

Figure S1 The sequence alignment of 148 proteins

AtGH3-1	.....
AtGH3-2	.....
AtGH3-3	.....
AtGH3-4	.....
AtGH3-5	.....
AtGH3-6	.....
AtGH3-7	.....
AtGH3-8	.....
AtGH3-9	.....
AtGH3-10	.....
AtGH3-11	.....
AtGH3-12	.....
AtGH3-13	.....
AtGH3-14	.....MFLSPRSAHQKVGLSMLIDPLP
AtGH3-15	.....MFLSPRSAHQKVGLSMLIDPLP
AtGH3-16	.....
AtGH3-17	.....
AtGH3-18	.....
AtGH3-19	.....
BraX.GH3-1.a	.....
BraX.GH3-2.a	.....
BraA09.GH3-3.a	.....
BraA01.GH3-5.a	.....
BraA03.GH3-5.b	.....
BraA02.GH3-6.a	.....
BraA03.GH3-6.b	.....
BraA06.GH3-7.a	.....
BraA08.GH3-7.b	.....
BraA02.GH3-8.a	.....
BraA03.GH3-8.b	.....
BraA03.GH3-8.c	.....
BraA03.GH3-8.d	.....
BraA06.GH3-8.e	.....
BraA06.GH3-8.f	.....
BraA09.GH3-8.g	.....
BraA09.GH3-8.h	.....
BraA10.GH3-8.i	.....
BraA09.GH3-10.a	.....
BraA03.GH3-11.a	.....
BraA04.GH3-11.b	.....
BraA05.GH3-11.c	.....
BraA02.GH3-12.a	.....
BraA03.GH3-12.b	.....
BraA06.GH3-12.c	.....
BraA10.GH3-12.d	.....
BraA10.GH3-14.a	.....
BraA03.GH3-15.a	.....
BraA07.GH3-15.b	.....
BraA02.GH3-16.a	.....
BraA07.GH3-17.a	.....
BraA09.GH3-17.b	.....
BraAX.GH3-17.c	.....
BraA04.GH3-19.a	.....
BraA06.GH3-19.b	.....
BraA09.GH3-19.c	.....
BraA09.GH3-19.d	.....
BraAX.GH3-19.e	.....
BolC09.GH3-1.a	.....
BolC01.GH3-2.a	.....
BolC08.GH3-3.a	.....
BolC01.GH3-5.a	.....
BolC07.GH3-5.b	.....
BolC02.GH3-6.a	.....
BolC03.GH3-6.b	.....
BolC06.GH3-7.a	.....
BolC01.GH3-8.a	.....
BolC03.GH3-8.b	.....
BolC07.GH3-8.c	.....
BolC08.GH3-8.d	.....
BolC09.GH3-8.e	.....
BolC09.GH3-10.a	.....
BolC03.GH3-11.a	.....
BolC04.GH3-11.b	.....
BolCX.GH3-11.c	.....
BolC03.GH3-12.a	.....
BolC09.GH3-12.b	.....
BolC09.GH3-14.a	.....
BolC03.GH3-15.a	.....
BolCX.GH3-16.a	.....
BolC07.GH3-17.a	.....
BolC08.GH3-17.b	.....
BolC08.GH3-19.a	.....
BnaA09R.GH3-1.a	.....
BnaCX.GH3-1.a	.....
BnaA01.GH3-2.a	.....
BnaC01.GH3-2.a	.....
BnaA09.GH3-3.a	.....
BnaC08.GH3-3.a	.....
BnaA01.GH3-5.a	.....
BnaA03.GH3-5.b	.....
BnaC01.GH3-5.a	.....
BnaC07.GH3-5.b	.....
BnaA03.GH3-6.a	.....
BnaAX.GH3-6.b	.....
BnaC03.GH3-6.a	.....
BnaCX.GH3-6.b	.....
BnaA06.GH3-7.a	.....
BnaA08.GH3-7.b	.....
BnaC06.GH3-7.a	.....
BnaA03.GH3-8.a	.....
BnaA03.GH3-8.b	.....
BnaA03.GH3-8.c	.....
BnaA06.GH3-8.d	.....

BnaA06.GH3-8.e	.....
BnaA09.GH3-8.f	.....
BnaA09.GH3-8.g	.....
BnaAX.GH3-8.h	.....
BnaAX.GH3-8.i	.....
BnaC01.GH3-8.a	.....
BnaC02.GH3-8.b	.....
BnaC02.GH3-8.c	.....
BnaC02.GH3-8.d	.....
BnaC07.GH3-8.e	.....
BnaC09.GH3-8.f	.....
BnaCX.GH3-8.g	.....
BnaA05.GH3-9.a	.....
BnaC04.GH3-9.a	.....
BnaA03.GH3-10.a	.....
BnaA09.GH3-10.b	.....
BnaC09.GH3-10.a	.....
BnaA03.GH3-11.a	.....
BnaA04R.GH3-11.b	.....
BnaA05.GH3-11.c	.....
BnaC04.GH3-11.a	MCMKKELQVRNKSEIMHQKLTRELCESNHCSTKSLKDFENERKEHVVEELCDEFKAVEN
BnaCX.GH3-11.b	.....
BnaA02.GH3-12.a	.....
BnaA03.GH3-12.b	.....
BnaA06.GH3-12.c	.....
BnaA10.GH3-12.d	.....
BnaC02.GH3-12.a	.....
BnaC03.GH3-12.b	.....
BnaC09.GH3-12.c	.....
BnaA10.GH3-14.a	.....
BnaC09.GH3-14.a	.....
BnaA03.GH3-15.a	.....
BnaC03.GH3-15.a	.....
BnaAX.GH3-16.a	.....
BnaC02.GH3-16.a	.....
BnaA07.GH3-17.a	.....
BnaA08.GH3-17.b	.....
BnaA09.GH3-17.c	.....
BnaC08.GH3-17.a	.....
BnaCX.GH3-17.b	.....
BnaCX.GH3-17.c	.....
BnaA05GH3-18.a	.....
BnaCX.GH3-18.a	.....
BnaA06.GH3-19.a	.....
BnaA09.GH3-19.b	.....
consensus>70	.....

	1	10
AtGH3-1	MAVDSNLSSPL	GP
AtGH3-2	MAVDSPLQSR	MVSA
AtGH3-3	MTVDSALRSP	MMHS
AtGH3-4	MAVDSLQSGM	ASP
AtGH3-5	MPEAPKKESL	EVFDL
AtGH3-6	MPEAPKIAALE	VSDE
AtGH3-7	MSLTS	
AtGH3-8	MSL	
AtGH3-9	MDVMK	
AtGH3-10	ME	
AtGH3-11	MDALKHKRAFK	MLEK
AtGH3-12	MK	
AtGH3-13	MLPK	
AtGH3-14	EKNTKSGNSS	TLRHRTRFRQTTHFVCFLLRQGKWP
AtGH3-15	ELIYFARTKQSL	VSQKAAQAIMLPK
AtGH3-16	MLPK	
AtGH3-17	MTPFICTERERD	GSDPIHCSQRKDNRKAAIMLPK
AtGH3-18	MIPS	
AtGH3-19		
BraX.GH3-1.a	MAVDSSLS	SSPL.GP
BraX.GH3-2.a	MAVDSPLQSR	
BraA09.GH3-3.a	MIVDLALKSP	MIHT
BraA01.GH3-5.a	MPEAPKNESL	EVFDL
BraA03.GH3-5.b	MPEAPKYESL	DAFDL
BraA02.GH3-6.a	MPEAPKIEALE	VS
BraA03.GH3-6.b	MPEAPELA	VSDQ
BraA06.GH3-7.a	MSI	
BraA08.GH3-7.b	MSVIS	
BraA02.GH3-8.a	MSL	
BraA03.GH3-8.b	MSM	
BraA03.GH3-8.c	M	
BraA03.GH3-8.d	MN	
BraA06.GH3-8.e		
BraA06.GH3-8.f		
BraA09.GH3-8.g		
BraA09.GH3-8.h		
BraA10.GH3-8.i		
BraA09.GH3-10.a	MLGLRTL	LLVFCIAVVP
BraA03.GH3-11.a	MGAKSKTKQ	TFSFEITPKLGDVDYIYFLYG
BraA04.GH3-11.b	RMLEKK	
BraA05.GH3-11.c	MLEKK	
BraA02.GH3-12.a	MLEKK	
BraA03.GH3-12.b	MN	
BraA06.GH3-12.c	MK	
BraA10.GH3-12.d	MSI	
BraA10.GH3-14.a	MK	
BraA03.GH3-15.a	MLPK	
BraA07.GH3-15.b	MVIGCGLP	STMAAIMLPK
BraA02.GH3-16.a	MLTK	
BraA07.GH3-17.a	MLPR	
BraA09.GH3-17.b		
BraAX.GH3-17.c	MIPS	
BraA04.GH3-19.a	MMIPS	
BraA06.GH3-19.b		
BraA09.GH3-19.c		
BraA09.GH3-19.d		
BraAX.GH3-19.e		
BolC09.GH3-1.a	MAVDSSLS	SSPL.GP
BolC01.GH3-2.a	MAVDSPLQSR	
BolC08.GH3-3.a	MIVDLALKSP	MIHS
BolC01.GH3-5.a	MPEAPKNESL	EVFDL
BolC07.GH3-5.b	MPEAPKYESL	DAFDL
BolC02.GH3-6.a	MPEAPKIEALE	VS
BolC03.GH3-6.b	MPEAPELAV	SELS
BolC06.GH3-7.a	MSI	
BolC01.GH3-8.a	M	
BolC03.GH3-8.b	MPC	
BolC07.GH3-8.c	M	
BolC08.GH3-8.d		
BolC09.GH3-8.e		
BolC09.GH3-10.a	ME	
BolC03.GH3-11.a	MLEKK	
BolC04.GH3-11.b	MLEKK	
BolCX.GH3-11.c	MLEKK	
BolC03.GH3-12.a	MK	
BolC09.GH3-12.b	MN	
BolC09.GH3-14.a	MLPK	
BolC03.GH3-15.a	MLPK	
BolCX.GH3-16.a	MLPR	
BolC07.GH3-17.a	MIPS	
BolC08.GH3-17.b	MIPS	
BolC08.GH3-19.a	MVGVSGLQ	TSK
BnaA09R.GH3-1.a	MAVDSSLS	SSPL.GP
BnaCX.GH3-1.a	MAVDSSLS	SSPL.GP
BnaA01.GH3-2.a	MAVDSPLQSR	
BnaC01.GH3-2.a	MAVDSPLQSR	
BnaA09.GH3-3.a	MIVDLALKSP	MIHT
BnaC08.GH3-3.a	MIVDLALKSP	MIHS
BnaA01.GH3-5.a	MPEAPKNESL	EVFDL
BnaA03.GH3-5.b	MPEAPKYESL	DAFDL
BnaC01.GH3-5.a	MPEAPKNESL	EVFDL
BnaC07.GH3-5.b	MPEAPKYESL	DAFDL
BnaA03.GH3-6.a	MPEAPELAV	SEVS
BnaAX.GH3-6.b	MPEAPKIEA	FEVS
BnaC03.GH3-6.a	MPEAPELAV	SELS
BnaCX.GH3-6.b	MPEAPKIEA	LEVSDQ
BnaA06.GH3-7.a	MSI	
BnaA08.GH3-7.b	MSVIS	
BnaC06.GH3-7.a	MSI	
BnaA03.GH3-8.a	MSM	
BnaA03.GH3-8.b	M	
BnaA03.GH3-8.c	MN	
BnaA06.GH3-8.d		

BnaA06.GH3-8.e	.....
BnaA09.GH3-8.f	.....
BnaA09.GH3-8.g	.....
BnaAX.GH3-8.h	.....
BnaAX.GH3-8.i	.....
BnaC01.GH3-8.a	.....M
BnaC02.GH3-8.b	.....MSL
BnaC02.GH3-8.c	.....MSL
BnaC02.GH3-8.d	.....MSL
BnaC07.GH3-8.e	.....M
BnaC09.GH3-8.f	.....
BnaCX.GH3-8.g	.....MS
BnaA05.GH3-9.a	.....MDVVKI
BnaC04.GH3-9.a	.....MDVLKF
BnaA03.GH3-10.a	.....ME
BnaA09.GH3-10.b	.....ME
BnaC09.GH3-10.a	.....ME
BnaA03.GH3-11.a	.....MGAKSKTKQTFSEDIKLGRLATSITFTFSMVARSNNNIRMLEKK
BnaA04R.GH3-11.b	.....NNIRMLEKK
BnaA05.GH3-11.c	.....MLEKK
BnaC04.GH3-11.a	YEDKEMSEQTKFSNSLFFFSLYKIATSSDFSESLEKICFLYLSPPPSFIARSNNNIRMLEKK
BnaCX.GH3-11.b	.....MLEKK
BnaA02.GH3-12.a	.....MD
BnaA03.GH3-12.b	.....MK
BnaA06.GH3-12.c	.....MSI
BnaA10.GH3-12.d	.....MK
BnaC02.GH3-12.a	.....MN
BnaC03.GH3-12.b	.....MLLKSSLTLNKREASMK
BnaC09.GH3-12.c	.....MN
BnaA10.GH3-14.a	.....MLPK
BnaC09.GH3-14.a	.....MLPK
BnaA03.GH3-15.a	.....MVIGCGLPSTMAAIMLPK
BnaC03.GH3-15.a	.....MVIGCDLPSTMSAIMLPK
BnaAX.GH3-16.a	.....NYSVTGTRTRFRHTTTPFVCFIQYLLNLKSPSFFFCYCRTLQIIKNQQTMLPR
BnaC02.GH3-16.a	.....MLPR
BnaA07.GH3-17.a	.....MIPS
BnaA08.GH3-17.b	.....MIPS
BnaA09.GH3-17.c	.....MIPS
BnaC08.GH3-17.a	.....
BnaCX.GH3-17.b	.....MIPS
BnaCX.GH3-17.c	.....
BnaA05GH3-18.a	.....
BnaCX.GH3-18.a	.....
BnaA06.GH3-19.a	.....
BnaA09.GH3-19.b	.....MVGVSVLQTSK
consensus>70	.....

