV

>CbEXP19 [F]

WR-----GG--TATCY-----TGGR-G---GACGFSGALA-LIYGQSYAAVSTRLWENGKVCQGQCYE-VRCVGSG----

-----GCRRGS---VKVTVTDFCPD----TQANRRHCGATKQ-HIDLGRNAFPVIAN-----PSVGVINVQF-RTV

PCAAYH-LLRIS--V--RGNRNGWLSKGLFLTNNRKADRVFAVEVK-GRYRNYWERMTRTWGATY---DRRGRPLVGPI

SVRVSLFARFCKVVATNCIPAKWYSGSTYHCT-FRS

>CbEXP20 [B]

WS-----AVLYICISA-----G---GACGYGPTLS-Q-YGPYLTALSVSLYQTGLACGGCFE-VKCVDSP---
-

-----HCNSGK--VVKVTAVDECP-----EGGYCVTGKM-HFDLSQPAFKTIGN-----
QQAGVIPILWRRRV

QCERNG-AIELH--M--QGGPY-WL---SILVKNTGGDGGVKSQVKPSDKN-
EWYQMTHVWGQKWDL-AGPMMPLKGPL

SIKLISLYSGQVATGWNCISQQWQSGQTYFIS-QQF

>CbEXP21 [AB]

WS-----TG--RATFYGAPDGSGLD-G---GNCGFGPL-A-NSYGRYVAAISISLYQNGKCGGCYE-
VKCVDSQ----

-----WCTGKS---VIISATDQCP-----DGGYCDNNQA-HFDMSHPAFEMIAQ-----KIAGVIPVSW-
RRV

PCVRTG-PIQFV--I--NGNPF-WF---TIMPKNVAGAGDVKSVEVQIGG---RWVPMIQLWGQNWL--
LSGMGQVNGAI

SVRVTTLLTGEVITVPNVIPSGWKSGTPYTSGMVNF

>CbEXP22 [x]

WI-----NG--QATFY---DDHGR--G---GACGYGSLGS-QLFGGRYAAGSPRVYLGGLACGMCFE-
VKCVRST----

-----ACKAGS---VRVTITDLCPP----RAPNSRWCGGGKL-HLDMGRQAFPVIAN-----
PRAGAVPIQF-RSI

PCAPYK-VLKLH--L--RGSRF-WL---EVTALAIPGSGRILKMEVA-AAGG-KWVAMKRAFGAAW---
AVTGQPMRTPI

SVKISIFGKLCKLIARNCIKGQSFNGQNLNCG-YSV

>SpmEXP1 [ABF]

LVLADDTIDA--DTTYYGGANAGGAQ-A---GACGYGNLFT-AGYGTAITAVSTPLWKGAACGACYE-
LSCKPGTS---

-----GCYNTK---LVVTVTDQCP-----DGGWCQPDKP-HFDLSQPVFAQLAQ-----ISLGHPVTA-
RRV

TCPRTG-GVKVV--A--QGNSN-WL---LVKFMNVAGGGTVNAAWVK-GSNS-DWIPMSFNWGVGYQ--
IT-GNIPQGPY

SFQLRDSYTGQVFTTDACLPSGWNVGTYSYCD-GNA

>SpmEXP2 [x]

WN-----DA--HATFYGGADASGTM-G---GACGYGNLYS-SGYGTDAAASSALFNDGMSCGQCYQ-
LQCVGSS----

-----ACKPGM---ITVTVTNLCPNDFSKPSDAGGWCNYPRQ-HFDLSQPAYQKIGV-----
YGAGIVPIQY-RRV

PCLRTG-DIMFS--M--GGNPF-YL---DVTIKNVGGSGDLSAVWVK-GNSG-QWRQLSQNWGMQWS--
AD-IAVQGQAL

SFRLQSQTGGQILTVENAVPSSWSPGSTY-QA-GQF

>SpmEXP3 [x]

WN-----DA--HATFYGGADASGTM-G---GACGYGNLYS-SGYGTDAAASSALFNDGMSCGQCYQ-
LQCVSSS----

-----VCKPGM---ITVTVTNLCPNDFSKPSDAGGWCNYPRQ-HFDLSQPAYEKIGV-----
YGAGIVPIQY-RRV

PCLRTG-DIMFS--M--GGNPF-YL---DVTIKNVGGSGDLDAVWVK-GSSG-QWRQLSQNWGMQWS--
AD-IAVQGQAL

SFRLRSQTGGQVLTVEDAVPSSWSPGSTY-QA-GQF

>SpmEXP4 [CBF]

WQ-----PFNMTATFYGGPNAENT--G---GACGYGDMFT-AGFGTSTVAASSMLFKDGQSCGACYQ-
VRCVNAV----

-----GCIKDA--YIQITVTNYCPPRT--DMSTPGWCDGDNM-HFDMSQPAFTQIAE-----
YSAGVVPVEV-MRV

PCTRGG-NIQWQ--V--GGNPN-WL---QLNVRNIAGDGDIAAISVK-GTNT-DWVTMTQSFGVTWQ--
AD-GMFQGQAL

SFRVTSLLTGKVLQVDDAVPAGWTVGVSUY-TA-GQY

>SpmEXP5 [x]

WK-----TV--TASFYGGADASGNM-G---GACGYGNDVS-STYGLYTAAASTALYSEGLACGQCFQ-
VQCANSK----

-----ACIAGK--SVTVTVTNFCPNNWALPSNAGGWCNFPQR-HLDMSQPAFTQIAQ-----
YSAGIVPVQI-RRV

PCLRSG-SIAFG--L--GGNTF-WL---QVNIRNVGGSGDISSVQVK-GNGA--WLTMDHEWGQNWS--
VD-AKLGGQSL

SFRLTTMTTGETLEIDNAAPSNWQVGKTY-QA-GQF

>SpmEXP6 [CBF]

WQ-----PFNMTATFYGGPNAENT--G---GACGYGDMFT-AGFGTSTVAASSMLFKDQSCGACYQ-
VRCVNAV----

-----GCIKDT--YIQITVTNYCPRT--DMSTPGWCDGDNM-HFDMSQPAFTQIAD-----
YSAGVVPVEV-MRV

PCTRDG-NIQWQ--V--GGNPN-WL---QLNIRNIAGDGDIAAISVK-GTNT-DWVTMTQSFGVTWQ--
AD-GMFQGQPL

SFRVTSLLTGKVLQVDDAVPAGWTVGSVY-TA-GQY

>SpmEXP7 [ABF]

LGLADDTIDA--DTTYGGANAGGAQ-A---GACGYGNLFS-AGYGTSITAVSTPLWKGGAACGACYE-
LSCKPGTS---

-----GCYNTK---LVWTVTDQCP-----DGGEWCQPDKA-HFDLSQPVFAQLAQ-----ISLGHFPVTA-
RRV

SCPRSG-GVKVW--A--QGNSN-WL---LVKFMNVAGGGTINAAWVK-GSNS-DWIPMSFNWGVGYE--
IT-GNIPQGPY

SFQLRDSYTGQVFTTDACLPSGWNVGQTYSCD-GNA

>SpmEXP8 [x]

WK-----TV--TASFYGGADASGNM-G---GACGYGNDVS-STYGLYTAAASTALYSEGLACGQCFQ-
VQCANSN----

-----ACIVGK--TVTVTVTNFCPNNWALPSNAGGWCNFPQR-HLDMSQPAFTQIAQ-----
YSAGIVPVQV-RRV

PCLRSG-SITFG--L--GGNTF-WL---QVNIRNVGGSGDISSVQVK-GSGA--WLTMDHEWGQNWS--
VD-AKLGGQSL

SFRLTTMTTGETLEVANAAPSSWQVGKTY-QA-GQF

>SpmEXP9 [x]

WN-----DA--HATFYGGADASGTM-G---GACGYGNLYS-SGYGTDTAASSALFNDGMSCGQCYQ-
LQCVGSS----

-----ACKPGM---ITVTVTNLCPNDFSKPSDAGGWCNYPRQ-HFDLSQPAYEKIGV-----
YGAGIVPIQY-RRV

PCLRTG-DIMFS--M--GGNPF-YL---DVTIKNVGGSGDLDAVWVK-GSSG-QWRQLSQNWGMQWS--
AD-IAVQGQAL

SFRLRSQTTGQILTVENAVPSSWKPGSTY-QA-GQF

>SpmEXP10 [ABF]

LVLADDTIDA--DTTYGGANAGGAQ-A---GACGYGNLFS-AGYGTSTAVSTPLWKGGAACGACYE-
LTCKPGTS---

-----GCYNTK---LVVTVTDQCP-----DGGEWCQPDKP-HFDLSQPVFAQLAQ-----ISLGHFPVMA-
RRV

SCPRSG-GVKVW--A--QGNSN-WL---LVKFMNVAGGGTINAAWVK-GSNS-DWIPMSFNWGVGYQ--
IT-GNIPQGPY

SFQLRDSYTGQVFTTDACLPSGWNVGQTYSCD-GNA

>SpmEXP11 [CBF]

WQ-----PFNMTATFYGGPNAENT--G---GACGYGDMFT-AGYGTSTVAASSMLFKDGQSCGACYQ-
VRCVNAV----

-----GCIKDT--YIQITVTNYCPPRT--DMSTPGWCDGDNM-HFDMSQPAFTQIAD-----
YSAGVVPVEV-MRV

PCTRDG-NIQWQ--V--GGNPN-WL---QLNIRNIAGDGDIAAISVK-GTNT-DWVTMTQSFGVTWQ--
AD-GMFQGQAL

SFRVTSLLTGKVLQVDDAVPAGWTVGSVY-TA-GQY

>SpmEXP12 [x]

WK-----TV--TATFYGGADASGNM-G---GACGYGNDVS-STYGLYTAAASTALYSEGLACGQCFQ-
VQCANSN----

-----ACIAGK--TVTVTVTNFCPNNWALPSNAGGWCNFPQRQ-HLDMSQPAFTQIAQ-----
YSAGIVPVQV-RRV

PCLRSG-SIAFG--L--GGNTF-WL---QVNIRNVGGSGDISSVQVK-GSGA--WLAMDHEWGQNWS--
VD-AKLGGQSL

SFRLTTMTTGETLEIDNAAPLSWQVGKTY-QA-GQF

Sequence Logo Alignment

>SpmEXP1 [ABF]

L--VLADDTID-ADTTY--GGANAGGAQ----A-GACGY-GNLFT-
AGYGTAITAVSTPLWKGGAACGACYELSCKP--

-----GTS----G-CYN-T--KLWTVTDQCP-----DGGWCQPDKP-HFDLSQPVFAQLAQ-I-----SL-
GHFPVTA-RRVTCPRTG-GVKVV--AQGN--SN-WL---LVKFMNVAGGGTVNAAW--VKGSN--S-D-WI-
--PMSFNW

GVGYQ-ITGN---IPQGPYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI

>SpmEXP2 [x]

W--N-----D-AHATFY--GGADASGTM----G-GACGY-GNLYS-
SGYGTDTAAASSALFNDGMSCGQCYQLQCVG--

-----SS----A-CKP-G--MITVTVTNLCPNDFSKPSD--AGGWCNYPRQ-HFDLSQPAYQKIGV-Y-----
GA-

GIVPIQY-RRVPCLRTG-DIMFS--MGGN--PF-YL---DVTIKNVGGSGDLSAVW--VKGNS----GQWR---
QLSQNW

GMQWS-ADIA---VQGQALSFRLLS--QTTGQILTVENAVPSSW--SPGSTYQAG----QF

>SpmEXP3 [x]

W--N-----D-AHATFY--GGADASGTM----G-GACGY-GNLYS-
SGYGTDTAAASSALFNDGMSCGQCYQLQCVS--

-----SS----V-CKP-G--MITVTVTNLCPNDFSKPSD--AGGWCNYPRQ-HFDLSQPAYEKIGV-Y-----
GA-

GIVPIQY-RRVPCLRTG-DIMFS--MGGN--PF-YL---DVTIKNVGGSGDLDAVW--VKGSS----GQWR---
QLSQNW

GMQWS-ADIA---VQGQALSFRLLS--QTTGQVLTVEDAVPSSW--SPGSTYQAG----QF

>SpmEXP4 [CBF]

WQPF-----N-MTATFY--GGPNAENT-----G-GACGY-GDMFT-
AGFGTSTVAASSMLFKDGQSCGACYQVRCVN--

-----AV----G-CIK-DA-YIQITVTNYCPRTDMSTP----GWCDGDNM-HFDMSQPAFTQIAE-Y-----
SA-

GVVPVEV-MRVPCTRGG-NIQWQ--VGGN--PN-WL---QLNVRNIAGDGDIAAIS--VKGTN--T-D-WV--
-TMTQSF

GVTWQ-ADGM---FQGQALSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYTAG----QY

>SpmEXP5 [x]

W--K-----T-VTASFY--GGADASGNM----G-GACGY-GNDVS-
STYGLYTAAASTALYSEGLACGQCFQVQCAN--

-----SK----A-CIA-GK-SVTVTVTNFCPNNWALPSN--AGGWCNFPQRQ-HLDMSQPAFTQIAQ-Y-----
-SA-

GIVPVQI-RRVPCLRSG-SIAFG--LGGN--TF-WL---QVNIRNVGGSGDISSVQ--VKGNG----A-WL---
TMDHEW

GQNWS-VDAK---LGGQSLSFRLTT--MTTGETLEIDNAAPSNW--QVGKTYQAG----QF

>SpmEXP6 [CBF]

WQPF-----N-MTATFY--GGPNAENT-----G-GACGY-GDMFT-
AGFGTSTVAASSMLFKDGQSCGACYQVRCVN--

-----AV----G-CIK--DTYIQITVTNYCPPTDMSTP----GWCDGDNM-HFDMSQPAFTQIAD-Y-----
SA-

GVVPVEV-MRVPCTRDG-NIQWQ--VGGN--PN-WL---QLNIRNIAGDGDIAAIS--VKGTN--T-D-WV---
TMTQSF

GVTWQ-ADGM---FQQQPLSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYTAG----QY

>SpmEXP7 [ABF]

L--GLADDTID-ADTTY--GGANAGGAQ----A-GACGY-GNLFS-
AGYGTSITAVSTPLWKGAACGACYELSCKP--

-----GTS----G-CYN-T--KLVVTVTDQCP-----DGGWCQPDKA-HFDLSQPVFAQLAQ-I-----SL-
GHFPVTA-RRVSCPRSG-GVKVW--AQGN--SN-WL---LVKFMNVAGGGTINAAW--VKGSN--S-D-WI--
-PMSFNW

GVGYE-ITGN---IPQGPYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI

>SpmEXP8 [x]

W--K-----T-VTASY--GGADASGNM-----G-GACGY-GNDVS-
STYGLYTAAASTALYSEGLACGQCFQVQCAN--

-----SN----A-CIV-GK-TVTVTNFCPNNWALPSN--AGGWCNFPQR-HLDMSQPAFTQIAQ-Y-----
-SA-

GIVPVQV-RRVPCLRSG-SITFG--LGGN--TF-WL---QVNIRNVGGSGDISSVQ--VKGSG----A-WL---
TMDHEW

GQNWS-VDAK---LGGQSLSFRLTT--MTTGETLEVANAAPSSW--QVGKTYQAG----QF

>SpmEXP9 [x]

W--N-----D-AHATFY--GGADASGMT-----G-GACGY-GNLYS-
SGYGTDTAAASSALFNDGMSCGQCYQLQCVG--

-----SS----A-CKP-G--MITVTVTNLCPNDFSKPSD--AGGWCNYPRQ-HFDLSQPAYEKIGV-Y-----
GA-

GIVPIQY-RRVPCLRTG-DIMFS--MGGN--PF-YL---DVTIKNVGGSGDLDAVW--VKGSS----GQWR---
QLSQNW

GMQWS-ADIA---VQGQALSFRLLRS--QTTGQILTVENAVPSSW--KPGSTYQAG----QF

>SpmEXP10 [ABF]

L--VLADDTID-ADTTY--GGANAGGAQ----A-GACGY-GNLFS-
AGYGTSTAVSTPLWKGAACGACYELTCKP--

-----GTS----G-CYN-T--KLWTVTDQCP-----DGGWCQPDKP-HFDLSQPVFAQLAQ-I-----SL-

GHFPVMA-RRVSCPRSG-GVKVV--AQGN--SN-WL---LVKFMNVAGGGTINAAW--VKGSN--S-D-WI-
--PMSFNW

GVGYQ-ITGN---IPQGPYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI

>SpmEXP11 [CBF]

WQPF-----N-MTATFY--GGPNAENT-----G-GACGY-GDMFT-
AGYGTSTVAASSMLFKDQGSCGACYQVRCVN--

-----AV----G-CIK--DTYIQTVTNYCPPTDMSTP----GWCDGDNM-HFDMSQPAFTQIAD-Y-----
SA-

GVVPVEV-MRVPCTRDG-NIQWQ--VGGN--PN-WL---QLNIRNIAGDGDIAAIS--VKGTN--T-D-WV---
TMTQSF

GVTWQ-ADGM---FQGQALSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYTAG----QY

>SpmEXP12 [x]

W--K-----T-VTATFY--GGADASGNM-----G-GACGY-GNDVS-
STYGLYTAAASTALYSEGLACGQCFQVQCAN--

-----SN----A-CIA-GK-TVTVTVTNFCPNNWALPSN--AGGWCNFPQR-HLDMSQPAFTQIAQ-Y-----
-SA-

GIVPVQV-RRVPCLRSG-SIAFG--LGGN--TF-WL---QVNIRNVGGSGDISSVQ--VKGSG----A-WL---
AMDHEW

GQNWS-VDK---LGGQSLSFRLTT--MTTGETLEIDNAAPLSW--QVGKTYQAG----QF

>CbEXP1 [x]

W--Q-----D-GRATYYGSEAFGGDNEH-----N-GACGY-GTLSA-
AFVGHNYAAASPVIFESGRACGGCFEVQCRG--

-----NGY----P-CRA-GT--ARVTVTDLCP-----PIPP-NLRHCAGGKA-HLDLGVRVFPPIAD-P-----RA-

GVVDIRF-RTVPCGRFN-AITFF--IRGN--VYGWL---SLVVMGVPASGRVVGME--VKASG--STN-WE---
ALRHDY

GAAYM-RTGR---PLRTPISVRLSI--FGKLCRMTAMNCIPTGF--KDRQKVSCSY-----

>CbEXP10 [H]

W--I-----N-GHSTFY-----DDFGR-----G-GACGY-GRIGS-
QLYRNRFAAGSPRVYLGGLACGMCMEVKCVN--

-----SPA-----CRP-GS--VRVTITDLCP-----PKYP-NLRWCTGGKI-HLDMARGAFPVIAN-P-----GA-
GHVPIQF-RSVPCAPFR-LLKFT--LRGN--RWGWL---EVTTLTIPGSGRVLRLEYAMKGGA-----WT---
GMSRAF

GAAWA-TKGK---FLRFPISIRIAV--FGKFCKLVAKDCIKGQF--WNGQQLSCSY-----

>CbEXP11 [x]

W--T-----EGATLTFY--GDANGGGTL----V-GACGY-GNLLA-
TPCKLMIAAGNPPMFEEFGCGRCWEIRCVG--

-----NP----G-CTA---TVTITMTHLCP-----CGSDTV-HFDMSQPAFHALASGPAEAEQLVTA
GKLQGQY-RRVLCDLGL-GKAFTAIVREATNPS-FL---SILMRDIPGAGDIKTAE-CAPGGG----STFS---
PMTQDF

GAMYN-FNGK----WTSPVSLGLTL--G-DGQILTGISCIPAAW--KPATTYTCKX-----

>CbEXP12 [H]

W--T-----G-GTATFY-----SGGR----G-GACGF-GGLGY-
AIYGERYAAASMKIWQNGAACGMCVEIKCMG--

-----PS----G-CYA-GK-IVKVTITDFCP-----NTHP-NLAHCGPEKN-HIDMGQNSFPVIAN-P-----RV-
GVINIQY-RVVPCNAYG-NFQVQ--INGN--QYGWL---SLLIAQIPGSGRVVGCE--VQGAG--MNY-WE--
-GLRRVW

GSNWM-RTGT---PLKTPIHVRLSL--LGQICKVTSRNCIPNGF--YFGQAVKCNL---RX

>CbEXP13 [H]

W--T-----S-GTATFY-----SGGS----G-GACGF-GGLGY-
AIYGERYAAASMRIWQNGAACGLCVEIRCTG--

-----PS----G-CYP-GK-VVKVTITDFCP-----NTPP-NLAHCGPDKN-HIDMGQNSFPVIAD-A-----
RV-

GVIDIEY-RTVSCTPYS-NFQVQ--INGN--QFGWL---SLLIAQIPGSGRVVGCE--VQGS--NDN-WE---
ALKRTW

GSNWV-RTGT---PLKAPIHVRLTL--WGQICKVTSHNCIPSGF--SFGQVVQCNL---EX

>CbEXP14 [H]

W--T-----A-GTATFY-----SGGR----G-GACGF-GGLGY-
AIYGERYAAASMKIWQNGAACGMCVEIKCMG--

-----PK----G-CYA-GK-VVKVTITDFCP-----NTPP-NLAHCGPEKN-HIDMGQNSFPVIAN-P-----KV-

GVINTQY-RVVP CNPYT-TFQVQ--VNGN--QFGWL---SLLIAQIPGSGRVVGCE--VQGTG--MNY-WE--
-GLKRTW

GSNWV-RTGK---PLKAPINVRLSL--LGQICKVTSRNCIPSGF--YFGQVVKCNL---RX

>CbEXP15 [x]

W--I-----S-GHATFY-----DDHGR-----G-GACGY-GRLGS-
ELFGGRYAAGSPRVYLGGMACGMCLEVKCVG--

-----VPA-----CKP-AT--VRVTITDLCP-----DRPP-NTQWCGGGKL-HLDMATAAFPVIAN-P-----RA-

GHVPIQF-RSVPCAPYK-MLKLH--LRGN--MFGWL---EVTALGIPGSGKVLKME--VAGSD----GSWV---
VMKRAF

GAAWA-VAGR---PMRSPISVRIAI--FGKLCKLVAKNCISGQN--FNGVDLSCAY-----

>CbEXP16 [H]

W--I-----N-AHATFY-----DDGGR-----G-GACGY-GSLGS-
QLFSNRFAAGSPAVYLGGLTCGMCVEVKCVE--

-----SPA-----CKA-GS--VRLTITDLCP-----PGAP-NTQWCGGGKR-HLDLAKGAFPVIAN-P-----GA-

GHVPIQF-RTVPCAPYN-VLTLN--LRGH--QW-WL---EVTAVGIPGSGRILRVE--VAGNG----SPWT---
VMKRAY

GAAWA-TAGS---TLRSPISVRVSI--FGNLCKLTARDCIKGPI--YNGRKVTCGY-----

>CbEXP17 [H]

W--I-----N-AHATFY-----DDGGR-----G-GACGY-GSLGS-
QLFSNRFAAGSPAVYLGGLTCGMCVEVKCVG--

-----SR----A-CKA-G--SVRVTITDLCP-----PGAP-NTQWCGGGKQRHLDLAKGAFPVVAN-P-----
GA-

GHVPIQF-RTVPCAPYK-VLTLN--LRGH--QW-WL---EVTAVGIPGSGRILRVE--VAGNG----SPWR---
VMKRAY

GAAWA-TAGS---ALRSPISVRISI--FGNLCKLTARDCIKGPI--YNGRKVT-----

>CbEXP18 [H]

W--I-----N-AHATFY-----DNGGR-----G-GACGY-GSLGS-
QLFSNRFAAGSPAVYLGGLTCGMCVEVKCVG--

-----SR----A-CKA-GS--VRVTITDLCP-----PGAP-NTQWCGGGKR-HLDLAKGAFPVIAN-P-----
GA-

GHVPIQF-RTVPCAPYK-VLTLN--LRGH--QW-WL---EVTAVGIPGSGRILRVE--VAGNG----SPWR---
VMKRAY

GAAWA-TAGS---TLRSPISVRISI--FGNLCKLTARDCIKGPI--YNGRKVTCGY-----

>CbEXP19 [F]

W--R-----G-GTATCY-----TGGR----G-GACGF-SGALA-
LIYGQSYAAVSTRLWENGKVCQGQCYEVRVCG--

-----S-G----G-CRR-GS--VKVTVTDFCP-----DTQA-NRRHCGATKQ-HIDLGRNAFPVIAN-P-----SV-
GVINVQF-RTVPCAAYH-LLRIS--VRGN--RNGWLSKGLFLTNNENRKADRVFAVE--VKGRY--RNY-WE--
-RMTRTW

GATYD-RRGR---PLVGPISVRVSL--FARFCKVVATNCIPAKW--YSGSTYHC-----TF

>CbEXP2 [H]

W--I-----N-GHSTFY-----DDHGR-----G-GACGY-GALGS-
QLYGTRFAAGSPRVYLGLACGMCLEVRVCG--

-----SR----A-CRR---SSVRLTITDLCP-----PGYP-NTQWCGGGKL-HLDIGKDAFPIIAD-P-----RA-
GHVPIQF-RSVPCAPYK-VLKLN--LRGH--RW-WL---EVTALAIPGSGRVLKME--VAGKG----GRWV---
SMKRAF

GAAWS-TAGS---TLQTPISVRISI--FGKLCKLIAKDCINGQI--YNGRQLSCAY-----

>CbEXP20 [B]

W-----S---AVLY--ICISA-----G-GACGY-GPTLS--QYGPYLTALSVSLYQTGLACGGCFEVKCVD--
-----SP----H-CNS-GK-VVKVTAVDECP-----EGGYCVTGKM-HFDLSQPAFKTIGN-Q-----QA-
GVIPILWRRRRVQCERNG-AIELH--MQGG--PY-WL---SILVKNTGGDGGVKSQV--VKPSD--KNE-WY--
-QMTHVW

GQKWD-LAGPMMPLKG-PLSIKLIS--LYSGQVATGWNCISQQW--QSGQTYFISQ---QF

>CbEXP21 [AB]

W--S-----T-GRATFY--GAPDGSGLD----G-GNCGF-GPLAN--
SYGRYVA AISISLYQNGKGC GG CYEVKCVD--

-----SQ----W-C-T-GK-SVIISATDQCP-----DGGYCDNNQA-HFDMSHPAFEMIAQ-K-----IA-
GVIPVSW-RRVPCVRTG-PIQFV--INGN--PF-WF---TIMPKNVAGAGDVKSVE--VQIGG----R-WV---
PMIQLW

GQNWL-LSGMG--QVNGAISVRVTT--LLTGEVITVPNVIPSGW--KSGTPYTSGMV--NF

>CbEXP22 [x]

W--I-----N-GQATFY-----DDHGR-----G-GACGY-GSLGS-
QLFGGRYAAGSPRVYLGLACGMCFEVKCVR--

-----ST----A-CKA-GS--VRVTITDLCP-----PRAP-NSRWCGGGKL-HLDMGRQAFPVIAN-P-----
RA-

GAVPIQF-RSIPCAPYK-VLKLH--LRGS--RF-WL---EVTALAIPGSGRILKME--VAAAG----GKWV---
AMKRAF

GAAWA-VTGQ---PMRTPISVKISI--FGKLCKLIARNCIKGQS--FNGQNLNCGY-----

>CbEXP3 [H]

W--I-----S-GHSTFY-----DDHGR-----G-GACGY-GALGS-
QLYGTRFAAGSPRVYLGGACGMCLEVRGCVG--

-----SR----A-CRR---SSVRLTITDLCP-----PGYP-NTQWCGGGKL-HLDIGKDAFPIAD-P-----RA-
GHVPIQF-RSVPCAPYK-VLKLN--LRGH--RW-WL---EVTALAIPGSGRVLKME--VAGKG----GRWV---
SLKRAF

GAAWS-TAGS---TLQTPISVRISI--FGKFCKLIAKDCIKGQI--YNGRQLSCAY-----

>CbEXP4 [H]

W--I-----N-GHSTFY-----DDYGR-----G-GACGY-GRLGS-
QLYGTRFAAGSPRVYLGGACGMCLEVRGCVG--

-----SR----A-CRR---SSVRLTITDLCP-----PGYP-NTQWC---QI-HLDIGKNAFPVIAD-P-----RA-
GHVPIQF-RTVPCAPYK-VLKLS--LRGH--RW-WL---EVTALAIPGSGRVLKME--VAGRG----GRWV---
SLKRAF

GAAWA-TAGA---TLQTPISVRISI--FGKLCKLIAKDCIKGQI--YNGRQLSCAY----F

>CbEXP5 [H]

W--L-----N-GHSTFY-----DDYGR-----G-GACGY-GALGG-
QLFGTRFAAGSPSVYLGGACGMCLEVRGCVG--

-----STA-----CRR---SSVRLTITDLCP-----PGYP-NTQWCGGGKL-HLDIGKDAFPIAD-P-----RA-
GHVPIQF-RSVPCAPYK-VLKLN--LRGH--RW-WL---EVTALAIPGSGRVLKME--VAGKG----GPWV---
SMTRAF

GAAWS-TAGS---TLQTPISVRISI--FGKLCKLIAKDCIDGQI--YNGRQLSCAY-----

>CbEXP6 [H]

W--I-----N-GHSTFY-----DDHGR-----G-GACGY-GPLGS-
QLFANRFAAGSPRVYLGGACGMCLEVRGCVG--

-----SR----A-CRR---SSVRLTVTDLCP-----PGYP-NTQWCGGGKL-HLDISKNAFPPIAD-P-----RA-
GHVPIQF-RSVPCAPYR-ILRLN--LRGH--MW-WL---EVTALAIPGSGRILRME--VAGRG----GRWR---
SMKRSF

GAAWS-TTGA---SLRLPISVRISI--LGKFCKLIARDCIKGQI--YNGKQLSCRY-----

>CbEXP7 [H]

W--L-----S-GKATFY-----SGGDQ----G-NACGY-GRLTG-
AIFGRNFAAVSPRIYLGGLACGMCLEVKCVG--

-----HP----G-CRR-GV--ARVTVDLCP-----ARPP-NMAFCAGGKL-HLDLGRDVPVICN-P-----
RV-

GVAPIRF-RAVPCARYR-TLNII--LNGN--RYGYM---AIVMSIPGSGRVIRMD--VRGRG--GRN-WE---
PLRRDW

GATFM-RTGR---PLRYPVSIRVSI--LGKLCRLIARNCIKGQF--FNGRKLSCSY-----

>CbEXP8 [AB]

W--T-----EGATLTFY--GDANGGGTL----A-GACGY-GNLLA-
TPYKLMIAAGNPPMFEEGLGCGRCWEIRCVG--

-----NP----G-CTA---TVTITMTDLCPE-----CGSDGV-HFDMSQPAFHALASGPAAEQLVTA
GKLQGQY-RRVPCDLGL-GKAFTAIVRAATNPS-FL---SILMRDIPGAGDIKTAE-CAPGGG----STFS---
PMTQDF

GAMYN-FNGK----WTSPVSLRLTL--G-DGQILTGISCIPAAW--KPTTTYTCK-----

>CbEXP9 [H]