	20	30	40	50
AtGH3-1	PACEKDAKALRFIE	EMTRNADTVQENLLAEILARNADTEYLRR		
AtGH3-2	TTSEKDVKALKFIE	EMTRNPDSDVQEKVLGEILTRNSNTEYLKR		
AtGH3-3	P.STKDVKALRFIE	EMTRNVDFVQKKVIREILSRNSDTEYLKR		
AtGH3-4	TTSETEVKALKFIE	EITRNPDSVQEKVLGEILSRNSNTEYLKR		
AtGH3-5	TLDQKNKQKQLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
AtGH3-6	SLAEKNKNNKLFQIE	DVTINADDVQRRVLEEILSRNADVEYLKR		
AtGH3-7	DLSEKSSDDMKVLE	DLTSNVTQIQDNVLEEILTLNANTNYLQK		
AtGH3-8	CSDLTEKLDIEILE	DLTSNVKQIQDNVLEEILTLNANTEYLRR		
AtGH3-9	...LDHDSVLKELE	RITSKAAEVQDNILRGILERNKDTEYLSK		
AtGH3-10	TVFAGHDDVIGWFE	HVSENAACKVQSETLRRILELNSGVEYLKR		
AtGH3-11	VETFDMMNRVIDEFD	EMTRNAHQVQKQTLKEILLKNQSAIYLQN		
AtGH3-12	PIFDINETTFKQLK	DLTSNVKS IQDNLLIEITPNTKTEYLQR		
AtGH3-13	FDLTDPKASLSLE	DVTINVTQIQDSILEAVLSRNAHTEYLKG		
AtGH3-14	FDPTDQKACLSLE	DVTINVKQIQDSVLEAILSRNAHTEYLSG		
AtGH3-15	FDPTNQKACLSLE	DLTINVKQIQDSVLEAILSRNAQTEYLRG		
AtGH3-16	FDPTNPLATMSVLE	DVTINVKQIQDSVLEAILSRNSQTEYLRG		
AtGH3-17	YDPNDTEAGLKLE	DLTTNAEAIQEQVLHQILSONSGTQYLRA		
AtGH3-18	...MMNPSLNLMDLE	ELTSNAKQIQEDVLEEILTLNANTEYLHR		
AtGH3-19	...MSLSVELKDLE	VLTTNAKQIQDDVLKEILTLNANTEYLKR		
BraX.GH3-1.a	PACEKDAKALRFIE	EMTRNADTVQENLLAEILRRNAEATEYLRR		
BraX.GH3-2.a	TTSEKDVKALSFIE	EMTRNPDSDVQEKVLGEILSRNSGTEYLKR		
BraA09.GH3-3.a	PQSDKDLKALRFIE	EMTRKVDVFQKKVKEILSRNSETEYLKR		
BraA01.GH3-5.a	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BraA03.GH3-5.b	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BraA02.GH3-6.a	TLAEKNKNNRLQFIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BraA03.GH3-6.b	ILEEKNKNNKLFQIE	EVTSNADQVQRRVLEEILSRNADVEYLKR		
BraA06.GH3-7.a	ISYYNEEEKGKYLE	DLTWNVKQIQDDLLKEILTLNSGTEYLQN		
BraA08.GH3-7.b	VLTEKANDKKILE	DLTSNVKQIQDNVLEEILTLNTNTEYLQR		
BraA02.GH3-8.a	CSDLCDKLDENVLE	ELASNVKQIQDNVLEEILTLNAGTEYLRR		
BraA03.GH3-8.b	WADLSDKLDKLVLE	DLTSNVKQIQDDVLKEILTLNANTEYLRP		
BraA03.GH3-8.c	INLTEEDAGLAMLE	KLTSNVKQIQDAVLKEILTC DANTEYLRS		
BraA03.GH3-8.d	NLTKEEEAGLAVLE	NLTSNVKQIQDEVLKEILTC DANTEYLRS		
BraA06.GH3-8.e	...MSLGCDLTVLE	ELTSNAKQIQEDVLNKKILKANANTEYLQR		
BraA06.GH3-8.f	...MSLDCDLTVLE	ELTSNAKQIQDDVLT KILKANANTEYLQR		
BraA09.GH3-8.g	...MELM	NLTSNVKQIQDDVLKEILTLNANTEYLRG		
BraA09.GH3-8.h	...MSLGCDLSVLE	ELTSNAKQIQDDVLT KILKANTNTEYLSR		
BraA10.GH3-8.i	...MDLK	KLTSNVKHIQDDVLKEILTLNAKTEYLRG		
BraA09.GH3-10.a	PAEAGHADVIGWFE	HVSEKACKAQRETILRRILELNSRVEYLKR		
BraA03.GH3-11.a	VETFNMMNRVIDEFE	EMTRNADQVQKQTLKEILLKNQSAIYLQN		
BraA04.GH3-11.b	VETFNMMNRVIDEFE	EMSRNADQVQIQTLKDI LLKNHSAIYLKN		
BraA05.GH3-11.c	AETFNMMNRVIDEFD	EMTRNADQVQKQTLKEILLKNKSAIYLRN		
BraA02.GH3-12.a	PNSDNNQRWEAKLK	DLTSNVQIQDNLLIEILTPNLNTEYLQR		
BraA03.GH3-12.b	PISNNNERWEKLLK	DLTFNVKQIQDKLLEEILTPNLKTEYLQR		
BraA06.GH3-12.c	ISDFNDEEEKVLE	DLTSNVKQIQDDLLKEILTLNSGTEYLSQ		
BraA10.GH3-12.d	PISNNDETWDATLK	DLTSNVKEIQDNVLEEITP NLKTEYLQR		
BraA10.GH3-14.a	FDPTANHKACLSVLE	DVTINAKQIQDSVLEAILSRNAKTEYLRG		
BraA03.GH3-15.a	FDPTNSKACLSILE	DVTINAKQIQDSVLEAILSRNAQTEYLKG		
BraA07.GH3-15.b	FDPTNQKACLSLE	DITSNANQIQDSVLEAILTRNAHTEYLRG		
BraA02.GH3-16.a	FDPTNPLACMSVLE	DVTSNAKQIQDSVLEAILSRNAQTEYLKG		
BraA07.GH3-17.a	YDPNDTEAGLKLE	DLTTNAEV IQEQVLHQILSONCETQYLQA		
BraAX.GH3-17.c	YDPNDTEAGLQLE	DLTTNADA IQEQVLHQILSONSETEYLRS		
BraA04.GH3-19.a	...MNQNSELKALE	KLSSNAKQIQEDMLEEILRSSANTTEYLRR		
BraA06.GH3-19.b	...MSLGCDLTVLE	ELTSNAKQIQDDVLNKKILKANANTEYLKR		
BraA09.GH3-19.c	...MSLGCDLSVLE	ELTSNAKQIQDDVLT KILKANANTEYLSR		
BraA09.GH3-19.d	...MRLGCDLSVLE	ELTSNAKQIQDDVLNKKILKANANTEYLSR		
BraAX.GH3-19.e	...MSSIVELSSLE	ELTLNAEQIQDDLLKEILRLNSNTEYLRR		
BolC09.GH3-1.a	PACEKDAKALRFIE	EMTRNADTVQENLLAEILRRNAEATEYLRR		
BolC01.GH3-2.a	TTSEKDAKALSFIE	EMTRNPDSDVQEKVLGEILSRNSGTEYLKR		
BolC08.GH3-3.a	PQSDKDLKALRFIE	EMTRNVDFVQKKVKEILSRNSETEYLKR		
BolC01.GH3-5.a	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLKR		
BolC07.GH3-5.b	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BolC02.GH3-6.a	TLAEKNKNNRLQFIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BolC03.GH3-6.b	TLAEKNKNNKLFQIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BolC06.GH3-7.a	ISYYNEEEKGKYLE	DLTWNVKQIQDDLLKEILTLNSGTEYLSQ		
BolC01.GH3-8.a	NLTDDKDVAMSLLE	DLTSNVKQIQDEVLEEILRC DANTEYLSQ		
BolC03.GH3-8.b	LHDAIDVNKIRVIE	RLDVQCCQIQDDVLKEILLT SANTEYLAP		
BolC07.GH3-8.c	INLTEEDAGLAVLE	KLTSNVKQIQDAVLKEILTC DANTEYLRS		
BolC08.GH3-8.d	...MSQGCDSLILE	ELTSNAKKRQDNVLNKKILKANANTEYLSR		
BolC09.GH3-8.e	...MPEQNLYL	...MPEQNLYL		
BolC09.GH3-10.a	PAEAGHADVIGWFE	HVSEKACKAQRETILRRILELNSGVEYLKR		
BolC03.GH3-11.a	VENFNMMNRVIDEFE	EMTRNADQVQKQTLKEILLKNKSAIYLQN		
BolC04.GH3-11.b	FETFNMMNRVIDEFE	EMSRNADQVQIQTLKDI LLKSQSAIYLKN		
BolCX.GH3-11.c	AETFNMMNRVIDEFD	EMTRNADQVQKQTLKEILLKNKSAIYLRN		
BolC03.GH3-12.a	PISNNNERWEKLLK	DLTSNVKQIQDNLLIEILTPNLKTEYLQR		
BolC09.GH3-12.b	PNSDNNQRWEAKLK	DLTSNVQIQDNLLKEILTPNLNTEYLQR		
BolC09.GH3-14.a	FDPTANHKACLSVLE	DVTINAKQIQDSVLEAILSRNAKTEYLRG		
BolC03.GH3-15.a	FDPTNSKACLSILE	DVTINAKQIQDSVLEAILSRNAQTEYLKG		
BolCX.GH3-16.a	FDPTNPLACMSVLE	DVTSNAKQIQDSVLEAILSRNAQTEYLKG		
BolC07.GH3-17.a	YDPNDTEAGLKLE	DLTTNAEAIQEQVLHEILSONSGTQYLRA		
BolC08.GH3-17.b	YDPNDTEAGLKLE	DLTTNADA IQEQVLHQILSONSETEYLRS		
BolC08.GH3-19.a	IANMSQGCDSLILE	ELTSNAKKIQDDVLT KILKANANTEYLSL		
BnaA09R.GH3-1.a	PACEKDAKALRFIE	EMTRNADTVQENLLAEILRRNAEATEYLRR		
BnaCX.GH3-1.a	PACEKDAKALRFIE	EMTRNADTVQENLLAEILRRNAEATEYLRR		
BnaA01.GH3-2.a	TTSEKDVKALSFIE	EMTRNPDSDVQEKVLGEILSRNSGTEYLKR		
BnaC01.GH3-2.a	TTSEKDAKALSFIE	EMTRNSDSVQEKVLGEILSRNSGTEYLKR		
BnaA09.GH3-3.a	PQSDKDLKALRFIE	EMTRNVDFVQKKVKEILSRNSETEYLKR		
BnaC08.GH3-3.a	PQSDKDLKALRFIE	EMTRNVDFVQKKVKEILSRNSETEYLKR		
BnaA01.GH3-5.a	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BnaA03.GH3-5.b	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BnaC01.GH3-5.a	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLKR		
BnaC07.GH3-5.b	TLDEKNKRRRLQIE	ELTSNADQVQRRVLEEILTRNADVEYLRR		
BnaA03.GH3-6.a	ILEEKNKNNKLFQIE	EVTSNADQVQRRVLEEILSRNADVEYLKR		
BnaAX.GH3-6.b	TLAEKNKNNRLQFIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BnaC03.GH3-6.a	SLAEKNKNNKLFQIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BnaCX.GH3-6.b	TLAEKNKNNRLQIE	EVTSNADDVQRRVLEEILSRNADVEYLKR		
BnaA06.GH3-7.a	ISYYNEEEKGKYLE	DLTWNVKQIQDDLLKEILTLNSGTEYLQN		
BnaA08.GH3-7.b	VLTEKANDKKILE	DLTSNVKQIQDNVLEEILTLNTNTEYLQR		
BnaC06.GH3-7.a	ISYYNEEEKGKYLE	DLTWNVKQIQDDMLKEILTLNSGTEYLQN		
BnaA03.GH3-8.a	WADLSDKLDKLVLE	DLTSNVKQIQDDVLKEILTLNANTEYLRP		
BnaA03.GH3-8.b	INLTEEDAGLAMLE	KLTSNVKQIQDAVLKEILTC DANTEYLRS		
BnaA03.GH3-8.c	NLTKEEEAGLAVLE	NLTSNVKQIQDEVLKEILTC DANTEYLRS		
BnaA06.GH3-8.d	...MNLGCDLTVLE	ELTSNAKQIQDDVLNKKILKANANTEYLQR		

BnaA06.GH3-8.e	...MSLDCD	LTVLE	ELTSNAKQIQDDVLT	KILKANANTEYLQR	
BnaA09.GH3-8.f	...MSLSCD	LSVLE	ELTSNAKQIQDDVLT	KILKANANTEYLSR	
BnaA09.GH3-8.g	...MSQRCD	LSVLE	ELTSNAKQIQDDVLT	KILKSSANTEYLSR	
BnaAX.GH3-8.h	.....	.....	.....	.....
BnaAX.GH3-8.i	...MSQGCD	LSVLE	ELTSNAKQIQDDVLT	KILKANANTEYLSR	
BnaC01.GH3-8.a	NLTLDKDVAM	SLLE	DLTSNVKQIQDEVLEE	ILRC DANTEYLSQ	
BnaC02.GH3-8.b	CSDLCDKLD	ENVLE	ELTSNVKQIQDNLVLEE	ILTLNAGTEYLRR	
BnaC02.GH3-8.c	CSDLCDKLD	ENVLE	ELTSNVKQIQDNLVLEE	ILTLNAGTEYLRR	
BnaC02.GH3-8.d	CSDLCDKLD	ENVLE	ELTSNVKQIQDNLVLEE	ILTLNAGTEYLRR	
BnaC07.GH3-8.e	INLTEDDAG	LAVLE	KLTSNVKQIQDAVLKE	ILTC DANTEYLSR	
BnaC09.GH3-8.f	.....	.....	.....	.....
BnaCX.GH3-8.g	RTNMSLDCD	LTVLE	ELTSNAKQIQDDVLT	KILKANANTEYLSR	
BnaA05.GH3-9.a	DYNYKGDNAL	KELE	RITSKAAEQVQDNIL	CGILEONKDTQYLSK	
BnaC04.GH3-9.a	DYNHKGDNAL	KELE	RITSKAAEQVQDNIL	SGILERNKDTQYLSK	
BnaA03.GH3-10.a	TAEAGHADV	IGWFE	HVSENAKQIQRETL	LRRIELNCGVDYLRK	
BnaA09.GH3-10.b	PAEAGHADV	IGWFE	HVSEKASKAQSETL	LRRIELNLSRVEYLRK	
BnaC09.GH3-10.a	PAEAGHADV	IGWFE	HVSEKACKTQRETL	LRRIELNLSGVEYLRK	
BnaA03.GH3-11.a	VETFNMMNRV	IDEFE	EMTRNADQVQKQTL	KEILHKNSAIYLRN	
BnaA04R.GH3-11.b	VETFNMMNRV	IDEFE	EMSRNADQVQIQTL	KDILLNKNSAIYLRN	
BnaA05.GH3-11.c	AETFNMMNRV	IDD	FD	EMTRNADQVQKQTL	KEILHKNSAIYLRN
BnaC04.GH3-11.a	FETFNMMNRV	IDEFE	EMSRNADQVQIQTL	KDILLNKNSAIYLRN	
BnaCX.GH3-11.b	VENFNMMNRV	IDEFE	EMTRNADQVQKQTL	KEILHKNSAIYLRN	
BnaA02.GH3-12.a	PNSDNNQRWE	EAKL	KL	DLTSNVQIQDNLLEE	ILTPNLNTEYLSR
BnaA03.GH3-12.b	PISNNNERWE	EAKL	KL	DLTFNVKEIQDKLEE	ILTPNLNTEYLSR
BnaA06.GH3-12.c	ISDFNDEEKE	EVLE	LE	DLTSNVKQIQDDLKE	ILTLNSGTEYLSR
BnaA10.GH3-12.d	PISNNDETWD	ATL	KL	DLTSNVKEIQDNLVLEE	ILTPNLNTEYLSR
BnaC02.GH3-12.a	PNSDNNQRWE	EAKL	KL	DLTSNVQIQDNLLEE	ILTPNLNTEYLSR
BnaC03.GH3-12.b	PISNNNERWE	EAKL	KL	DLTFNVKQIQDNLLEE	ILTPNLNTEYLSR
BnaC09.GH3-12.c	PNSDNNQRWE	EAKL	KL	DLTSNVQIQDNLLEE	ILTPNLNTEYLSR
BnaA10.GH3-14.a	FDPANHKACL	SVLE	LE	DVTINAKQIQDSVLE	AILSRNAKTEYLRG
BnaC09.GH3-14.a	FDPANHKACL	SVLE	LE	DVTINAKQIQDSVLE	AILSRNAKTEYLRG
BnaA03.GH3-15.a	FDPTNSKACL	SILE	LE	DVTINAKQIQDSVLE	AILSRNAKTEYLRG
BnaC03.GH3-15.a	FDPTNSKACL	SILE	LE	DVTINAKQIQDSVLE	AILSRNAKTEYLRG
BnaAX.GH3-16.a	FDPTNPLAC	MSVLE	LE	DVTSNAKQIQDSVLE	AILSRNAKTEYLRG
BnaC02.GH3-16.a	FDPTNPLAC	MSVLE	LE	DVTSNAKQIQDSVLE	AILSRNAKTEYLRG
BnaA07.GH3-17.a	YDPNDTEAG	LKLE	LE	DLTSNAEAIEQV	VLHEILSONSGTQYLR
BnaA08.GH3-17.b	YDPNDTEAG	LKLE	LE	DLTTNADAIQEQV	VLHQILSONSGTEYLSR
BnaA09.GH3-17.c	YDPNDTEAG	LKLE	LE	DLTTNAEVIQEQV	VLHQILSONSGTQYLR
BnaC08.GH3-17.a	.....	.....	.....	.....	.....
BnaCX.GH3-17.b	YDPNDTEAG	LKLE	LE	DLTSNAEAIEQV	VLHEILSONSGTQYLR
BnaCX.GH3-17.c	.....	.....	.....	.....	.....
BnaA05GH3-18.a	...MSSIVEL	SSLE	LE	ELTLNAEQIQDDLLE	KILRLNSNTEYLSR
BnaCX.GH3-18.a	...MSQGCD	LSVLE	LE	ELTSNAKQIQDDVLT	KILKANANTEYLSR
BnaA06.GH3-19.a	...MSLGCD	LTVLE	LE	ELTSNAKQIQDDVLT	KILKANANTEYLSR
BnaA09.GH3-19.b	IANMSLGCD	LSVLE	LE	ELTSNAKQIQDDVLT	KILKANANTEYLSR
consensus>70	.....e	.....	elt.n.qiq...l.il..n.teyl..		