W--Q-----S-GTGTFY-----SGGH----G-GACGF-AGLGY-
SIFAENYVAVSTALWNSGAACGTCLEVRCKG--

-----PSS----A-CIA-GA-TIKVTVTDFCP-----NTYP-NLAHCGTDKH-HLDLGENVFPKIAA-R-----SV-
GVIDLEY-RRVPCVQAP-SITVS--VEGN--QYGYL---ALNLMRLPGAGTVAQLE--IKGAN----GAYE---
QCRRDW

GNTFV-RTGK---PIEAPLSLRVSV--G-GICTFEAKDCIKSL---NFGSSVTCSY-----

>CpEXPA1 [AB]

WIGG-----N-AHATYY--GGVDASGTQ----G-GACGY-GNLYS-
TGYGTNTAALSSALFNSGLTCGACYELQCDS--

-----TGSK----Y-CLP-GNPSITITATNYCP-----QNS--LGGWCDAPRQ-HFDLAHPMFVSLAQ-E-----
GG-

GVIPVNY-RRVPCVKKG-GMRFQ--LNGN--PW-FV---LVLVTNVGGAGDVQQLY--IKGDK--T-G-WY---
PMKRNW

GQMWWQ-LTGNSN-MPGQALSFRAVL--S-DGTNVESMDVAPANW--RFSQLFE-GS---QA

>CpEXPA2 [X]

---S-----GTGHITFY--GTPNGGGQA----SRGACGY-QNTYA-
LGYGSM TAALSSPLYQGG AACGACFQLTCMR--

-----IREKTAKNW-CWS-YRSITVTATNLCP-----PGS--RDGWCNPPRN-HFDLPYPAYLSLAK-R-----
EG-

GVAPVTW-RRVPCRKRK-GIRFT--VGGN--PW-FF---MILIHNVGGAGDVRSVK--IGCPY--T-G-WV---
PMYRNW

GALWT-VRRQ---MRGQ-LSFLITT--S-DGRSVVARN AVGKYW--KFGQ TWECGA---QF

>CpEXPA3 [X]

SG-T-----GHITFY--GTPNGGGQA----SRGACGY-QNTYA-
LGYGSM TAALSSPLYQGG AACGACFQLTCMR--

-----IREKTAKNW-CWS-YRSITVTATNLCP-----PGS--RDGWCNPPRN-HFDLPYPAYLSLAK-R-----
EG-

GVAPVTW-RRVPCRKRK-GIRFT--VGGN--PW-FF---MILIHNVGGAGDVRSVK--IGCPY--T-G-WV---
PMYRNW

GALWT-VRRQ---MRGQ-LSFLITT--S-DGRSVVARN AVGKYW--KFGQ TWECGA---QF

>CpEXPA4 [AB]

W--G-----K-GKCTFY--GGMDAAGTM----S-GACGY-GNLYA-
SGYGAYTAALSSALFKNGMACGACYEVACSG--

-----NAK----S-CKR-G--SVLVTITNFCPPNPGRSAN--NGGWCNGANQ-HFDLSYPAFAKIAD-P-----
-KA-

GVVDLNY-RRVPCQKKK-GIRFT--LNGN--CN-FN---IVTITNVGGSGVVTQAY--MKGDG--M-D-WA---
PMTRNW

GANWQ-CSRN---YCGKGISIKIVT----SDKKVSVSRLADKTW--AFGKTYI-GQ---QV

>CpEXPA5 [AB]

W--N-----S-AHATYY--GGADASGTQGERRG-GACGF-GNLYS-
TGYGTSTAALSQALFNSGLTCGACFELACDS--

-----SGSK----Y-CE--GAPSVVVTATNFCP-----SGS--NGGWCDQPKQ-HFDLAMPVFDKIAQ-E-----
VG-

GVIPVKY-RRVPCQKKK-GMRFT--INGN--PY-FI---LVLVTNVAGAGDVQQIS--IKGDN--T-D-WF---
AMKRNW

GQQWQ-FSGNSA-LVGQALSFKVVT--S-DGAVATSMNAAPANW--QFSQTFE-GV---NY

>CpEXPA6 [B]

W-RG-----G-GHITFY--GGPNGAGTQ----A-GACGY-QNTYK-
LGYGSM TAALSSPLFQGG AACGACFQLRCAP-V

RRSRT--ARN----W-CYS-YAKTITVTATNLCP-----SGS--TGGWCNPPRA-HFDLPMPAFLTLAR-R-----
EG-

GVAPV FY-RRVRC AKRG-GIRFT--IGGN--PW-FL---MVL IHN VGGAGDVRSVR--IKGQY--T-G-WY---
PMYRNW

GALWT-VR TK---LSG-ALTF AVTT----SDRRTVITRSVGGNW--RFGQ TWEGA-----NF

>CpEXPA7 [B]

W--K-----GGAHITFY--GSPNGGGTQ----A-GACGY-QNTYK-
LGYGSM TAALSSPLFRGGSACGACYQIRCAP-V

RRTRT--ARN----W-CYS-YARTITITATNLCP-----PGS--TGGWCNPPRA-HFDLPMPAFLTLAR-R-----
EG-

GVAPVYY-RKVRC AKRG-GIRFT--IGGN--PW-FL---MVL IHN VGGAGDMRSVR--VKGQY--T-N-WY---
PMYRNW

GALWT-VR TK---LSG-ALSFAVTT--S-NGRTV VARNVVGKWW--KFGQ TWEART---NF

>CpEXPA8 [X]

W--G-----Y-AHITFY--GTPNGGGQA----SRGACGY-QNTYA-
LGYGAM TAALSSPLYKGG AACGACFELKCIR--

-----IRESRSAKNW-CWS-YRSITITATNLCP-----PGS--TGGWCNPPKH-HFDLSYPAYATLAR-R-----
EG-

GVAPVNY-RRVPCR KRG-GVRFT--VGGN--PW-FF---MIL IHN IAGAGDVRSVK--IMCPY--T-G-WV---
PMYRNW

GALWT-VR KQ---MRG-PLSFAITT--S-DGRTIISRNAVGNYW--KFGQ TWEGRA---QF

>CpEXPA9 [AB]

W--N-----T-AHATFY--GGSDAGGTE----G-GACGY-GDLYS-
SGYDTNTVAISSALFDRGLACGACYQVKCAG--

-----KASE-----CHP-DSPSIQVTVTNFCPPNPSLPDN--NGGWCNLPLH-HFDMSEPAFQRIAT-Y-----
-KS-

AIVPVMY-RRTACMKSG-GIRFT--MSGH--NF-MN---LVLVTNVGGMGDVQSVY--IRGSK--T-K-WV---
AMARNF

GQIWQ-STVN---MSGQSLSFMVTT--S-DGQTVVSNEVAPPDW--AFGQTYE-GS---QF

>CpEXPA10 [AB]

W--R-----K-AHATFY--GGADASGTM----G-GACGY-GNLHS-
TGYGLDTTALSTALFNNGAKCGACFAIQCYR--

-----SK----Y-CLP-GTPIITVTATNFCPPNRQGDG---TPGWCNPPLR-HFDLAQPSFVKVAK-Y-----
RA-

GIVPVLF-RRVPCQKKG-GVRFT--LNGN--KY-FN---LVLVHNVGGKGDVRSVD--IKGSD----TEWM---
PMKRNW

GMNWQ-THTV---MVGKALSFRVTT--S-DGVTVTSM DAAPPQW--RFGQTFE-GA---QF

>CpEXPA11 [AB]

W--S-----P-AHATFY--GGADASGTQ----G-GACGY-ENLYN-
QGYGINTAAVSAPLFNDGAGCGACFELVCDS--

-----SQSD----Y-CYS-NASSIIVTTTNFCP--KAPEGT--ENAWCDPPRI-HFDLSEPIFLTFAQ-K-----VA-

GIVPVNY-RRVPCLKDG-GIKFT--INGH--KY-FF---LVLVTNVAGAGDIQELY--IKASN--T-D-WQ---
PLTRNW

GDNWE-LNQNTLN FVGQALSFKAVA--S-DKSEVVSMNVTPVDW--EFSQTFE-GS---NF

>CpEXPA12 [A]

WTSG-----Q-AHATYY--GGADAAGTQ----G-GACGF-GNLWS-
TGYGDTAALSAALFNSGLSCGACYELKCDT--

-----AGSK----Y-CLP-GNPSITVTATNYCP-----QGS--EGGWCDTPKQ-HFDLAHPAFTKLAH-E-----
GG-

GVFPVVY-RRVPCAKQG-GMRFQ--INGN--PW-FL---LVLVTNVGGAGDVQQLQ--VKGER--T-G-WY--
-QMRNW

GQMWQ-FTGDHT-LPGQALSFRATL--S-DGSVVESWNCAPKNW--GFQQVFE-GT---PA

>CpEXPA13 [X]

W-RD-----D-GHITYY--GSPNGHGTQ----G-GACGY-QNTFS-
LGYDHLTAALSTPLFQGGAACGACYELRCKF--

-----IKESKTAKNW-CWN-YRSITSTATNLCP-----PGS--TGGWCDPPRN-HFDLPMPAFTLAR-Q-----
-NG-

GVAPVHY-RRVPCQKKG-GIQFT--IGGN--PW-FY---MILIHNVAGAGDVVRVQ--IKSPT--T-G-WT---
PMYRNW

GALWT-VRKQ---LKG-ALSFQITT--S-DGRVVVTHNAVGHGW--RFGQTWE-GA---QY

>CpEXPA14 [AB]

L--G-----R-AHATYY--GGPDGQGTM----G-GACGY-GNLYN-
TGYGLSTAALSAPLYNGGRACGACYRLTCDT--

-----SGSK----Y-CYG-GGKSITITVTNFCP-----SGS--TGGWCNPPKQ-HFDLSYPMFTTLAQ-A-----
AG-

GVIPVNY-RRVACNKKG-GMRFT--ISGN--PY-FY---QVLVFNVGGAGDVQRLF--MKGPR--T-G-WI---
AMKRNW

GQVWQ-YRGGPKGLVGQPLSFRAHT--S-DGRYVISPNATPANW--RFGQTFE-GK---NF

>CpEXPA15 [AB]

W--G-----Y-AHATYY--GGADASGTQ----G-GACGF-GNLYS-
TGYGTNTAALSAALFNTGLSCGSCYELACDP--

-----NGSK----Y-CLP-GGRTVTVTATNFCP-----HGS--LGGWCDSPKQ-HFDLAHPMFVSLAK-E-----
VG-

GVIPIKY-RRVPCIKSG-GMRFT--LNGN--PW-FI---LVLVTNVAGAGDVQQLY--IKGSR--T-Q-WE---
RMSRNW

GSMWQ-FTGNSN-MKGQALSFKAIT--S-DGSVAISTDAAPGNW--QFGQTFE-GS---NF

>CpEXPA16 [AB]

W--D-----N-GHATFY--GGDNGAGTM----G-GACGY-GNLYN-
TGYGLKTAALSAPLFNGGRACGACYQLTCVT--

-----SGTK----Y-CYG-GGKSITITATNFCP-----TGS--TGGWCNPPKK-HFDLSYPMFAVLAK-K-----VG-

GVIPVNF-QRVPCSRKG-GMRFT--INGN--PY-FF---LVMVYNVAGAGDVQRLF--IKGPS--T-G-WF---
EMKRNW

GQVWQ-YNGGPKGMVGQALSFRIT--S-DGRQVISTNAAPGNW--RFGQTFE-GR---NX

>CpEXPA17 [AB]

W--G-----Q-AHATYY--GGADASGTQ----G-GACGF-GNLYN-
TGYGTNTAALSAALFNSGLSCGACYELTCDP--

-----SGSQ----Y-CLP-GG-SAITATNFCP-----TGS--NGGWCNTPKQ-HFDLAQPVFSKIAR-T-----VG-

GVIPINY-RRVSCSKSG-GMRFT--INGN--PY-FL---LVLVTNVGGAGDVQQLY--IKGAS--T-N-WL---
PLKRNW

GQMWWQ-FTGNSG-MHGQAISFAVT--G-DGATAVSDNVAPPNW--GFGQTFE-GA---NF

>CpEXPA18 [B]

W-RT-----D-GHITFY--GSPNGGGTQ----A-GACGY-QNTYA-
LGYGSMTAALSTALFQGGAAACGGCFEIKCIP--

--PRS--GKN----W-CFS-YAKSIIVTATNLCP-----PGS--TGGWCNPPRA-HFDLPMPAFLTLAQ-K-----
TG-

GVAPVAF-RRVRCLKKG-GVRFT--VGGN--PY-FL---MVLISNVGGVGDIRSVM--IKGSY--T-N-WI---
PMYRNW

GSLWT-VRSK---ITG-ALSFLITL--S-DGSTLPCTNAVQANF--RFGQTWEARA---NL

>CpEXPA19 [X]

W-KD-----D-GHITFY--GSPNGGGTQ----A-GACGY-QNTYK-
LGYGSMTAALSTPLFQGGACGACFELRCKF--

-----IRETKSAKNW-CYN-YSRSIITATNLCP-----PGS--TGGWCDPPRK-HFDLPMPAFETLAK-R-----
VG-

GVAPVYH-RRVPCQKKG-GIRFT--MAGN--PW-FF---MILIHNVGGAGDVVAVK--IKDPS--S-A-WA---
PMYRNW

GAIWT-VRKQ---MKG-ALSFQITT--G-DGRTVTTNNAVGNGW--KFGQTWEAQM--RF

>CpEXPA20 [X]

W--K-----DDGHITFY--GSPNGGGTQ----G-GACGY-QNTVS-
LGYGYMTAALSTTLFQGGAACGACFELKCKF--

-----IKETNSAKNW-CYS-YKSIVITATNLCP-----PGS--TGGWCNPPRH-HFDLPMPAFNTLAK-Q-----
VG-

GVAPVLF-RRVPCQRKG-GIRFT--VGGN--PW-FF---MILIHNVGGAGDITKVM--IKCPY--T-P-WY---
PMYRNW

GSLWT-VRTQ---MRG-SLSFQITT--S-DGRTVTTNNAVGNGW--KFGQTWE-GA-QMTY

>CpEXPA21 [B]

W-RN-----D-GHITFY--GSPNGGGTQ----A-GACGY-QNTYA-
LGYGSMTAALSSSLFQGGAACGACFQLQCIR--

----ANRGKN---W-CYS-YARTITVTATNLCP-----PGS--TGGWCNPPRA-HFDLPMPAFLTLAQ-R-----
VG-

GVAPVRF-RRVRCAKRG-GVRFT--IGGN--PW-FM---MILIHNVGGAGDIRAVQ--IKGPR--T-G-WV---
PMYRNW

GALWT-CRTK---ISG-ALTFRITT--S-DGRTLVT-GGPGNSW--RFGQTWE-GR---NY

>CpEXPA22 [X]

W-RD-----D-GHITYY--GSPNGHGTQ----G-GACGY-QNTFS-
LGYDHLTAALSTPLFQGGAACGACYELRCKF--

-----IKESKTAKNX-CWN-YRSITSTATNLCP-----PGS--TGGWCDPPRN-HFDLPMPAFLTLAR-Q-----
NG-

GVAPVHY-RRVPCQKKG-GIQFT--IGGN--PW-FY---MILIHNVAGAGDVVRVQ--IKSPT--T-G-WT---
PMYRNW

GALWT-VRKQ---LKG-ALSFQITT--S-DGRVVVTHNAVGHGW--RFGQWEGA----QY

>PpEXPA1PRO

W--R-----K-AHATFY--GGADASGTM----G-GACGY-GNLYS-
TGYGVDSTALSTALFNNGAKCGACFAIQCYR--

-----SQ----Y-CVP-GSPVITVTATNFCPPNHKGDG---TPGWCNPPMR-HFDLAQPSFTKIAK-Y-----
RA-

GIVPVL-RRVPCEKKG-GVRFT--INGN--KY-FN---LVLVHNVGGKGDVHAVD--IKGSN----TEWI---
PMKRNW

GMNWQ-TDAV---MTGQALSFRVTT--S-DGKTIVSMNATPSHW--SFGQTFEGG----QF

>PpEXPA2PRO

W--K-----E-AHITYY--GTANGGGTQ----G-GACGY-PNTFA-
MGYGVMTAALSYPFLQGGKSCGACYQLKCKW-L

APTRT--VHN----W-CWS-YSRTITITATNSCP-----PGS--HGGWCDW-KP-HFDLPMPAFMTLAR-R-----
-EG-

GVAPVYY-RKVRCAKRG-GIRFT--LGGN--PY-FM---MILIHNVGGAGDLRAVK--IKGRN----GYWV---
PMWQNW

GALWT-CKTK---LSG-ALSFQITT--G-DGRTVTVNRAVGDIW--KFGQTWE-GS---QF

>PpEXPA3PRO

WISG-----V-AHATFY--GGVDAQGTQ----G-GACGY-GNLYS-
TGYGTSTALSSALFNAGLSCGACFELKCDS--

-----ANSK----Y-CLP-GDKSITVTATNYCP-----QGS--DGGWCDSPKQ-HFDLSHPMFTSLAQ-E-----
VG-

GVIPVTY-RRAPCAKKG-GMRFT--INGN--PW-FV---MILVTNCGGAGDVQQLQ--IRGSD--T-P-WY---
PCVRNW

GQMWWQ-MTSDPN-LPGKALSFRATL--S-DGSVAESLNAAPSNW--GWGQTFEGVA---TY

>PpEXPA4PRO

W--K-----D-AHITYY--GSPNGGGTQ----G-GACGY-QNTYA-
LGYSFTAALSAPLFQGGACGGCYQLKCAP-V

RETRT--VHN----W-CWS-YSRSIVVTATNLCP-----PGS--HGGWCAW-RP-HFDLPMPAFTSLAK-Q-----
--VG-

GVAPVFY-RRVRCAKRG-GVRFT--IGGN--PY-FL---MVLHNVGGAGDIRSVR--IKGQY--S-G-WV---
TMFRNW

GSLWT-CRTK---LSG-PLSFMITT--S-DGRTLVS NRAVGSWW--KFGQTWE-GS---QF

>PpEXPA5PRO

W--G-----R-AHATFY--GGADASGTQ----G-GACGY-GNLYS-
TGYGTNTAALSSSLFNSGLSCGACYELTCDP--

-----SCSQ----Y-CLP-GG-SAITATNFCP-----TGS--NGGWCNPPKQ-HFDLAQPVFSKIAR-T-----VG-

GVIPINY-RRVPCSKSG-GMRFT--VNGN--PY-FL---LVLVTNVGGAGDVQQLY--IKGAS--T-G-WL---
PLKRNW

GQMWQ-FTGNSG-MHGQAISFKAVT--S-DGAEAISPNVAPANW--GFGQTFE-GS---NF

>PpEXPA6PRO

W--R-----N-ARSTFY--GGMDAAGTM----S-GACGY-GNLYA-
SGYGVHTTALSSALFKNGMACGACFEVQCGG--

--KG-----K---P-CKP-G--SVVVTATNFCPPNPGQSAN--NGGWCNPPNE-HFDLSYPAFVKIAD-P-----
-KA-

GAVPLQY-RRVPCQKQG-GIRFT--INGN--CN-FI---LVTITNVGGSGVTAAY--LKGDK--T-E-WS---
PLSRNW

GANWQ-CRRN---YCGQGISI KIVT----SDNKVSVTKLAKSDW--CFGKTFI-GK---QV

>PpEXPA7PRO

W--G-----Y-AHATYY--XGADASGTQ----GGGACGF-GNLYS-
TGYGTNTAALSAALFNSGLSCGSCYELACDP--

-----NGSK----Y-CLP-GGPTVTVTATNFCP-----HGS--LGGWCDAPKQ-HFDLAHPMFVSLAR-E-----
VG-

GVIPIKY-RRVPCVKSG-GMRFT--INGN--PW-FL---LVLVTNVAGAGDVQHMY--IKGSN--T-P-WE---
PMSRNW

GSMWQ-FTGDSK-MKGQALSFKAVT--S-DGSVAVSMDAAPGNW--QFGQTFE-GV---NF

>PpEXPA8PRO

W--N-----E-AHATFY--GGSDAGGTTGTR-G-GACGY-GDLYS-
TGYGTSTVAISSALFDRGLACGACYQVKCAG--

-----SSS-----E-CRS-DSPAIVTNTNFCPPNPSPLED--NGGWCNLPLH-HFDMSMPAFEQIAT-Y-----
-KA-

GIVPVMY-RRTSCVRTG-GIHFT--MSGH--NF-MN---LVLVTNVGGMGDVQSVS--IRGSK--T-S-WV---
TMTRNF

GQIWQ-STVN---MSGQSLSMVTT--S-DGKTVSNNVAPPDW--AFGQTYEGS----QF

>PpEXPA9PRO

W--T-----D-AHATFY--GGADASGTQGGCAG-GACGF-GNLYS-
TGYGTNTAALSQALFNSGLTCGACFELVCDS--

-----SGSR----Y-CVT--SSSVVVTATNFCP-----TGS--TGGWCDYPRQ-HFDLSQPVFTRIAQ-P-----
VG-

GVVTLKY-RRVRCQKSG-GIRFT--ITGN--PY-FI---LVLVTNVGGAGDVQQLY--IKGSS--T-G-WN---
AMSRNW

GQLWEIRNAA---LMGQALSFRVVT--S-DRAEVASFDAVPANW--AFSQTFE-GS---NF

>PpEXPA10PRO

WVSG-----R-AHATFY--GGADASGTQ----G-GACGY-GNLYS-
TGYGTSTAALSSALFNSGLSCGACYELTCDT--

-----SGSK----Y-CLP-GNPSIILTATNYCP-----QNS--NGGWCDAPKQ-HFDLAHPMFVSLAE-E-----
RG-

GVIPVNY-RRVPCAKKG-GMRFQ--MNGN--PW-FL---LVLVTNVGGAGDVQQLS--IKGSN--S-G-WY--
-QMKRNW

GQMWQ-LTGNSN-MPGQALSFRAVL--S-DGTTVESLDAAPANW--HFGQMFE-GS---QA

>PpEXPA11PRO

W--G-----R-AHATYY--GGADASGTQ----G-GACGF-GNLYS-
SGYGTDTAALSSALFNSGLSCGACYELTCDP--

-----SGSK----F-CIP-GG-SAITVTNFCP-----TGS--NGGWCNPPKQ-HFDLAQPVFRKIAR-T-----VG-
GVVPINY-RRVSCLKDG-GMRFT--VNGN--PY-FL---LVLVTNVGGAGDVQQLY--MKGSS--T-N-WQ---
PLKRNW