	60	70	80	90	100	
AtGH3-1	F...NLG	GATDR..DT	FKTKLPVITYEDL	QPEIQRIADGDRS	SPILSAHPITSEFLTSSG	
AtGH3-2	F...DLG	VVDR..KT	FKSKVPVVITYEDL	KPEIQRISNGDRS	SPILSSHPIITEFLTSSG	
AtGH3-3	F...GLK	GFTDR..KT	FKTKVPVVITYDDI	KPEIQRIANGDRS	SMILSSYPITEFLTSSG	
AtGH3-4	F...DLN	GAVDR..KS	FKSKVPVVITYEDL	KTDIQRISNGDRS	SPILSSHPITEFLTSSG	
AtGH3-5	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
AtGH3-6	H...GLE	GRTDR..ET	FKHIMPVITYEDI	QPEINRIANGDKS	QVLCSPNPISEFLTSSG	
AtGH3-7	F...FLG	SFDDK..ES	FKKNVPVVITYEDV	KPYIERVVNGEFS	SNVISARPIITGFVLSTG	
AtGH3-8	F...LHG	SSSK..EL	FKKNVPVVITYEDV	KPFIDRVTNGEFS	SDIISGNPITGFLLSSG	
AtGH3-9	Y...MNG	SKDV..LE	FKRAVPIIYKDIY	PYIQRIANGEDS	SSLITGHSITEILCSSG	
AtGH3-10	WLG	TVDVEKMDDY	TLETITSLVP	IVSHADLD	PYIQRIADGETS	SPLLTQEPITVLSLSSG
AtGH3-11	C...GLN	G.NATDPEEA	FKSMVPLVTDVLE	EPYIKRMVDGDT	SPILTGHPVPAISLSSG	
AtGH3-12	F...LID	REFDK..EL	FKKNVPIVSYEDI	KPYLDRVVNGESS	DVISARTITGFLSSG	
AtGH3-13	F...LNG	QVDDK..QT	FKKNVPVITYEDI	KPYINRIANGEAS	DLICDRPISLLVMSSG	
AtGH3-14	F...LNG	QADK..KS	FKKNVPVVITYEDI	KPYIDRIANGEFS	DLICDRPISVLLTSSG	
AtGH3-15	F...LNG	QVDDK..QN	FKKNVPVVITYEDI	RSYIDRIANGEFS	DLICDRPISVLLTSSG	
AtGH3-16	F...LTG	QLDDK..QS	FKKNVPIVITYEDI	KPHIDRIANGEFS	DLICDRPISLLLATG	
AtGH3-17	F...LDG	EADKNQQS	FKKNVPVVNYDDV	KPFIQRIADGES	SDIVSAQPIITELLSSG	
AtGH3-18	F...LHG	SSDDK..VL	FKKNVPVVITYDDV	KPYIERVANGEP	SDVISGGPITMFLRSTG	
AtGH3-19	F...LDG	SSDDK..EL	FKKNVPVVSNDV	KPYIERVANGEP	SDVISGGTITRFVQSTG	
BraX.GH3-1.a	F...NLG	GATDR..DT	FKSKLPITITYEDL	QPEIQRIADGDRS	SPILSAHPITSEFLTSSG	
BraX.GH3-2.a	F...GLN	GSTDR..KT	FKTKVPVVITYEDL	KPEIQRISNGDRS	SPILSSHPIITEFLTSSG	
BraA09.GH3-3.a	F...GLK	GSTDR..KT	FKKNVPVITYDDI	KPEIQRIANGDRS	SMILSSHPITEFLTSSG	
BraA01.GH3-5.a	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BraA03.GH3-5.b	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BraA02.GH3-6.a	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDT	SQILCSPPISEFLTSSG	
BraA03.GH3-6.b	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSPPISEFLTSSG	
BraA06.GH3-7.a	F...LHG	SSAK..EL	FKKNLPVITYKDV	KPYIDRVANGESS	SNISALPITNFFNSSG	
BraA08.GH3-7.b	F...FHG	KFDK..EI	FKKNVPVGYTEDV	KPYIQRVANGEP	SNVISTRPIITGFLSSG	
BraA02.GH3-8.a	F...LHG	SSDDK..EL	FKKNVPVITYEDV	KLYIDRVANGEP	FDVISGKPIITGFLSSG	
BraA03.GH3-8.b	F...LHG	SSDDK..EL	FKKNVPVITYDDV	KLFIDRVANGEP	FDVISGKPIITGFLSSG	
BraA03.GH3-8.c	F...LHG	SSDDK..EL	FKKNVPVGYTEDF	KPYIERVVNGEFS	SEIISGKPIITGFILTSG	
BraA03.GH3-8.d	F...LHG	SSDDK..DL	FKKNVPIGYTEDF	KPYIERVANGESS	SEIISGRPITGFALTSG	
BraA06.GH3-8.e	F...LQG	SSDK..EL	FKKNVPVVSIEDV	KHYIYRVNGEFS	SDVISGEPITAFLLSSG	
BraA06.GH3-8.f	F...LQG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDVISGEPITAFLLSSG	
BraA09.GH3-8.g	Y...LHG	SSDDK..EL	FKKNVPVVSIEDV	KPYIQRVTSGEFS	SNVISGKPIITRFLSSG	
BraA09.GH3-8.h	F...LEG	SSSEK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDILSGKPIITAFFRSTG	
BraA10.GH3-8.i	Y...LHG	SCDDK..EL	FKKNVPVVSIEDV	KPYIERVVNGEFS	SNVISGKPIITRFLSSG	
BraA09.GH3-10.a	WLG	DVDVEEMDD	D.TLETITSLVP	IVSHADLD	PYIQRIADGETS	SPLLTQEPITVLSLSSG
BraA03.GH3-11.a	F...GIN	G.NTTDPEA	FKALVPLVTDLDL	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BraA04.GH3-11.b	F...GIN	G.TTTDPEA	FKALVPLVTDLE	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BraA05.GH3-11.c	F...GIN	G.DTTDPEA	FKALVPLVTDSE	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BraA02.GH3-12.a	F...HVE	REFDK..EL	FKKNVPVVSIEDI	KPYIDRVVNGESS	SDVLSARPITGFLSSG	
BraA03.GH3-12.b	F...HMD	REFDK..QL	FKKNVPVITYEDI	KPYIDRVVNGESS	SAVISARLITGFLSSG	
BraA06.GH3-12.c	F...LHG	SSSK..EL	FKKNLPVITYKDV	KPYIDRVANGESS	SDVISALPITNVFVSSG	
BraA10.GH3-12.d	F...NMD	REFDK..KL	FKKNVPVVSIEDI	KPDIDRVVNGESS	SDVISARPIITGFLSSG	
BraA10.GH3-14.a	F...LKG	KFDK..QS	FKKNLPVITYEDY	RSYIDRIANGESS	FDIICDRPITVLLVSSG	
BraA03.GH3-15.a	F...LNG	QLDDK..QS	FKNNLPVITYEDY	RPYIDRIANGESS	SDLICDQPIIVLLVSSG	
BraA07.GH3-15.b	F...LNG	QVDDK..QS	FKNNLPVITYEDY	HSYIDRIANGEP	FDLICDRPITVLLVSSG	
BraA02.GH3-16.a	F...LNG	QLDDK..QS	FKNNLPVITYEDY	RPYIDRIADGES	SNLICDRPISLLFLATG	
BraA07.GH3-17.a	F...GES	SKNQQS	FKKNVPVNYDDI	KPFIQRIADGES	SDIVSQPIITELLTSSG	
BraA09.GH3-17.b	F...LDG	ESDKNQQS	FKKNVPVNYDDI	KPFIQRIADGES	SDIVSQPIITELLTSSG	
BraAX.GH3-17.c	F...LDG	ESCNIQEN	FKKNAPVNYEDI	KPFIQRISDGDSS	SDILSAQPIITELLTSSG	
BraA04.GH3-19.a	F...LHG	SSDDK..EL	FKKNVPVITYEDV	KPYMERVANGEP	SNVISGEPITQFFISSG	
BraA06.GH3-19.b	F...LQG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDIISGEPITAFFRSTG	
BraA09.GH3-19.c	F...LEG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDIISGEPITTFNRSSG	
BraA09.GH3-19.d	F...LEG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDIISGEPITTFNRSSG	
BraAX.GH3-19.e	F...LHG	SNDK..EL	FKKNVPLANYEDV	KPYIERVANGEP	SDLISGGPVTFRFRSSG	
BolC09.GH3-1.a	F...NLG	GATDR..DT	FKSKLPITITYEDL	QPEIQRIADGDRS	SPILSAHPITSEFLTSSG	
BolC01.GH3-2.a	F...GLN	GSTDR..KT	FKTKVPVVITYEDL	KPEIQRISNGDRS	SPILSSHPIITEFLTSSG	
BolC08.GH3-3.a	F...GLK	GFTDR..KT	FKKNVPVITYDDI	KPEIQRIANGDRS	SMILSSHPITD...SG	
BolC01.GH3-5.a	H...DLN	GRTDR..DT	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BolC07.GH3-5.b	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BolC02.GH3-6.a	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BolC03.GH3-6.b	H...GLQ	GRTDR..ES	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BolC06.GH3-7.a	F...LHG	SSAK..EI	FKKKLPVITYKDV	KPFIDRVANGESS	SDIISALPITNFFVSSG	
BolC01.GH3-8.a	F...LHG	SADK..EL	FKKNVPVGYTEDF	KPYIERVVNGEFS	SGLVGRPLTFVFLSSG	
BolC03.GH3-8.b	F...LHG	SSDK..EL	FKKNVPVITYDDV	KLFIDLVANGEP	FDVISGKPIITGFLSSG	
BolC07.GH3-8.c	F...LHG	SSDK..EL	FKKNVPVGYTEDF	KPYIERVVNGEFS	SEIISGKPIITGFILTSG	
BolC08.GH3-8.d	F...LEG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDILSGEPITAFLLSSG	
BolC09.GH3-8.e	F...YT	GAN..I	.....	.....	.....SG
BolC09.GH3-10.a	WLG	AVDVEEMDD	D.TLETITSLVP	IVSHADLD	PYIQRIADGETS	SPLLTQEPITVLSLSSG
BolC03.GH3-11.a	F...GIN	G.NTTDPEA	FKALVPLVTDLDL	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BolC04.GH3-11.b	F...GIN	K.NTTDPEA	FKALVPLVTDLE	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BolCX.GH3-11.c	F...GIN	G.DNTDPEA	FKALVPLVTDSE	EPYIKRMVDGDT	SPILTALPVP	PAISLSSG
BolC03.GH3-12.a	F...HMD	REFDK..EL	FKKNVPVITYEDI	KPYIDRVVNGESS	SDVISNRPIITGFLSSG	
BolC09.GH3-12.b	F...RVE	REFDK..EL	FKKNVPVVSIEDI	KPYIDRVVNGESS	SDVISTRPIITGFLSSG	
BolC09.GH3-14.a	F...LKG	KFDK..QS	FKKNLPVITYEDY	RSYIDRIANGESS	FDIICDRPITVLLVSSG	
BolC03.GH3-15.a	F...LNG	QLDDK..QS	FKNNLPVITYEDY	RPYIDRIANGESS	SDLICDQPIIVLLVSSG	
BolCX.GH3-16.a	F...LSG	QIDDK..QS	FKKNLPVITYEDY	RSYIDRIADGES	SNLICDRPISLLFLATG	
BolC07.GH3-17.a	F...LDG	ESDKNQQS	FKKNVPVNYDDI	KPFIQRIADGES	SDIVSQPIITELLTSSG	
BolC08.GH3-17.b	F...IDG	ESCSIQEI	FKKNAPVNYEDI	KPFIQRICDGDSS	SDILSAQPIITELLTSSG	
BolC08.GH3-19.a	F...LEG	SSDK..EL	FKKNVPVVSIEDV	KPYIDRVANGEP	SDIISGEPITTFNRSSG	
BnaA09R.GH3-1.a	F...NLG	GATDR..DT	FKSKLPITITYEDL	QPEIQRIADGDRS	SPILSAHPITSEFLTSSG	
BnaCX.GH3-1.a	F...NLG	GATDR..DT	FKSKLPITITYEDL	QPEIQRIADGDRS	SPILSAHPITSEFLTSSG	
BnaA01.GH3-2.a	F...GLN	GSTDR..KT	FKTKVPVVITYEDL	KPEIQRISNGDRS	SPILSSHPIITEFLTSSG	
BnaA09.GH3-3.a	F...GLK	GSTDR..KT	FKKNVPVITYDDI	KPEIQRIANGDRS	SMILSSHPITEFLTSSG	
BnaC08.GH3-3.a	F...GLK	GFTDR..KT	FKKNVPVITYDDI	KPEIQRIANGDRS	SMILSSHPITD...SG	
BnaA01.GH3-5.a	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BnaA03.GH3-5.b	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BnaC01.GH3-5.a	H...DLN	GRTDR..DT	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BnaC07.GH3-5.b	H...DLN	GRTDR..ET	FKNIMPVITYEDI	QPEINRIANGDKS	SPILSSKPISEFLTSSG	
BnaA03.GH3-6.a	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BnaAX.GH3-6.b	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BnaC03.GH3-6.a	H...GLQ	GRTDR..ES	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BnaCX.GH3-6.b	H...GLQ	GRTDR..ET	FKHVPVVITYEDI	QPEINRIANGDKS	QILCSTPISEFLTSSG	
BnaA06.GH3-7.a	F...LHG	SSAK..EI	FKKNLPVITYKDV	KPYIDRVANGESS	SDIISALPITNFFNSSG	
BnaA08.GH3-7.b	F...FHG	KFDK..EI	FKKNVPVGYTEDV	KPYIQRVANGEP	SNVISTRPIITGFLSSG	
BnaC06.GH3-7.a	F...LHG	SSA...I	FKKKLPVITYKDV	KPFIDRVANGESS	SDIISALPITNFFNSSG	
BnaA03.GH3-8.a	F...LHG	SSDK..EL	FKKNVPVITYDDV	KLFIDLVANGEP	FDVISGKPIITGFLSSG	
BnaA03.GH3-8.b	F...LHG	SSDK..EV	FKKNVPVITYEDF	KPYIERVVNGEFS	SEIISGKPIITGFILTSG	
BnaA03.GH3-8.c	F...LHG	SSDK..DL	FKKNVPIGYTEDF	KPYIERVANGESS	SEIISGRPITGFALTSG	
BnaA06.GH3-8.d	F...LQG	SSDK..DL	FKKNVPVVSIEDV	KPYIDRVNGEFS	SDVISGEPITAFLLSSG	

BnaA06.GH3-8.e	F	...	LQGSADK	.EL	FKKNVPVVSIEDVK	PYIDRVANGEP	SDVIS	GEPIT	AFVLV	SSG
BnaA09.GH3-8.f	F	...	LEGSSSEK	.EL	FKKNVPVVSIEDVK	PYIDRVANGEP	SDILS	GKPIT	AFFR	SSG
BnaA09.GH3-8.g	F	...	LEGSSSEK	.EL	FKKNVPVVSIEDVK	PYIDRIANGEP	SDILS	GKPIT	AFIL	SSG
BnaAX.GH3-8.h	F	...	...	...	...	...	...	...	...	...
BnaAX.GH3-8.i	F	...	LEGSSDK	.EL	FKKNVPVVSIEDVK	PYIDRVANGEP	SDILS	GEPIT	AFTL	SSG
BnaC01.GH3-8.a	F	...	LHGSSADK	.EL	FKKNVPVGTIYEDFK	PYIERVUNGEP	SGLVS	GRPLT	GFLV	SSG
BnaC02.GH3-8.b	F	...	LHGSSDK	.EL	FKKNVPVTIYEDVK	LYIGRVANGEP	FDVIS	GKPI	GFL	SSG
BnaC02.GH3-8.c	F	...	LHGSSDK	.EL	FKKNVPVTIYEDVK	LYIGRVANGEP	FDVIS	GKPI	GFL	SSG
BnaC02.GH3-8.d	F	...	LHGSSDK	.EL	FKKNVPVTIYEDVK	LYIGRVANGEP	FDVIS	GKPI	GFL	SSG
BnaC07.GH3-8.e	F	...	LHGSSDK	.EL	FKKNVPVGTIYEDFK	PYIERVUNGEP	SEIIS	GKPI	GFL	SSG
BnaC09.GH3-8.f	Y	...	LHGAYDK	.EL	FKKNVPVVSIDYDK	PYIERVANGEP	SNVIS	GKPI	REFL	SSG
BnaCX.GH3-8.g	F	...	LQGSADK	.EL	FKKNVPVVSIEDVK	PYIDRVANGEP	SDVIS	GEPIT	AFVLV	SSG
BnaA05.GH3-9.a	Y	...	MKGSKDV	.LE	FKRSVPITTYKDV	PYIQRANGED	SSLIT	GH	LIT	SSG
BnaC04.GH3-9.a	Y	...	MKGSKDV	.ME	FKRSVPVITYKDV	PYIQRANGED	SSLIT	GH	PIT	SSG
BnaA03.GH3-10.a	F	...	WLGSVDV	KEIDD	LSLETLT	FTSLVPIVSHADLD	PYIQRANGET	SPILT	QEPIT	VLSL
BnaA09.GH3-10.b	F	...	WLGDVVD	VEEMDD	TLETLT	FTSLVPIVSHADLD	PYIQRADGET	SPILT	QEPIT	VLSL
BnaC09.GH3-10.a	F	...	WLGAVDV	VEEMDD	TLETLT	FTSLVPIVSHADLD	PYIQRADGET	SPILT	QEPIT	VLSL
BnaA03.GH3-11.a	F	...	GING.NTTD	PEA	FKALVPLVTD	LEFPYIKRMVDGDT	SPILTAL	PVP	ATSL	SSG
BnaA04R.GH3-11.b	F	...	GING.TTTD	PEA	FKALVPLVTD	LEFPYIKRMVDGDT	SPILT	GRPVP	ATSL	SSG
BnaA05.GH3-11.c	F	...	GINGDIT	TTDEGD	FKALVPLVTD	SELEFPYIKRMVDGDT	SPILT	GH	PVP	ATSL
BnaC04.GH3-11.a	F	...	GING.NTTD	PEA	FKALVPLVTD	LEFPYIKRMVDGDT	SPILT	GRPVP	ATSL	SSG
BnaCX.GH3-11.b	F	...	GING.NTTD	PEA	FKALVPLVTD	LEFPYIKRMVDGDT	SPILTAL	PVP	ATSL	SSG
BnaA02.GH3-12.a	F	...	HVERFDK	.EL	FKKNVPVVSIEIK	PYIDRVNGES	SDVIS	ARPIT	GFL	SSG
BnaA03.GH3-12.b	F	...	HMDRFDK	.QL	FKKNVPVVTYEDIK	PYIDRVNGES	SDVIS	ARPIT	GFL	SSG
BnaA06.GH3-12.c	F	...	LHGSSSK	.EL	FKKNLPVITYKDV	KPYIDRVANGES	SDVIS	ALPIT	NV	SSG
BnaA10.GH3-12.d	F	...	HMDRFDK	.KL	FKKNVPVVSIEDIK	PYIDRVNGES	SDVIS	ARPIT	GFL	SSG
BnaC02.GH3-12.a	F	...	HVERFDK	.EL	FKKNVPVVSIEDIK	PYIDRVNGET	SEVIS	ARPIT	GFL	SSG
BnaC03.GH3-12.b	F	...	HMDRFDK	.EL	FKKNVPVVTYEDIK	PYIDRVNGES	SDVIS	NR	PIT	SSG
BnaC09.GH3-12.c	F	...	HVERFDK	.EL	FKKNVPVVSIEDIK	PYIDRVNGES	SDVIS	TR	PIT	SSG
BnaA10.GH3-14.a	F	...	LKGKFDK	.QS	FKKNLPVITYEDY	RSYIDRIANGES	SDIIC	DR	PIT	SSG
BnaC09.GH3-14.a	F	...	LKGKFDK	.QT	FKKNLPVITYEDY	RSYIDRIANGEP	SDIIC	DR	PVT	SSG
BnaA03.GH3-15.a	F	...	LNGQLDK	.QS	FKKNLPVVTYEDY	RSYIDRIANGES	SDIIC	DQ	PIT	SSG
BnaC03.GH3-15.a	F	...	LNGQLDK	.QS	FKKNLPVVTYEDY	RSYIDRIANGES	SDIIC	DQ	PIT	SSG
BnaAX.GH3-16.a	F	...	LNGQLDK	.QS	FKKNLPVVTYEDY	RSYIDRIADGES	SNLIC	DR	PIS	SSG
BnaC02.GH3-16.a	F	...	LSGHIDK	.QS	FKKNLPVVTYEDY	RSYINRIADGES	SNLIC	DR	PIS	SSG
BnaA07.GH3-17.a	F	...	LDGESDK	NQQS	FKKNVPVVNYDDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaA08.GH3-17.b	F	...	LDGESCN	IQEN	FKNKAPVVNYEDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaA09.GH3-17.c	F	...	LDGESDK	NQQS	FKKNVPVVNYDDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaC08.GH3-17.a	F	...	LDGESDK	NQQS	FKKNVPVVNYDDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaCX.GH3-17.b	F	...	LDGESDK	NQQS	FKKNVPVVNYDDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaCX.GH3-17.c	F	...	LDGESDK	NQQS	FKKNVPVVNYDDIK	PFIQRIADGES	SDIVS	VP	PIT	SSG
BnaA05GH3-18.a	F	...	LHGSSDK	.EL	FKKNVPLANYIEDVK	PYIERVANGEP	SDILS	GGPVT	RFR	SSG
BnaCX.GH3-18.a	F	...	LEGSSDK	.EL	FKKNVPVVSIEDVK	PYIDRVANGEP	SDIIS	GEPIT	TFNR	SSG

	110	120	130	140	150															
AtGH3-1	TSAG	ERKLMP	TI	KEE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-2	TSAG	ERKLMP	TI	EED	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-3	TSAG	ERKLMP	TI	EED	MD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-4	TSAG	ERKLMP	TI	EED	IN	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-5	TSAG	ERKLMP	TI	EEE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-6	TSAG	ERKLMP	TI	EEE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
AtGH3-7	TSAG	QAQKMP	WN	EKY	LD	NLTF	MYD	LR	MRH	IISN	.....	NV	..	KD	VEK	GK	AM	MYFTK	
AtGH3-8	TSAG	GKQKMP	PR	NKY	LE	NIKF	IFY	Y	RS	VISK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
AtGH3-9	TSAG	EPKLMP	TI	ED	LD	RRTF	LYN	L	IIP	IVNK	.....	YI	..	TG	LDK	GK	AM	LYNFVK	
AtGH3-10	TT	GRQKYVP	TR	HS	AQ	TTLQ	IFR	L	SAA	YRSR	.....	FY	..	PI	REG	GR	ILE	FIYAG	
AtGH3-11	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
AtGH3-12	TSAG	QAQKMP	WN	KY	LD	NLTF	IYD	LR	MQ	VITK	.....	HV	..	KG	VEE	GK	GM	FLFTK	
AtGH3-13	TTAG	IONLIPI	LT	ED	GE	QIM	FGS	LY	RS	LLYK	.....	YV	..	EG	IRE	GK	SL	TFYFN	
AtGH3-14	TSAG	VPKLIP	LT	EE	LE	QRIS	FAS	LY	RP	LLYK	.....	YI	..	EG	IRE	RK	S	FMLYFVT	
AtGH3-15	TSAG	VPKLIP	LT	ED	LE	QRIS	FSS	LY	AP	LLYK	.....	HI	..	DG	LSE	GK	SL	TFYFVT	
AtGH3-16	TSAG	IPKLIP	LT	EE	LE	QRIL	FGF	LY	VP	LVFK	.....	HI	..	EG	LTQ	GK	SL	TFYFVT	
AtGH3-17	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	IMNK	.....	YV	..	DG	LDE	GK	GM	LYLFLIK	
AtGH3-18	TSAG	GKQKVP	VN	DY	IE	KGY	VIA	L	RS	LMSK	.....	HE	..	DS	GGE	QK	AME	FHCTK	
AtGH3-19	TSAG	IHKIFV	VN	DY	IE	NLGY	LLA	V	SSL	ITSN	.....	..	..	DK	VDE	K	GK	MAFLYNR
BraX.GH3-1.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BraX.GH3-2.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BraA09.GH3-3.a	TSAG	ERKLMP	TI	EE	MD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BraA01.GH3-5.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BraA03.GH3-5.b	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BraA02.GH3-6.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BraA03.GH3-6.b	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BraA06.GH3-7.a	TSAG	ANKILP	SN	SKY	LD	GS	AF	STD	L	IAH	VIRK	HV	..	KG	VER	GK	GM	FLFTG	
BraA08.GH3-7.b	TSAG	QAQKIMP	WN	EKF	LD	YLT	F	MYD	LR	MRH	VITN	YV	..	KG	LEK	GK	AM	MYFTK	
BraA02.GH3-8.a	TSAG	KRKMP	PR	NKY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BraA03.GH3-8.b	TSAG	KRKMP	PR	NKY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BraA03.GH3-8.c	TSAG	KRKMP	PR	NKY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BraA03.GH3-8.d	TSAG	KRKMP	PR	NKY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BraA03.GH3-8.e	TSAG	KRKMP	PR	NKY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BraA06.GH3-8.f	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraA09.GH3-8.g	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraA09.GH3-8.h	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraA10.GH3-8.i	TTAG	KQKIF	VN	NKF	FED	MSF	II	A	L	R	L	F	HE	..	EG	GQK	GK	AL	TFTR
BraA09.GH3-10.a	TT	GRQKYVP	TR	HS	AQ	TTLQ	IFR	L	SAA	YRSR	.....	FY	..	PI	KEG	GR	ILE	FIYAG	
BraA03.GH3-11.a	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BraA04.GH3-11.b	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BraA05.GH3-11.c	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BraA02.GH3-12.a	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BraA03.GH3-12.b	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BraA06.GH3-12.c	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BraA10.GH3-12.d	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BraA10.GH3-14.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BraA03.GH3-15.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BraA07.GH3-15.b	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BraA02.GH3-16.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BraA07.GH3-17.a	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	VMNK	.....	YV	..	NG	LDE	GK	GM	LYLFLIK	
BraA09.GH3-17.b	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	VMNK	.....	YV	..	NG	LDE	GK	GM	LYLFLIK	
BraAX.GH3-17.c	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	VMNK	.....	YV	..	NG	LDE	GK	GM	LYLFLIK	
BraA04.GH3-19.a	TSAG	GKQKIY	ANN	.....	.....	.....	.....	.....	.....	.....	.....	HI	..	KG	VED	GK	VM	FLNTR
BraA09.GH3-19.b	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraA09.GH3-19.c	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraA09.GH3-19.d	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BraAX.GH3-19.e	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BolC09.GH3-1.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BolC01.GH3-2.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BolC08.GH3-3.a	TSAG	ERKLMP	TI	EE	MD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BolC01.GH3-5.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BolC07.GH3-5.b	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BolC02.GH3-6.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BolC03.GH3-6.b	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BolC06.GH3-7.a	TSAG	ANKILP	SN	SKY	LD	GS	AF	VND	L	IAH	VIRK	HV	..	KG	VER	GK	GM	FLFTG	
BolC01.GH3-8.a	TSAG	GKQKLIP	MND	KY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BolC03.GH3-8.b	TSAG	GKQKLIP	MND	KY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BolC07.GH3-8.c	TSAG	GKQKLIP	MND	KY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BolC08.GH3-8.d	TSAG	GKQKLIP	MND	KY	LE	NLKF	IYF	Y	RS	VITK	.....	HI	..	DG	LEH	GK	GM	VFNCT	
BolC09.GH3-8.e	TTAG	KQKIF	VN	NKF	FED	MSF	II	A	L	R	L	F	HE	..	EG	GQK	GK	AL	TFTR
BolC09.GH3-10.a	TT	GRQKYVP	TR	HS	AQ	TTLQ	IFR	L	SAA	YRSR	.....	FY	..	PI	KEG	GR	ILE	FIYAG	
BolC03.GH3-11.a	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BolC04.GH3-11.b	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BolCX.GH3-11.c	TSAG	GRPKFIP	TD	EL	MENT	LQ	LF	R	TAF	FRNR	DE	..	PI	DDN	GR	ALQ	FI	FSS	
BolC03.GH3-12.a	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BolC09.GH3-12.b	TSAG	QAQKMP	WN	KY	LD	NLTF	AYD	LR	MRH	VITK	.....	HV	..	KG	LEE	GK	GM	FLFTK	
BolC09.GH3-14.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BolC03.GH3-15.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BolCX.GH3-16.a	TSAG	VPKLIP	LT	EE	LE	QRNL	FVS	LY	RP	LPFK	.....	HI	..	KG	LSE	GK	SL	TFYFLT	
BolC07.GH3-17.a	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	VMNK	.....	YV	..	NG	LDE	GK	GM	LYLFLIK	
BolC08.GH3-17.b	TSAG	KPKLMP	ST	AE	LE	RKTF	FYS	M	LVP	VMNK	.....	YV	..	NG	LDE	GK	GM	LYLFLIK	
BolC08.GH3-19.a	TSAG	GNQKIF	PANN	IF	F	KNI	QI	FYT	L	GS	VMSK	CH	..	DG	YKQ	GK	VI	FRFTTH	
BnaA09R.GH3-1.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BnaCX.GH3-1.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA01.GH3-2.a	TSAG	ERKLMP	TI	EE	LD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA01.GH3-3.a	TSAG	ERKLMP	TI	EE	MD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA08.GH3-3.a	TSAG	ERKLMP	TI	EE	MD	RRQL	LYS	L	LMP	VMNL	.....	YV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA01.GH3-5.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA03.GH3-5.b	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK	GLY	FL	FLVK	
BnaA01.GH3-5.a	TSAG	ERKLMP	TI	EE	LD	RRSL	LYS	L	LMP	VMSQ	.....	FV	..	PGLDK	GK				