GQMWQ-FTGNSR-MHGQAISFAVT--S-DGSVAVSNNVAPPNW--GFGQTF-----

>PpEXPA12PRO

W--N-----D-AHATYY--GGADAS-----G-GACGF-GNLYS-
TGYGTSTAALSQALFNSGLTCGACFELACDP--

-----SGSK----Y-CYK-GS-SIVVTATNFCP-----SGS--EGGWCDSPKQ-HFDLSQPVFNKIAQ-Q-----
AG-

GVIPVKY-RRVPCRKSG-GMRFT--INGN--PY-FI---LVLVTNVGGAGDVQQLS--LKGSS--T-G-WY---
TMSRNW

GQQWE-FRGNSA-LVGQALSFRVVT--S-DGAEAVSYDAASENW--SFSQTFE-GI---NF

>PpEXPA13PRO

W--N-----E-ARATFY--GGSDAGGTT----G-GACGY-GDLYS-
TGYGTNTVATSSAIFDRGLACGACYQVKCAG--

-----SASE-----CQP-GTPAIQVTVTNFCPPNPSLPEG--NGGWCNLPLH-HFDMAMPAFQQIAS-Y----
--RV-

GIVPILY-RRASCVRTG-GIRFT--MSGH--KF-MN---LVLVTNVGGMGDVQTVF--IQGSK--T-K-LV---
AMIRNF

GQIWQ-SSVN---VSGQRLSFMVMT--S-DGESVVS RN VAPSDW--AYGQTYE-GS---QF

>PpEXPA14PRO

W--D-----K-GHATYY--GEGDARGTM----G-GACGY-SNLYS-
TGYGVNTAALSGPLFNGGATCGACYELTCIL--

-----NESK----W-CYR-GK-NIIVTATNFCP-----SGS--TGGWCNPPQK-HFDLSEPMFTTLAN-R-----
VG-

GVIPVNF-RRVACYKQG-GMRFT--INGN--PY-FF---IVLVYNVAGAGDVQQVY--IKGPK--T-Q-WL---
QMYRNW

GSQWT-FNGGPNIVGSALSFRVHT--S-DGRQVISYXAAPANW--WFGXTFSSGA---N-

>PpEXPA15PRO

W--G-----Y-AHATYY--GGADASGTQ----GGGACGF-GNLYS-
TGYGTNTAALSAALFNSGLSCGSCYELACDP--

-----NGSK----Y-CLP-GGRTVTVTATNFCP-----HGS--LGGWC DSPKQ-HFDLAHPMFVTLAK-E-----
VG-

GVIPIKF-RRVPCVKSG-GMHFT--INGN--PW-FL---LVLVTNVAGAGDLQQVY--IKGSN--T-P-WE---
PMSRNW

GSMWQ-FTGNSK-MKGQALSFKTIT--S-DGAVAISYDAAPNNW--QFGQTFE-GV---NF

>PpEXPA16PRO

W--D-----T-AHATYY--GGRDAGGTM----G-GACGY-GNLYN-
TGYGVKTAALSAPLFKGGATCGACYELTCIL--

-----SQSK----Y-CYQ-NK-KILITATNFCP-----TGS--TGGWCNPPRK-HFDLSEPMFTTLAN-R-----VG-

GVIPVNF-RRVHCYKKG-GMRFT--INGN--PY-HM---MVLVYNVAGAGDVQQMF--IKSPT--T-G-WL---
QMSRNW

GQIWT-YKGGPRNIVGFALSFRVYT--S-DRRQVVS YNAAPANW--RFGQTFSSGA----N

>PpEXPA17PRO

W--G-----R-AHATYY--GGADASGTQ----G-GACGF-GNLYS-
SGYGTSTAALSSSLFNSGLSCGACYELTCDP--

-----SGSQ----Y-CLP-GG-SAITVTNFCP-----TGS--NGGWCNPPRQ-HFDLAQPVFSKIAR-T-----
VG-

GVIPINY-RRVSCLKSG-GMRFT--VNGN--PY-FL---LVLVTNVGGAGDVQQLY--IKGSS--T-A-WL---
PLKRNW

GQMWWQ-FTGNSG-MHGQAISFKAVT--S-DGAEAISNNVASSNW--GFGQTFE-GS---NF

>PpEXPA18PRO

W--N-----E-AHITYY--GTANGGGTQ----G-GACGY-PNTFA-
MGYGAMTAALSYPLFQGGKACGGCYQLRCKW-V

TPTRT--VHN----W-CWS-YSRTITVTATNSCP-----PGS--HGGWCNW-RP-HFDLPMPAFTLAR-R-----
-EG-

GVAPVYY-RKVRXAKRG-GIRFT--IGGN--PY-FL---MILIHNVGGAGDLKAVK--VRGGN----GYWV---
PMWRNW

GALWT-CKTR---MSG-ALSFQITT--G-DGRTLTTYKAVGGYW--RFGQTWECS-----QF

>PpEXPA19PRO

W--G-----D-AHITYY--GSPNGAGTE----G-GACGY-QNTYK-
LGYGSMATAALSSSLFQGGKACGGCYQLRCAP--

-----NRGRN----W-CWS-YARAIVVTATNLCP-----QGS--HGGWCDYPKS-HFDLPMPAFTSLAR-R-----
-EG-

GVAPVWY-RKVRCAKRG-GVRFT--IGGN--PW-FL---MVLIHNVGGAGDVVSVK--VKCPY--T-G-WV---
SAYRNW

GCLWT-VRTK---MTG-PLSFTLVT--S-DGRTLISMNAVRNGW--KFGQTWE-GS---QF

>PpEXPA21PRO

X--R-----D-AHITYY--GSPNGGGTE----G-GACGY-QNTYS-
LGYGFMTAALSSSLFQGGSSCGACYQIRCEP--

-----IRVTRTVKNW-CWS-YSRTITVTAINLCP-----PRS--SGGCCNPPLQ-HFDLPMPAFLSLAR-R-----
EG-

GVAPVXY-TKVRSEKRG-GIRFT--MGGN--LW-FL---TILIHNVGGAGDVRSVR--IKSPH--S-G-LI---
SMYRNW

GSLWT-VRAR---MSG-ALFFMITT--S-HGRVLITRNAVGSGW--RFGQTWE-G-----NF

>PpEXPA22PRO

W--Q-----D-AHITYY--GSPNGGGTQ----G-GACGY-QNTVS-
LGYGFMTAALSSPLFQGGKACGACFQLQCAR--

-----VQETRTVKNW-CHD-YSKAITVTATNLCP-----PGS--EGTWCDPPRH-HFDLPMPAFLSLAR-Q-----
--EG-

GVAPVYY-RRVQCLKKG-GIRFT--MGGN--PW-FL---MVLVHNVXGAGDVVXVK--VKCPS--S-G-WY---
DMYRNW

GALWT-VQKK---MVG-PLSFLTT--G-DGRRLTAYNAVGNGW--TFGQTWE-GA---QY

>PpEXPA23PRO

W--I-----N-GRITYY--GSPNGGGTQ----G-GACGY-QNTVS-
LGYGFMTAALSTTLFKGGAACGACYQLQCAPVS

ETPSGLLKRN----W-CWQ-VGRSILVTATNLCP-----PGS--SGGWCNPPQH-HFDLPMPAFLALAR-R---
----EG-

GVVPVYY-RKVNCARKG-GIRFT--VGGN--PW-FL---MILIHNVGGAGDVVAVK--VKCPT--S-G-WY---
DMYRNW

GALWT-VQKK---MNG-PLSFAITT--S-DGRTVTTYNAVGNGW--KFGQTWE-GA---QY

>PpEXPA24PRO

W--S-----S-GRITYY--GSPNGGGTQ----G-GACGY-QNTVS-
LGYGFMTAALSTPLFNNGGAACGACYQLQCAPVH

ETPKNLLQRN----W-CWK-VGRRITITATNLCP-----PGS--EGGWCDPPQH-HFDLPMPAFTALAK-R---
---EG-

GVVPIYY-RRVRCAKQG-GIRFT--MGGN--PW-FL---MILIHNVAGAGDVVAVK--IKCPT--S-D-WC---
DMYRNW

GAFWT-VQKK---MEG-PLSFQITT--X-DRRKVTTHNAVGHGW--QFGQTWEA----QY

>PpEXPA25PRO

W--R-----D-AHITYY--GSPNGGGTQ----G-GACAY-QNTFS-
LGYGAMTAALSSPLFEGGAACGACYQLQCKR--

-----VQETRTVKNW-CWS-YSRTITITATNLCP-----PGS--AGAWCDPPRH-HFDLTMPAFLTLAR-R-----
EG-

GVAPVLY-RRVKCVKRG-GIRFT--IGGN--PW-FL---MILIHNVAGAGDVRAVR--IKTPS--T-D-WI---
PMYRNW

GALWT-VQRK---LSG-PLSFQITA--G-DRRQITINSAVGNAW--KFGQTWE-GH---NF

>PpEXPA26PRO

W--N-----F-GRITYY--GSPNGGGTQ----G-GACGY-QNTFA-
LGYGTNTAALSSRLFQGGAACGACYQLRCIA--

-----PKWGKNW-CWN-YARSIVVTATNLCP-----SGS--NGGWC-PSQA-HFDXPMPAFTSLAR-K-----
--EG-

GVTPIMY-RRVRCARRG-GIRFT--IGGN--PF-FL---MVLHNVGGAGDVRAVS--IKGQY--T-G-WV---
GMYRNW

GSLWT-CTTK---IDG-ALTFRITT--G-DGKTLILYNAVRKGW--RFGQTWE-GS---QF

>PpEXPA27PRO

W--A-----T-ATATFY--GGADAG-----G-GACGY-GNLYS-
TGYGASTTALSAPLXNGGSACGACYQLQCAR--

-----SN----H-CYA-GR-SITVTATNFCP-----TGS--EGGWCNPPRK-HFDLSMPMFTTLAR-Q-----
VA-

GVVPVDY-RRVACNKKG-GQRFL--MTGN--PY-FI---MVLVYNVAGAGDVQRFF--VKGSM--T-G-WY---
ELRRNW

GQIWT-CTADSR-LKGQALSFRQT--S-DGRQVVSIDAAPANW--NFGQTFSSGV---N-

>MpEXPA1PRO

W--R-----N-AHATFY--GGSDASGTM----G-GACGY-GNLYS-
QGYGTDTTALSAALFDNGAKCGACFAITCYR--

-----SR----W-CLP-GKPILQVTATNFCPSNPPLND--NGGWCNPPRR-HFDLAQPAFTQIAI-Y-----
EG-

GIVPVLF-KRVPCKRSG-PIRYT--INGQ--RY-FN---LVLISNVGGVGDVSAVS--VKGAN--SNY-WE---
PMRRNW

GQNWQ-SDTI---LVGQSLSFQVTT--S-DGSTVTVLDAVASNW--EFGQTFEGG-----QF

>MpEXPA2PRO

W--A-----D-AHATFY--GGQDASGTM----G-GACGY-GNLYS-
VGYGTSSTALSNALFNGLSCGACFQIVCRL--

-----AESK----Y-CYP-GG-SVVVTATNACP-----PGS--EGGWCDPPKA-HFDLSYPAFQRLAQ-P-----
VG-

GVIPVRY-KRVSCSRNG-GIRFT--IRGN--PY-FD---LVLVTNVGEFGAVQSLQ--IKGER--T-G-WT---
YMRQNW

GANWQ-ANVN---VQGQALAFKVTL--D-NGRSLEFYNVAPKNW--GFGQTFEADY---NF

>MpEXPA3PRO

W--T-----P-SHATFY--GEYNGVETM----G-GACGY-GNLWW-
RGYGLETAALSDTLLNGLTCGACFQLKCDL--

--DHGGYSTR----W-CYK-NVAPITVTATNHCPANWARPTN--NGGWCNPPRT-HFDLPLVMFNRMAQ-
P-----VA-

GIPIEY-RRVPCEKSG-GLKFY--LSGN--PW-FN---LVLVYNVAGAGAVTSMK--MRGSQ----TVWY---
SMKRNW

GQYWE-CPIK---FSNQRLSFQVTL--S-SGHVRVINNLTPTNW--YFGQTYEAAT---NF

>MpEXPA4PRO

W--T-----P-SHATFY--GDDSGAATM----G-GACGY-GNLWW-
RGYGLATAALSDTLLNGLTCGACFEIKCNI--

---TGGESGK----W-CIQ-SNPSIKITATNQCPPNFDRPTD--NGGWCNPPRT-HFDLSLNMFRRLAQ-T--
----QA-

GIIPISY-RRTRCIKTG-GIRFY--LGGN--AH-FN---LVLVYNVGGWGDVMKMQ--MRGTK--T-G-WI---
TMKRNW

GQNWE-SSIN---YTGSLSFIVTL--G-NGQVRVIRNLPTVW--YFKQTYEADT---NF

>MpEXPA5PRO

W--T-----D-SHVTFY--GASDGIETM----G-GACGY-GNLWW-
RGYGLETAALSDTLLNDGLTCGACYQIKCNI--

--ASGGYSTK----W-CYP-SNPTIQVTATNRCPPNWDRPTN--AGGWCNPPRT-HFDLPLVMFERMAQ-
A-----VA-

GIIPVKY-RRVPCVKSG-GIKFF--LGGN--PW-FN---LVLVYNVAGGGNVKNMQ--MRGDK----TVWY---
TMKRNW

GQFWE-CPIG---FRGQKLSFIVTL--S-NGQVRVINNLTELW--YFGQTYEALT---NF

>MpEXPA6PRO

W--S-----T-AHATFY--GGSDASGTN----N-GACGY-SNVFA-
LGYGTMTAALSAPLFNDGLSCGACFQIQCSG--

-----DAA-----CYS---NSITVTATNLCP-----QGS--YGGWCDYPNA-HFDLSQPAFSQLAQ-T-----VA-

GHVTVNY-QRVNCNRQG-GVRFQ--IDGH--TY-FM---QTLIYNVGGSGDVVAVQ--VKGSK--T-G-WI---
SMTRGW

GQNWQ-TGTV---LDGQALSFSVKT--S-DGKTLYHNNVADSNW--KYGQTFE-GA---QF

>MpEXPA7PRO

F--G-----D-ATATFY--GGNDAAGTA----G-GSCGY-ENPFT-
RGYGVTTVALSNSLLSNLNCGACFEVKCKY--

--TASAYTKK----W-CYN--NKSVVVTATNLSP-----PGL--NGEH-----HFDLTYPMFTKISN-M-----IA-
GRIPIQY-RRVPCKKQG-GIKFT--LNGN--PY-FN---LVLVYNVGGAGNVYAMS--MKGSK--S-D-WY---
PMARNW

GQNWQ-AMVR---LTGQSLSFRVTL--G-NGKTQTFSNVAAADW--KFGQTYQASS---NF

>MpEXPA8PRO

W--T-----K-AHATFY--GGDDARGTQ----G-GACGY-GNMYT-
RGYGVKTVALSYTVFNEGLTCGACFQIKCDL--

-----SMKPR---W-CYA-NGGIITVTATNSCPPNWARPTN--NGGWCNPPRV-HFDLSYPMFAQLAQ-K-
-----VA-

GIPIQY-KRVKCVRSR-GIRFT--INGN--PY-FN---IVLVHNVGGYGNVVTLY--IKGTN----SPWF---
KMKQNW

GANWE-DHNK---LTNQKLSFKATL--G-TGETMIFKDITGTYW--SHGQTYEANN---NY

>MpEXPA9PRO

W--S-----P-AHATFY--GGSDAQGTQ----G-GACGY-GNLYR-
IGYGINTAALSTALFANGLSCGACFELKCNS--

-----PR---W-CKS-GRNPIRITATNLCPQNHHPNN--AGGWCNMPLQ-HFDMAQPAYEQIAI-Y----
--RA-

GIVPVMY-RRVQCIKFG-GIHFT--MNGN--RW-EV---LVLLTNVGGAGNVHAVS--VKGPH--T-N-WL---
YMRRNW

GQNWQINDKQ---LAGATLSFRVTT--E-DGRVVTSDVVPHYW--RFGQTFE-GL---NF

>MpEXPA10PRO

W--N-----Y-AHATFY--GDETAQDTM----Q-GACGY-GNMYQ-
QGYGTATTALSSTLFDNGFACGRCFEIRCVA--

-----S---WACYL-GNPSTIVTATNFCPANWLKPTN--NGGWCNPPRQ-HFDMSKPAFEKIAA-W----
--RA-

GIVPVAY-RRVPCSKQG-SMEFR--IEGN--PW-WH---IVFITNVGGPGDIGEVY--IRGS--TKR-WV---
RMSHNW

GVGFQ-VFGG---YLGQGLSFMVIS--SSNLETVMAWNVVPANW--RLGQTFSGG----QF

>MpEXPA11PRO

W--M-----S-AKATFY--GGQDASGTM----N-GGCGY-ANPFT-
LGYGAQTAALSNALEFNKGLTCGACFEIKCAI--

--TATAYAKQ----W-CYA-NSPSIYITATNLCP-----QGS--YGGWCNGANL-HFDLAYAAFTKLAR-E-----
NA-

GVIPVNY-RRTPCKKSG-GIKFQ--LNGN--TY-WN---LVLIYNVGGGGNVAAAA--IKGSR--S-N-FY---
TMNQNW

GMNWE-SYSN---LVGQALTFKITL--G-NGRSATFYNVAPAGW--RFGQTYQAAY---NF

>MpEXPA12PRO

---M-----D-AKATYY--GGNDASGTM----N-GGCGY-ANPFA-
LGYGDQTVLSTALWNGLTGACFEIKCKI--

--SATAYAKK----W-CYP-KAGSIKITATNLCP-----PGS--HGGWCDPPKS-HFDLAYAAFTRLAN-F-----
QA-

GVIPIQY-RRTPCRKNG-GVKFS--MNGN--PY-WH---LVLVHNVAGGGNVHAMQ--IKGSR--T-G-FM---
QMKQNW

GQNWE-AYCN---LVGQSVTFKVTL--G-NGRTVTFWNAVASNW--KFGQTYQTKY---NF

>MpEXPA13PRO

W--A-----E-AHATFY--GGQDAGGTM----G-GACGY-GNLYS-
LGYGTATTALSNAFLHNGLSCGACFLIECIL--

-----QGSK----W-CYP-GK-SIVVTATNACP-----PGS--EGGWCDPPRP-HFDLSFPMFQMLAQ-P-----
VA-

GVIPVRY-RRVSCSKQG-GVRFT--LHGN--PY-FN---YILVHNVGGSGDVAAVA--LRGEN--S-R-WN---
RMNQNW

GQYWS-CGGW---YLGQALSFKVTL--G-SGRSLEFWNVVDKNW--GFGQTYESDY---NF

>MpEXPA14PRO

W--A-----D-AHATFY--GGQDASGTM----G-GACGY-GNLYS-
TAYGTASTALSNAFLNNGLSGACFQIMCKL--

-----DGSK----Y-CYT-GGKSITVTATNACP-----PGS--EGGWCDPPKA-HFDLSYPMFQQLAE-P-----
VG-

GVIPVQY-KRVSCQKNG-GIRFT--INGN--AW-FD---LVLVTNVGGGGDIACLE--MKGAS--T-D-WC---
PMSQNW

GQNWQ-ASGHPE-LCGQTLSFRATL--G-DGRSQEFYDVAPSNW--GFGQTFEANT---NF

>MpEXPA15PRO

W--A-----D-AHATFY--GGSDASGTM----G-GACGY-GNLYS-
LGYGTSSTALSNAFLNNGLSGACFLIQCKL--

--EG----SK----Y-CYP-GQ-SITVTATNACP-----PGS--EGGWCDPPRS-HFDLSFPMFQKLAQ-P-----
VG-

GVIPVRY-KRVSCTKQG-GVRFT--LHGN--PY-FN---YVLVHNVAGWGDVSSLA--IKGDQ--T-G-WY---
YMSQNW

GQYWS-ASAK---LTGQALSFKVTL--G-NGKSLEFYNVADKNW--GFGQTYESDY---NF

>MpEXPA16PRO

W--G-----D-AHATFY--GGQDASGTM----G-GACGY-GNLYS-
VGYGVSTAALSYAMFNKGLTCGACYELVCKL--

-----EGSK-----Y-CYP-GK-SITITATNSCP-----PGS--EGGWCDPPKL-HFDLSYPMFQKLAQ-P-----VG-

GVIPIKY-KRVACAKSG-GVRFT--IHGN--PY-FN---YILVHNVAGAGDVSALA--IKGEK--T-G-WY---
YMSQNW

GQFWS-ASAN---VVGQALSFKITL--G-NGVSTEFNSVAPKDW--KFGQTFEADN---NF

>MpEXPA17PRO

W--EVTEFTRG-ARATYY--GGNDASGTL----G-GACGY-GNLFE-
NGYGVETTALSTALFNDGLTCGGCFQIQCIA--

-----SESD-----W-CLANGTVSITVTATNFCP-----PGS--FGGWCDPPQP-HFDLSYPMFATLAQ-P-----
VG-

GVIPVQY-RRVSCLKQG-GVRFQ--INGN--NW-FF---LVLVMNVAGAGDVQAVA--IKGTR--S-E-WI---
SMQRNW

GQNWA-SDGPPE-LVGQALSFRVTL--GLTKETLDFIDVAPADW--QFGQTFEDDSGL-NF

>MpEXPA18PRO

C--I-----P-ATATFY--GGNDASGTN----T-GACAY-PNVLA-
MGYGTMNAALSSAIFDHGKTCGACFQLVCTY--

---VPYGNLR-----CLR-GR--ITVTATNYCP-----QGS--KGGWCDAPRS-HFDLAEPFVQIAP-Y-----
NA-

GVVHVDY-QRVNCQRSG-EIRYR--LYGF--TY-FL---QVLVYNVAGTGDVTAMS--IKGSS--EGR-WI---
SMTRSW

GQLWT-TGVV---LEHQALSFMVTI--S-DGRTITVNDVANNEYW--RYGQTYE-GG---QF

>MpEXPA19PRO

W--T-----D-SHATFY--GGNNAQGTM----G-GACGY-GNMYS-
RGYGLETTALSSTLFNKGLTCGACFEIKCKV--

-----ADTR-----W-CYA-NAGSIKVTATNLCPANPARPTN--NGGWCNPPRT-HFDLSYPMFTRLAK-A-----
--VG-

GIIPVQF-RRVPCVKVG-GIRFV--MNGN--PW-FN---LVLVYNVAGAGNVVNMQ--MKGSK----TNWF--
-TMKQNW

GQNWE-LKQK---LKGQSFVTL--G-NGKVMIANVAPANW--NFQQTESDN---NF

>MpEXPA20PRO

W--M-----D-AHATFH--GGSVADTM----G-GACGY-GNLIS-
RGYGLHTSALSSSLFNSGLTCGACFKVRCKA--

--AS----SM----R-CHA-TAGSITVTATDLYSENLATLIE--DERRSNPSQP-QFDLAVSAFQMLAR-P-----
MV-

GLPIEY-QRVPCEKEG-GIRFT--LNGN--SW-FN---LVLVHNVGGDGNVAVQ--VKGSR--ASS-WS---
MMNRRW

GQNWE-LREN---LQGQILSFRTT--G-FGKTVLLPDVAQADW--RFGQTYESEG---NF

>MpEXPA21PRO

W--T-----D-SHATFY--GGNDGSGTM----G-GACGY-GNMYS-
RGYGLKTAALSSTLFNNGLSGACFELKCKV--

-----AESR----W-CYA-NAGSITVTATNLCPANPARPTN--NGGWCNPPRT-HFDLAYAMFIIMAK-P-----
VG-

GIIPVQY-RRVSCVKTG-GVRFT--LNGN--PW-FN---LVLVYNVAGDGNVVTIK--MKGSK--SNT-WY---
PMKHNW

GQNWE-LKQK---LAGQALSFLTT--G-YGKTMFTNCAANW--QFGQTYEADG---NF

>MpEXPA22PRO

W--T-----A-SDATFY--GGNSGAGTM----G-GACGY-GNMYN-
TGYGLNTAALSPVLFNNGLSGACFELKCNL--

-----TGTK----W-CYP-SAGSITVTATNLCPANPARTD----GWCNPPRT-HFDLSYTMFAILAQ-P-----
VA-

GIPIQY-RRVSCVKTG-GVRFV--INGN--PW-FN---LVLIYNVGGDGNVVTAM--MKGEN----TEWY---
SMTRNW

GQNWQ-LSQK---LHGQALSFLTT--G-YGTTLVCSDVAPANW--QFGQTFEAYT---NM

>MpEXPA23PRO

A--I-----P-ATATFY--GGNDASGTN----T-GSCGY-PNVLT--
IDGPMNTALSGALYNGGEACGACFKIQCVS--

---IPFGNLQ-----CLP-GS--IVVTATNLCP-----QGS--TGGWCDEPRS-HFDLAEPAFQHLAP-P-----
VA-

GVVNVEY-ERVSLRSG-GIRFL--IQGH--PY-FM---QVLVYNVGGMGDVTAVS--VKGSS----SDWI---
QMDRNW

GQLWT-TGTV---LDGQALSFSVTT--S-DGRTVASNGVADSDW--QYGQTFE-GN---QF

>MpEXPA24PRO

A--I-----P-ATATFY--GGNDASGTN----TAGSCGY-PNVLT--
IDGPMNTALSGALYNGGEACGACFKIQCVS--

---IPFGNLQ-----CLP-GS--IVVTATNLCP-----QGS--TGGWCDEPRS-HFDLAEPAFQHLAP-P-----
VA-

GVVNVEY-ERVSCLRSG-GIRFL--IQGH--PY-FM---QVLVYNVGGMGDVTAVS--VKGSS----SDWI---
QMDRNW

GQLWT-TGTV---LDGQALSFSVTT--S-DGRTVASNGVADSDW--QYGQTFE-GN---QF

>MpEXPA25PRO

W--T-----N-ATATFY--GGDDGAGTM----G-GACGY-GNMFT-
RGYGLETAALSTVLFNNGLTGACFMLKCRL--

-----NESR----W-CYS-NVSSITISATNFCPPNLNRTTD----GWCNLPRS-HFDLSVKMFTTLAR-A-----
VG-

GIIPVLY-KRVPCVKTG-GVRFT--LNGN--PW-FN---LVLISNVGGQGNVAAQ--MKGSK----TAWF---
NMRQNW

GQNWE-LGQK---LINQTLFRLTL--G-LGQTLTFNNLTPDW--KFGQTWEADT---NF

>MpEXPA26PRO

F--G-----D-ATATFY--GGSDASGTQ----G-GSCGY-QNPFA-
LGYGIKTAALSNSLLANNMNCGACFEVKCKY--

--DASAYTKK----W-CYP-NSPTIIVTATNQSP-----PGL--NG-----EH-HFDLTEPMFMKIAN-R-----IG-

GRIPQY-RRVRCYKPG-GIKFT--LTGN--PF-FN---LVLVYNVGGAGNVYGMA--IKGSR--T-D-FY---
PMSRNW

GQYWQ-AFVK---LTGQSLTFRVTL--G-NGKSTTFWNVAPANW--QFGQTVAAATY---NF

>MpEXPA27PRO

F--G-----D-ATATFY--GGTDAAGTA----G-GSCGY-ENPFT-
RGYGVTTAALSNSLLSDGLNCGACFEVKCNF--

--GASDYTRK----Y-CYN-GK-SVVITSTNLSP-----PGL--HGE-----H-HFDLTYPMFTQISN-M-----IA-

GRIPVQY-RRVPCKKQG-GIKFN--INGN--PY-FN---LVLVYNVAGGGNVYAMA--MKGGN--S-A-WC---
TMGRNW

GQNWQ-SSVK---LTGQGLSFRVTL--G-SGKMLVFNNVAPSSW--QFGQTYQASS---NF

>MpEXPA28PRO

F--G-----D-ATATFY--GGSDAAGTA----G-GFCGY-ENPFT-
RGYGVTTVALSDSLLSNGLNCGACYEVKCKW--

--EASDYTKK----Y-CYQ-GM-TTIVSATNLSP-----PGL--NGEH-----HFDLTYPMFVKISN-P-----ES-
GRIPIQY-RRVPCQKQG-GIRFS--MVGN--PF-WN---LVLVYNVGGWGNVHSLY--VRGSR--T-D-WY---
YMNRNW

GQNWQ-CSVN---LTGQKLSFRVVL--G-NGQTSVFNNVADSNW--KHGQTYEASS---NF

>MpEXPA29PRO

W--T-----D-SHATFY--GGNNAQGTM----G-GACGY-GNMYS-
RGYGLETTALSSTLFNKGLTCGACFEIKCKV--

-----ADTR----W-CFP-KAGSIKVTATNLCPANPARPTN--NGGWCNPPRT-HFDLSYPMFTRLAK-A-----
-VG-

GIIPVQF-RRVPCVKVG-GIRFV--MNGN--PW-FN---LVLVYNVAGGGNVVNMQ--MKGSK----TNWF--
-TMRQNW

GQNWE-LKQK---LKGQSSIFRMTL--G-NGKVMIANNVAPANW--NFQQTFFESDS---NF

>MpEXPA30PRO

W--T-----D-SHATFN--DGNNAQGTM----G-GACGY-GNISS-
RGYGLETTALSSTLFNSGLTCGACFEIKCKV--

-----ENST----W-CFP-NAGSIKVTATDLCPANPAMPTN--NGGWCNPPRT-HFDLSYQMFTRLAK-A-----
--EG-

AIIPVQF-RRVPCVKVG-GIRFT--MNGN--PW-FN---LVLVSNVAGAGNVVNLQ--MKSSE--TNWFWM-
--TARQIS

GQYWE-LNQN---LMGQNISFRVTL--G-NGKVMIANNVVPANW--NFQQTFFESDI---NF

>MpEXPA31PRO

W--T-----D-SHATFY--GGNNAQGTM----G-GACGY-GNMYS-
RGYGLETTALSSTLFNKGLTCGACFEIKCKL--

-----ADSR----W-CFP-KAGSIKVTATNLCPANPARPTN--NGGWCNPPRT-HFDLSYPMFTRLAK-A-----
--VG-

GIIPVQF-RRVPCVKVG-GIRFV--MNGN--PW-FN---LVLVYNVAGAGNVVNMQ--MKGSK----TNWF--
-TMRQNW

GQNWE-LKQK---LKGQSSIFRVTL--G-NGKVIIANNVAPANX--NFQQTFFESDS---NF

>MpEXPA32PRO

W--T-----D-AHATFY--GGQDASGTM----G-GACGY-GNLYS-
RGYGTASTALSNALFNSGLSCGACFEIICKL--

-----SETK----W-CYT-GGKSIVVTATNQCP-----QGS--EGGWCDYPRS-HFDLSFPMFQSLAQ-A-----
VG-

GVIPVQY-RRVSCSRSG-GIRFT--INGN--AY-FN---LVLVTNVGGKGDVAALW--MRGSN--T-D-WQ---
PMKQNW

GQNWQ-CDTK---LVGQALSFKAML--G-SGETKEFYNVADSNW--LFDQTYEGDY---NF

>MpEXPA33PRO

G--L-----K-AHATFL--GGSDAVGTN----N-GACGY-SNVLA-
MGYGTRTAALSAPIFREGKSCGACYKLRCRG--

-----SESV----G-CRS-ND-GVVVTVDVCP-----ERS--VGGWCD-GQP-HFRLSEPFAFAQIAE-P-----
KSG

GLVEVDY-EKVSCDRRG-GMHFL--LVGH--TH-FL---QILVHNVGGCGDVAAVS--VKGGT----GPWI---
RMSRSW

GQLWH-TGEV---LDGQALSISVTM--A-DGKVCVSNNFAGADW--KYGQTFE-GA---QL

>MpEXPA34PRO

A--L-----P-AHATFY--GGSDASGTN----N-GACGY-SNVLS-
TPFGTMTAALSSPLFNEGLSCGSCYKVRCSG--

-----SSTG----G-CID---NEIMVTATNLCP-----HGS--EGGWCD-GKP-HFDMSQPAFSQIAK-P-----
VA-

GVVEVEY-TKVPCPRKG-GMQFT--VMGH--TY-FL---QVLIFNVGGSGDVTAVK--VRGGN----GEWI---
AMTRSW

GQLWQ-TGKV---LDGQALSFQVTT--S-NGKTCVSNYVAGSHW--KYGQTFE-GS---QY

>MpEXPA35PRO

W--T-----D-SHATWY--GGKDGAGTM----G-GACGY-GNMNA-
RGYGMKTAALSTKLFNDGFTCGACFEIRCKS--

-----SQSK----Y-CYS-STASVIVTATNYCPANPNRPTD----GWCNGDRT-HFDLTYQMFTTLAI-Y-----
EA-

GIIPVQY-RRVPCAKKG-GIRFT--INGN--PN-FN---LILLSNVGGSGNVVSVQ--MKGEN--SYSGWV---
PMKQNW

GQMWE-CGTK---VTGQSISFKVTV--G-YGQTFFTFWTVAPKTW--QFGQTYEASS---NV

>MpEXPA36PRO

W--G-----D-AHATFY--GGNDASGTM----G-GACGY-GNLYS-
LGYGTASTALSNGLFNNGLSGACYTIECKL--

-----EGSK----W-CYP-GK-SITVTATNACP-----PGS--EGGWCDPPRL-HFDLSYPMFQTLAQ-P-----
VG-

GVIPVKY-KRVSCNRQG-GIRFT--LHGN--AW-FN---YVLVHNVAGDGDVAGVS--IKGDN--G-G-WT---
TMYQNW

GQFWS-ASEH---LVGQALSFRVTL--G-SGRTQEFYDVASPNW--YFGQTYEADNNQ-NF

>MpEXPA37PRO

W--G-----N-AHATFY--GGNDASGTM----G-GACGY-GNLYS-
RGYGTATTALSNGLFNNGLTGACFTLVCKL--

-----DGSR----W-CYS-GGKQITVTATNACP-----PGS--EGGWCDPPRL-HFDLSYPMFQKLAQ-P-----
VG-

GVIPVRY-KRVPCVKQG-GIRMS--LYGN--PW-FD---YVLVHNVAGGGDVAAVS--IKGSK--T-N-WV---
VMHQNW

GQYWS-ASSY---LVGQALSFKVTL--G-NGKSIVFWDIAPKNW--QFGQTYEADNNQ-NF

>MpEXPA38PRO

W--K-----A-AHATFY--GGSNAQGTM----G-GACGY-GNLYN-
TGYGLETAALSSTLFNNGKTCGACYEMFCNY--

-----RQQSR----W-CYK-AQPHIKVTATNLC PANWNRPTN--RGGWCNPPRV-HFDLPQPMFIKMAR-Y-
-----VG-

GIVPVAY-RRVPCVKKG-GVKFT--MNGN--PW-FN---LILISNVAGPGDIKAVA--VKGSK--QKS-WT---
SARQNW

GQKWE-VKQK---LQGQALSFR LTS--G-SGKVLVLYNAVPTW--RFGSTYMARS---NW

>AaEXPA1PRO

W--Q-----D-GHATFY--GGSDASGTM----G-GACGY-SNLYS-
QGYGLATAALSTALFNNGLSGACFEIKCNQ--

-----PE----W-CVA-GASSIVVTATNLCPPNPSPND--NGGWCNEPLQ-HFDMSQPAFQQIAQ-Y----
--KA-

GIVPVSY-RRVSCVKKG-GVHFT--VNGH--SY-FN---LVLVSNVGGAGDVHAVS--IKGSN--T-G-WE---
PMSRNW

GQNWQ-SNSK---LDGQSLSFQVTT--S-DGQTLTFYDVASDNW--SFGQTFEGDS---NF

>AaEXPA2PRO

W--S-----S-AHATFY--GGNDASGTL----G-GSCGY-GNLYD-
RGYGTSTAALSTALYNNGASCGACFEIQCTG--

-----SR----W-CKG-SA-PITVTATNFCPQNPALPNN--AGGWCNLPLQ-HFDMSVPAFLEIAE-Q-----
VG-

GIVPVNY-RRVSCVKKG-GIHFT--INGH--AY-FN---LVLITNVGGAGDVHAVS--VKGSK--T-G-WE---
PMTRNW

GQNWQ-CNSY---LNGQSLSFQVTT----SGGTLISYDVTPAGW--SFGQTFS-GA---QF

>AaEXPA3PRO

W--N-----S-AHATFY--GGNDASGTM----G-GACGY-GNLYS-
EGYGTNTAALSTALFDNGLSCGACYEIACDS--

-----SGTK----Y-CT--GSNSITITATNFCPENLALPSD--NGGWCNQPRQ-HFDMAVPAFDQLAA-H-----
-VA-

GIVPIKY-RRVSCVRKG-GVRFH--LNGH--DY-FL---LLLVDNVGGNGAVHSVS--IKAGN----GPWK---
ALSQNW

GQNWQ-CNDY---ISGQTLISISITT--E-DGKTLVSNNVAPAGW--KFGETYA-GS---QY

>AaEXPA4PRO

WVKG-----V-AHATFY--GGSDASETN----G-GACGY-GNLYS-
QGYGTNTAALSSALFGGGETCGACYQLKCTG--

-----G-CFS-GAPKIVVTATNYCP-----EGS--TGGWCNAPRV-HFDLSEPAFTRMAA-A-----VT-

GVVPVNY-RRVKCVKEG-GIKFQ--INGH--SY-FN---LILITNVGGVGDVKEVY--IQVGS--GSS-WK---
ACKRNW

GQNWE-NDDY---LDGKSFSIKVIT--S-DNRFCNSPNVIPAGW--KFGTTYE-GR---QF

>AaEXPA5PRO

W--K-----A-AHATFY--GGNDASGTN----G-GACGY-GNIYS-
FGYGIANAALSALFNSGAQCGACYEIKCYG--

-----SK----W-CLP-GNPSITITATNSCPPNWALPSD--NGGWCNPPRE-HFDMSVPAWTSLAV-Y-----
-VG-

GIVPVNY-RRVPCSRKG-GIRFT--ISGN--PN-FD---LVLVHNVAGDGVVTALS--IKGNG----N-WV---
PMKRNW

GQNWQ-CGAV---LTGQPLSFMVRT--S-DGRSLILYNVAPANW--SFGSTYQSAQ---NF

>AaEXPA6PRO

---N-----D-AHATFY--GDPSGSATF----G-GACGY-GDLMA-
QGYGLQTTALSEVLFSNGFSCGQCQYQICID--

-----SK----W-CIP-NA-VITVTATNLCPADYSKPND--NGGWCNPPLK-HFDLSMPAFHQIAQ-E-----
VA-

GIVPVTY-RRVPCVKLG-GVKFT--ILGN--TW-WH---LVLITNVGGAGDIDTAS--IKGSN--T-D-WI---
PMSHNW

GASFQ-CFQS---LVNQALSFQLTS--T-TGQVLTTFNVAPADW--SFGTTYE-GG---QY

>AaEXPA7PRO

W--T-----TGATATYY--GGSDATATN----G-GACGY-GNQIA--
LYGTVSTALSSAFFQNGVTCGACYEIQCTG--

-----SS----Y-CYS-GK-TVKVTATNLCP-----DGS--YGGWCDGSKK-HFDLSQPAFIQVAQ-Q-----VV-

GHFAAQY-RRVPCTRSG-GVRFT--INGN--TY-YN---LVLIQNVAGVGDVKAVS--IKGTS--T-G-WL---
SMSRNW

GENWE-CDTK---LVGQALSFQVTL--S-DSTTKTFNNAASNW--AFGSTYSSSV---QF

>AaEXPA8PRO

W--Q-----D-GHATFY--GGSDASGMT----G-GACGY-SNLYS-
QGYGLATAALSTALFNGLSCGACFEIKCNQ--

-----PE----W-CVA-GASSIVTATNLCPPNPSPND---GGWCNEPLQ-HFDMSQPAFQQIAQ-Y-----
-KA-

GIVPVSY-RRVSCVKKG-GVHFT--VNGH--SY-FN---LVLVSNVGGAGDVHAVS--IKGSN--T-G-WE---
PMSRNW

GQNWQ-SNSK---LDGQSLSFQVTT--S-DGQTLTFYDVASDNW--SFGQTFEGDS---NF

>AtEXPA7PRO

W--R-----Y-AHATFY--GDETGGETM----G-GACGY-GNLFN-
SGYGLSTAALSTTLFNDGYGCGQCFQITCSK--

-----SP----H-CYS-GK-STVVTATNLCPPNWWYQDSN--AGGWCNPprt-HFDMAKPAFMKLAY-W---
---RA-

GIIPVAY-RRVPCQRSG-GMRFQ--FQGN--SY-WL---LIFVMNVGGAGDIKSMA--VKGSR----TNWI---
SMSHNW

GASYQ-AFSS---LYGQSLSFRVTS--YTTGETIYAWNVPANW--SGGKTYKSTA---NF

>AtEXPA8PRO

W--Q-----G-GHATFY--GGEDASGMT----G-GACGY-GNLYG-
QGYGTNTAALSTALFNGLTCGACYEMKCND--

-----DPR----W-CLG---STITVTATNFCPPNPGLSND--NGGWCNPPLQ-HFDLAEPALQIAQ-Y-----
RA-

GIVPVSF-RRVPCMKG-GIRFT--INGH--SY-FN---LVLISNVGGAGDVHAVS--IKGSK--TQS-WQ---
AMSRNW

GQNWQ-SNSY---MNDQSLSFQVTT--S-DGRTLVSNDVAPSNW--QFGQTYQGG----QF

>AtEXPA11PRO

L--T-----N-GHATFY--GGSDASGTM----G-GACGY-GDLYS-
AGYGTMTAALSTALFNDGASCGECYRITCDH--

-----AADSR---W-CLK-GA-SVVITATNFCPPNFALPNN--NGGWCNPPLK-HFDMAQPAWEKIGI-Y----
--RG-

GIVPVVF-QRVSCYKKG-GVRFR--INGR--DY-FE---LVNIQNVGGAGSIKSVS--IKGSK--T-G-WL---
AMSRNW

GANWQ-SNAY---LDGQALSFSITT--T-DGATRVFLNVVPSSW--SFGQIYSSNV---QF

>AtEXPA12PRO

W--I-----R-AHATYY--GVNDSPASL----G-GACGY-DNPYH-
AGFGAHTAALSGELFRSGESCGCYQVRCDF--

---PA--DPK---W-CLR-GA-AVTVTATNFCP-----TNN--NNGWCNLPRH-HFDMSSPAFFRIAR-R-----
GNE

GIVPVFY-RRVGCKRRG-GVRFT--MRGQ--GN-FN---MVMISNVGGGGSVRSVA--VRGSK--GKT-WL-
--QMTRNW

GANWQ-SSGD---LRGQRLSFKVTL--T-DSKTQTFLNVVPSSW--WFGQTFSSRGR--QF

>AtEXPA13PRO

W--R-----P-ARATYY--AATNPRDAV----G-GACGY-GDLVK-
SGYGMATVGLSETLFRGQICGACFELRCVD--

-----DLR---W-CIP-GT-SIILTATNFCAPNYGFDPD--GGGHCNPPNK-HFVLPIEAFEKIAI-W-----
KA-

GNMPVQY-RRINCRKEG-SMRFT--VDGG--GI-FI---SVLITNVAGSGDIAAVK--IKGSR--T-G-WL---
PMGRNW

GQNWH-INAD---LRNQALSFEVTS--S-DRSTVTSYNVSPKNW--NYGQTFE-GK---QF

>AtEXPA14PRO

W--V-----N-ARATFY--GGADASGTM----G-GACGY-GNLYS-
QGYGTNTAALSTALFNNGGQSCGACFQIKCVD--

-----DPK---W-CIG-G--TITVTGTNFCPPNFAQANN--AGGWCNPPQH-HFDLAQPIFLRIAQ-Y-----
KA-

GVVPVQY-RRVACRRKG-GIRFT--INGH--SY-FN---LVLITNVAGAGDVISVS--IKGTN--T-R-WQ---
SMSRNW

GQNWQ-SNAK---LDGQALSFKVTT--S-DGRTVISNNATPRNW--SFGQTYT-GK---QF

>AtEXPA15PRO

W--V-----N-AHATFY--GGSDASGTM----G-GACGY-GNLYS-
QGYGTNTAALSTALFNNGLSGACFEIKCQS--

-----DG---AW-CLP-G--AIIVTATNFCPPNNALPNN--AGGWCNPPLH-HFDLSQPVFQRIAQ-Y-----
KA-

GVVPVSY-RRVPCMRRG-GIRFT--INGH--SY-FN---LVLVTNVGGAGDVHSA--VKGSR--T-R-WQ---
QMSRNW

GQNWQ-SNNL---LNGQALSFKVTA--S-DGRTVVSNNIAPASW--SFGQTFTGR----QF

>AtEXPA17PRO

W--L-----Q-AHATFY--GGSDASGTM----G-GACGY-GNLYT-
DGYKTNTAALSTALFNDGKSCGGCYQILCDA--

-----TKVPQ----W-CLK-GK-SITITATNFCPPNFAQSD--NGGWCNPPRP-HFDMAQPAFLTIK-Y-----
KA-

GIVPILY-KKVGCRRSR-GMRFT--INGR--NY-FE---LVLISNVAGGGEISKVW--IKGSK--SNK-WE---
TMSRNW

GANYQ-SNTY---LNGQSLSFKVQL--S-DGSIKAALNVVPSNW--RFGQSFKSNV---NF

>AtEXPA20PRO

W--K-----I-ATATLS--RDRDGSSSVAT--G-GACGY-GDLRQ-
SSFAGYSAGLSGKLFNRGSSCGACLEVRCVN--

-----HIR----W-CLQ-GSPSVVVTATDFCPPNSGLSSD--YGGWCNFPKE-HLELSHAAFTGIAE-T-----
RA-

EMIPQY-RRVKCGRRG-GLRFS--LSGS--SH-FF---QVLISNVGLDGEVVGK--VKGHT--T-A-WI---
PMARNW

GQNWH-SSLD---LIGQSLSFEVTL--K-GGKTIASYDVAPPYW--RFGMTYQ-GK---QF

>AtEXPA22PRO

W--Y-----D-ARATFY--GDIHGGDTQ-----PCGY-GNLFR-
QGYGLATAALSTALFNDGYTCGACYEIMCTR--

-----DPQ----W-CLP-G--SVKITATNFCPANYSKTTD----LWCNPPQK-HFDLSLAMFLKIAK-Y-----
KA-

GVVPVRY-RRIPCSKTG-GVKFE--TKGN--PY-FL---MVLINNVGGAGDIKYVQ--VKGNK--T-G-WI---
TMKKNW

GQNWT-TITV---LTGQGLSFRVTT--S-DGITKDFWNVMPKNW--GFGQTFDGRI---NF

>OsEXPA4PRO

W--Q-----S-AHATFY--GGGDASGTM----G-GACGY-GNLYS-
QGYGTNTAALSTALFNDGAACGSCYELRCDN--

-----AGSS-----CLP-G--SITVTATNFCPPNYGLPSD--DGGWCNPPRP-HFDMAEPAFLHIAQ-Y-----
RA-

GIVPVSF-RRVPCVKKG-GVRFT--VNGH--SY-FN---LVLVTNVAGAGDVRSVS--IKGSR--T-G-WQ---
PMSRNW

GQNWQ-SNAF---LDGQSLSFQVTA--S-DGRTVTSNNVAHPGW--QFGQTFEGG----QF

>OsEXPA5PRO

W--S-----S-AHATFY--GGGDASGTM----G-GACGY-GNLYS-
QGYGTNTAALSTALFNGLSCGACFEVRCDA--

-----GGGS-----HSCLP-G--SVVVTATNFCPPNNALPSD--DGGWCNPPRA-HFDMSQPVFQRIAL-F--
---KA-

GIVPVSY-RRVACQKKG-GIRFT--INGH--SY-FN---LVLVTNVGGAGDVHAVA--VKSER--SAA-WQ---
ALSRNW

GQNWQ-SAAL---LDGQALSFRVTT--G-DGRSVVSNNAVPRGW--SFGQTFS-GA---QF

>OsEXPA7PRO

W--Q-----S-AHATFY--GGSDASGTM----G-GACGY-GNLYS-
QGYGVNNAALSTALFNQSCGACFEIKCVN--

-----QPGWE----W-CHP-GSPSILITATNFCPPNYALPSD--NGGWCNPPRP-HFDLAMPFLHIAE-Y---
---RA-

GIVPVSY-RRVPCRKKG-GVRFT--INGF--RY-FN---LVLITNVAGAGDIVRAS--VKGTS--T-G-WM---
PMSRNW

GQNWQ-SNSV---LVGQALSFRVTG--S-DRRTSTSWNAAPAGW--HFGQTFE-GK---NF

>OsEXPA10PRO

W--R-----S-AKASY--AADPEDAI----G-GACGF-GDLGK-
HGYGMATVGLSTALFERGAACGGCYEVKCVD--

-----DLK----Y-CLP-GT-SIVVTATNFCAPNFGLPAD--AGGVCNPPNH-HFLLPIQSFEKIAL-W-----
KA-

GVMPIQY-RRVNCLRDG-GVRFA--VAGR--SF-FL---TVLISNVGGAGDVRSVK--IKGTE--S-G-WL---
SMGRNW

GQIWH-INSD---FRGQPLSFELTS--S-DGKTLTNYNVVPKEW--DFGKTYT-GK---QF

>OsEXPA11PRO

W--S-----S-GSATFY--GGSDASGTM----G-GACGY-GNLYS-
AGYGTSTAALSTALFNNGQSCGACFEVRCGG--

-----GGS-----CLA-G--TVAVTATNLCPPNYALAGD--AGGWCNPPRP-HFDMAEPAFTRIAQ-A-----
RA-

GVVPVQY-RRVACAKQG-GIRFT--ITGH--SY-FN---LVLVTNVGGAGDVTAVS--VKGSR--S-G-WQ---
AMSHNW

GANWQ-NGAN---LDGQPLSFRVTA--S-DGRTVTSDNVAPSGW--SFGQTFSGG----QF

>OsEXPA12PRO

A--L-----S-GTATFY--GGSDASGTM----G-GACGY-GNLYS-
TGYGTNTAALSSALFNDGAACGECYQITCDQ--

-----SNSK----W-CKA-GT-SVTITATNLCPPDYSKPSN--DGGWCNPPRQ-HFDMAQPAWEQIGV-Y---
---RG-

GIVPVNF-QRVSCTRKG-GVRFT--INGN--SY-FE---LVLITNVGGPGSIKSVQ--IKGTK--T-G-WV---
TMSRNW

GANWQ-ANNY---LNNQAISFSVTS--T-AGKTLVFEDVAPSNW--QFGQTFTSGV---QF

>OsEXPA16PRO

W--R-----M-GSATYI----KESLGHPLNDGG-GACGY-GDLDI-
FRYGRYTAGVSGALFGRGSACGGCYEVRNVN--

-----HVL----W-CLR-GSPTVVVTATDFCAPNLGLSDD--YGGWCNFPKE-HFEMSEAAFLRVAK-A----
--KA-

DIVPVQF-RRVSCDRAG-GMRFT--ITGG--AS-FL---QVLITNVAADGEVAAVK--VKGSR--T-G-WI---
PMGRNW

GQNWQ-CDAD---LRGQPLSFEVTG--G-RGRTVVAYSVAPPDW--MFAQTFE-GK---QF

>OsEXPA30PRO

W--T-----P-AHATFY--GDETASETM----G-GACGY-GNLYA-
SGYGTDTAALSTTLFKDGYGCGTCYQMRCVG--

-----TA----S-CYR-GSPAITVTATNLCPPNWAEDPDRGGGGWCNPPRA-HFDLSKPAFMRMAD-W-
-----RA-

GIVPVMY-RRVPCARAG-GLRFA--LQGN--PY-WL---LAYVMNVAGAGDVGDMW--VKAGG--GGG-
WV---RMSHNW

GASYQ-AFAQ---LGGQALSFKVTS--YTTGQTILAAGVTPASW--CFGLTYQARV---NF

>OsEXPA32PRO

W--K-----Q-AHATFY--GGRDGSGTL----D-GACGY-KDTSK-
EGYGVQTVAVSTPLFGAGAGCGACYEVKCVD--

-----SPD----G-CKV-GAAPLVVTATNLCPPNPGQSN--NGGWCNPPRE-HFDLSMPAFLQIAQ-E---
---KA-

GIVPISY-RRVPCVKVG-GIRYT--ITGN--PY-FN---LVMVSNVGGAGDVAGLS--VKGNK--RVK-WT---
PLKRNW

GQEWQ-TSEV---LTGESLTFRVM--G-DHRKATSWHVLPPDW--QFGVTYQATK---NF

>OsEXPA33PRO

W--T-----P-ATATFY--GGSDGAGTM----G-GACGY-GNLYN-
AGYGLNNAALSSALFNDGAMCGACYTIACDT--

-----SQST----W-CKP-GT-SITITATNLCPPNYAKKSD--AGGWCNPPRK-HFDMSQPAWTSIAI-Y-----
QA-

GIVPVNF-KRVPCQKSG-GIRFT--ISGR--DY-FE---LVTVFNVGGSGVVAQVS--IKGSK--T-D-WM---
AMSRNW

GQNWQ-SNAY---LNTQSLSFVKVL--D-DAREVTWVNIAPSNW--NFGTTYTSNI---NF

>CpEXPB1 [X]

W--M-----A-GHATWY--GEPNGEGSS----G-GACGY-TKLTG-
TPYGPRIAAGNDAIFQGGKGCQCYEVKCSY--

-----AE-----CRQ---EATRIVTDQCP-----GGEYCSKAEP-AFDLSGAAISAMAL-PDKDGALRNI
GLYDILY-KRVPCFQGGQNIQAFQ--VDQGSTGF-WL---SFVVKFLGGPGDIDSVE--IRHSG--SSS-FQ---
PAKHNW

GASWM-LINTSGQAFKGPYDIRVVS--KLNGHAVTAEKVIPEFF--EPGKLYESNV---QL

>CpEXPB2 [A]

W--V-----F-GHGTWY--GDPYEGSS----G-GNCGY-TKLAG-
TPYGPKIVAGSPAIIYANGLGCGQCYQVKCTD--

----SKNGPR----L-CNP---SGTQVVVTDFCP-----GGTYCSTGEK-AFDFSGAALNAMAL-
PGKDGQLRNR

GLYNVLY-KRVPCYKQNIQAFR--VDPGSSPY-WL---SVLIKYVGGPGDIGAVS--IKMAN--SYK-FM---
PMKHAW

GANWM-LQNYDGKPFKGPMDIKIVS--RLNGHSVVAKGVIPGYF--RPGTTYTSRV---QM

>CpEXPB3 [A]

W--V-----Y-GHGTWY--GDPYEGSS----G-GNCGY-TKLAG-
TPYGPKIVAGSPAIIYANGLGCGQCYQIKCLD--

----SKYGPR----L-CNS---WGTQVVVTD FCP-----GGTYCSSGQK-AFDFSGAALNAMAL-
PGKDGQLRNR

GLYNVLY-KRVPCKYKGQNI AFR--VDPGSSPY-WL---SVLIK YVGGPGDIGAVY--IKMAN--SYR-FM---
PMKQAW

GANWM-LQNYDGKPFKGPM DIKIVS--RLNGHSV VAKGVIPGYF--RPGTTYTSRV---QM

>CpEXPB4 [A]

W--V-----F-GHGTWY--GDPYGE GSSGMFNG-GNCGY-TKLAG-
TPYGP KIVAGSPA IYANGLGCGQCYQVKCTD--

----SKNGPR----L-CNP---SGTQVVVTD FCP-----GGTYCSTGEK-AFDFSGAALNAMAL-
PGKDGQLRNR

GLYNVLY-KRVPCKYKGQNI AFR--VDPGSSPY-WL---SVLIK YVGGPGDIGAVS--IKMAN--SYK-FM---
PMKHAW

GANWM-LQNYDGKPFKGPM DIKIVS--RLNGHSV VAKGVIPGYF--RPGTTYTSRV---QM

>CpEXPB5 [A]

W--V-----Y-GHGTWY--GDPYGE GSSGM--G-GNCGY-TKLAG-
TPYGP KIVAGSPA IYANGLGCGQCYQIKCLD--

----SKYGPR----L-CNS---WGTQVVVTD FCP-----GGTYCSSGQK-AFDFSGAALNAMAL-
PGKDGQLRNR

GLYNVLY-KRVPCKYKGQNI AFR--VDPGSSPY-WL---SVLIK YVGGPGDIGAVY--IKMAN--SYR-FM---
PMKQAW

GANWM-LQNYDGKPFKGPM DIKIVS--RLNGHSV VAKGVIPGYF--RPGTTYTSRV---QM

>CpEXPB6 [X]

W--M-----A-GHATWY--GEPNGEGSS----G-GACGY-TKLTG-
TPYGPRIAAGNDAIFQGGKGCGQCYEVKCSY--

-----AE-----CRQ---EATRIVITDQCP-----GGEYCSKAEP-AFDLSGAAISAMAL-TDKDGALRNI

GLYDILY-KRVPCEFQGGQNI AFQ--VDQGSGTF-WL---SFVVKFLGGPGDIDSVE--IRHSG--SSS-FQ---
PAKHNW

GASWM-LINTSGQAFKGPYDIRVVS--KLNGHAVTAEKVIPEFF--EPGKLYESNV---QL

>CpEXPB7 [A]

W--M-----A-GHATWY--GDPYGE GSS----G-GACGY-TQLTG-
TPIGSKIAAGNNPIFQGGKGCGQCYEVKCNY--

-----PS-----CNP---EPTRIVITDLCP-----GGTYCSTGNP-AFDFSGAAITAMAL-PGRDGELKKI

GLYDIQY-KRVPCEYQNQNIAFK--VDFGASAY-WL---SFTVKYLGGPGDIESVE--IRQVG--SNGSFQ---PCQHSW

GANWM-LINYTGQPFDPYDVKITA--KLNGHSVIAYRAIPKWF--QPGALYNSNV---QF

>CpEXPB8 [ACnFn]

W--I-----A-GHATWY--GDPYGEGSN----G-GACGY-TELAG-TPYGLSVAAGSAIFQNGQGCGQCYDVKCSY--

-----PS-----CKQ---EPTRVVITDSCP-----GGTYCSTGEP-AFDLSGMAMSNMAL-PGRDQELRNL

GLYDIQY-KRVPCYYPNQNIAFK--VDPGSTPY-WL---SFTVKYQGGPGDIQNVE--IRQAG--SSE-FQ---PLQHNW

GANYM-MICYSGQPFRGPYDVKITA--KLNGHVLIAEHAPEYF--QPGGLYESNV---QL

>PpEXPB1PRO

W--L-----G-GHATWY--GDPYGEGSS----G-GACGY-TQLTG-TPIGSKIAAGNAPIFQEGKCGQCYEVKCNV--

-----PS-----CSP---QGTRIVITDLCP-----GGQYCSTDQP-AFDFSGAAITAMAL-PGRDGELRNI

GLYDIQY-KRVPCEYPNQNIAFK--VDAGSSKY-WF---SFTVKYLGGPGDINTVE--VKCGK--NGY-FQ---YAQHSW

GANWM-LINYSGVFPFQPLTIKITT--KLNDHTVVAEDVIPDWF--GPGVQYESNV---QI

>PpEXPB2PRO

W--V-----R-ARGTWY--GDPYGEGSS----G-GNCGY-TKLWG-TPIGPKIVAGSRSIYANGQCGQCYQIRCVD--

----PNGGPR----L-CNP---QGTNVVVTDFCP-----GGTYCSTGEN-AFDMSGAAINAMAL-RGREGQLRNR

GLYNLLY-KRVPCRYRGTNIEFR--VDNGSSPF-WL---SILIKYVGGPGDIGQVY--IRMAN-----WYKFQPMRHAW

GANWM-IPNYDGKPFGRPMDIRIVS--RLNRHTVLARGVIPAYF--RPGTSYRSRV---QM

>PpEXPB3PRO

W--L-----P-GHATWY--GDPYGEGSS----G-GACGY-TELAG-TPYGLSVGAGSAVIYQNGQGCGECYEVKCTY--

-----PS-----CKP---TPSRIVITDFCP-----GGTFCSTGEP-AFDLSGMAMTNMAL-PGRDQELRNL

GLYEQY-RRVPCYYPNQNVAFK--VDPGSTPF-WL---SFTIEYQGGPGDIESVA--IRQAG--SSE-FQ---QMQRHNW

GANYM-LICYSKPKFKGPYDVMITA--KLNGHVLIAQDAIPEYF--QPGGIYESNV---QL

>PpEXPB4PRO

W--V-----P-GHATWY--GDPYGEGSS----G-GXCGY-LQLTG-
TPIGNKIAAGNEAIFQKGKGGXXQCYEVKCN--

-----PV-----CRP---EGTRIVITDLCP-----GXQFCSGGNP-AFDLSGAAISAMAK-DGQDGLRNI

GLYDIQY-KRVPCEYPGQNVFK--VDAGSSPF-WL---SFTVKYMGPGDIESVS--ISQRD----GSFI---
PAQHSW

GANWM-LINYSKAPFQGPYSVKINC--MLNGHTVVAKDVIPAGF--APGQEYESNV---QI

>PpEXPB5PRO

W--M-----A-GHATWY--GEPLGEGSS----G-GACGY-TKLAD-
TPYGPKIAAGNDPIFQGGSGCGACFEVKCN--

-----PS-----CKS---EPTRIIITDQCP-----GGTYCSTSQP-AFDLSGAAISDMAN-SGKDGELRNI

GLYDILY-KRVPCEYPNQNIQAFQ--VDAGSSAF-WL---SLLVKYMGPGDIESVE--IRTG--SSS-FQ---
PAKHNV

GASWM-LINTSGQPKFKGPYDVKIVS--KLNGHTVIAEKAPEFF--EPGKLYESNV---QM

>PpEXPB6PRO

W--V-----R-ARGTWY--GDPYGEGSS----G-GNCGY-TRLXG-
TPIGPKIVAGSRSIYXNGLGCGQCYQNQCVD--

----PXXGXK----L-XNS---FXTQXXXTDFCP-----GGXYCSTGEN-AFDMSGAAINAMAL-
PSREGQLRNR

GLYNLLY-KRVPCRYRGTXIXXR--VDXXSSAY-WL---SILIKYVGGPGDIGQVY--IKMANWFA---FQ---
PMKHAW

GANWM-MPSYDGKPKFKGPMKIVS--KLNHRHSVVARGVIPGYF--RPGTTYNSRV---QM

>AaEXPB1PRO

W--K-----P-ATATWY--GAPDGAGTD----G-GACGY-GNLVG-
TPYGKRVTAGSPVLFGGLGCGACYQVKCMI--

-----PK-----L-C---AKKAVRVVITDECP-----GGYCSGLNT-HFDLSGTAFSGMAN-
PGLGSSLLNL

GVLPMYLY-KRVPCVYRR-PMKIE--VAAGSSPF-WF---SVLIKFVRGAGELKSVE--LQQGG--TNY-WY---
SMQHIW

GANWSVNVGS---GLKGPFTLR LTC--LLTGQQIVIRNVIPGNW--APATTYLASV---NF

>AaEXPB2PRO

W--L-----S-CKATFY--GPQDGDGTD----A-GNCGY-GALAS-
SPYGKNIAAGSPELYQDGLGCGACFQIKCTN--

-----D----G-CKD---EASTVITDQCP-----GGEWCGVGKP-HFDLRGTAFANLAV-
AGRSSDLFTR

GVLDLQY-QRVACSYGAQTVAF--MDANCNPN-WI---AFVVEFQAGDGDLSVE--LKDAS----
SDWQ---AMSHNW

GANWQ-FSGS---LTG-PISVRLTS--NTANQVLVAQDAIPANW--KPGQTYKSQD---QF

>AaEXPB3PRO

W--L-----S-CKATFY--GPQDGDGTD----A-GNCGY-GALAS-
SPYGKNIAAGSPELYQDGLGCGACFQIKCTN--

-----D----G-CKD---EASTVITDQCP-----GGEWCGVGKP-HFDLSGTAFANLAV-
AGRSSDLFTR

GVLDLQF-QRVACSYGAQTVAF--MDANCNPN-WI---AFVVEFQAGDGDLSVE--LKDVS----
SDWQ---AMSHNW

GANWQ-FSGS---LTG-PISVRLTS--NTANQVLVAQDAIPADW--TPGQTYQSQD---QF

>AaEXPB4PRO

W--L-----S-CKATFY--GPQDGDGTD----A-GNCGY-GALAS-
SPYGKNIAAGSPELYQDGLGCGACFQIKCTN--

-----D----G-CKD---EASTVITDQCP-----GGEWCGVGKP-HFDLSGTAFANLAV-
AGRSSDLFTR

GVLDLQY-QRVACSYGAQTVAF--MDANCNPK-WI---AFVVEFQAGDGDLSVE--LKDAS----
SDWQ---AMSHNW

GANWQ-FSGS---LTG-PISVRLTS--NTANQVLIAQDAIPANW--KPGQTYKSKQ---QF

>AaEXPB5PRO

W--L-----S-CKATFY--GPQDGDGTD----A-GNCGY-GALAS-
SPYGKNIAAGSPELYQDGLGCGACFQIKCTN--

-----D----G-CKD---EASTVITDQCP-----GGEWCGVGKP-HFDLSGTAFANLAV-
AGRSSDLFTR

GILDLQY-QRVACSYGAQTVAF--MDANCNPN-WI---AFVVEFQAGDGDLSVE--LKDAS----
SDWQ---AMSHNW

GANWQ-FSGS---LTG-PISVRLTS--NTANQVLIAQDAIPANW--KPGQTYKSQD---QF

>AaEXPB6PRO

W--L-----A-CKATWY--GEQDGDGSD----G-GACGY-GELSS-
KPYGKNIAAGSPVLYQDGLGCGSCYQVKCTS--

-----DPA-----C-S-GD-PVTVVLTDICP-----GGS LCGIGKP-HFDLSGTAMGNMAA-
AGKGSDLRGL

GVVDILY-KRVPCSYPEQNVITIA--VDQGSNPS-WL---ELTVLYEGGPGDLSALE--VKDAT----SQWQ---
PMVHKW

GANWGYDKAA---DLHGALSIRLTS--GLGSLPLVAQNALPADW--APGQTYQTVA---QF

>AaEXPB7PRO

W--V-----A-CKATWY--GEPDGDGSDVNA-G-GACGY-GELSS-
KAYGKSIAAGSPVLYQDGLGCGSCYQVKCTS--

-----NP----A-C-S-GD-PVTIVLTDICP-----GGS LCGVGKP-HFDLSGT AIGNMAA-
AGKGSDLRGL

GVVDILY-KRVPCAYPEQNVITIA--VDQGSNPS-WL---ELTVLYEGGPGDLSALE--VKVTS--HSS--N---
PALACR

GSQI-----VVCVFAPELTTHAGLGT----AQDA-TSQWHRSGSRTLYIIP---SR

>AaEXPB8PRO

W--L-----S-CKATFY--GPRDGDGTD----A-GNCGY-GALAS-SPYGSNIFAGSPELYQDGLGCGDAS--
RCTN--

-----D----G-CND--T-PTTVVMTDQCP-----GGEWCGIGKP-HFDLSGTAFGSLAA-
AGRSSDLFTL

GVLDIQY-QRVPCSYSTQTVAFA--MDANCNPN-WI---AFVVEFQAGDGDLSHSVE--LKSRF--TSD-WQ-
--AMSHNW

XANWQ-FSGS---LQG-PIPVRLTS--NTANQVLVAKDAIPADW--TPGQTY-----QF

>AtEXPB2PRO

W--S-----I-AGSTWY--GNPTGYGSD----G-GACGY-
GNAVAQPPFSKMVSAGGPSLFSKSGKGC GACYQVKCTS--

-----KS----A-C---SKNPVTVITDECP-----GCVKESV-HFDLSGTAFGAMAI-SGQDSQLRNV

GELQILY-KKVECN YIGKTVTFQ--VDKGSNAN-SF---AVLVAYVNGDGEIGRIE--LKQAL--DSDKWL---
SMSQSW

GAVWKLDVSS---PLRAPLSLRVTS--LESGKTVVASNVIPANW--QPGAIYKSNV---NF

>AtEXPB3PRO

W--L-----P-AVATWY--GSPNGDGSD----G-GACGY-
GTLVDVKPLHARVGAVNPILFKNGEGCGACYKVRCLD--

-----KS----I-CSR---RAVTVIITDECP-----GCSKTST-HFDLSGAVFGRLAI-AGESGPLRNR
GLIPVIY-RRTACKYRGKNIAFH--VNEGSTDF-WL---SLLVEFEDGE GDIGSMH--IRQAG--ARE-WL---
EMKHWV

GANWC-IIGG---PLKGPFSIKLTT--LSAGKTLSATDVVPRNW--APKATYSSRL---NF

>OsEXPB15PRO

W--S-----N-GGATWY--GAANGAGSD----G-GACGYQGAVFQ-
APFSSMIAAGSPSIYKSGLGCGSCYQVKCTG--

-----NS----A-CSG-N--PVTVVLTDCEP-----GGPCLSEPV-HFDLSGTAFGAMAN-
PGQADQLRAA

GVLQIQY-NRVPCNWGGVKLTFV--VDVGSNPN-YF---AVLVKYENG DGDLSGVE--LMQTG--
AGAAWT---QMQQSW

GAVWKLNAGS---ALQAPFSIRLTS--S-SGKTLVASNVIPSGW--KPGMSYISTV---NF

>OsEXPB16PRO

W--H-----P-ATATWY--GSADGDGSD----G-GACGY-
GTLVDVVP MKTRVGAVSPVLFKGGEGCGACYKVRCLD--

-----AS----I-CSR-R--AVTVIVTDECP-----GGVCAFGRT-HFDLSGAA FARLAV-
AGHGGQLQNR

GEISVVY-RRTACKYGGKNIAFH--VNEGSTTF-WL---SLLVEFEDGE GDIGSMQ--LKQAN--SAQ-WQ--
-DMKHIW

GATWS-LTPG---PLVGPFSVRLTT--LTTRQTL SAQDVIPKNW--TPKATYTSRL---NF

PC Distance Alignment

>SpmEXP1 [ABF]

V-----LADDTIDADTTYGGAN--AGGAQ----A-GACGY-GNLFTA-
GYGTAITAVSTPLWKGAACGAC

YE-L--SCKP-----G---TS-G--CYN-T---KLVVTVTDQC---PD-----
GGEWCQPDKPHFDLSQPVFAQL

AQ-----ISL-GHFPVTA-RRVTCPRTG-GVKVVA----QGNSN-WL---LVKFMNVAGGGTVNAAWVK-
GSN--SD-

WI--PMSFNWGVGYQITGNI---PQG-PYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI

>SpmEXP2 [x]