BnaA06.GH3-8.e TSSGNQKIFPANNIFFKNIQIFYTLGSLVMSK.....CF..DGYKQGVIRFTFTH
 BnaA09.GH3-8.f TSSGEEKKIFPAND.NFEDILLGLALLSSLIMSK.....HV..DGYKQGVMIFFKFIQ
 BnaA09.GH3-8.g TSSGNQKMFPRNN.NFENIKFAAALSSLVISK.....HV..HGYKQGVMIFFSFTQ
 BnaAX.GH3-8.hYLENLKFIFYFYRSLVITK.....HI..DGLEHGKGMVFNFTCT
 BnaAX.GH3-8.i TSSGNPKIFPATD.NFENIKSAGALNSLIMSK.....HV..AGYNGQGVMIFFRFTH
 BnaC01.GH3-8.a TSSGKQKLIPMNDKYLENTKLTDFRSIVLSK.....HV..DGHNOGKSLKLLFTTG
 BnaC02.GH3-8.b TSSGKRRKMFPRNNKYLENLKFIFYFYRSLVITK.....HI..DGLEHGKGMVFNFTCT
 BnaC02.GH3-8.c TSSGKRRKMFPRNNKYLENLKFIFYFYRSLVITK.....HI..DGLEHGKGMVFNFTCT
 BnaC02.GH3-8.d TSSGKRRKMFPRNNKYLENLKFIFYFYRSLVITK.....HI..DGLEHGKGMVFNFTCT
 BnaC07.GH3-8.e TSSGKQKLIPLNKKYLENARLLFDLRYLVLSK.....HV..DGHNEGKGLHLIFLTK
 BnaC09.GH3-8.f TSSGKQKIFPVNNKFFEDMAFIFALRSSLISK.....HI..EGDEKGVVVMLEFFAR
 BnaCX.GH3-8.g TSSGNQKIFPANNIFFKNIQIFYTLGYLVMSK.....HF..NGYKQGVIRFTFTH
 BnaA05.GH3-9.a TSSGEPKLMPITISEDLDRTTFVYNLINPIANK.....YL..EGLDKGKTMYLNFVK
 BnaC04.GH3-9.a TSSGEPKLMPITISEDLDRTTFVYNLINPIANK.....YL..EGLDKGKTMYLNFVK
 BnaA03.GH3-10.a TTEGRQKYVPFTCQITQALLQMSRLSAAAYTSR.....CY..PIIREGGMILEFIYAA
 BnaA09.GH3-10.b TTEGRQKYVPFTCHSSQTTLQIFRLSAAAYRSR.....FY..PIKEGGRILEFIYAG
 BnaC09.GH3-10.a TTEGRQKYVPFTRHSSQTTLQIFRLSAAAYRSR.....FY..PIKEGGRILEFIYAG
 BnaA03.GH3-11.a TSGGRPKEFIPFTDELMENTLQLFRTAFAFRNR.....DE..PIDDNGRALQFIFFSS
 BnaA04R.GH3-11.b TSGGRPKEFVPFTDELMENTLQLFRTAFAFRNR.....EE..PIDDNGRALQFIFFSS
 BnaA05.GH3-11.c TSGGRPKEFVPFTDELMENTLQLFRTAFAFRNR.....EE..PIDDNGRALQFIFFSS
 BnaC04.GH3-11.a TSGGRPKEFIPFTDELMENTLQLFRTAFAFRNR.....EE..PIDDNGRALQFIFFSS
 BnaCX.GH3-11.b TSGGRPKEFIPFTDELMENTLQLFRTAFAFRNR.....DE..PIDDNGRALQFIFFSS
 BnaA02.GH3-12.a TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaA03.GH3-12.b TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaA06.GH3-12.c TSGGANKILPSNNKFLDGYAFSNDLLVHIISK.....HV..KGVREKGMIFSLTGT
 BnaA10.GH3-12.d TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaC02.GH3-12.a TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaC03.GH3-12.b TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaC09.GH3-12.c TSGGAQKMMPWNKKYLDNLTFAYDLRMHVITK.....HV..KGLEQKGKMMFLFTK
 BnaA10.GH3-14.a TSGGVPKLIPLTAEDMEQRNLFVSLYRPLPFK.....HI..KGLSEGKSLLFYFLT
 BnaC09.GH3-14.a TSGGVPKLIPLTAEDMEQRNLFVSLYRPLPFK.....HI..KGLSEGKSLLFYFLT
 BnaA03.GH3-15.a TSGGVPKLIPMTAEELERQMLFSSLHRPLISK.....OI..EGISDGKSLSFFFVT
 BnaC03.GH3-15.a TSGGVPKLIPMTAEELERQMLFSSLHRPLISK.....OI..EGISEGKSLSFFFVT
 BnaAX.GH3-16.a TSGGYPKLIPLTAEDMEQRILFASLYAPLVFK.....HI..GGLTEGKSLMFYFVT
 BnaC02.GH3-16.a TSGGYPKLIPLTAEDMEQRILFASLYAPLVFK.....HI..GGLTEGKSLMFYFVT
 BnaA07.GH3-17.a TSAGKPKLMPSTAKELDRTTFYYSMLVPMNKN.....YV..NGLDEGKGMYLLEFIK
 BnaA08.GH3-17.b TSGGKPKFMPSTAEELDRKTFYNNMLVPMNKN.....FV..NGLDEGKGMYLLEFIK
 BnaA09.GH3-17.c TSAGKPKLMPSTAEELERKTIYYSMLVPMNKN.....YV..NGLDEGKGMYLLEFIK
 BnaC08.GH3-17.aMPSTAEELDRKTFYNNMLVPMNKNSSYKNHKKHCS..NGLN..VGMYLLEFIK
 BnaCX.GH3-17.b TSAGKPKLMPSTAKELDRTTFYYSMLVPMNKN.....YV..NGLGEKGMYLLEFIK
 BnaCX.GH3-17.c TSAGKPKLMPSTAEELERKTIYYSMLVPMNKN.....YV..NGLDEGKGMYLLEFIK
 BnaA05GH3-18.a TSSGKQKIFPVNDEAIEQLGYVLALRSLVMSK.....HE..SDNGVEQKTMFFHYTK
 BnaCX.GH3-18.a TSSGNQKIFPANNIYFENQLFGYALSSAVMSK.....HV..DGYKQKAMVFFSFTH
 BnaA06.GH3-19.a TSSGNQKIFPANNIYFENILFAFSLSSVMSK.....HV..EYKRGKVMFFFTQ
 BnaA09.GH3-19.b TSSGNQKIYPTNNIYFENLLFGYALSSVMSK.....HV..DGYKQKMMIFRFTH
 consensus>70 ts.g.k.k.p.....le.....y.l...v.....v...g.d.gk.m.f.f..

	160	170	180	190	200	210
AtGH3-1	SE	TKTPG	GLPARPVL	TSYKSEHF	RSRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
AtGH3-2	SE	SKTSG	GLPARPVL	TSYKSDHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
AtGH3-3	TE	SKTPG	GLPARPVL	TSYKSEQF	KRRPNDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
AtGH3-4	SE	STTSG	GLPARPAL	TSYKSDYF	RTSDSDSVY	TSPKEAILCCDSFQSMYTMQLCG
AtGH3-5	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPYPYTNVY	TSPNETILCPDSFQSMYTMQLCG
AtGH3-6	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
AtGH3-7	LE	SITPS	GLPARVAS	SSYLKSNYF	KNRPSNWWYSY	TSPDEVTLCPDNKQSLYCHLLCG
AtGH3-8	SE	NTTPS	GLPSAAS	TSEFKSDYF	KNRPSYWHWSY	TSPDEVTLCPDNTQSLYCHLLCG
AtGH3-9	AE	TSTPC	GLPIRAVL	TSYKSKHF	QCRPYDPFNDL	TSPITQILCEDSNQSMYQQLLAG
AtGH3-10	KE	EKTLG	GLTVGTAT	THYASKEF	KTQETTKSFT	CSPQEVISGGDFGQCTYCHLLLG
AtGH3-11	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
AtGH3-12	QE	SMTPS	GLPARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
AtGH3-13	PE	RETAS	GILIRMTI	TCVLKSVN	KTNSSLWDRLO	ISPHHEISTCEDTQSMYQQLCG
AtGH3-14	RE	SETAS	GILVRTMI	TCVLKSVT	PANSFIWDQSQ	ISPHAITTCSDDTQSMYQQLCG
AtGH3-15	RE	SKTAN	GLMVRTMV	TSFLKSIK	QTNFSLWDSLO	VSPHAITTCADDTQSMYQQLCG
AtGH3-16	RE	SETVS	GLMVRFMV	TCVLKSVN	PTNSFLWDRVQ	ISPHAITTCEDTQSMYQQLCG
AtGH3-17	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
AtGH3-18	PI	SATPS	GLP			
AtGH3-19	LE	SKTPS	GLALSSSF	TSYFMSDYF	KNRSSKCNSEY	TSPDOVILCPDNNQSVYCHLLCG
BraX.GH3-1.a	SE	TKTPG	GLPARPVL	TSYKSKDF	RSRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BraX.GH3-2.a	SE	SKTPG	GLPARPVL	TSYKSDHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BraA09.GH3-3.a	SE	SKTPG	GLPARPVL	TSYKSEHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BraA01.GH3-5.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTNVY	TSPNETILCPDSFQSMYTMQLCG
BraA03.GH3-5.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTDY	TSPNETILCPDSFQSMYTMQLCG
BraA02.GH3-6.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BraA03.GH3-6.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BraA06.GH3-7.a	HD	TKTPG	GLPIEDGI	SWYLKSDYF	KNRPSYWHWSY	TSPDEVMLGSDLKQSLYCHLLCG
BraA08.GH3-7.b	LE	STTAS	GLPARTAS	SSYLKSSYF	KNRPCNWWYTY	TSPDEVILCPDNKQSLYCHLLCG
BraA02.GH3-8.a	PE	QNTPS	GLPASAT	TSEFKSDYF	KNRPSYWHWSY	TSPDEVILCPDNKQSLYCHLLCG
BraA03.GH3-8.b	PE	QNTPS	GLPASAT	TSEFKSDYF	KNRPSYWHWSY	TSPDEVILCPDNKQSLYCHLLCG
BraA03.GH3-8.c	PA	SKTPS	GLPASAT	THLMKSDYF	VKNLPSYWDTS	TSPTEIKFCPDNKQSLYCHLLCG
BraA03.GH3-8.d	PA	SKTPS	GLPASAT	THLMKSDYF	VKNLPSYWDTS	TSPTEIKFCPDNKQSLYCHLLCG
BraA06.GH3-8.e	PA	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraA06.GH3-8.f	PI	STTPG	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraA09.GH3-8.g	EO	SISPC	GLPISTSV	TGYLLSDSF	KNRPSN...	CFTSPDEVMLCPDLKQSMYQQLCG
BraA09.GH3-8.h	PI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraA10.GH3-8.i	PO	STMPG	GLPISTSV	TGYLLSDSF	KNRPSN...	CFTSPDEVMLCPDLKQSMYQQLCG
BraA09.GH3-10.a	KE	EKTPG	GLTVGTAT	THYSSKEF	KTQETTKSFT	CSPREVISGGDFGQCTYCHLLLG
BraA03.GH3-11.a	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BraA01.GH3-11.b	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BraA05.GH3-11.c	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BraA02.GH3-12.a	QE	AITPS	GLPARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
BraA03.GH3-12.b	QE	AITPS	GLPARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
BraA06.GH3-12.c	HE	TKTPG	GLPIESST	SWYLKSDYF	KNRPSNWWYSY	TSPDEVMLGSDLKQSLYCHLLCG
BraA10.GH3-12.d	QE	TKTPS	GLLARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
BraA10.GH3-14.a	RE	SETAS	RIPVRTMI	TCVLKSVT	PANKFIWERIQ	ISPIEATCPDNTQSMYQQLCG
BraA03.GH3-15.a	RE	GKTAS	GLMVRTMV	TCVLKSVT	SANKDWDQVQ	ISPHGLYTCDDTQSMYQQLCG
BraA07.GH3-15.b	KE	SETAS	GLMVRTMI	TCVLKSVT	PANKFIWERIQ	ISPIEATCPDNTQSMYQQLCG
BraA02.GH3-16.a	RE	SETAS	GLMVRTMV	TCVLKSVT	PANKFIWERIQ	ISPIEATCPDNTQSMYQQLCG
BraA07.GH3-17.a	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
BraA09.GH3-17.b	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
BraA03.GH3-17.c	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
BraA04.GH3-19.a	AI	SRTPS	GLTVAPVL	TSFLMSNYF	KNWSSK...	RYTSPDQVILCPDNKQSMYQQLCG
BraA06.GH3-19.b	TI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraA09.GH3-19.c	KI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraA09.GH3-19.d	RI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BraAX.GH3-19.e	PE	STTPS	GLPVAAAF	TSEFKSDYF	KNRPSN...	SQYTSPDQVILCPDNKQSMYQQLCG
BolC09.GH3-1.a	SE	TKTPG	GLPARPVL	TSYKSKDF	RSRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BolC01.GH3-2.a	SE	SKTPG	GLPARPVL	TSYKSDHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BolC08.GH3-3.a	SE	SKTPG	GLPARPVL	TSYKSEHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BolC01.GH3-5.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTNVY	TSPNETILCPDSFQSMYTMQLCG
BolC07.GH3-5.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTDY	TSPNETILCPDSFQSMYTMQLCG
BolC02.GH3-6.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BolC03.GH3-6.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BolC06.GH3-7.a	HE	TRTPG	GLPIEPGT	SWYLKSDYF	KNRPSYWHWSY	TSPDEVMLGSDLKQSLYCHLLCG
BolC01.GH3-8.a	PS	SMTLP	GLPASAT	TSEFKSDYF	KNRPSYWHWSY	TSPDEVILCPDNNTQSLYCHLLCG
BolC03.GH3-8.b	PE	HTTTPS	GLPVSAAT	TSEFKSDYF	KNRPSYWHWSY	TSPDEVILCPDNNTQSLYCHLLCG
BolC07.GH3-8.c	PA	SKTPS	GLPASAT	THLMKSDYF	VKNLPSYWDTS	TSPTEIKFCPDNKQSLYCHLLCG
BolC08.GH3-8.d	PI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BolC09.GH3-8.e	PO	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BolC09.GH3-10.a	KE	EKTPG	GLTVGTAT	THYSSKEF	KTQETTKSFT	CSPREVISGGDFGQCTYCHLLLG
BolC03.GH3-11.a	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BolC04.GH3-11.b	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BolCX.GH3-11.c	KQ	YISTG	GVPVGTAT	TNVYRNPNF	KAGMKSITSPS	CSPDEVIFSPDVHQALYCHLLSG
BolC03.GH3-12.a	QE	SITPS	GLPARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
BolC09.GH3-12.b	QE	AKTPS	GLLARVAT	SSYFKSDYF	KNRPSNWWYSY	TSPDEVILCPDNNTQSLYCHLLCG
BolC09.GH3-14.a	RE	SETAS	RIPVRTMI	TCVLKSVT	PANKFIWERIQ	ISPIEATCPDNTQSMYQQLCG
BolC03.GH3-15.a	RE	GKTAS	GLMVRTMV	TCVLKSVT	SANKDWDQVQ	ISPHGLYTCDDTQSMYQQLCG
BolCX.GH3-16.a	RE	SETAS	GLMVRTMV	TCVLKSVT	SANKDWDQVQ	ISPHGLYTCDDTQSMYQQLCG
BolC07.GH3-17.a	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
BolC08.GH3-17.b	PE	IKTPS	GLMARPVL	TSYKSKHF	RNRPFNKYNVY	TSPDQITLCQDSKQSMYQQLCG
BolC08.GH3-19.a	KI	FTTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG
BnaA09R.GH3-1.a	SE	TKTPG	GLPARPVL	TSYKSKDF	RSRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaCX.GH3-1.a	SE	TKTPG	GLPARPVL	TSYKSKDF	RSRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaA01.GH3-2.a	SE	SKTPG	GLPARPVL	TSYKSDHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaC01.GH3-2.a	SE	SKTPG	GLPARPVL	TSYKSDHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaA09.GH3-3.a	SE	SKTPG	GLPARPVL	TSYKSEHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaC08.GH3-3.a	SE	SKTPG	GLPARPVL	TSYKSEHF	KRRPYDPYNVY	TSPNEAILCPDSFQSMYTMQLCG
BnaA01.GH3-5.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTNVY	TSPNETILCPDSFQSMYTMQLCG
BnaA03.GH3-5.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTDY	TSPNETILCPDSFQSMYTMQLCG
BnaC01.GH3-5.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTDY	TSPNETILCPDSFQSMYTMQLCG
BnaC07.GH3-5.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KERPFDYTDY	TSPNETILCPDSFQSMYTMQLCG
BnaA03.GH3-6.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BnaAX.GH3-6.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BnaC03.GH3-6.a	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BnaCX.GH3-6.b	SE	SKTPG	GLPARPVL	TSYKSSHF	KRRPYDPYTNVY	TSPNETILCPDSFQSMYTMQLCG
BnaA06.GH3-7.a	HD	TKTPG	GLPIEDGI	SWYLKSDYF	KNRPSYWHWSY	TSPDEVMLGSDLKQSLYCHLLCG
BnaA08.GH3-7.b	LE	STTAS	GLPARTAS	SSYLKSSYF	KNRPCNWWYTY	TSPDEVILCPDNKQSLYCHLLCG
BnaC06.GH3-7.a	HE	TRTPG	GLPIEPGT	SWYLKSDYF	KNRPSYWHWSY	TSPDEVMLGSDLKQSLYCHLLCG
BnaA03.GH3-8.a	PE	QNTPS	GLPASAT	TSEFKSDYF	KNRPSYWHWSY	TSPDEVILCPDNKQSLYCHLLCG
BnaA03.GH3-8.b	PA	SKTPS	GLPASAT	THLMKSDYF	VKNLPSYWDTS	TSPTEIKFCPDNKQSLYCHLLCG
BnaA03.GH3-8.c	PA	SKTPS	GLPASAT	THLMKSDYF	VKNLPSYWDTS	TSPTEIKFCPDNKQSLYCHLLCG
BnaA06.GH3-8.d	PI	STTPC	GLPIAPVL	TSEFKSEY	RLAKK...	TSPDQIIMCPDTKQSMYQQLCG

BnaA06.GH3-8.e P H I S T T P G G L P L A P T V T S F T K S E Y F R S L P K N S P S P Y Q I I M C T D A K Q S M Y C Q L L C G
 BnaA09.GH3-8.f P I I S T T P C G L P L A P S I T I I L M K S K N Y R S P G K R S T T P D E I I M C T D P K Q S M Y C Q L L C G
 BnaA09.GH3-8.g P I I S T T P C G L P L A P A T T I I L L K S K N Y R S P A K N S T S P D E I I L C T D A K Q S M Y C Q L L C G
 BnaAX.GH3-8.h P E Q N T P S G L P A S S A T T S F F K S D Y F K N R P S Y W H W S F T S P D E V I L C S D N K Q S L Y C H L L C G
 BnaAX.GH3-8.i P I I S T T P C G L P L A S V V T I L M K S K H F L S M E K R S T I P K E I I R C P D K K Q S M Y C Q L L F G
 BnaC01.GH3-8.a P S S M T L S G L P A S Y A S T F F F K S D Y F K N R P S F W D T S F T T P G E V I Y C P D V K Q S L Y C H L L C G
 BnaC02.GH3-8.b P E Q N T P S G L P A S S A T T S F F K S D Y F K N R P S Y W H W S F T S P D E V I L C S D N K Q S L Y C H L L C G
 BnaC02.GH3-8.c P E Q N T P S G L P A S S A T T S F F K S D Y F K N R P S Y W H W S F T S P D E V I L C S D N K Q S L Y C H L L C G
 BnaC02.GH3-8.d P E Q N T P S G L P A S S A T T S F F K S D Y F K N R P S Y W H W S F T S P D E V I L C S D N K Q S L Y C H L L C G
 BnaC07.GH3-8.e P A I S K T P S G L P A S Y A T T H F M K S D Y Y V K N L P S Y W D T S S T S P T E I K F C P D N K Q S L Y C H L L C G
 BnaC09.GH3-8.f E O Q S I T P C G L P I S T S V T G Y L L S D S F K N R P S N . . . C F T S P D E V T L C P D V K Q T M Y C H L L C G
 BnaCX.GH3-8.g P I I S T T P C G L P L A P T V T S F T K S E F F R S L P K N S P S P Y Q I I L C P D A K Q S M Y C Q L L C G
 BnaA05.GH3-9.a A E T S T P C G L P I R T V L T S Y Y K S K H F Q C R P Y D P F N D L T S P I Q T I L C E D S N Q S M Y C Q L L A A
 BnaC04.GH3-9.a A E T S T P C G L P I R T V L T S Y Y K S K H F Q C R P Y D P F N D L T S P I Q T I L C E D S N Q S M Y C Q L L A A
 BnaA03.GH3-10.a K V F K T P G G L D V G T A T T L Y Y A S K E F K T K Q E A T K S F T C S P Q E V I S G G D F V Q C T Y C H L L L G
 BnaA09.GH3-10.b K E F K T P G G L T V G T A T T H Y Y S S K E F K T K Q E T T K S F T C S P R E V I S G G D F G Q C T Y C H L L L G
 BnaC09.GH3-10.a K E F K T P G G L T V G T A T T H Y Y S S K E F K T K Q E T T K S F T C S P R E V I S G G D F G Q C T Y C H L L L G
 BnaA03.GH3-11.a K Q Y I S K G G V P V G T A T T N V Y R N P N F K A G M K S I Q S L C C S P D E V I F S P D V H Q A L Y C H L L S G
 BnaA04R.GH3-11.b K Q Y I S T G G V P V G T A T T N V Y R N P N F K S G M R S I Q S L C C S P D E V I F S P D V H Q A L Y C H L L S G
 BnaA05.GH3-11.c K Q Y I S T G G V P I G T A T T N V Y R N P N F K A G M R S I M S L C C S P D E V I F S P D V H Q A L Y C H L L S G
 BnaC04.GH3-11.a K Q Y I S T G G V P V G T A T T N V Y R N P N F K S G M K S I Q S P C C S P D E V I F S P D V H Q A L Y C H L L S G
 BnaCX.GH3-11.b K Q Y I S K G G V P V G T A T T N V Y R N P N F K A G M K A I Q S L C C S P D E V I F S P E V H Q A L Y C H L L S G
 BnaA02.GH3-12.a Q E A I T P S G L P A R V A T S S Y F K S E Y F K N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaA03.GH3-12.b Q E A I T P S G L P A R V A T S S Y F K S D Y F K N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaA06.GH3-12.c H E T K T P G G L P I E S S T S W Y L K S D Y F K N R P S N W F Y S F T S P D E V M L G S D I K O N L Y C H L L C G
 BnaA10.GH3-12.d Q E T K T P S G L L A R V A T S S Y F K S D Y F F T N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaC02.GH3-12.a Q E A I T P S G L P A R V A T S S Y F K S D Y F K N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaC03.GH3-12.b Q E S I T P S G L P A R V A T S S Y F K S D Y F K N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaC09.GH3-12.c Q E A K T P S G L L A R V A T S S Y F K S D Y F K N R P S N W Y Y S Y T S P D E V I L C S N N T Q S L Y C H L L C G
 BnaA10.GH3-14.a R E S E T A S R I P V R T M I T C V L K S V T B A N K F I W E R I Q I S P I E I A T C P D T T Q S M Y C Q L L C G
 BnaC09.GH3-14.a R E S E T A S R I P V R T M I T C V L K S V T B A N K F I W E R I Q I S P I E I A T C P D T T Q S M Y C Q L L C G
 BnaA03.GH3-15.a R E G K T A S G L M V R T M V T C V I K M A G S A N K D I W D Q V Q I S P H G L Y T C D D T T Q S M Y C Q L L C G
 BnaC03.GH3-15.a R E G K T A S G L M V R T M V T C V I K M A G S A N K D I W D Q V Q I S P H G I Y T C D D T T Q S M Y C Q L L C G
 BnaAX.GH3-16.a R E S E T A S G L I V R F M L T C V L K S V N B S N I F L W D R V Q V S P H E I S T C V D T S Q A M Y C Q L L C G
 BnaC02.GH3-16.a R E S E T A S G L I V R F M L T C V L K S V N B S N I F L W D R V Q V S P H E I S T C V D T S Q A M Y C Q L L C G
 BnaA07.GH3-17.a P E I K T P S G L M A R P V L T S Y Y K S Q H F R N R P F N K Y N V Y T S P D Q T I L C Q D S K Q S M Y C Q L L C G
 BnaA08.GH3-17.b P E I K T P A G L Q A R P V L T S Y Y K S E Q F K N R P F N K Y N V I T S P N D A I L C E D S Q S M Y C Q L L C G
 BnaA09.GH3-17.c P E I K T P S G L M A R P V L T S Y Y K S Q H F R N R P F N K Y N V Y T S P D Q T I L C Q D S K Q S M Y C Q L L C G
 BnaC08.GH3-17.a P E I K T P S G L Q A R P V L T S Y Y K S E Q F K N R P F N K Y N V I T S P N D A I L C E D S Q S M Y C Q L L C G
 BnaCX.GH3-17.b P E I K T P S G L M A R P V L T S Y Y K S Q H F R N R P F N K Y N I Y T S P D Q T I L C Q D S K Q S M Y C Q L L C G
 BnaCX.GH3-17.c P E I K T P S G L M A R P V L T S Y Y K S Q H F R N R P F N K Y N V Y T S P D Q T I L C Q D S K Q S M Y C Q L L C G
 BnaA05GH3-18.a P E S T T P S G L P V A A A F T
 BnaCX.GH3-18.a R I I S T T L C G L P
 BnaA06.GH3-19.a T I I S T T P C G L P L A P G L T S F I K S E Y Y R R L A K N S T S P Y Q I I L C P D T K Q S M Y C Q L L C G
 BnaA09.GH3-19.b K I I S T T P C G L P I A P A L T S E T K S K Y Y S T M A K N N T S P Y E V A L C P D P K Q S M Y C Q L L C G
 consensus>70 . e . . . t p . g l p t . y . k s . . f t s p . e . i . c . d . . q s m y c . l l c g