W-----ND-----AHATFYGGAD--ASGTM----G-GACGY-GNLYSS-
GYGTDTA AASSALFNDGMSCGQC

YQ-L--QCVG-----SS-A--CKP-G---MITVTVTNLC---PNDFSKPSD--
AGGWCNYPRQHFDLSQPAYQKI

GV-----YGA-GIVPIQY-RRVPCLRTG-DIMFSM----GGNPF-YL---DVTIKNVGGSGDLSAVWVK-GNS-
-GQ-

WR--QLSQNWGMQWS-ADIA---VQGQALSFRLQS--QTTGQILTVENAVPSSW--SPGSTYQ----AGQF
>SpmEXP3 [x]

W-----ND-----AHATFYGGAD--ASGTM----G-GACGY-GNLYSS-
GYGTDAAASSALFNDGMSCGQC

YQ-L--QCVS-----SS-V--CKP-G---MITVTVTNLC---PNDFSKPSD--
AGGWCNYPRQHFDLSQPAYEKI

GV-----YGA-GIVPIQY-RRVPCLRTG-DIMFSM----GGNPF-YL---DVTIKNVGGSGDLDAVWVK-GSS-
-GQ-

WR--QLSQNWGMQWS-ADIA---VQGQALSFRLRS--QTTGQVLTVEDAVPSSW--SPGSTYQ----
AGQF

>SpmEXP4 [CBF]

W-----QP---FNMTATFYGGPN--AENT-----G-GACGY-GDMFTA-
GFGTSTVAASSMLFKDGQSCGAC

YQ-V--RCVN-----AV-G--CIK-DA--YIQITVTNYC---PPRTDMS----
TPGWCDGDNMHFDMSQPAFTQI

AE-----YSA-GVVPVEV-MRVPCTRGG-NIQWQV----GGNPN-WL---QLNVRNIAGDGDIAAISVK-
GTN--TD-

WV--TMTQSFQVTWQ-ADGM---FQGQALSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYT----AGQY

>SpmEXP5 [x]

W-----KT-----VTASFYGGAD--ASGNM----G-GACGY-GNDVSS-
TYGLYTAAASTALYSEGLACGQC

FQ-V--QCAN-----SK-A--CIA-GK--SVTVTVTNFC---PNNWALPSN--
AGGWCNFPQRHLDMSQPAFTQI

AQ-----YSA-GIVPVQI-RRVPCLRSG-SIAFGL----GGNTF-WL---QVNIRNVGGSGDISSVQVK-GNG-
--A-

WL--TMDHEWGQNWS-VDAK---LGGQSLSFRLTT--MTTGETLEIDNAAPSNW--QVGKTYQ----AGQF

>SpmEXP6 [CBF]

W-----QP---FNMTATFYGGPN--AENT-----G-GACGY-GDMFTA-
GFGTSTVAASSMLFKDGQSCGAC

YQ-V--RCVN-----AV-G--CIK-DT--YIQITVTNYC---PPRTDMS----
TPGWCDGDNMHFDMSQPAFTQI

AD-----YSA-GVVPVEV-MRVPCTRDG-NIQWQV---GGNPN-WL---QLNIRNIAGDGDIAAISVK-
GTN--TD-

WV--TMTQSFGVTWQ-ADGM---FQGQPLSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYT----AGQY

>SpmEXP7 [ABF]

G-----LADDTIDADTTYGGAN--AGGAQ----A-GACGY-GNLFSA-
GYGTSITAVSTPLWKGGAACGAC

YE-L--SCKP-----G---TS-G--CYN-T---KLVVTVTDQC---PD-----
GGEWCQPDKAHFDLSQPVFAQL

AQ-----ISL-GHFPVTA-RRVSCPRSG-GVKVVA----QGNSN-WL---LVKFMNVAGGGTINAAWVK-
GSN--SD-

WI--PMSFNWGVGYEITGNI---PQG-PYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI

>SpmEXP8 [x]

W-----KT-----VTASFYGGAD--ASGNM----G-GACGY-GNDVSS-
TYGLYTAAASTALYSEGLACGQC

FQ-V--QCAN-----SN-A--CIV-GK--TVTVTVTNFC---PNNWALPSN--
AGGWCNFPQRHLDMSQPAFTQI

AQ-----YSA-GIVPVQV-RRVPCLRSG-SITFGL----GGNTF-WL---QVNIRNVGGSGDISSVQVK-GSG-
--A-

WL--TMDHEWGQNWS-VDK---LGGQSLSFRLT--MTTGETLEVANAAPSSW--QVGKTYQ----AGQF

>SpmEXP9 [x]

W-----ND-----AHATFYGGAD--ASGTM----G-GACGY-GNLYSS-
GYGTDTAASSALFNDGMSGQC

YQ-L--QCVG-----SS-A--CKP-G---MITVTVTNLC---PNDFSKPSD--
AGGWCNYPRQHFDLSQPAYEKI

GV-----YGA-GIVPIQY-RRVPCLRTG-DIMFSM----GGNPF-YL---DVTIKNVGGSGDLDAVWVK-GSS-
-GQ-

WR--QLSQNWGMQWS-ADIA---VQGQALSFRLRS--QTTGQILTVENAVPSSW--KPGSTYQ----AGQF

>SpmEXP10 [ABF]

V-----LADDTIDADTTYGGAN--AGGAQ----A-GACGY-GNLFSA-
GYGTSITAVSTPLWKGGAACGAC

YE-L--TCKP-----G---TS-G--CYN-T---KLVTVTDQC---PD-----
GGEWCQPKPHFDLSQPVFAQL

AQ-----ISL-GHFPVMA-RRVSCPRSG-GVKVVA----QGNSN-WL---LVKFMNVAGGGTINAAWVK-
GSN--SD-

WI--PMSFNWGVGYQITGNI---PQG-PYSFQLRD--SYTGQVFTTDACLPSGW--NVGQTYSCDGNASPI
>SpmEXP11 [CBF]

W-----QP---FNMTATFYGGPN--AENT-----G-GACGY-GDMFTA-
GYGTSTVAASSMLFKDQGSCGAC

YQ-V--RCVN-----AV-G--CIK-DT--YIQITVTNYC---PPRTDMS----
TPGWCDGDNMHFDMSQPAFTQI

AD-----YSA-GVVPVEV-MRVPCTRDG-NIQWQV---GGNPN-WL---QLNIRNIAGDGDIAAISVK-
GTN--TD-

WV--TMTQSFGVTWQ-ADGM---FQQQALSFRVTS--LLTGKVLQVDDAVPAGW--TVGSVYT----AGQY
>SpmEXP12 [x]

W-----KT-----VTATFYGGAD--ASGNM----G-GACGY-GNDVSS-
TYGLYTAAASTALYSEGLACGQC

FQ-V--QCAN-----SN-A--CIA-GK--TVTVTVTNFC---PNNWALPSN--
AGGWCNFPQRHLDMSQPAFTQI

AQ-----YSA-GIVPVQV-RRVPCLRSG-SIAFGL----GGNTF-WL---QVNIRNVGGSGDISSVQVK-
GSG--A--

WL--AMDHEWGQNWS-VDK---LGGQSLSFRLT--MTTGETLEIDNAAPLSW--QVGKTYQ----AGQF
>CbEXP1 [x]

W-----QD-----GRATYYGSEAFGGDNEH----N-GACGY-GTLSAA-
FVGHNAAAAPVIFESGRACGGC

FE-V--QCRG-----N---GY-P--CRA-GT---ARVTVTDLC---PPIPP-----NLRHCAGGKAHLDLGVRVPFII

AD-----PRA-GVVDIRF-RTVPCGRFN-AITFFI----RGNVYGWL---SLVVMGVPASGRVVGMEVK-
ASG--STN

WE--ALRHDYGAAYMRTGRP---LRT-PISVRLSI--FGKLCRMTAMNCIPTGF--KDRQKVS-----CSY
>CbEXP2 [H]

W-----IN-----GHSTFYDDHG-----R----G-GACGY-GALGSQ-
LYGTRFAAGSPRVYLGGLACGMC

LE-V--RCVG-----SR-A--CRR-S---SVRLTITDLC---PPGY-----NTQWCGGGKLHLDIGKDAFPPII

AD-----PRA-GHVPIQF-RSVPCAPYK-VLKLNL----RGHRW-WL---EVTALAIPGSGRVLKMEVA-
GKG--GR-

WV--SMKRAFGAAWSTAGST---LQT-PISVRISI--FGKLCKLIAKDCINGQI--YNGRQLS-----CAY

>CbEXP3 [H]

W-----IS-----GHSTFYDDHG-----R----G-GACGY-GALGSQ-
LYGTRFAAGSPRVYLGGLACGMC

LE-V--RCVG-----SR-A--CRR-S---SVRLTITDLC---PPGY-----NTQWCGGGKLHLDIGKDAFP

AD-----PRA-GHVPIQF-RSVPCAPYK-VLKLNL----RGHRW-WL---EVTALAIPGSGRVLKMEVA-
GKG--GR-

WV--SLKRAFGAAWSTAGST---LQT-PISVRISI--FGKFCKLIAKDCIKGQI--YNGRQLS-----CAY

>CbEXP4 [H]

W-----IN-----GHSTFYDDYG-----R----G-GACGY-GRLGSQ-
LYGTRFAAGSPRVYLGGLACGMC

LE-V--RCVG-----SR-A--CRR-S---SVRLTITDLC---PPGY-----NTQWC---QIHLDIGKNAFP

AD-----PRA-GHVPIQF-RTVPCAPYK-VLKLSL----RGHRW-WL---EVTALAIPGSGRVLKMEVA-
GRG--GR-

WV--SLKRAFGAAWATAGAT---LQT-PISVRISI--FGKLCKLIAKDCIKGQI--YNGRQLS-----CAY

>CbEXP5 [H]

W-----LN-----GHSTFYDDYG-----R----G-GACGY-GALGGQ-
LFGTRFAAGSPSVYLGGLACGMC

LE-V--RCVG-----ST-A--CRR-S---SVRLTITDLC---PPGY-----NTQWCGGGKLHLDIGKDAFP

AD-----PRA-GHVPIQF-RSVPCAPYK-VLKLNL----RGHRW-WL---EVTALAIPGSGRVLKMEVA-
GKG--GP-

WV--SMTRAFGAAWSTAGST---LQT-PISVRISI--FGKLCKLIAKDCIDGQI--YNGRQLS-----CAY

>CbEXP6 [H]

W-----IN-----GHSTFYDDHG-----R----G-GACGY-GPLGSQ-
LFANRFAAGSPRVYLGGLACGMC

LE-V--RCVG-----SR-A--CRR-S---SVRLTVTDLC---PPGY-----NTQWCGGGKLHLDISKNAFP

AD-----PRA-GHVPIQF-RSVPCAPYR-ILRLNL----RGHMLW-WL---EVTALAIPGSGRILRMEVA-GRG-
-GR-

WR--SMKRSFGAAWSTTGAS---LRL-PISVRISI--LGKFCKLIARDCIKGQI--YNGKQLS-----CRY

>CbEXP7 [H]

W-----LS-----GKATFYSGGD-----Q----G-NACGY-GRLTGA-
IFGRNFAAVSPRIYLGGLACGMC

LE-V--KCVG-----HP-G--CRR-G---VARVTVDLC---PARPP-----
NMAFCAGGKLHLDLGRDVPVI

CN-----PRV-GVAPIRF-RAVPCARYR-TLNIIL-----NGNRYGYM---AIVVMSIPGSGRVIRMDVR-GRG--
GRN

WE--PLRRDWGATFMRTGRP---LRY-PVSIRVSI--LGKLCRLIARNCIKGQF--FNGRKLS-----CSY

>CbEXP8 [AB]

W-----TE-----GATLTFYGDAN--GGGTL----A-GACGY-GNLLAT-
PYKLMIAAGNPPMFEEGLGCGRC

WE-I--RCVG-----NP-G--CTA-----TVTITMTDLC---P-----CGSDGVHFDMSQPAFHAL

ASGPAEAEQLVTAGKLQGQY-RRVPCDLGL-GKAFTAIVRAATNPS-FL---
SILMRDIPGAGDIKTAECAPGGG--ST-

FS--PMTQDFGAMYN-FNGK---WTS-PVSLRRTL--G-DGQILTGISCIPAAW--KPTTTYT-----CK-

>CbEXP9 [H]

W-----QS-----GTGTFYSGGH-----G-GACGF-AGLGYS-
IFAENYVAVSTALWNSGAACGTC

LE-V--RCKG-----P---SS-A--CIA-GA--TIKVTVTDFC---PNTYP-----NLAHCGTDKHHLDLGENVFPKI

AA-----RSV-GVIDLEY-RRVPCVQAP-SITVSV----EGNQYGYL---ALNLMRLPGAGTVAQLEIK-GAN--
GA-

YE--QCRRDWGNTFVRTGKP---IEA-PLSLRVSV--G-GICTFEAKDCIKSL---NFGSSVT-----CSY

>CbEXP10 [H]

W-----IN-----GHSTFYDDFG-----R----G-GACGY-GRIGSQ-
LYRNRFAAGSPRVYLGGLACGMC

ME-V--KCVN-----SP-A--CRP-G---SVRVTITDLC---PPKYP-----
NLRWCTGGKIHLDMARGAFPVI

AN-----PGA-GHVPIQF-RSVPCAPFR-LLKFTL----RGNRWGWL---EVTTLTIPGSGRVLRLEYA-
MKG--GA-

WT--GMSRAFGAAWA-TKGK---FLRFPISIRIAV--FGKFCKLVAKDCIKGQF--WNGQQLS-----CSY

>CbEXP11 [x]

W-----TEG-----ATLTFYGDAN--GGGTL----V-GACGY-GNLLAT-
PCKLMIAAGNPPMFEEGFSGCGRC

WE-I--RCVG-----NP-G--CTA----TVTITMTHLC---P-----CGSDTVHFDMSQPAFHAL

ASGPAAEQLVTAGKLQGQY-RRVLCDLGL-GKAFTAIVREATNPS-FL---
SILMRDIPGAGDIKTAECAPGGG--ST-

FS--PMTQDFGAMYN-FNGK---WTS-PVSLGLTL--G-DGQILTGISCIPAAW--KPATTYT-----CKX

>CbEXP12 [H]

W-----TG-----GTATFYSGGR-----G-GACGF-GGLGYA-
YGERYAAASMKIWQNGAACGMC

VE-I--KCMG-----PS-G--CYA-GK--IVKVTITDFC---PNTHP-----
NLAHCGPEKNHIDMGQNSFPVI

AN-----PRV-GVINIQY-RVPCNAYG-NFQVQI----NGNQYGWL---SLLIAQIPGSGRVVGCEVQ-
GAG--MNY

WE--GLRRVWGSNWMRTGTP---LKT-PIHVRLSL--LGQICKVTSRNCIPNGF--YFGQAVK-----CNL

>CbEXP13 [H]

W-----TS-----GTATFYSGGS-----G-GACGF-GGLGYA-
YGERYAAASMRIWQNGAACGLC

VE-I--RCTG-----PS-G--CYP-GK--VVKVTITDFC---PNTTP-----
NLAHCGPDKNHIDMGQNSFPVI

AD-----ARV-GVIDIEY-RTVSCPTYS-NFQVQI----NGNQFGWL---SLLIAQIPGSGRVVGCEVQ-GSG-
-NDN

WE--ALKRTWGSNWWRTGTP---LKA-PIHVRLTL--WGQICKVTSHNCIPSGF--SFGQVVQ-----CNL

>CbEXP14 [H]

W-----TA-----GTATFYSGGR-----G-GACGF-GGLGYA-
YGERYAAASMKIWQNGAACGMC

VE-I--KCMG-----PK-G--CYA-GK--VVKVTITDFC---PNTTP-----
NLAHCGPEKNHIDMGQNSFPVI

AN-----PKV-GVINTQY-RVPCNPYT-TFQVQV----NGNQFGWL---SLLIAQIPGSGRVVGCEVQ-
GTG--MNY

WE--GLKRTWGSNWWRTGKP---LKA-PINVRLSL--LGQICKVTSRNCIPSGF--YFGQVVK-----CNL

>CbEXP15 [x]

W-----IS-----GHATFYDDHG-----R-----G-GACGY-GRLGSE-
LFGGRYAAGSPRVYLGGMACGMC

LE-V--KCVG-----VP-A--CKP-A---TVRVTVDLC---PDRPP-----
NTQWCGGGKLHLDMAAAMPVI

AN-----PRA-GHVPIQF-RSVPCAPYK-MLKLHL----RGNMFGWL---EVTALGIPGSGKVLKMEVA-
GSD--GS-

WV--VMKRAFGAAWAVAGRP---MRS-PISVRIAI--FGKLCKLVAKNCISGQN--FNGVDLS-----CAY

>CbEXP16 [H]

W-----IN-----AHATFYDDGG-----R----G-GACGY-GSLGSQ-
LFSNRFAAGSPAVYLGGLTCGMC

VE-V--KCVE-----SP-A--CKA-G---SVRLTITDLC---PPGAP-----
NTQWCGGGKRHLDLAKGAFPVI

AN-----PGA-GHVPIQF-RTVPCAPYN-VLTLNL----RGHQW-WL---EVTAVGIPGSGRILRVEVA-
GNG--SP-

WT--VMKRAYGAAWATAGST---LRS-PISVRVSI--FGNLCKLTARDCIKGPI--YNGRKVT-----CGY

>CbEXP17 [H]

W-----IN-----AHATFYDDGG-----R----G-GACGY-GSLGSQ-
LFSNRFAAGSPAVYLGGLTCGMC

VE-V--KCVG-----SR-A--CKA-G---SVRVTITDLC---PPGAP-----
NTQWCGGGKRHLDLAKGAFPVV

AN-----PGA-GHVPIQF-RTVPCAPYK-VLTLNL----RGHQW-WL---EVTAVGIPGSGRILRVEVA-GNG-
-SP-

WR--VMKRAYGAAWATAGSA---LRS-PISVRISI--FGNLCKLTARDCIKGPI--YNGRKVT-----CGY

>CbEXP18 [H]

W-----IN-----AHATFYDNGG-----R----G-GACGY-GSLGSQ-
LFSNRFAAGSPAVYLGGLTCGMC

VE-V--KCVG-----SR-A--CKA-G---SVRVTITDLC---PPGAP-----
NTQWCGGGKRHLDLAKGAFPVI

AN-----PGA-GHVPIQF-RTVPCAPYK-VLTLNL----RGHQW-WL---EVTAVGIPGSGRILRVEVA-GNG-
-SP-

WR--VMKRAYGAAWATAGST---LRS-PISVRISI--FGNLCKLTARDCIKGPI--YNGRKVT-----CGY

>CbEXP19 [F]

W-----RG-----GTATCYTGGR-----G-GACGF-SGALAL-
IYGQSYAAVSTRLWENGKVCQC

YE-V--RCVG-----SG-G--CRR-G---SVKVTVTDFC---PDTQA-----
NRRHCGATKQHIDLGRNAFPVI

AN-----PSV-GVINVQF-RTVPCAAYH-LLRISV----RGNRNGWLSKGLFLTNNRKADRVFAVEVK-
GRY--RNY

WE--RMTRTWGATYDRRGRP---LVG-PISVRVSL--FARFCKVVATNCIPAKW--YSGSTYH-----CTF
>CbEXP20 [B]

W-----SAVLYICISA-----G-GACGY-GPTLSQ--YGPYLTALSVSLYQTGLACGGC
FE-V--KCVD-----SP-H--CNS-GK--VVKVTAVDEC---P-----EGGYCVTGKMHFDLSQPAFKTI
GN-----QQA-GVIPILWRRRVQCERNG-AIELHM----QGGPY-WL---SILVKNTGGDGGVKSQVK-
PSD--KNE

WY--QMTHVWGQKWD-LAGPMMPLKG-PLSIKLIS--LYSGQVATGWNCISQQW--QSGQTYF---
ISQQF

>CbEXP21 [AB]

W-----ST-----GRATFYGAPD--GSGLD----G-GNCGF-GPLANS--
YGRYVAAISISLYQNGKGC

YE-V--KCVD-----SQ-W--CTG-K---SVIISATDQC---P-----DGGYCDNNQAHFDM SHPAFEMI
AQ-----KIA-GVIPVSW-RRVPCVRTG-PIQFVI----NGNPF-WF---TIMPKNVAGAGDVKSVEVQIGGR-

WW--PMIQLWGQNWLLSGMG---QVNGAISVRVTT--LLTGEVITVPNVIPSGW--KSGTPYT--SGMVNF
>CbEXP22 [x]

W-----IN-----GQATFYDDHG-----R----G-GACGY-GSLGSQ-
LFGGRYAAGSPRVYLGGLACGMC

FE-V--KCVR-----ST-A--CKA-G---SVRVTITDLC---PPRAP-----
NSRWCGGGKLHLD MGRQAFPVI

AN-----PRA-GAVPIQF-RSIPCAPYK-VLKLHL----RGSRF-WL---EVTALAIPGSGRILKMEVA-AAG--
GK-

WW--AMKRAFGAAWAVTGQP---MRT-PISVKISI--FGKLCKLIARNCIKGQS--FNGQNLN-----CGY

>AaEXPA1PRO

W-----QD-----GHATFYGGSD--ASGTM----G-GACGY-SNLYSQ-
GYGLATAALSTALFNGLSCGAC

FE-I--KCNQ-----PE-W--CVA-GAS-SIVVTATNLC---PPNPSPND--
NGGWCNEPLQHFDMSQPAFQQI

AQ-----YKA-GIVPVSY-RRVSCVKKG-GVHFTV----NGHSY-FN---LVLVSNVGGAGDVHAVSIK-GSN-
-TG-

WE--PMSRNWGQNWQ-SNSK---LDGQSLSFQVTT--S-DGQTLTFYDVASDNW--SFGQTFE---
GDSNF

>AaEXPA2PRO

W-----SS-----AHATFYGGND--ASGTL----G-GSCGY-GNLYDR-
GYGTSTAALSTALYNNGASCGAC

FE-I--QCTG-----SR-W--CKG-SA--PITVTATNFC---PQNPALPNN--
AGGWCNLPLQHFDMSVPAFLEI

AE-----QVG-GIVPVNY-RRVSCVKKG-GIHFTI----NGHAY-FN---LVLITNVGGAGDVHAVSVK-GSK--
TG-

WE--PMTRNWGQNWQ-CNSY---LNGQSLSFQVTT----SGGTLISYDVTPAGW--SFGQTFS-G---AQF

>AaEXPA3PRO

W-----NS-----AHATFYGGND--ASGTM----G-GACGY-GNLYSE-
GYGTNTAALSTALFDNGLSCGAC

YE-I--ACDS--SG-----TK-Y--CTG--SN-SITITATNFC---PENLALPSD--
NGGWCNQPRQHFDMAVPAFDQL

AA-----HVA-GIVPIKY-RRVSCVRKG-GVRFHL----NGHDY-FL---LLLVDNVGGNGAVHSVSIK-AGN-
-GP-

WK--ALSQNWGQNWQ-CNDY---ISGQTLSISITT--E-DGKTLVSNNVAPAGW--KFGETYA-G---SQY

>AaEXPA4PRO

W-----VKG----VAHATFYGGSD--ASETN----G-GACGY-GNLYSQ-
GYGTNTAALSSALFGGGETCGAC

YQ-L--KCTG-----G--CFS-GAP-KIVVTATNYC---PEGS-----
TGGWCNAPRVHFDLSEPAFTRM

AA-----AVT-GVVPVNY-RRVKCVKEG-GIKFQI----NGHSY-FN---LILITNVGGVGDVKEVYIQVSG--
SS-

WK--ACKRNWGQNWE-NDDY---LDGKSFSIKVIT--S-DNRFCNSPNVIPAGW--KFGTTYE-G---RQF

>AaEXPA5PRO

W-----KA-----AHATFYGGND--ASGTN----G-GACGY-GNIYSF-
GYGIANAALSYALFNSGAQCGAC

YE-I--KCYG-----SK-W--CLP-GNP-SITITATNSC---PPNWALPSD--
NGGWCNPPREHFDMSVPAWTSL

AV-----YVG-GIVPVNY-RRVPCSRKG-GIRFTI----SGNPN-FD---LVLVHNVAGDGVVTALSIK-GNG---
-N

WV--PMKRNWQGNWQ-CGAV---LTGQPLSFMVRT--S-DGRSLILYNVAPANW--SFGSTYQ---
SAQNF

>AaEXPA6PRO

-----ND-----AHATFYGDPS--GSATF----G-GACGY-GDLMAQ-
GYGLQTTALSEVLFSNGFSCGQC

YQ-I--QCID-----SK-W--CIP-NA--VITVTATNLC---PADYSKPND--
NGGWCNPPLKHFDLSMPAFHQI

AQ-----EVA-GIVPVTY-RRVPCVKLG-GVKFTI----LGNTW-WH---LVLITNVGGAGDIDTASIK-GSN--
TD-

WI--PMSHNWVGASFQ-CFQS---LVNQALSFQLTS--T-TGQVLTTFNVAPADW--SFGTTYE-G---GQY

>AaEXPA7PRO

W-----TTG----ATATYYGGSD--ATATN----G-GACGY-GNQIAL--
YGTVSTALSSAFFQNGVTCGAC

YE-I--QCTG-----SS-Y--CYS-GK--TVKVTATNLC---PDGS-----
YGGWCDGSKKHFDLSQPAFIQV

AQ-----QVV-GHFAAQY-RRVPCTRSG-GVRFTI----NGNTY-YN---LVLIQNVAGVGDVKAWSIK-GTS--
TG-

WL--SMSRNWGENWE-CDTK---LVGQALSFQVTL--S-DSTTKTFNNAASNW--AFGSTYS---SSVQF

>CpEXPA1 [AB]

W-----IGGN-----AHATYYGGVD--ASGTQ----G-GACGY-GNLYST-
GYGTNTAALSSALFNSGLTCGAC

YE-L--QCDS---T-G---SK-Y--CLP-GNP-SITITATNYC---PQN-----S--
LGGWCDAPRQHFDLAHPMFVSL

AQ-----EGG-GVIPVNY-RRVPCVKKG-GMRFQL----NGNPW-FV---LVLVTNVGGAGDVQQLYIK-
GDK--TG-

WY--PMKRNWQGMWQLTGNS--NMPGQALSFRVL--S-DGTNVESMDVAPANW--RFSQLFE-G---
SQA

>CpEXPA2 [X]

S-----GT-----GHITFYGTPN--GGGQA----SRGACGY-QNTYAL-
GYGSMTAALSSPLYQGAACGAC

FQ-L--TCMRIRETKTA---KN-W--CWS-YSR-SITVTATNLC---PPG-----S--
RDGWCNPPRNHFDLPYPAYLSL

AK-----REG-GVAPVTW-RRVPCRKRKRG-GIRFTV----GGNPW-FF---MILIHNVGGAGDVRSVKIG-CPY--TG-

WV--PMYRNWGALWT-VRRQ---MRG-QLSFLITT--S-DGRSVVARNNAVGKYW--KFGQTWE---CGAQF

>CpEXPA3 [X]

S-----GT-----GHITFYGTPN--GGGQA----SRGACGY-QNTYAL-GYGSMTAALSSPLYQGAACGAC

FQ-L--TCMRIRETKTA---KN-W--CWS-YSR-SITVTATNLC---PPG-----S--RDGWCNPPRNHFDLPYPAYLSL

AK-----REG-GVAPVTW-RRVPCRKRKRG-GIRFTV----GGNPW-FF---MILIHNVGGAGDVRSVKIG-CPY--TG-

WV--PMYRNWGALWT-VRRQ---MRG-QLSFLITT--S-DGRSVVARNNAVGKYW--KFGQTWE---CGAQF

>CpEXPA4 [AB]

W-----GK-----GKCTFYGGMD--AAGTM----S-GACGY-GNLYAS-GYGAYTAALSSALFKNGMACGAC

YE-V--ACSG-----N---AK-S--CKR-G---SVLVTITNFC---PPNPGRSAN--NGGWCNGANQHFDLSYPFAFI

AD-----PKA-GVVDLNY-RRVPCQKKK-GIRFTL----NGNCN-FN---IVTITNVGGSGVVTQAYMK-GDG--MD-

WA--PMTRNWWGANWQ-CSRN---YCGKGISIKIVT----SDKKVSVSRLADKTW--AFGKTYI--GQQVNX

>CpEXPA5 [AB]

W-----NS-----AHATYYGGAD--ASGTQGERRG-GACGF-GNLYST-GYGTSTAALSQALFNSGLTCGAC

FE-L--ACDS-----SG--SK-Y--CEG-AP--SVVVTATNFC---PSGS-----NGGWCDQPKQHFDLAMPVFDKI

AQ-----EVG-GVIPVKY-RRVPCQKKK-GMRFTI----NGNPY-FI---LVLVTNVAGAGDVQQISIK-GDN--TD-

WF--AMKRNWGQQWQFSGNS--ALVGQALSFKVVT--S-DGAVATSMNAAPANW--QFSQTFE-G---VNY

>CpEXPA6 [B]

W-----RG-----GGHITFYGGPN--GAGTQ----A-GACGY-QNTYKL-GYGSMTAALSSPLFQGAACGAC

FQ-L--RCAPVRRSRTA---RN-W--CYS-YAK-TITVTATNLC---PSG-----S--
TGGWCNPPRAHFDLPMPAFLT

AR-----REG-GVAPVFY-RRVRCAKRG-GIRFTI----GGNPW-FL---MVLHNVGGAGDVRSVRIK-GQY-
-TG-

WY--PMYRNWGALWT-VR TK---LSG-ALTFVTT----SDRRTVITRSVGGNW--RFGQTWE-G---ANF

>CpEXPA7 [B]

W-----KGG-----AHITFYGSPN--GGGTQ----A-GACGY-QNTYKL-
GYGSMTAALSSPLFRGGSACGAC

YQ-I--RCAPVRRTRTA---RN-W--CYS-YAR-TITITATNLC---PPG-----S--
TGGWCNPPRAHFDLPMPAFLT

AR-----REG-GVAPVYY-RKVRCAKRG-GIRFTI----GGNPW-FL---MVLHNVGGAGDMRSVRVK-
GQY--TN-

WY--PMYRNWGALWT-VR TK---LSG-ALSFAVTT--S-NGRTVVARNVVGKWW--KFGQTWE---ARTNF

>CpEXPA8 [X]

W-----GY-----AHITFYGTPN--GGGQA----SRGACGY-QNTYAL-
GYGAMTAALSSPLYKGGAACGAC

FE-L--KCIRIRESRSA---KN-W--CWS-YSR-SITITATNLC---PPG-----S--
TGGWCNPPKHFDLSYPAYATL

AR-----REG-GVAPVNY-RRVPCRKRKRG-GVRFTV----GGNPW-FF---MILIHNIAGAGDVRSVKIM-
CPY--TG-

WV--PMYRNWGALWT-VRKQ---MRG-PLSFAITT--S-DGRTIISRNAVGNYW--KFGQTWE---GRAQF

>CpEXPA9 [AB]

W-----NT-----AHATFYGGSD--AGGTE----G-GACGY-GDLYSS-
GYDTNTVAISSALFDRGLACGAC

YQ-V--KCAG--KA-----S-E--CHP-DSP-SIQVTVTNFC---PPNPSLPDN--
NGGWCNLPLHHFDMSEPAFQRI

AT-----YKS-AIVPVMY-RRTACMKSG-GIRFTM----SGHNF-MN---LVLVTNVGGMGDVQSVYIR-GSK-
-TK-

WV--AMARNFGQIWQ-STVN---MSGQSLSFMVTT--S-DGQTVVSNEVAPPDW--AFGQTYE-G---SQF

>CpEXPA10 [AB]

W-----RK-----AHATFYGGAD--ASGTM----G-GACGY-GNLHST-
GYGLDTTALSTALFNNGAKCGAC

FA-I--QCYR-----SK-Y--CLP-GTP-IITVTATNFC---PPNRQGDG---
TPGWCNPPLRHFDLAQPSFVKV

AK-----YRA-GIVPVLF-RRVPCQKKG-GVRFTL----NGNKY-FN---LVLVHNVGGKGDVRSVDIK-GSD-
-TE-

WM--PMKRNWGMNWQ-THTV---MVGKALSFRVTT--S-DGVTVTSM DAAPPQW--RFGQTFE-G---
AQF

>CpEXPA11 [AB]

W-----SP-----AHATFYGGAD--ASGTQ----G-GACGY-ENLYNQ-
GYGINTAAVSAPLFNDGAGCGAC

FE-L--VCDS----S-Q---SD-Y--CYS-NAS-SIIVTTTNFCPKAPEG-----T--
ENAWCDPPRIHFDLSEPIFLT

AQ-----KVA-GIVPVNY-RRVPCLKDG-GIKFTI----NGHKY-FF---LVLVTNVAGAGDIQELYIK-ASN--
TD-

WQ--PLTRNWGDNWE-LNQNTLNFVGQALSFKAVA--S-DKSEVVSMNVTPVDW--EFSQTFE-G---
SNF

>CpEXPA12 [A]

W-----TS---GQAHATYYGGAD--AAGTQ----G-GACGF-GNLWST-
GYGTDTAALSAALFNSGLSCGAC

YE-L--KCDT----A-G---SK-Y--CLP-GNP-SITVTATNYC---PQG-----S--
EGGWCDTPKQHFDLAHPAFTKL

AH-----EGG-GVFPVY-RRVPCAKQG-GMRFQI----NGNPW-FL---LVLVTNVGGAGDVQQLQVK-
GER--TG-

WY--QMVRNWGMWQFTGDH--TLPGQALSFRATL--S-DGSVVESWNCAPKNW--GFQQVFE-G---
TPA

>CpEXPA13 [X]

W-----RD----DGHITYYGSPN--GHGTQ----G-GACGY-QNTFSL-
GYDHLTAALSTPLFQGGAACGAC

YE-L--RCKFIKESKA---KN-W--CWN-YSR-SITSTATNLC---PPG-----S--
TGGWCDPPRNHFDLPMPAFTL

AR-----QNG-GVAPVHY-RRVPCQKKG-GIQFTI----GGNPW-FY---MILIHNVAGAGDVVRVQIK-SPT-
-TG-

WT--PMYRNW GALWT-VRKQ---LKG-ALSFQITT--S-DGRVVVTHNAVGHGW--RFGQTWE-G---AQY

>CpEXPA14 [AB]

L-----GR-----AHATYYGGPD--GQGTM----G-GACGY-GNLYNT-
GYGLSTAALSAPLYNGGRACGAC

YR-L--TCDT----S-G---SK-Y--CYG-GGK-SITITVTNFC---PSG-----S--
TGGWCNPPKQHFDLSYPMFTTL

AQ-----AAG-GVIPVNY-RRVACNKKG-GMRFTI----SGNPY-FY---QVLVFNVGGAGDVQRLFMK-
GPR--TG-

WI--AMKRNWQVWQYRGGP-KGLVGQPLSFRAHT--S-DGRYVISPNATPANW--RFGQTFE-G---
KNF

>CpEXPA15 [AB]

W-----GY-----AHATYYGGAD--ASGTQ----G-GACGF-GNLYST-
GYGTNTAALSAALFNTGLSCGSC

YE-L--ACDP----N-G---SK-Y--CLP-GGR-TVTVTATNFC---PHG-----S--
LGGWCDSPKQHFDLAHPMFVSL

AK-----EVG-GVIPIKY-RRVPCIKSG-GMRFTL----NGNPW-FI---LVLVTNVAGAGDVQQLYIK-GSR--
TQ-

WE--RMSRNWGSWMWQFTGNS--NMKGQALSFKAIT--S-DGSVAISTDAAPGNW--QFGQTFE-G---
SNF

>CpEXPA16 [AB]

W-----DN-----GHATFYGGDN--GAGTM----G-GACGY-GNLYNT-
GYGLKTAALSAPLFNGGRACGAC

YQ-L--TCVT----S-G---TK-Y--CYG-GGK-SITITATNFC---PTG-----S--
TGGWCNPPKKHFDLSYPMFAVL

AK-----KVG-GVIPVNF-QRVPCSRKG-GMRFTI----NGNPY-FF---LVMVYNVAGAGDVQRLFIK-GPS-
-TG-

WF--EMKRNWQVWQYNGGP-KGMVGQALSFRIT--S-DGRQVISTNAAPGNW--RFGQTFE-G---
RNX

>CpEXPA17 [AB]

W-----GQ-----AHATYYGGAD--ASGTQ----G-GACGF-GNLYNT-
GYGTNTAALSAALFNSGLSCGAC

YE-L--TCDP----S-G---SQ-Y--CLP-GGS-AI-ITATNFC---PTG-----S--
NGGWCNTPKQHFDLAQPVFSKI

AR-----TVG-GVIPINY-RRVSCSKSG-GMRFTI----NGNPY-FL---LVLVTNVGGAGDVQQLYIK-GAS--
TN-

WL--PLKRNWGMWQFTGNS--GMHGQAISFKAVT--G-DGATAVSDNVAPPNW--GFGQTFE-G---
ANF

>CpEXPA18 [B]

W-----RTD-----GHITFYGSPN--GGGTQ----A-GACGY-QNTYAL-
GYGSMTAALSTALFQGGAACGGC

FE-I--KCIP---PRSG---KN-W--CFS-YAK-SIIVTATNLC---PPG-----S--
TGGWCNPPRAHFDLPMPAFLTL

AQ-----KTG-GVAPVAF-RRVRCLKKG-GVRFTV----GGNPY-FL---MVLISNVGGVGDIRSVKIK-GSY--
TN-

WI--PMYRNWGSLWT-VRSK---ITG-ALSFLITL--S-DGSTLPCTNAVQANF--RFGQTWE---ARANL

>CpEXPA19 [X]

W-----KD-----DGHITFYGSPN--GGGTQ----A-GACGY-QNTYKL-
GYGSMTAALSTPLFQGLACGAC

FE-L--RCKFIRETKSA---KN-W--CYN-YSR-SIITATNLC---PPG-----S--
TGGWCDPPRKHFDLPMPAFETL

AK-----RVG-GVAPVYH-RRVPCQKKG-GIRFTM----AGNPW-FF---MILIHNVGGAGDVVAVKIK-
DPS--SA-

WA--PMYRNWGAIWT-VRKQ---MKG-ALSFQITT--G-DGRTVTTNNAVGNGW--KFGQTWE-G-
AQMRF

>CpEXPA20 [X]

W-----KD-----DGHITFYGSPN--GGGTQ----G-GACGY-QNTVSL-
GYGYMTAALSTTLFQGGAACGAC

FE-L--KCKFIKETNSA---KN-W--CYS-YSK-SIVITATNLC---PPG-----S--
TGGWCNPPRHHFDLPMPAFNTL

AK-----QVG-GVAPVLF-RRVPCQRKG-GIRFTV----GGNPW-FF---MILIHNVGGAGDITKVMIK-CPY-
-TP-

WY--PMYRNWGSLWT-VRTQ---MRG-SLSFQITT--S-DGRTVTTNNAVGNGW--KFGQTWE-G-
AQMTY

>CpEXPA21 [B]

W-----RND-----GHITFYGSPN--GGGTQ----A-GACGY-QNTYAL-
GYGSMTAALSSSLFQGGAACGAC

FQ-L--QCI---RANRG---KN-W--CYS-YAR-TITVTATNLC---PPG-----S--
TGGWCNPPRAHFDLPMPAFLTL

AQ-----RVG-GVAPVRF-RRVRCAKRG-GVRFTI----GGNPW-FM---MILIHNVGGAGDIRAVQIK-GPR--TG-

WV--PMYRNWGALWT-CRTK---ISG-ALTRITT--S-DGRTLVT-GGPGNSW--RFGQTWE-G---RNY

>CpEXPA22 [X]

W-----RD----DGHITYYGSPN--GHGTQ----G-GACGY-QNTFSL-GYDHLTAALSTPLFQGGAACGAC

YE-L--RCKFIKESKTA---KN-X--CWN-YSR-SITSTATNLC---PPG-----S--TGGWCDPPRNHFDLPMPAFLT

AR-----QNG-GVAPVHY-RRVPCQKKG-GIQFTI----GGNPW-FY---MILIHNVAGAGDVVRVQIK-SPT-TG-

WT--PMYRNWGALWT-VRKQ---LKG-ALSFQITT--S-DGRVVVTHNAVGHGW--RFGQTWE-G---AQY

>MpEXPA1PRO

W-----RN-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSQ-GYGTDTTALSAALFDNGAKCGAC

FA-I--TCYR-----SR-W--CLP-GKP-ILQVTATNFC---PSNPNLND--NGGWCNPPRRHFDLAQPAFTQI

AI-----YEG-GIVPVLF-KRVPCKRSG-PIRYTI----NGQRY-FN---LVLISNVGGVGDVSAVSVK-GAN--SNY

WE--PMRRNWGQNWQ-SDTI---LVGQSLSFQVTT--S-DGSTVTVLDAVASNW--EFGQTFE-G---GQF

>MpEXPA2PRO

W-----AD-----AHATFYGGQD--ASGTM----G-GACGY-GNLYSV-GYGTSTALSNALENNGLSCGAC

FQ-I--VCRLAE-----SK-Y--CYP-GG--SVVVTATNAC---PPGS-----EGGWCDPPKAHFDLSYPAFQRL

AQ-----PVG-GVIPVRY-KRVSCSRNG-GIRFTI----RGNPY-FD---LVLVTNVGEFGAVQSLQIK-GER--TG-

WT--YMRQNWGANWQ-ANVN---VQGQALAFKVTL--D-NGRSLEFYNVAPKNW--GFGQTFE---ADYNF

>MpEXPA3PRO

W-----TP-----SHATFYGEYN--GVETM----G-GACGY-GNLWWR-GYGLETAALSDTLLNGLTCGAC

FQ-L--KCDLDHGGY-S---TR-W--CYK-NVA-PITVTATNHC---PANWARPTN--NGGWCNPPRTHFDLPLVMFNRM

AQ-----PVA-GIPIEY-RRVPCEKSG-GLKFYL----SGNPW-FN---LVLVYNVAGAGAVTSMKMR-GSQ-
-TV-

WY--SMKRNWGQYWE-CPIK---FSNQRLSFQVTL--S-SGHVRVINNLTPTNW--YFGQTYE---AATNF
>MpEXPA4PRO

W-----TP-----SHATFYGDDS--GAATM----G-GACGY-GNLWWR-
GYGLATAALSDTLLNGLTCGAC

FE-I--KCNI-TGGE-S---GK-W--CIQ-SNP-SIKITATNQC---PPNFDRPTD--
NGGWCNPPRTHFDLSLNMFRRL

AQ-----TQA-GIIPISY-RRTRCIKTG-GIRFYL----GGNAH-FN---LVLVYNVGGWGDVMKMQMR-GTK-
-TG-

WI--TMKRNWGQNWE-SSIN---YTGQSLSFIVTL--G-NGQVRVIRNLPTVW--YFKQTYE---ADTNF
>MpEXPA5PRO

W-----TD-----SHVTFYGASD--GIETM----G-GACGY-GNLWWR-
GYGLETAALSDTLLNDGLTCGAC

YQ-I--KCNIASGGY-S---TK-W--CYP-SNP-TIQVTATNRC---PPNWDPRPTN--
AGGWCNPPRTHFDLPLVMFERM

AQ-----AVA-GIIPVKY-RRVPCVKSG-GIKFFL----GGNPW-FN---LVLVYNVAGGGNVKNMQMR-
GDK--TV-

WY--TMKRNWGQFWE-CPIG---FRGQKLSFIVTL--S-NGQVRVINNLTTTELW--YFGQTYE---ALTNF
>MpEXPA6PRO

W-----ST-----AHATFYGGSD--ASGTN----N-GACGY-SNVFAL-
GYGTMTAALSAPLFNDGLSCGAC

FQ-I--QCSG-----DA-A--CYS-N---SITVTATNLC---PQGS-----
YGGWCDYPNAHFDLSQPAFSQL

AQ-----TVA-GHVTVNY-QRVNCNRQG-GVRFQI----DGHTY-FM---QTLIYNVGGSGDVVAVQVK-
GSK--TG-

WI--SMTRGWGQNWQ-TGTV---LDGQALSFSVKT--S-DGKTLYHNNVADSNW--KYGQTFE-G---AQF
>MpEXPA7PRO

F-----GD-----ATATFYGGND--AAGTA----G-GSCGY-ENPFTR-
GYGVTTVALSNSLLSNNLNCGAC

FE-V--KCKYTASAY-----TKKW--CYN-NK--SVVVTATNLS---PPGL-----NG-----EHHFDLTYPMFTKI

SN-----MIA-GRIPQY-RRVPCKKQG-GIKFTL----NGNPY-FN---LVLVYNVGGAGNVYAMSMK-GSK-
-SD-

WY--PMARNWGQNWQ-AMVR---LTGQSLSFRTL--G-NGKTQTFSNVAAADW--KFGQTYQ---
ASSNF

>MpEXPA8PRO

W-----TK-----AHATFYGGDD--ARGTQ----G-GACGY-GNMYTR-
GYGVKTVALSYTVFNEGLTCGAC

FQ-I--KCDL---SM-K---PR-W--CYA-NGG-IITVTATNSC---PPNWARPTN--
NGGWCNPPRVHFDLSYPMFAQL

AQ-----KVA-GIPIQY-KRVKCVRSR-GIRFTI----NGNPY-FN---IVLVHNVGGYGNVVTLYIK-GTN--
SP-

WF--KMKQNWGANWE-DHNK---LTNQKLSFKATL--G-TGETMIFKDITGTYW--SHGQTYE---ANNNY

>MpEXPA9PRO

W-----SP-----AHATFYGGSD--AQGTQ----G-GACGY-GNLYRI-
GYGINTAALSTALFANGLSCGAC

FE-L--KCNS-----PR-W--CKS-GRN-PIRITATNLC---PQNHHPNN--
AGGWCNMPLQHFDMAQPAYEQI

AI-----YRA-GIVPVMY-RRVQCIKFG-GIHFTM----NGNRW-EV---LVLLTNVGGAGNVHAVSVK-GPH-
-TN-

WL--YMRRNWGQNWQINDKQ---LAGATLSFRVTT--E-DGRVVTSDVVPHYW--RFGQTFE-G---
LNF

>MpEXPA10PRO

W-----NY-----AHATFYGDET--AQDTM----Q-GACGY-GNMYQQ-
GYGTATTALSSTLFDNGFACGRC

FE-I--RCV-----AS-WA-CYL-GNP-STIVTATNFC---PANWLKPTN--
NGGWCNPPRQHFDMSPAFEDI

AA-----WRA-GIVPVAY-RRVPCSKQG-SMEFRI----EGNPW-WH---IVFITNVGGPGDIGEVYIR-GSG-
-TKR

WV--RMSHNWGVGFQ-VFGG---YLGQGLSFMVIS--SSNLETVMAWNVVPANW--RLGQTFS-G---
GQF

>MpEXPA11PRO

W-----MS-----AKATFYGGQD--ASGTM----N-GGCGY-ANPFTL-
GYGAQTAALSNALEFNKGLTCGAC

FE-I--KCAITATAY-A---KQ-W--CYA-NSP-SIYITATNLC---PQG-----S--
YGGWCNGANLHFDLAYAAFTKL

AR-----ENA-GVIPVNY-RRTPCKKSG-GIKFQL----NGNTY-WN---LVLIYNVGGGGNVAAAAIK-GSR-
-SN-

FY--TMNQNWGMNWE-SYSN---LVGQALTFKITL--G-NGRSATFYNVAPAGW--RFGQTYQ---AAYNF
>MpEXPA12PRO

M-----D----AKATYYGGND--ASGTM----N-GGCGY-ANPFAL-
GYGDQTVLSTALWNKGLTCGAC

FE-I--KCKISATAY-A---KK-W--CYP-KAG-SIKITATNLC---PPG-----S--
HGGWCDPPKSHFDLAYAAFTRL

AN-----FQA-GVPIQY-RRTPCRKNG-GVKFSM----NGNPY-WH---LVLVHNVAGGGNVHAMQIK-
GSR--TG-

FM--QMKQNWGQNWWE-AYCN---LVGQSVTFKVTL--G-NGRTVTFWNAVASNW--KFGQTYQ---
TKYNF

>MpEXPA13PRO

W-----AE-----AHATFYGGQD--AGGTM----G-GACGY-GNLYSL-
GYGTATTALSNA LFHNGLSGAC

FL-I--ECILQG-----SK-W--CYP-GK--SIVVTATNAC---PPGS-----
EGGWCDPPRPHFDLSFPMFQML

AQ-----PVA-GVIPVRY-RRVSCSKQG-GVRFTL----HGPNY-FN---YILVHNVGGSGDVAAVALR-
GEN--SR-

WN--RMNQNWGQYWS-CGGW---YLGQALSFKVTL--G-SGRSLEFWNVVDKNW--GFGQTYE---
SDYNF

>MpEXPA14PRO

W-----AD-----AHATFYGGQD--ASGTM----G-GACGY-GNLYST-
AYGTASTALSNA LFNNGLSGAC

FQ-I--MCKL----D-G---SK-Y--CYT-GGK-SITVTATNAC---PPG-----S--
EGGWCDPPKAHFDLSYPMFQQL

AE-----PVG-GVIPVQY-KRVSCQKNG-GIRFTI----NGNAW-FD---LVLVTNVGGGGDIAKLEMK-GAS-
-TD-

WC--PMSQNWGQNWQASGHP--ELCGQTLSFRATL--G-DGRSQEFYDVAPSNW--GFGQTFE---
ANTNF

>MpEXPA15PRO

W-----AD-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSL-
GYGTSSTALSNA LFNNGLSGAC

FL-I--QCKLEG-----SK-Y--CYP-GQ--SITVTATNAC---PPGS-----
EGGWCDPPRSHFDLSFPMFQKL

AQ-----PVG-GVIPVRY-KRVSC TKQG-GVRFTL----HG NPY-FN---YVLVHNVAGWGDVSSLAIK-
GDQ--TG-

WY--YMSQNWGQYWS-ASAK---LTGQALSFKVTL--G-NGKSLEFYNVADKNW--GFGQTYE---SDYNF
>MpEXPA16PRO

W-----GD-----AHATFYGGQD--ASGTM----G-GACGY-GNLYSV-
GYGVSTAALSYAMFNKGLTCGAC

YE-L--VCKLEG-----SK-Y--CYP-GK--SITITATNSC---PPGS-----
EGGWCDPPKLHFDLSYPMFQKL

AQ-----PVG-GVPIKY-KRVACAKSG-GVRFTI----HG NPY-FN---YILVHNVAGAGDV SALAIK-GEK--
TG-

WY--YMSQNWGQFWS-ASAN---VVGQALSFKITL--G-NGVSTEF SNVAPKDW--KFGQTFE---ADNNF
>MpEXPA17PRO

W-----EVTEFTRGARATYYGGND--ASGTL----G-GACGY-GNLFEN-
GYGVETTALSTALFNDGLTCGGC

FQ-I--QCIA----S-E---SD-W--CLA-NGTVSITVTATNFC---PPG-----S--
FGGWCDPPQPHFDLSYPMFATL

AQ-----PVG-GVIPVQY-RRVSCLKQG-GVRFQI----NGNNW-FF---LVLVMNVAGAGDVQAVAIK-
GTR--SE-

WI--SMQRNWGQNWASDGPP--ELVGQALSFRVTL--GLTKETLDFIDVAPADW--QFGQTFE-
DDSGLNF

>MpEXPA18PRO

C-----IP-----ATATFYGGND--ASGTN----T-GACAY-PNVLAM-
GYGTMNAALSSAIFDHGKTCGAC

FQ-L--VCTYVPYGNLR-----CLR-G---RITVTATNYC---PQGS-----
KGGWCDAPRSHFDLAEPFVQI

AP-----YNA-GVVHVDY-QRVNCQRSG-EIRYRL----YGFTY-FL---QVLVYNVAGTGDVTAMSIK-GSS--
EGR

WI--SMTRSWGQLWT-TGVV---LEHQALSFMVTI--S-DGRITVNDVAN EYW--RYGQTYE-G---GQF

>MpEXPA19PRO

W-----TD-----SHATFYGGNN--AQGTM----G-GACGY-GNMYSR-
GYGLETTALSSTLFNKGLTCGAC

FE-I--KCKV-----AD---TR-W--CYA-NAG-SIKVTATNLC---PANPARPTN--
NGGWCNPPRTHFDLSYPMFTRL

AK-----AVG-GIIPVQF-RRVPCVKVG-GIRFVM----NGNPW-FN---LVLVYNVAGAGNVVNMQMK-
GSK--TN-

WF--TMKQNWGQNWE-LKQK---LKGQSFVRVTL--G-NGKVMIANNVAPANW--NFQQTFE---
SDNNF

>MpEXPA20PRO

W-----MD-----AHATFHGGS--VADTM----G-GACGY-GNLISR-
GYGLHTSALSSSLFNSGLTCGAC

FK-V--RCKA----A-S---SM-R--CHA-TAG-SITVTATDLY---SENLATLIE--
DERRSNPSQPQFDLAVSAFQML

AR-----PMV-GLIPIEY-QRVPCKEG-GIRFTL----NGNSW-FN---LVLVHNVGGDGNVVAVQVK-
GSR--ASS

WS--MMNRRWGQNWE-LREN---LQGQILSFRTT--G-FGKTVLLPDVAQADW--RFGQTYE---SEGNF

>MpEXPA21PRO

W-----TD-----SHATFYGGND--GSGTM----G-GACGY-GNMYSR-
GYGLKTAALSSTLFNNGLSGAC

FE-L--KCKV-----AE---SR-W--CYA-NAG-SITVTATNLC---PANPARPTN--
NGGWCNPPRTHFDLAYAMFIIM

AK-----PVG-GIIPVQY-RRVSCVKTG-GVRFTL----NGNPW-FN---LVLVYNVAGDGNVVTIKMK-GSK-
-SNT

WY--PMKHNWGQNWE-LKQK---LAGQALSFLTT--G-YGKTMFTNCAAANW--QFGQTYE---
ADGNF

>MpEXPA22PRO

W-----TA-----SDATFYGGNS--GAGTM----G-GACGY-GNMYNT-
GYGLNTAALSPVLFNNGLSGAC

FE-L--KCNL-----TG---TK-W--CYP-SAG-SITVTATNLC---PANPARTD-----
GWCNPPRTHFDLSYTMFAIL

AQ-----PVA-GIPIQY-RRVSCVKTG-GVRFVI----NGNPW-FN---LVLIYNVGGDGNVVTAMMK-GEN-
-TE-

WY--SMTRNWGQNWQ-LSQK---LHGQALSFLTT--G-YGTTLVCSDVAPANW--QFGQTFE---
AYTNM

>MpEXPA23PRO

A-----IP-----ATATFYGGND--ASGTN----T-GSCGY-PNVLTl--
DGPMNTALSGALYNGGEACGAC

FK-I--QCVSIPFGNLQ-----CLP-G---SIVVTATNLC---PQGS-----
TGGWCDEPRSHFDLAEPAFQHL

AP-----PVA-GVVNVEY-ERVSCLRSG-GIRFLI----QGHPY-FM---QVLVYNVGGMGDVTAVSVK-
GSS--SD-

WI--QMDRNWGQLWT-TGTV---LDGQALSFSVTT--S-DGRTVASNGVADSDW--QYGQTFE-G---NQF
>MpEXPA24PRO

A-----IP-----ATATFYGGND--ASGTN----TAGSCGY-PNVLTl--
DGPMNTALSGALYNGGEACGAC

FK-I--QCVSIPFGNLQ-----CLP-G---SIVVTATNLC---PQGS-----
TGGWCDEPRSHFDLAEPAFQHL

AP-----PVA-GVVNVEY-ERVSCLRSG-GIRFLI----QGHPY-FM---QVLVYNVGGMGDVTAVSVK-
GSS--SD-

WI--QMDRNWGQLWT-TGTV---LDGQALSFSVTT--S-DGRTVASNGVADSDW--QYGQTFE-G---NQF
>MpEXPA25PRO

W-----TN-----ATATFYGGDD--GAGTM----G-GACGY-GNMFTR-
GYGLETAALSTVLFNNGLTGAC

FM-L--KCRL----N-E---SR-W--CYS-NVS-SITISATNFC---PPNLNRTTD-----
GWCNLPRSHFDLSVKMFTTL

AR-----AVG-GIIPVLY-KRVPCVKTG-GVRFTL----NGNPW-FN---LVLISNVGGQGNVAAQMK-
GSK--TA-

WF--NMRQNWGQNWE-LGQK---LINQTLFRLTL--G-LGQTLTFNNLTTPDW--KFGQTWE---ADTNF
>MpEXPA26PRO

F-----GD-----ATATFYGGSD--ASGTQ----G-GSCGY-QNPFAL-
GYGIKTAALSNSLLANNMNCGAC

FE-V--KCKYDASAY-T---KK-W--CYP-NSP-TIIVTATNQS---PPG-----L--NG-----EHHFDLTEPMFMKI
AN-----RIG-GRIPQY-RRVRCYKPG-GIKFTL----TGNPF-FN---LVLVYNVGGAGNVYGMAIK-GSR--
TD-

FY--PMSRNWGQYWQ-AFVK---LTGQSLTFRVTL--G-NGKSTTFWNVAPANW--QFGQTVA---ATYNF
>MpEXPA27PRO

F-----GD-----ATATFYGGTD--AAGTA----G-GSCGY-ENPFTR-
GYGVTTAALSNSLLSDGLNCGAC

FE-V--KCNFGASDY-----TRKY--CYN-GK--SVVITSTNLS---PPGL-----HG-----EHHFDLTYPMFTQI
SN-----MIA-GRIPVQY-RRVPCCKQG-GIKFNI----NGNPY-FN---LVLVYNVAGGGNVYAMAMK-
GGN--SA-

WC--TMGRNWGQNWQ-SSVK---LTGQGLSFRVTL--G-SGKMLVFNNVAPSSW--QFGQTYQ---
ASSNF

>MpEXPA28PRO

F-----GD-----ATATFYGGSD--AAGTA----G-GFCGY-ENPFTR-
GYGVTTVALSDSLLSNGLNCGAC

YE-V--KCKWEASDY-----TKKY--CYQ-GM--TTIVSATNLS---PPGL-----NG-----EHHFDLTYPMFVKI
SN-----PES-GRIPQY-RRVPCQKQG-GIRFSM----VGNPF-WN---LVLVYNVGGWGNVHSLYVR-
GSR--TD-

WY--YMNRNWGQNWQ-CSVN---LTGQKLSFRVVL--G-NGQTSVFNNVADSNW--KHGQTYE---
ASSNF

>MpEXPA29PRO

W-----TD-----SHATFYGGNN--AQGTM----G-GACGY-GNMYSR-
GYGLETTALSSTLFNKGLTCGAC

FE-I--KCKV-----AD---TR-W--CFP-KAG-SIKVTATNLC---PANPARPTN--
NGGWCNPPRTHFDLSYPMFTRL

AK-----AVG-GIIPVQF-RRVPCVKVG-GIRFVM----NGNPW-FN---LVLVYNVAGGGNVVNMQMK-
GSK--TN-

WF--TMRQNWGQNWE-LKQK---LKGQSSIFRMTL--G-NGKVMIANNVAPANW--NFQQTFE---
SDSNF

>MpEXPA30PRO

W-----TD-----SHATFNDGNN--AQGTM----G-GACGY-GNISSR-
GYGLETTALSSTLFNSGLTCGAC

FE-I--KCKV-----EN---ST-W--CFP-NAG-SIKVTATDLC---PANPAMPTN--
NGGWCNPPRTHFDLSYQMFTRL

AK-----AEG-AIIPVQF-RRVPCVKVG-GIRFTM----NGNPW-FN---LVLVSNVAGAGNVVNLQMK-
SSE--TN-

WFWMTARQISGQYWE-LNQN---LMGQNISFRVTL--G-NGKVMIANNVAPANW--NFQQTFE---
SDINF

>MpEXPA31PRO

W-----TD-----SHATFYGGNN--AQGTM----G-GACGY-GNMYSR-
GYGLETTALSSTLFNKGLTCGAC

FE-I--KCKL-----AD---SR-W--CFP-KAG-SIKVTATNLC---PANPARPTN--
NGGWCNPPRTHFDLSYPMFTRL

AK-----AVG-GIIPVQF-RRVPCVKVG-GIRFVM----NGNPW-FN---LVLVYNVAGAGNVVNMQMK-
GSK--TN-

WF--TMRQNWGQNWE-LKQK---LKGQSSIFRVTL--G-NGKVIIANNVAPANX--NFQQTFE---SDSNF
>MpEXPA32PRO

W-----TD-----AHATFYGGQD--ASGTM----G-GACGY-GNLYSR-
GYGTASTALSNALFNSGLSCGAC

FE-I--ICKL-----S-E---TK-W--CYT-GGK-SIVVTATNQC---PQG-----S--
EGGWCDYPRSHFDLSFPMFQSL

AQ-----AVG-GVIPVQY-RRVSCSRSG-GIRFTI----NGNAY-FN---LVLVTNVGGKGDVAALWMR-
GSN--TD-

WQ--PMKQNWGQNWQ-CDTK---LVGQALSFKAML--G-SGETKEFYNVADSNW--LFDQTYE---
GDYNF

>MpEXPA33PRO

G-----LK-----AHATFLGGSD--AVGTN----N-GACGY-SNVLAM-
GYGTRTAALSAPIFREGKSCGAC

YK-L--RCRG-----SE-SVGCERS-ND--GVVTVTDVC---PERS-----VGGWCD-
GQPHFRLSEPAFAQI

AE-----PKSGGLVEVDY-EKVSCDRRG-GMHFLL----VGHTH-FL---QILVHNVGGCGDVAAVSVK-
GGT--GP-

WI--RMSRSWGQLWH-TGEV---LDGQALSISVTM--A-DGKVCVSNNFAGADW--KYGQTFE-G---AQL
>MpEXPA34PRO

A-----LP-----AHATFYGGSD--ASGTN----N-GACGY-SNVLST-
PFGTMTAALSSPLFNEGLSCGSC

YK-V--RCSG-----SS-TGGCID-N---EIMVTATNLC---PHGS-----EGGWCD-
GKPHFDMSQPAFSQI

AK-----PVA-GVVEVEY-TKVPCPRKG-GMQFTV----MGHTY-FL---QVLIFNVGGSGDVTAVKVR-
GGN--GE-

WI--AMTRSWGQLWQ-TGKV---LDGQALSFQVTT--S-NGKTCVSNYVAGSHW--KYGQTFE-G---SQY
>MpEXPA35PRO

W-----TD-----SHATWYGGKD--GAGTM----G-GACGY-GNMNAR-
GYGMKTAALSTKLFNDGFTCGAC

FE-I--RCKS----S-Q---SK-Y--CYS-STA-SVIVTATNYC---PANPNRPTD----
GWCNGDRTHFDLTYQMFTTL

AI-----YEA-GIIPVQY-RRVPCAKKG-GIRFTI----NGNPN-FN---LILLSNVGGSGNVVSVQMK-
GENSYSG-

WV--PMKQNWGQMWE-CGTK---VTGQSSISFKVTV--G-YGQTFTFWTVAPKTW--QFGQTYE---ASSNV

>MpEXPA36PRO

W-----GD-----AHATFYGGND--ASGTM----G-GACGY-GNLYSL-
GYGTASTALSNGLFNNGLSGAC

YT-I--ECKLEG-----SK-W--CYP-GK--SITVTATNAC---PPGS-----
EGGWCDPPRLHFDLSYPMFQTL

AQ-----PVG-GVIPVKY-KRVSCNRQG-GIRFTL----HGNAW-FN---YVLVHNVAGDGDVAGVSIK-
GDN--GG-

WT--TMYQNWGQFWS-ASEH---LVGQALSFRVTL--G-SGRTQEFYDVASPNW--YFGQTYE-
ADNNQNF

>MpEXPA37PRO

W-----GN-----AHATFYGGND--ASGTM----G-GACGY-GNLYSR-
GYGTATTALSNGLFNNGLTGAC

FT-L--VCKLDG-----SR-W--CYSGGK--QITVTATNAC---PPGS-----
EGGWCDPPRLHFDLSYPMFQKL

AQ-----PVG-GVIPVRY-KRVPCVKQG-GIRMSL----YGNPW-FD---YVLVHNVAGGGDVAASIK-
GSK--TN-

WV--VMHQNWGQYWS-ASSY---LVGQALSFKVTL--G-NGKSIVFWDIAPKNW--QFGQTYE-
ADNNQNF

>MpEXPA38PRO

W-----KA-----AHATFYGGSN--AQGTM----G-GACGY-GNLYNT-
GYGLETAALSSTLFNNGKTGAC

YE-M--FCNY---RQ-Q---SR-W--CYK-AQP-HIKVTATNLC---PANWNRPTN--
RGGWCNPPRVHFDLPQPMFIKM

AR-----YVG-GIVPVAY-RRVPCVKKG-GVKFTM----NGNPW-FN---LILISNVAGPGDIKAVAVK-GSK--
QKS

WT--SARQNWGQKWE-VKQK---LQGQALSFR LTS--G-SGKVLVLYNAVPRTW--RFGSTYM---
ARSNW

>PpEXPA1PRO

W-----RK-----AHATFYGGAD--ASGTM----G-GACGY-GNLYST-
GYGVDSTALSTALFNNGAKCGAC

FA-I--QCYR-----SQ-Y--CVP-GSP-VITVTATNFC---PPNHKGDG---
TPGWCNPPMRHFDLAQPSFTKI

AK-----YRA-GIVPVLF-RRVPCEKKG-GVRFTI----NGNKY-FN---LVLVHNVGGKGDVHAVDIK-GSN--
TE-

WI--PMKRNWGMNWQ-TDAV---MTGQALSFRVTT--S-DGKTIVSMNATPSHW--SFGQTFE-G---GQF

>PpEXPA2PRO

W-----KE-----AHITYYGTAN--GGGTQ----G-GACGY-PNTFAM-
GYGVMTAALSYPFLQGGKSCGAC

YQ-L--KCKWLAPTRTV---HN-W--CWS-YSR-TITITATNSC---PPG-----S--HGGWCDW-
KPHFDLPMPAFMTL

AR-----REG-GVAPVYY-RKVRCAKRG-GIRFTL----GGNPY-FM---MILIHNVGGAGDLRAVKIK-GRN-
--GY

WV--PMWQNWGALWT-CKTK---LSG-ALSFQITT--G-DGRTVTVNRAVGDIW--KFGQTWE-G---SQF

>PpEXPA3PRO

W-----ISG----VAHATFYGGVD--AQGTQ----G-GACGY-GNLYST-
GYGTSTTALSSALFNAGLSCGAC

FE-L--KCDS----A-N---SK-Y--CLP-GDK-SITVTATNYC---PQG-----S--
DGGWCDSPKQHFDLSHPMFTSL

AQ-----EVG-GVIPVTY-RRAPCAKKG-GMRFTI----NGNPW-FV---MILVTNCGGAGDVQQLQIR-
GSD--TP-

WY--PCVRNWGMWQMTSDP--NLPGKALSFRATL--S-DGSVAESLNAAPSNW--GWGQTFE---
GVATY

>PpEXPA4PRO

W-----KD-----AHITYYGSPN--GGGTQ----G-GACGY-QNTYAL-
GYGSFTAALSAPLFQGGAACGGC

YQ-L--KCAPVRETRTV---HN-W--CWS-YSR-SIVVTATNLC---PPG-----S--HGGWCAW-
RPHFDLPMPAFTSL

AK-----QVG-GVAPVFY-RRVRCAKRG-GVRFTI----GGNPY-FL---MVLIHNVGGAGDIRSVRIK-GQY--
SG-

WV--TMFRNWGSLWT-CRTK---LSG-PLSFMITT--S-DGRTLVSNRAVGSWW--KFGQTWE-G---SQF

>PpEXPA5PRO

W-----GR-----AHATFYGGAD--ASGTQ----G-GACGY-GNLYST-
GYGTNTAALSSSLFNSGLSCGAC

YE-L--TCDP----S-C---SQ-Y--CLP-GGS-AI-ITATNFC---PTG-----S--
NGGWCNPPKQHFDLAQPVFSKI

AR-----TVG-GVIPINY-RRVPCSKSG-GMRFTV----NGNPY-FL---LVLVTNVGGAGDVQQLYIK-GAS--
TG-

WL--PLKRNWGMWQFTGNS--GMHGQAISFKAVT--S-DGAEAISPNVAPANW--GFGQTFE-G---
SNF

>PpEXPA6PRO

W-----RN-----ARSTFYGGMD--AAGTM----S-GACGY-GNLYAS-
GYGVHTTALSSALFKNGMACGAC

FE-V--QCGG-----K---GK-P--CKP-G---SVVVTATNFC---PPNPGQSAN--
NGGWCNPPNEHFDLSYPAFVKI

AD-----PKA-GAVPLQY-RRVPCQKQG-GIRFTI----NGNCN-FI---LVTITNVGGSGVVTAAYLK-GDK--
TE-

WS--PLSRNWGANWQ-CRRN---YCGQGISIKIVT----SDNKVSVTKLAKSDW--CFGKTFI-G---KQV

>PpEXPA7PRO

W-----GY-----AHATYYXGAD--ASGTQ----GGGACGF-GNLYST-
GYGTNTAALSAALFNSGLSCGSC

YE-L--ACDP----N-G---SK-Y--CLP-GGP-TVTVTATNFC---PHG-----S--
LGGWCDAPKQHFDLAHPMFVSL

AR-----EVG-GVIPIKY-RRVPCVKSG-GMRFTI----NGNPW-FL---LVLVTNVAGAGDVQHMYIK-GSN-
-TP-

WE--PMSRNWGSWMWQFTGDS--KMKGQALSFKAVT--S-DGSVAVSMDAAPGNW--QFGQTFE-G---
VNF

>PpEXPA8PRO

W-----NE-----AHATFYGGSD--AGGTTGTR-G-GACGY-GDLYST-
GYGTSTVAISSALFDRGLACGAC

YQ-V--KCAG-----S---SS-E--CRS-DSP-AIQVTVTNFC---PPNPSLPED--
NGGWCNPLPLHHFDMSPAFEQI

AT-----YKA-GIVPVMY-RRTSCVRTG-GIHFTM----SGHNF-MN---LVLVTNVGGMGDVQSVSIR-GSK-
-TS-

WV--TMTRNFGQIWQ-STVN---MSGQSLSMVTT--S-DGKTVVSNNVAPPDW--AFGQTYE-G---SQF

>PpEXPA9PRO

W-----TD-----AHATFYGGAD--ASGTQGGCAG-GACGF-GNLYST-
GYGTNTAALSQALFNSGLTCGAC

FE-L--VCDSSG-----SR-Y--CVT-SS--SVVVTATNFC---PTGS-----
TGGWCDYPRQHFDLSQPVFTRI

AQ-----PVG-GVVTLKY-RRVRCQKSG-GIRFTI----TGNPY-FI---LVLVTNVGGAGDVQQLYIK-GSS--
TG-

WN--AMSRNWGQLWEIRNAA---LMGQALSFRVVT--S-DRAEVASFDAVPANW--AFSQTFE-G---SNF

>PpEXPA10PRO

W-----VSG----RAHATFYGGAD--ASGTQ----G-GACGY-GNLYST-
GYGTSTAALSSALFNSGLSCGAC

YE-L--TCDT----S-G---SK-Y--CLP-GNP-SIILTATNYC---PQN-----S--
NGGWCDAPKQHFDLAHPMFVSL

AE-----ERG-GVIPVNY-RRVPCAKKG-GMRFQM----NGNPW-FL---LVLVTNVGGAGDVQQLSIK-
GSN--SG-

WY--QMKRNWGQMWQLTGNS--NMPGQALSFR AVL--S-DGTTVESLDAAPANW--HFGQMFE-G---
SQA

>PpEXPA11PRO

W-----GR-----AHATYYGGAD--ASGTQ----G-GACGF-GNLYSS-
GYGTDTAALSSALFNSGLSCGAC

YE-L--TCDP----S-G---SK-F--CIP-GGS-AI-ITVTNFC---PTG-----S--
NGGWCPNPPKQHFDLAQPVFRKI

AR-----TVG-GVVPIN Y-RRVSCLKDG-GMRFTV----NGNPY-FL---LVLVTNVGGAGDVQQLYMK-
GSS--TN-

WQ--PLKRNWGQMWQFTGNS--RMHGQAISFKAVT--S-DGSVAVSNNVAPPNW--GFGQT-----F

>PpEXPA12PRO

W-----ND-----AHATYYGGAD--AS-----G-GACGF-GNLYST-
GYGTSTAALSQALFNSGLTCGAC

FE-L--ACDP-----SG--SK-Y--CYK-GS--SIVVTATNFC---PSGS-----
EGGWCDSPKQHFDLSQPVFNKI

AQ-----QAG-GVIPVKY-RRVPCRKSG-GMRFTI----NGNPY-FI---LVLVTNVGGAGDVQQLSLK-GSS-
-TG-

WY--TMSRNWGQQWEFRGNS--ALVGQALSFRVVT--S-DGAEAVSYDAASENW--SFSQTFE-G---INF

>PpEXPA13PRO

W-----NE-----ARATFYGGSD--AGGTT----G-GACGY-GDLYST-
GYGTNTVATSSAIFDRGLACGAC

YQ-V--KCAG--SA-----S-E--CQP-GTP-AIQVTVTNFC---PPNPSLPEG--
NGGWCNPLLHHFDMAMPAFQQI

AS-----YRV-GIVPILY-RRASCVRTG-GIRFTM----SGHKF-MN---LVLVTNVGGMGDVQTVFIQ-GSK--
TK-

LV--AMIRNFGQIWQ-SSVN---VSGQRLSFMVMT--S-DGESVVSARNVAPSDW--AYGQTYE-G---SQF

>PpEXPA14PRO

W-----DK-----GHATYYGEGD--ARGTM----G-GACGY-SNLYST-
GYGVNTAALSGPLFNGGATCGAC

YE-L--TCILNE-----SK-W--CYR-GK--NIIVTATNFC---PSGS-----
TGGWCNPPQKHFDLSEPMFTTL

AN-----RVG-GVIPVNF-RRVACYKQG-GMRFTI----NGNPY-FF---IVLVYNVAGAGDVQQVYIK-GPK-
-TQ-

WL--QMYRNVGSQWTFNGGP-NNIVGSALSFRVHT--S-DGRQVISYXAAPANW--WFGXTFS---
SGAN-

>PpEXPA15PRO

W-----GY-----AHATYYGGAD--ASGTQ----GGGACGF-GNLYST-
GYGTNTAALSAALFNSGLSCGSC

YE-L--ACDP----N-G---SK-Y--CLP-GGR-TVTVTATNFC---PHG-----S--
LGGWCDSPKQHFDLAHPMFVTL

AK-----EVG-GVPIKF-RRVPCVKSG-GMHFTI----NGNPW-FL---LVLVTNVAGAGDLQQVYIK-GSN--
TP-

WE--PMSRNWGSWMWQFTGNS--KMKGQALSFKTIT--S-DGAVAISYDAAPNNW--QFGQTFE-G---
VNF

>PpEXPA16PRO

W-----DT-----AHATYYGGRD--AGGTM----G-GACGY-GNLYNT-
GYGVKTAALSAPLFKGGATCGAC

YE-L--TCILSQ-----SK-Y--CYQ-NK--KILITATNFC---PTGS-----TGGWCNPPRKHFDLSEPMFTTL

AN-----RVG-GVIPVNF-RRVHCYKKG-GMRFTI----NGNPY-HM---MVLVYNVAGAGDVQQMFIK-
SPT--TG-

WL--QMSRNWGQIWTKGGP-RNIVGFALSFRVYT--S-DRRQVVSYNAAAPANW--RFGQTFS---
SGAN-

>PpEXPA17PRO

W-----GR-----AHATYYGGAD--ASGTQ----G-GACGF-GNLYSS-
GYGTSTAALSSSLFNGLSCGAC

YE-L--TCDP----S-G---SQ-Y--CLP-GGS-AI-ITVTNFC---PTG-----S--
NGGWCNPPRQHFDLAQPVFSKI

AR-----TVG-GVIPINY-RRVSLKSG-GMRFTV----NGNPY-FL---LVLVTNVGGAGDVQQLYIK-GSS--
TA-

WL--PLKRNWGMWQFTGNS--GMHGQAISFKAVT--S-DGAEAISNNVASSNW--GFGQTFE-G---
SNF

>PpEXPA18PRO

W-----NE-----AHITYYGTAN--GGGTQ----G-GACGY-PNTFAM-
GYGAMTAALSYPLFQGGKACGGC

YQ-L--RCKWVTPTRTV---HN-W--CWS-YSR-TITVTATNSC---PPG-----S--HGGWCNW-
RPHFDLPMPAFTL

AR-----REG-GVAPVYY-RKVRXAKRG-GIRFTI----GGNPY-FL---MILIHNVGGAGDLKAVKVR-GGN--
-GY

WV--PMWRNWGALWT-CKTR---MSG-ALSFQITT--G-DGRTLTTYKAVGGYW--RFGQTWE-G---SQF

>PpEXPA19PRO

W-----GD-----AHITYYGSPN--GAGTE----G-GACGY-QNTYKL-
GYGSMTAALSSRLFQGGKACGGC

YQ-L--RCAP----NRG---RN-W--CWS-YAR-AIVVTATNLC---PQGS-----
HGGWCDYPKSHFDLPMPAFTSL

AR-----REG-GVAPVWY-RKVRCAKRG-GVRFTI----GGNPW-FL---MVLIHNVGGAGDVVSVKVK-
CPY--TG-

WV--SAYRNWGCLWT-VRTK---MTG-PLSFTLVT--S-DGRTLYSMNAVRNGW--KFGQTWE-G---SQF

>PpEXPA21PRO

Y-----GXR-----AHITYYGSPN--GGGTE----G-GACGY-QNTYSL-
GYGFMTAALSSSLFQGGSSCGAC

YQ-I--RCEPIRVTRTV---KN-W--CWS-YSR-TITVTAINLC---PPR-----S--
SGGCCNPPLQHFDLPMPAFLSL

AR-----REG-GVAPVXY-TKVRSEKRG-GIRFTM----GGNLW-FL---TILIHNVGGAGDVRSVRIK-SPH--SG-

LI--SMYRNWGS�WT-VRAR---MSG-ALFFMITT--S-HGRVLITRNAVGSW--RFGQTWE-----GNF

>PpEXPA22PRO

W-----QD-----AHITYYGSPN--GGGTQ----G-GACGY-QNTVSL-
GYGFMTAALSSPLFQGGKACGAC

FQ-L--QCARVQETRTV---KN-W--CHD-YSK-AITVTATNLC---PPG-----S--
EGTWCDPPRHFFDLMPAFLSL

AR-----QEG-GVAPVYY-RRVQCLKKG-GIRFTM----GGNPW-FL---MVLVHNVXGAGDVVXVKVK-
CPS--SG-

WY--DMYRNWGALWT-VQKK---MVG-PLSFLTT--G-DGRRLTAYNAVGNW--TFGQTWE-G---AQY

>PpEXPA23PRO

W-----IN-----GRITYYGSPN--GGGTQ----G-GACGY-QNTVSL-
GYGFMTAALSTTLFKGGAACGAC

YQ-L--QCAPVSETPSGLLKRN-W--CWQ-VGR-SILVTATNLC---PPGS-----
SGGWCNPPQHFFDLMPAFLAL

AR-----REG-GVVPVYY-RKVNCAKKG-GIRFTV----GGNPW-FL---MILIHNVGGAGDVVAVKVK-
CPT--SG-

WY--DMYRNWGALWT-VQKK---MNG-PLSFAITT--S-DGRTVTTYNAVGNW--KFGQTWE-G---AQY

>PpEXPA24PRO

W-----SS-----GRITYYGSPN--GGGTQ----G-GACGY-QNTVSL-
GYGFMTAALSTPLFNNGGAACGAC

YQ-L--QCAPVHETPKNLLQRN-W--CWK-VGR-RITITATNLC---PPGS-----
EGGWCDPPQHFFDLMPAFTAL

AK-----REG-GVVPYY-RRVCAKQG-GIRFTM----GGNPW-FL---MILIHNVAGAGDVVAVKIK-CPT--SD-

WC--DMYRNWGAFWT-VQKK---MEG-PLSFQITT--X-DRRKVTTHNAVGHGW--QFGQTWE-G---AQY

>PpEXPA25PRO

W-----RD-----AHITYYGSPN--GGGTQ----G-GACAY-QNTFSL-
GYGAMTAALSSPLFEGGAACGAC

YQ-L--QCKRVQETRTV---KN-W--CWS-YSR-TITITATNLC---PPG-----S--
AGAWCDPPRHFFDLTMPAFTL

AR-----REG-GVAPVLY-RRVKCVKRG-GIRFTI----GGNPW-FL---MILIHNVAGAGDVRAVRIK-TPS--
TD-

WI--PMYRNWGALWT-VQRK---LSG-PLSFQITA--G-DRRQITINSAVGNAW--KFGQTWE-G---HNF
>PpEXPA26PRO

W-----NF-----GRITYYGSPN--GGGTQ----G-GACGY-QNTFAL-
GYGTNTAALSSRLFQGGAACGAC

YQ-L--RCI---APKWG---KN-W--CWN-YAR-SIVVTATNLC---PSG-----S--NGGWC-
PSQAHFDXPMPAFTSL

AR-----KEG-GVTPIMY-RRVRCARRG-GIRFTI----GGNPF-FL---MVLIHNVGGAGDVRAVSIK-GQY--
TG-

WV--GMYRNWGS�WT-CTTK---IDG-ALTFRITT--G-DGKTLILYNAVRKGW--RFGQTWE-G---SQF
>PpEXPA27PRO

W-----AT-----ATATFYGGAD--AG-----G-GACGY-GNLYST-
GYGASTTALSAPLXNGGSACGAC

YQ-L--QCAR-----SN-H--CYA-GR--SITVTATNFC---PTGS-----
EGGWCNPPRKHFDSLMPMFTTL

AR-----QVA-GVVPVDY-RRVACNKKG-GQRFLM----TGNPY-FI---MVLVYNVAGAGDVQRFFVK-
GSM--TG-

WY--ELRRNWGQIWTCTADS--RLKGQALSFRITQT--S-DGRQVVSIDAAPANW--NFGQTFS---SGVN-
>SmEXPA1PRO

W-----TS-----AHATFYGGSD--AAGTM--V-G-GACGY-GNLYSQ-
GYGNNAALSTALFNSGLSCGAC

FE-I--RCDS----AAD---PR-W--CIA-GT--SVVVTATNFC---PPNYALANN--
NGGWCNPPLEHFDMAQPAWEQI

GI-----YRG-GIVPVQY-RRVSCVKKG-GIHFTM----NGHTY-FN---LVLISNVGGXGDVHAVSIK-GSG--
TG-

WQ--DMSRNWGQNWQ-SNXQ---FQGQSLSFKVTT--S-DGKSVVSMDVAPADW--QYGQTFE-G---
SQF

>SmEXPA2PRO

W-----TG-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSQ-
GYGTNTAALSTALFQSGLSGAC

FE-V--KCNG-----DPEW--CLP-GS--SVLVTATNFC---PPNXALPNN--
NGGWCNTPLQHFDMAQPAFEQI

AK-----YRG-GIVPVLX-RRVPCQRKG-GIRFTM----XGHNY-FN---LVLVTNVGGAGDVHSVSIK-GSN-
-TD-

WL--PMSRNWQGNWQ-SNAI---LSGQSLSFKVTT--S-DGRTVVSYDAAPPNW--QYGQTYG-G---DQF
>SmEXPA3PRO

W-----TD-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSQ-
GYGXNTAALSTXLFNSGLSCGAC

FE-I--KCNA--XK--D---PQ-W--CRA--GA-SVTVTATNFC---PPNYAQAND--
NXGWCNPPLHFDMAQPXWEQI

GI-----YRG-GIVPVQY-RRVSCVKKG-GIHFTL----NGNKY-FM---LVLVSNVGGAGDVRAVSIK-GPS--
GD-

WQ--PLSRNWQGNWQ-SDSR---LIGQSLSFRVVT--S-DNRAVTSLNAPAGW--SFGQTFS-G---EQF
>SmEXPA4PRO

W-----TD-----AHATFYGGSN--AAGTM----G-GACGY-GNLVSA-
GYGTNTAALSTALFQDGLSCGAC

FE-V--KCAS--GS--D---PK-W--CLP--G--SVVVTATNFC---PPS-SQPSN--
DGGWCNSPLQHFDMAQPAFLKI

AQ-----YSA-GIVPISY-RRVSCSRSG-GIRFTM----NGHAY-FN---LVLITNVGGAGDVHAVSIK-GSG--
TD-

WI--PMSRNWQGNWQ-SNAL---LGGQALSFKVTT--S-DGKTTIAYNVAGANW--AYGQTFE-G---EQF
>SmEXPA5PRO

W-----KQ-----XFATFYGDET--ARETM----G-GACGY-GNLYQS-
GYGLMTAALSSTLFNSGYGCGQC

YE-I--TCTL-----SK-H--CYF-GK--SVVVTATNLC---PPNWSKPSN--
NGGWCNXPRVHFDMSKPAFMKI

AF-----WRA-GIIPVSY-RR-----SG-GMNFKL---XGNRW-WL---MVFITNVGGSXDIKAVSVK-GSR--
TG-

WI--AMTRNWGVGFQ-VFKQ---LQGQSLSMVTC--YSTXKXXVHNNVAPANW--QLGSTYS---AKQLX
>SmEXPA6PRO

W-----RY-----AHATFYGEYD--ALETM----G-GACGY-GNLYSQ-
GYGDTTALSTVLFNSGYGCGGC

YE-I--SCTQ-----SK-H--CYP-G---STIVTATNLC---PPNWKPSN--
NGGWCNPPRIHFDMSKPAFSKI

AY-----WRX-GIVPVRY-RRVPCXRKG-XIKFEL----KGNRW-WL---IVFVSNVGGPGDIKRMAYK-GSK-
-TG-

WL--PMSRNWGVGFQ-VFKS---LHGQSLSFMVTS--FTTGKTVTAYDVVPANW--RIGQAYS---GGQMV
>SmEXPA7PRO

W-----LD----GAHATYYGGSD--ASGTN----S-GACGY-GNQLSA-
GYGYITTALSTPLFENGDICGAC

FE-I--RCAG-----GA-G--CLP-GNP-STVVTATNLC---PXGS-----
NXGWCDPPKPHFDLSQPAFSRI

AS-----IXN-GHVQLQY-RRVACDRQX-GIRFTV----NGHTF-FN---LVXVENVGGSGDVVAVEVK-
GSA--TG-

WR--QMQRNWGQNWQ-DMGD---LNGQALSXRVTG--X-DGKVVTSMNVAPADW--QFXRTYS-G---
GQF

>SmEXPA8PRO

W-----LD----AHATYYGGSD--ASGTN----S-GACGY-GNQLSA-
GYGYITTALSTPLFXXGDICGAC

YE-I--RCAG-----TG----XLP-RNP-STVVTATNLC---PPGS-----
NGGWCDPPKQHFDLXQPAFSQI

AS-----IPY-GHVLLQY-RRVPCQRQG-AIHYTI----NGXTF-FN---LVLIENVGGSGDVVGVEIK-GSN--
TN-

WM--PMARNWGQNWQ-IGGN---LGGQSLSFRTG--S-DGRKVTSLNVAPANW--QFGRAYG-G---
GQF

>SmEXPA9PRO

W-----QD----AHATFYGGSD--ASGTM----G-GACGY-GNLYLQ-
GYXVSXAALXTPLFXEGWSCGSC

FE-L--KCNA--EA--D---PE-W--CLP-GNP-SIVVTATNFC---PPNFALPSD--
XGGWCNPPREHFDLSQPAFELI

AK-----YRX-GIVPVQY-RRVPCXEG-GIHFSI----NGHAY-FM---LVLVWNVGGAGDVHAVAVM-
GSR--TRR

WQ--PLVRNWGQNWQ-SPXV---LLGQSLSFMVTT--S-NGDTVTDYDVAPQDW--KFGQTFV-G---
NKN

>SmEXPA10PRO

W-----TL----AHATYYGGSD--ASGTMGX-S-GACGY-GNMYHE-
GFGVETTALSTVLFQNGASCGAC

YE-L--KCHQ--DP-----K-W--CRP-GNL-SITVTATNFC---PPNPARKSY--
RGGWCNXPQQHFDLSMPAFVHL

AN-----RTA-GIIPVIY-TRVECKRQG-GIRFTM----RGNKW-FI---LVMISNVGGAGDVRSVVVK-GSR--
SP-

WT--PATRAWGQNWHISNRS---MLEQGLSFVVST--S-DGESRIALDAVPQNW--KFGQTFT---TAAQF

>SmEXPA11PRO

W-----ES-----GHATFYGGSD--AAGTM----G-GACGY-GNLYSQ-
GYGTNNAALSSALYNNGLSCGAC

FE-V--KCDA----AAD---PQ-W--CIX-GR--XVTVTATNFC---PP-----
GSWCNEPLKHFDMSQPAWEEI

GI-----YRG-GIIPVYF-RRVSCVRKG-GIXFTV----NGHAY-FN---LILITNVGGAGDVHAVSVK-GSG--
TG-

WI--PMSRNWGQNWQ-TNAQ---LGGQSLSFMVTD--S-SGKTVISNNAAPSNW--QYGQTFE-G---
EQF

>SmEXPA12PRO

W-----SN-----AHATFYGGSD--ASGTM----G-GACGY-GNVLSA-
GYGVNTAALSTALFNGGATCGAC

FQ-M--QCVN-----SR-W--CRP-GK--SVTVTATNFC---PPNNALXSD--
NXGWCNTPREHFDLSQPVWEQM

AI-----YQG-GIVPVQY-RRVKCYKQG-GIIFTM----NXNPN-FN---LVLIKNVAGWGD LRAVSIK-GSN--
TG-

WL--PMKRNWGSNWE-YHGV---LVGQSLSFLLTP--S-MGGSLISYDVXPRNW--QFGQSYS-G---RQF

>SmEXPA13PRO

W-----TD----GAHATYYGGSD--ASGT-----GACGY-GNQLSA-
GYGVLTTALSAPLFNDGHVCGAC

FE-V--KCSW-----GD SG--CLA-GNP-SIVVTATNLC---PQGS-----
NGGWCDSPKQHFDLAQPAFALI

AV-----TLN-GHVPIQY-RRVSCKRDG-GLRFTI----NGHVY-FN---LVLIENVGGTGDVSAVSIK-GSK--
TG-

WR--PMTRNWGQNWQ-DGGD---LTGQSXSFEVTT--S-DGNXITAYDVAPDYW--QFGQTFS-G---
GQF

>SmEXPA14PRO

W-----G-----AHATYYGGSD--ASGTN----N-GXCGY-GNQLSA-
GYGTITTALSTPLFRGGNVCGXC

YQ-V--RCWG-----DP-A--CLP-GNP-SVVVTATNLC---XPGS-----
NGGWCDPPKPHFDLSQPAFSRI

AR-----IPN-GHAQIQY-RRVKCQRQG-GIRFTI----NGHTY-FN---LVLVTNVGGMGDVVGVSIG-GSS--
SG-

WR--SMSRNWQGNWE-EGSN---LNGQALSFRVTT--S-DGRTVTAYNVAPGDW--QFGRTYT-
GNTASQY

>AtEXPA7PRO

W-----RY-----AHATFYGDET--GGETM----G-GACGY-GNLFNS-
GYGLSTAALSTTLFNDGYGCGQC

FQ-I--TCSK-----SP-H--CYS-GK--STVVTATNLC---PPNWWYQDSN--
AGGWCNPPRTHFDMAKPAFMKL

AY-----WRA-GIIPVAY-RRVPCQRSG-GMRQFQ----QGNSY-WL---LIFVMNVGGAGDIKSMVAVK-
GSR--TN-

WI--SMASHNWGASYQ-AFSS---LYGQSLSFRVTS--YTTGETIYAWNVPANW--SGGKTYK---STANF

>AtEXPA8PRO

W-----QG-----GHATFYGGED--ASGTM----G-GACGY-GNLYGQ-
GYGTNTAALSTALFNNGLTGAC

YE-M--KCND-----D---PR-W--CLG-S---TITVTATNFC---PPNPGLSND--
NGGWCNPPPLQHFDLAEPALQI

AQ-----YRA-GIVPVSF-RRVPCMKKG-GIRFTI----NGHSY-FN---LVLISNVGGAGDVHAVSIK-GSK--
TQS

WQ--AMSRNWGQNWQ-SNSY---MNDQSLSFQVTT--S-DGRTLVSNDVAPSNW--QFGQTYQ-G---
GQF

>AtEXPA11PRO

L-----TN-----GHATFYGGSD--ASGTM----G-GACGY-GDLYSA-
GYGTMTAALSTALFNDGASCGEC

YR-I--TCDHAAD-----SR-W--CLK-GA--SVVITATNFC---PPNFALPNN--
NGGWCNPPPLKHFDMAQPAWEKI

GI-----YRG-GIVPVVF-QRVSCYKKG-GVRFRI----NGRDY-FE---LVNIQNVGGAGSIKSVSIK-GSK--
TG-

WL--AMSRNWGANWQ-SNAY---LDGQALSFSITT--T-DGATRVFLNVVPSSW--SFGQIYS---SNVQF

>AtEXPA12PRO

W-----IR-----AHATYYGVND--SPASL----G-GACGY-DNPYHA-
GFGAHTAALSGELFRSGESCGGC

YQ-V--RCDF---PA-D---PK-W--CLR-GA--AVTVTATNFC---PTN-----N--
NNGWCNLP RH HFD MSSPAFFRI

AR-----RGNEGIVPVFY-RRVGCKRRG-GVRFTM----RGQGN-FN---MVMISNVGGGGSVRSVAVR-
GSK--GKT

WL--QMTRNWWGANWQ-SSGD---LRGQRLSFKVTL--T-DSKTQTFLNVVPSSW--WFGQTFS--
SRGRQF

>AtEXPA13PRO

W-----RP-----ARATYYAATN--PRDAV----G-GACGY-GDLVKS-
GYGMATVGLSETLFRGQICGAC

FE-L--RCVD-----D---LR-W--CIP-GT--SIILTATNFC---APNYGFDPD--
GGGHCNPPNKH FVLPIEAFEKI

AI-----WKA-GNMPVQY-RRINCRKEG-SMRFTV----DGGGI-FI---SVLITNVAGSGDIAAVKIK-GSR--
TG-

WL--PMGRNWWGQNWH-INAD---LRNQALSFEVTS--S-DRSTVTSYNVSPKNW--NYGQTFE-G---KQF

>AtEXPA14PRO

W-----VN-----ARATFYGGAD--ASGTM----G-GACGY-GNLYSQ-
GYGTNTAALSTALFNNGQSCGAC

FQ-I--KCVD-----DPKW--CIG-G---TITVTGTNFC---PPNFAQANN--
AGGWCNPPQH HFDLAQPIFLRI

AQ-----YKA-GVVPVQY-RRVACRRKG-GIRFTI----NGHSY-FN---LVLITNVAGAGDVISVSIK-GTN--
TR-

WQ--SMSRNWWGQNWQ-SNAK---LDGQALSFKVTT--S-DGRTVISNNATPRNW--SFGQTYT-G---KQF

>AtEXPA15PRO

W-----VN-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSQ-
GYGTNTAALSTALFNNGLSGAC

FE-I--KCQS-----D---GA-W--CLP-G---AIIVTATNFC---PPNNALPNN--
AGGWCNPP LHHFDLSQPVFQRI

AQ-----YKA-GVVPVSY-RRVPCMRRG-GIRFTI----NGHSY-FN---LVLVTNVGGAGDVHSAVK-GSR-
-TR-

WQ--QMSRNWQGNWQ-SNNL---LNGQALSFKVTA--S-DGRTVVSNNIAPASW--SFGQTFT-G---
RQF

>AtEXPA17PRO

W-----LQ-----AHATFYGGSD--ASGTM----G-GACGY-GNLYTD-
GYKTNTAALSTALFNDGKSCGGC

YQ-I--LCDATKV-----PQ-W--CLK-GK--SITITATNFC---PPNFAQASD--
NGGWCNPPRPHFDMAQPAFLT

AK-----YKA-GIVPILY-KKVGCRRSRG-GMRFTI----NGRNY-FE---LVLISNVAGGGEISKVWIK-GSK--
SNK

WE--TMSRNWGANYQ-SNTY---LNGQSLSFQVQL--S-DGSIKAALNVVPSNW--RFGQSFK---SNVNF

>AtEXPA20PRO

W-----KI-----ATATLSRDRD--GSSSVAT--G-GACGY-GDLRQS-
SFAGYSAGLSGKLFNRGSSCGAC

LE-V--RCVN-----H---IR-W--CLQ-GSP-SVVVTATDFC---PPNSGLSSD--
YGGWCNFPKEHLELSHAAFTGI

AE-----TRA-EMIPQY-RRVKCGRRG-GLRFSL----SGSSH-FF---QVLISNVGLDGEVVGKVK-GHT--
TA-

WI--PMARNWQGNWH-SSLD---LIGQSLSFVTL--K-GGKTIASYDVAPPYW--RFGMTYQ-G---KQF

>AtEXPA22PRO

W-----YD-----ARATFYGDIH--GGDTQ-----PCGY-GNLFRQ-
GYGLATAALSTALFNDGYTCGAC

YE-I--MCTR-----DPQW--CLP-G---SVKITATNFC---PANYSKT----
TDLWCNPPQKHFDLSLAMFLKI

AK-----YKA-GVVPVRY-RRIPCSKTG-GVKFET----KGNPY-FL---MVLINNVGGAGDIKYVQVK-GNK--
TG-

WI--TMKKNWQGNWT-TITV---LTGQGLSFRVTT--S-DGITKDFWNVMPKNW--GFGQTFD---GRINF

>OsEXPA4PRO

W-----QS-----AHATFYGGGD--ASGTM----G-GACGY-GNLYSQ-
GYGTNTAALSTALFNDGAACGSC

YE-L--RCDN-----AGSS--CLP-G---SITVTATNFC---PPNYGLPSD--
DGGWCNPPRPHFDMAEPAFLHI

AQ-----YRA-GIVPVSF-RRVPCVKKG-GVRFTV----NGHSY-FN---LVLVTNVAGAGDVRSVSIK-GSR--
TG-

WQ--PMSRNWGQNWQ-SNAF---LDGQSLSFQVTA--S-DGRTVTSNNVAHPGW--QFGQTFE-G---GQF

>OsEXPA5PRO

W-----SS-----AHATFYGGGD--ASGTM----G-GACGY-GNLYSQ-
GYGTNTAALSTALFNNGLSGAC

FE-V--RCDA-----GGGGSH-S--CLP-G---SVVVTATNFC---PPNNALPSD--
DGGWCNPPRAHFDMSQPVFQRI

AL-----FKA-GIVPVSY-RRVACQKKG-GIRFTI----NGHSY-FN---LVLVTNVGGAGDVHAVAVK-SER--
SAA

WQ--ALSRNWGQNWQ-SAAL---LDGQALSFRVTT--G-DGRSVVSNNAVPRGW--SFGQTFS-G---AQF

>OsEXPA7PRO

W-----QS-----AHATFYGGSD--ASGTM----G-GACGY-GNLYSQ-
GYGVNNAALSTALFNNGQSCGAC

FE-I--KCVN--QP--G---WE-W--CHP-GSP-SILITATNFC---PPNYALPSD--
NGGWCNPPRPHFDLAMPMLHI

AE-----YRA-GIVPVSY-RRVPCRKKG-GVRFTI----NGFRY-FN---LVLITNVAGAGDIVRASVK-GTS--
TG-

WM--PMSRNWGQNWQ-SNSV---LVGQALSFRVTG--S-DRRTSTSWNAAPAGW--HFGQTFE-G---KNF

>OsEXPA10PRO

W-----RS-----AKASYAA-D--PEDAI----G-GACGF-GDLGKH-
GYGMATVGLSTALFERGAACGGC

YE-V--KCVD-----D---LK-Y--CLP-GT--SIVVTATNFC---APNFGLPAD--
AGGVCNPPNHHFLLPIQSFEKI

AL-----WKA-GVMPIQY-RRVNCLRDG-GVRFAV----AGRSF-FL---TVLISNVGGAGDVRSVKIK-GTE-
-SG-

WL--SMGRNWGQIWH-INS----FRGQPLSFELTS--S-DGKTLTNYNVVPKEW--DFGKTYT-G---KQF

>OsEXPA11PRO

W-----SS-----GSATFYGGSD--ASGTM----G-GACGY-GNLYSA-
GYGTSTAALSTALFNNGQSCGAC

FE-V--RCGG-----GG-S--CLA-G---TVAVTATNLC---PPNYALAGD--
AGGWCNPPRPHFDMAEPAFTRI

AQ-----ARA-GVVPVQY-RRVACAKQG-GIRFTI----TGHSY-FN---LVLVTNVGGAGDVTAVSVK-GSR--SG-

WQ--AMSHNWGANWQ-NGAN---LDGQPLSFRVTA--S-DGRTVTSDNVAPSGW--SFGQTFS-G---GQF

>OsEXPA12PRO

A-----LS-----GTATFYGGSD--ASGTM----G-GACGY-GNLYST-GYGTNTAALSSALFNDGAACGEC

YQ-I--TCDQ-SN-----SK-W--CKA-GT--SVTITATNLC---PPDYSKPSN--DGGWCNPPRQHFDMAQPAWEQI

GV-----YRG-GIVPVNF-QRVSCTRKG-GVRFTI----NGNSY-FE---LVLITNVGGPGSIKSVQIK-GTK--TG-

WV--TMSRNWGANWQ-ANNY---LNNQAISFSVTS--T-AGKTLVFEDVAPSNW--QFGQTFT---SGVQF

>OsEXPA16PRO

W-----RM-----GSATYIKESL--GHPLNDG--G-GACGY-GDLDIF-RYGRYTAGVSGALFGRGSACGGC

YE-V--RCVN-----H---VL-W--CLR-GSP-TVVVTATDFC---APNLGLSDD--YGGWCNFPKEHFEMSEAAFLRV

AK-----AKA-DIVPVQF-RRVSCDRAG-GMRFTI----TGGAS-FL---QVLITNVAADGEVA AVKVK-GSR--TG-

WI--PMGRNWGQNWQ-CDAD---LRGQPLSFEVTG--G-RGRTVVAYSVAPPDW--MFAQTFE-G---KQF

>OsEXPA30PRO

W-----TP-----AHATFYGDET--ASET M----G-GACGY-GNLYAS-GYGTDTAALSTTLFKDGYGCGTC

YQ-M--RCVG-----TA-S--CYR-GSP-AITVTATNLC---PPNWAEDPDRGGGGWCNPPRAHFDLSKPAFMRM

AD-----WRA-GIVPVMY-RRVPCARAG-GLRFAL----QGNPY-WL---LAYVMNVAGAGDVGDMWVKAGGG--GG-

WV--RMSHNWGASYQ-AFAQ---LGGQALSFKVTS--YTTGQTLAAGVTPASW--CFGLTYQ---ARVNF

>OsEXPA32PRO

W-----KQ-----AHATFYGGRD--GSGTL----D-GACGY-KDTSKE-GYGVQTVAVSTPLFGAGAGCGAC

YE-V--KCVD-----SPDG--CKV-GAA-PLVVTATNLC---PPNPGQSND--
NGGWCNPPREHFDLSMPAFLQI

AQ-----EKA-GIVPISY-RRVPCVKVG-GIRYTI----TGNPY-FN---LVMVSNVGGAGDVAGLSVK-GNK--
RVK

WT--PLKRNWGQEWQ-TSEV---LTGESLTFRVMT--G-DHRKATSWHVLPPDW--QFGVTYQ---ATKNF
>OsEXPA33PRO

W-----TP-----ATATFYGGSD--GAGTM----G-GACGY-GNLYNA-
GYGLNNAALSSALFNDGAMCGAC

YT-I--ACDT-----S---QSTW--CKP-GT--SITITATNLC---PPNYAKKSD--
AGGWCNPPRKHFDMSPAWTSI

AI-----YQA-GIVPVNF-KRVPCQKSG-GIRFTI----SGRDY-FE---LVTVFNVGGSGVVAQVSIK-GSK--
TD-

WM--AMSRNWGQNWQ-SNAY---LNTQSLSFVKVL--D-DAREVTVWNIAPSNW--NFGTTYT---
SNINF

>AaEXPB1PRO

W-----KP-----ATATWYGAPD--GAGTD----G-GACGY-GNLVGT-
PYGKRVTAGSPVLFKGGLGCGAC

YQ-V--KCM-----PK-L--CAK-K---AVRVITDEC-----PGGYCSGLNTHFDLSGTAFSGM
AN-PGLGSSLLNLGVLPMLY-KRVPCVYRR-PMKIEVAA--GSSPF-WF---SVLIKFVRGAGELKSVELQ-
QGG--TNY

WY--SMQHIWGANWSVNVGS--GLKG-PFTLR LTC--LLTGQQIVIRNVIPGNW--APATTYL---ASVNF
>AaEXPB2PRO

W-----LS-----CKATFYGPQD--GDGTD----A-GNCGY-GALASS-
PYGKNIAAGSPELYQDGLGCGAC

FQ-I--KCTN-----D-G--CKD-E---ASTVVITDQC---P-----GGEWCGVGKPHFDLRGTAFANL
AV-AGRSSDLFTRGVLDLQY-QRVACSYGAQTVAFAMDA--NCNPN-WI---
AFVVEFQAGDGLHSVELK-DAS--SD-

WQ--AMSHNWGANWQ-FSGS---LTG-PISVRLTS--NTANQVLVAQDAIPANW--KPGQTYK---SQDQF
>AaEXPB3PRO

W-----LS-----CKATFYGPQD--GDGTD----A-GNCGY-GALASS-
PYGKNIAAGSPELYQDGLGCGAC

FQ-I--KCTN-----D-G--CKD-E---ASTVVITDQC---P-----GGEWCGVGKPHFDLSGTAFANL

AV-AGRSSDLFTRGVLDLQF-QRVACSYGAQTVAFAMDA--NCNPN-WI---
AFVVEFQAGDGDLSVELK-DVS--SD-

WQ--AMSHNWGANWQ-FSGS---LTG-PISVRLTS--NTANQVLVAQDAIPADW--TPGQTYQ---SQDQF
>AaEXPB4PRO

W-----LS-----CKATFYGPQD--GDGTD----A-GNCGY-GALASS-
PYGKNIAAGSPELYQDGLGCGAC

FQ-I--KCTN-----D-G--CKD-E---ASTVVITDQC---P-----GGEWCGVGKPHFDLSGTAFANL

AV-AGRSSDLFTRGVLDLQY-QRVACSYGAQTVAFAMDA--NCNPK-WI---
AFVVEFQAGDGDLLSVELK-DAS--SD-

WQ--AMSHNWGANWQ-FSGS---LTG-PISVRLTS--NTANQVLIAQDAIPANW--KPGQTYK---SKQQF
>AaEXPB5PRO

W-----LS-----CKATFYGPQD--GDGTD----A-GNCGY-GALASS-
PYGKNIAAGSPELYQDGLGCGAC

FQ-I--KCTN-----DG----CKD-E---ASTVVITDQC---P-----GGEWCGVGKPHFDLSGTAFANL

AV-AGRSSDLFTRGILDLY-QRVACSYGAQTVAFAMDA--NCNPN-WI---
AFVVEFQAGDGDLSVELK-DAS--SD-

WQ--AMSHNWGANWQ-FSGS---LTG-PISVRLTS--NTANQVLIAQDAIPANW--KPGQTYK---SQDQF
>AaEXPB6PRO

W-----LA-----CKATWYGEQD--GDGSD----G-GACGY-GELSSK-
PYGKNIAAGSPVLYQDGLGCGSC

YQ-V--KCTS-----DP-A--CSG-D---PVTVLTIDIC---P-----GGS�CGIGKPHFDLSGTAMGNM

AA-AGKGSDLRGLGVVDILY-KRVPCSYPEQNVIAVDQ--GSNPS-WL---ELTVLYEGGPGDLSALEVK-
DAT--SQ-

WQ--PMVHKWGANWGYDKAA--DLHG-ALSIRLTS--GLGSLPLVAQNALPADW--APGQTYQ---
TVAQF

>AaEXPB7PRO

W-----VA-----CKATWYGEPD--GDGSDVNA-G-GACGY-GELSSK-
AYGKSIAAGSPVLYQDGLGCGSC

YQ-V--KCTS-----NP-A--CSG-D---PVTIVLTIDIC---P-----GGS�CGVGKPHFDLSGTAINM

AA-AGKGSDLRGLGVVDILY-KRVPCAYPEQNVIAVDQ--GSNPS-WL---ELTVLYEGGPGDLSALEVK-
VTS--HS-

SN--PALACRGSQI-----VVC-VFAPELTTHAGLGT----AQDA-TSQWHRSGSRTLY---IIPSR

>AaEXPB8PRO

W-----LS-----CKATFYGPRD--GDGTD----A-GNCGY-GALASS-
PYGSNIFAGSPELYQDGLGCGDA

---S--RCTN-----D-G--CND-T---PTTVMTDQC---P-----GGEWCGIGKPHFDLSGTAFGSL

AA-AGRSSDLFTLGVLDIQY-QRVPCSYSTQTVAFAMDA--NCNPN-WI---
AFVVEFQAGDGLHSVELK-QDA--TSD

WQ--AMSHNWXANWQ-FSGS---LQG-PIPVRLTS--NTANQVLVAKDAIPADW--TPGQTYQ-----F

>CpEXPB1 [X]

W-----MA-----GHATWYGEPN--GEGSS----G-GACGY-TKLTGT-
PYGPRIAAGNDAIFQGGKGCQC

YE-V--KCSY-----AE----CRQ-E---ATRIVTDQC---P-----GGEYCSKAEPAFDLSGAAISAM

AL-PDKDGALRNIGLYDILY-KRVPCFQGGQNIQFQVDQ--GSTGF-WL---SFVVKFLGGPGDIDSVEIR-
HSG--SSS

FQ--PAKHNWGASWMLINTSGQAFKG-PYDIRVVS--KLNGHAVTAEKVIPEFF--EPGKLYE---SNVQL

>CpEXPB2 [A]

W-----VF-----GHGTWYGDY--GEGSS----G-GNCGY-TKLAGT-
PYGPKIVAGSPAIIANGLGCGQC

YQ-V--KCTDSKNG-----PR-L--CNP-S---GTQVVVTDFC---P-----
GGTYCSTGEKAFDFSGAALNAM

AL-PGKDGQLRNRGLYNVLY-KRVPCYKQNIQAFRVDP--GSSPY-WL---SVLIKYVGGPGDIGAVSIK-
MAN--SYK

FM--PMKHAWGANWMLQNYDGKPFKG-PMDIKIVS--RLNGHSVAKGVIPGYF--RPGTTYT-
SRVQMAY

>CpEXPB3 [A]

W-----VY-----GHGTWYGDY--GEGSS----G-GNCGY-TKLAGT-
PYGPKIVAGSPAIIANGLGCGQC

YQ-I--KCLDSKYG-----PR-L--CNS-W---GTQVVVTDFC---P-----
GGTYCSSGQKAFDFSGAALNAM

AL-PGKDGQLRNRGLYNVLY-KRVPCYKQNIQAFRVDP--GSSPY-WL---SVLIKYVGGPGDIGAVYIK-
MAN--SYR

FM--PMKQAWGANWMLQNYDGKPFKG-PMDIKIVS--RLNGHSVAKGVIPGYF--RPGTTYT-
SRVQMAY

>CpEXPB4 [X]

W-----MA-----GHATWYGEPN--GEGSS----G-GACGY-TKLTGT-
PYGPRIAAGNDAIFQGGKGCGQC

YE-V--KCSY-----AE----CRQ-E---ATRIVTDQC---P-----GGEYCSKAEPAFDLSGAAISAM

AL-TDKDGALRNIGLYDILY-KRVPCFQGGQNIQVVDQ--GSTGF-WL---SFVVKFLGGPGDIDSVEIR-
HSG--SSS

FQ--PAKHNWGASWMLINTSGQAFKG-PYDIRVVS--KLNGHAVTAEKVIPEFF--EPGKLYE---SNVQL
>CpEXPB5 [A]

W-----MA-----GHATWYGDY--GEGSS----G-GACGY-TQLTGT-
PIGSKIAAGNNPIFQGGKGCGQC

YE-V--KCNV-----P-S--CNP-E---PTRIVTDLC---P-----GGTYCSTGNPAFDFSGAAITAM

AL-PGRDGELKKIGLYDIQY-KRVPCFQGGQNIQVVDQ--GASAY-WL---
SFTVKYLGGPGDIESVEIRQVGS--NGS

FQ--PCQHSWGANWMLINYTGQPFQDQ-PYDVKITA--KLNGHVSIAIRAIPKWF--QPGALYN---SNVQF
>CpEXPB6 [ACnFn]

W-----IA-----GHATWYGDY--GEGSN----G-GACGY-TELAGT-
PYGLSVAAGSAIFQNGQGGCGQC

YD-V--KCSY-----P-S--CKQ-E---PTRVITDSC---P-----GGTYCSTGEPAFDLSGMAMSNM

AL-PGRDQELRNILGLYDIQY-KRVPCYYPNQNIQVVDQ--GSTPY-WL---SFTVKYQGGPGDIQNVEIR-
QAG--SSE

FQ--PLQHNWGANYYMICYSGQPFQDQ-PYDVKITA--KLNGHVLIAEHAPEYF--QPGGLYE---SNVQL
>PpEXPB1PRO

W-----LG-----GHATWYGDY--GEGSS----G-GACGY-TQLTGT-
PIGSKIAAGNAPIFQEGKGCGQC

YE-V--KCNV-----PS----CSP-Q---GTRIVTDLC---P-----GGQYCSTDQPAFDFSGAAITAM

AL-PGRDGELRNIGLYDIQY-KRVPCFQGGQNIQVVDQ--GSSKY-WF---SFTVKYLGGPGDINTVEVK-
CGK--NGY

FQ--YAQHSWGANWMLINYSQVQFQF-PLTIKITT--KLNDHTVVAEDVIPDWF--GPGVQYE---SNVQI
>PpEXPB2PRO

W-----VR-----ARGTWYGDY--GEGSS----G-GNCGY-TKLWGT-
PIGPKIVAGSRSIYANGQGGCGQC

YQ-I--RCVDPNGG-----PR-L--CNP-Q---GTNVVVTDFC---P-----
GGTYCSTGENAFDMSGAAINAM

AL-RGREGQLRNRGLYNLLY-KRVPCRYRGTNIEFRVDN--GSSPF-WL---SILIKYVGGPGDIGQVYIR-
MAN--WYK

FQ--PMRHAWGANWMIPNYDGKPFGRG-PMDIRIVS--RLNRHTVLARGVIPAYF--RPGTSYR-
SRVQMAF

>PpEXPB3PRO

W-----LP-----GHATWYGDPY--GEGSS----G-GACGY-TELAGT-
PYGLSVGAGSAVIYQNGQGCCEC

YE-V--KCTY-----PS----CKP-T---PSRIVITDFC---P-----GGTFCSTGEPAFDLSGMAMTNM

AL-PGRDQELRNGLYEIQY-RRVPCYYPNQNVAFKVDN--GSTPF-WL---SFTIEYQGGPGDIESVAIR-
QAG--SSE

FQ--QMQHNWGANYMLICYSGKPFKG-PYDVMITA--KLNGHVLIAQDAIPEYF--QPGGIYE---SNVQL

>PpEXPB4PRO

W-----VP-----GHATWYGDPY--GEGSS----G-GXCGY-LQLTGT-
PIGNKIAAGNEAIFQKGKGXXQC

YE-V--KCNV-----P-V--CRP-E---GTRIVITDLC---P-----GXQFCSSGGNPAFDLSGAAISAM

AK-DGQDGALRNIGLYDIQY-KRVPCYYPNQNVFKVDA--GSSPF-WL---SFTVKYMGPGDIESVSI--
SQR--DGS

FI--PAQHSWGANWMLINYSGAPFQG-PYSVKINC--MLNGHTVVAKDVIPAGF--APGQEYE---SNVQI

>PpEXPB5PRO

W-----MA-----GHATWYGEPL--GEGSS----G-GACGY-TKLADT-
PYGPKIAAGNDPIFQGGSGCGAC

FE-V--KCNV-----PS----CKS-E---PTRIIITDQC---P-----GGTYCSTSQPAFDLSGAAISDM

AV-SGKDGELRNIGLYDILY-KRVPCYYPNQNIQVDA--GSSAF-WL---SLLVKYMGPGDIESVEIR-
TTG--SSS

FQ--PAKHNWGASWMLINTSGQPFGK-PYDVKIVS--KLNGHTVIAEKAIPEFF--EPGKLYE---SNVQM

>PpEXPB6PRO

W-----VR-----ARGTWYGDPY--GEGSS----G-GNCGY-TRLXGT-
PIGPKIVAGSRSIYXNGLGCGQC

YQ-N--QCVD-----P---XX-G--XKL-XNSFXTQXXXTDFC---P-----
GGXYCSTGENAFDMSGAAINAM

AL-PSREGQLRNRGLYNLLY-KRVPCRYRGTXIXRVDX--XSSAY-WL---SILIKYVGGPGDIGQVYIK-
MAN--WFA

FQ--PMKHAWGANWMMPSYDGKPFKG-PMDIKIVS--KLNHRHSVVARGVIPGYF--RPGTTYN---
SRVQM

>SmEXPB1PRO

W-----EP-----ATATWYGSPN--GAGTD----G-GACGY-GSLPNT-
PYGSDVGAGSPILFMNGIGCGTC

FEVIYVKCVD-----GQ-L--CSP-Q---PVNVVITDEC-----PGGYCSGGRTHFDLSGTAFGKM
ASGSANIQHLLAAGVLNVLY-RRAPCIYKSQGVVFQVAD--GSTPF-WF---ETVIRYLDGPGDXATVELQ-
QFG--SSA

WQ--PMSQVWGANWCLNAGGGTPLRA-PFSIRLTA--LQTGEKXIAHNVIPANW--APQHSYS---
TGVNF

>SmEXPB2PRO

W-----QL-----ATATWYGSPS--GAGTD----G-GACGY-GELPNT-
PYGLDVGAGSPVLFKNRGCGAC

YKVV--RCLQ-----QQ-L--CSG-K---AVTVVITDEC-----PGGYCAFGRTHFDLSGTAFGRM
AM-AGRTNQLLGSQVXQVLY-KRXDCNYGSRPMEFQVNE--GSTPF-WL---
SILVRYAAGPGDLGHVELMQGSR---V

WQ--PMTQVWGATWCFNGGP---LRG-PFSFRVTT--LSTSETVVARNVIPXNW--ASNTCYR---SRVNF

>OsEXPB15PRO

W-----SN-----GGATWYGAAN--GAGSD----G-GACGYQGAVFQA-
PFSSMIAAGSPSIYKSGLGCGSC

YQ-V--KCTG-----NS-A--CSG-N---PVTVVLTDCE-----PGGPCLSEPVHFDLSGTAFGAM
AN-PGQADQLRAAGVLQIQY-NRVPCNWGGVKLTFVVDV--GSNPN-YF---
AVLVKYENGDDGLSGVELMQTGA--GAA

WT--QMQQSWGAVWKLNAGS---ALQAPFSIRLTS--S-SGKTLVASNVIPSGW--KPGMSYI---STVNF

>OsEXPB16PRO

W-----HP-----ATATWYGSAD--GDGSD----G-GACGY-
GTLVDVPMKTRVGAVSPVLFKGGECCGAC

YK-V--RCLD-----AS-I--CSR-R---AVTVIVTDEC-----PGGVCAFGRTHFDLSGAFAFRL
AV-AGHGGQLQNRGEISVY-RRTACKYGGKNIAFHVNE--GSTTF-WL---
SLLVEFEDGDGDIGSMQLK-QAN--SAQ

WQ--DMKHIWGATWSLTPGP---LVG-PFSVRLTT--LTTRQTLAQDVIPKNW--TPKATYT---SRLNF

>OsEXPB17PRO

W-----RP-----ATATWYGDAE--GDGST----G-GACGY-
GSLVDVPMKARVGSVSPVLFKDGEGCGAC

YK-V--KCLD-----HG-I--CSR-R---AVTVIVTDEC-----PGGLCAFGRTHFDLSGAAFSRM

AV-AGAGGHLRDRGQLSVVY-RRTACKYGGKNIAFRVNE--GSTNF-WL---
SLLVEFEDGQGDIGSMQIK-QAN--SVE

WL--DMKHVWGATWCLVRGP---LVG-PFSVRLTT--LSAQKALTARDVIPRNW--KPTATYT---SRLNF

>OsEXPB18PRO

W-----SN-----GGATWYGAAN--GAGSD----G-GACGY-
QAAVDQAPFSSMIAAGSPSIYKSGLGCGSC

YQ-V--KCSG-----NS-A--CSG-N---PVTVVLTDCE-----PGGPCLSEPVHFDLSGTAFGAM

AN-PGQADQLRAAGVLQIQY-NRVPCNWGGVMLTFAVDA--GSNPS-YF---
AVLVKYENGDDGLSGMDLMQTGA--GAA

WT--PMQQSWGAVWKLSAGA---ALQAPLSIRLTS--S-SGKTLVASNVIPSGW--KPGASYT---STVNY

>AtEXPB1PRO

W-----LP-----ATATWYGSAE--GDGSS----G-GACGY-
GSLVDVKPFKARVGAVSPILFKGGEGCGAC

YK-V--RCLD-----KT-I--CSK-R---AVTIIATDQS---P-----SGPSAKAKHTHFDLSGAAFGHM

AI-PGHNGVIRNRGLLNILY-RRTACKYRGKNIAFHVNA--GSTDY-WL---SLLIEYEDGEGDIGSMHIR-
QAG--SKE

WI--SMKHIWGANWCIVEGP---LKG-PFSVKLTT--LSNNKTLSATDVIPSNW--VPKATYT---SRLNF

>AtEXPB2PRO

W-----SI-----AGSTWYGNPT--GYGSD----G-GACGY-
GNAVAQPPFSKMVSAGGPSLFSKGKCGAC

YQ-V--KCTS-----KS-A--CSK-N---PVTVVITDEC---PG-----CVKESVHFDLSGTAFGAM

AI-SGQDSQLRNVGELQILY-KKVECNIGKTVTFQVDK--GSNAN-SF---
AVLVAYVNGDGEIGRIELKQALD--SDK

WL--SMSQSWGAVWKLDVSS--PLRA-PLSLRVTS--LESGKTVVASNVIPANW--QPGAIYK---SNVNF

>AtEXPB3PRO

W-----LP-----AVATWYGSPN--GDGSD----G-GACGY-
GTLVDVKPLHARVGAVNPILFKNGEGCGAC

YK-V--RCLD-----KS-I--CSR-R---AVTVIITDEC---PG-----CSKTSTHFDLSGAVFGRL

AI-AGESGPLRNRGLIPVIY-RRTACKYRGKNIAFHVNE--GSTDF-WL---SLLVEFEDGEGEDIGSMHIR-
QAG--ARE

WL--EMKHVWGANWCIIGGP---LKG-PFSIKLTT--LSAGKTLSATDVVPRNW--APKATYS---SRLNF
>AtEXPB4PRO

FCYCQNETIDVAGSGT-----AGVTWYGEPF--GAGST----G-GACGY-
GSAVANPPLYAMVSAGGPSLFNNGKGCCTC

YQ-V--VCIG-----HP-A--CSG-S---PITVTITDEC-----PGGPCASEPVHIDLSGKAMGAL

AK-PGQADQLRSAGVIRVNY-KRAACLYRGTNIVFRMDA--GANPY-YI---SFVVEYENGDDLSNVEIQ-
PAG--GS-

FI--SMQEMRSAVWKVNSGS--ALRG-PFNIRLTS--GESHKVIVAYNVIPANW--KPDESYR---SIVNF