	220	230	240	250	260	270					
AtGH3-1	LLDRLS	VLRVGA	VFASGL	LRAIRF	FLQHLH	WSRFAHD	TELGLDSEITDPSIR	QCMSGIL	.K		
AtGH3-2	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELARD	ISTGTLS	SRIFDPAIK	NRMSKIL	TK	
AtGH3-3	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELADD	ISTGTLS	SRISDPAIK	ESMSKIL	TK	
AtGH3-4	LLMRHE	VNRVGA	VFPSSG	LRAIRF	FLQNNW	KELSQD	ISTGTLS	SRIFDHAIK	TRMSKIL	NK	
AtGH3-5	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SLITDPS	VREAVAK	IL.K	
AtGH3-6	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
AtGH3-7	LVORNE	VTRMGS	IFASVM	VRAIK	FLED	SWEELCSN	IRSGQL	SEWITD	IGCRDS	VSLVLGG	
AtGH3-8	LVORDD	VVKVGA	AFVTIL	VRAIN	LLEN	SWKEICTN	IRFGHL	SEWITD	ISCRDS	VSKILGE	
AtGH3-9	LIHRHK	VMRVGA	VFASAF	LRAIS	YLEKKW	SQLCED	IRTGSL	NPMITD	PGCOMAM	SCLLMS	
AtGH3-10	LHYS	SQVEFVAS	AFSYTI	VQAFS	FFFEI	WREICAD	IKEGNL	SSRITL	PKMRKA	VLAALIR.	
AtGH3-11	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLT.
AtGH3-12	LVORDE	VVRIGS	IFASVM	VRAIK	FLED	SWEELCSN	IRSGHL	SNWVTD	DLGCNS	VSLVLGG	
AtGH3-13	LLORDN	VARLGA	PFASVF	IRVIK	YLEGH	WQELCSN	IRTCRL	SDWITD	PQCVSG	ISKFLTA	
AtGH3-14	LLORDN	VGRVGA	PFASVF	IRVIK	YLEGH	WQELCSN	IRTCRL	SDWITD	PQCVSG	ISKFLTA	
AtGH3-15	LLERDN	VARLGA	PFASVF	IRVIK	YLEGH	WQELCSN	IRTCRL	SDWITD	PQCVSG	ISKFLTA	
AtGH3-16	LLORDE	VVRIGS	IFASVM	VRAIK	FLED	SWEELCSN	IRSGHL	SNWVTD	DLGCNS	VSLVLGG	
AtGH3-17	LVORSH	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SSCRDS	VLSILNG	
AtGH3-18	...RDE	VVRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHV	SEWITD	LEGRNA	VSVILRG	
AtGH3-19	LSQREK	VVGVSAT	FAHALI	KAIRN	ALQIY	WKESSN	IRSGHV	SEWITD	DLCKNA	VSAIILGG	
BraX.GH3-1.a	LLDRLS	VLRVGA	VFASGL	LRAIRF	FLQHLH	WSRLAYD	IELGLDSEITDPSIR	QCMSDIL	.K		
BraX.GH3-2.a	LLMRHD	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELARD	ISTGTLS	SRISDPAIK	NRMSKIL	TK	
BraA09.GH3-3.a	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELVND	ISTGTLS	SRISDPAIK	ESMSKIL	TK	
BraA01.GH3-5.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BraA03.GH3-5.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SLITDPS	VREAVAK	IL.K	
BraA02.GH3-6.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BraA03.GH3-6.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BraA06.GH3-7.a	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BraA08.GH3-7.b	LVORNE	VTRMGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BraA02.GH3-8.a	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BraA03.GH3-8.b	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BraA03.GH3-8.c	LVORDE	VTRVSA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BraA03.GH3-8.d	LVORDE	VTRVSA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BraA06.GH3-8.e	LVORDD	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA06.GH3-8.f	LVORDE	VASVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BraA09.GH3-8.g	LVORDE	VVA	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA09.GH3-8.h	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA10.GH3-8.i	LVORDE	VVN	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA09.GH3-10.a	LHFS	SQVEFVAS	AFSYTI	VQAFS	FFFEI	WREICAD	IKEGNL	SSRITL	PKMRKA	VLAALIR.	
BraA03.GH3-11.a	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLR.
BraA04.GH3-11.b	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLR.
BraA05.GH3-11.c	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLR.
BraA02.GH3-12.a	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA03.GH3-12.b	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA06.GH3-12.c	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA10.GH3-12.d	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA10.GH3-14.a	LTORGN	VSRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA03.GH3-15.a	LTORGN	VSRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA07.GH3-15.b	LTORGN	VSRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BraA02.GH3-16.a	LVORNE	VARLGA	PFASVF	IRVIK	YLEGH	WQELCSN	IRTCRL	SDWITD	PQCVSG	ISKFLTA	
BraA07.GH3-17.a	LVORSH	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SACRDS	VLSILDC	
BraA09.GH3-17.b	LVORSH	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SACRDS	VLSILDC	
BraA09.GH3-17.c	LVORSD	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SACRDS	VLSILDC	
BraA04.GH3-19.a	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA06.GH3-19.b	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA09.GH3-19.c	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA09.GH3-19.d	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BraA09.GH3-19.e	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BolC09.GH3-1.a	LLDRLS	VLRVGA	VFASGL	LRAIRF	FLQHLH	WSRLAND	IESGLDSEITDPSIR	QCMSDIL	.K		
BolC01.GH3-2.a	LLMRHD	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELARD	ISTGTLS	SRISDPAIK	NRMSKIL	TK	
BolC08.GH3-3.a	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELVND	ISTGTLS	SRISDPAIK	ESMSKIL	TK	
BolC01.GH3-5.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BolC07.GH3-5.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SLITDPS	VREAVAK	IL.K	
BolC02.GH3-6.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BolC03.GH3-6.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BolC06.GH3-7.a	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BolC01.GH3-8.a	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BolC03.GH3-8.b	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BolC07.GH3-8.c	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BolC08.GH3-8.d	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BolC09.GH3-8.e	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BolC09.GH3-10.a	LHFS	SQVEFVAS	AFSYTI	VQAFS	FFFEI	WREICAD	IKEGNL	SSRITL	PKMRKA	VLAALIR.	
BolC03.GH3-11.a	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLS.
BolC04.GH3-11.b	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLS.
BolCX.GH3-11.c	ILFRDQ	VQYVFA	FAHGLV	VHAFRT	TFEQV	WEEI	IVTDIK	DGVL	SNRITV	PSVRTAM	SKLLS.
BolC03.GH3-12.a	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BolC09.GH3-12.b	LVORDE	VVRMGS	IFASVM	VRAIK	FLET	YWEELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BolC09.GH3-14.a	LTORGN	VSRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BolC03.GH3-15.a	LTORGN	VSRVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	LGCRSS	VSLVLGG	
BolCX.GH3-16.a	LVORNE	VARLGA	PFASVF	IRVIK	YLEGH	WQELCSN	IRTCRL	SDWITD	PQCVSG	ISKFLTA	
BolC07.GH3-17.a	LVORSH	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SACRDS	VLSILEG	
BolC08.GH3-17.b	LVORSH	VLRVGA	VFASAF	LRAVK	FLED	HYKELCAD	IRTGTIT	SWITD	SACRDS	VLSILEG	
BolC08.GH3-19.a	LVORDE	VVS	VGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE
BnaA09R.GH3-1.a	LLDRLS	VLRVGA	VFASGL	LRAIRF	FLQHLH	WSRLAND	IESGLDSEITDPSIR	QCMSDIL	.K		
BnaCX.GH3-1.a	LLDRLS	VLRVGA	VFASGL	LRAIRF	FLQHLH	WSRLAND	IESGLDSEITDPSIR	QCMSDIL	.K		
BnaA01.GH3-2.a	LLMRHD	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELARD	ISTGTLS	SRISDPAIK	NRMSKIL	TK	
BnaA01.GH3-2.a	LLMRHD	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELARD	ISTGTLS	SRISDPAIK	NRMSKIL	TK	
BnaA09.GH3-3.a	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELVND	ISTGTLS	SRISDPAIK	ESMSKIL	TK	
BnaC08.GH3-3.a	LLMRHE	VLRVGA	VFASGL	LRAIRF	FLQNNW	KELVND	ISTGTLS	SRISDPAIK	ESMSKIL	TK	
BnaA01.GH3-5.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BnaA03.GH3-5.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BnaC01.GH3-5.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BnaC07.GH3-5.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SSITDPS	VREAVAK	IL.K	
BnaA03.GH3-6.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BnaAX.GH3-6.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BnaC03.GH3-6.a	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BnaCX.GH3-6.b	LQQHQE	VLRVGA	VFASGF	IRAIK	FLEKHW	TELVRD	IRTGTLS	SEITDPS	VREAVAK	IL.K	
BnaA06.GH3-7.a	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BnaA08.GH3-7.b	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BnaC06.GH3-7.a	LVORNE	VTRIGS	IFASGM	VRVVK	LED	SWKELCSN	IRSGNL	SEWITD	SGCRNS	VSLVLGG	
BnaA03.GH3-8.a	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BnaA03.GH3-8.b	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BnaA03.GH3-8.c	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	
BnaA06.GH3-8.d	LVORDE	VVKVGA	AFVIL	VRAIK	FLEKHW	KELCSN	IRSGHL	SEWITD	ISCRDS	VSKILGE	

BnaA06.GH3-8.e LVQRDEVASVGAVFAAVLVQVIHFLENYWKELASNIRFGHVSSEWITDLSCRDSDSVSTVLVE
 BnaA09.GH3-8.f LVQRDEVVSVGALFASVLVQIIRFILEKYWKELCSNIRSGRLSDWITDHCCRDSDSVSILGE
 BnaA09.GH3-8.g LVQRDEVSVGAPFASLLVQVIHFLENYWKELCSNIRSGHVSSEWITDLSCRDSDSVSMIVGE
 BnaAX.GH3-8.h LVQRDEVVKVGAAAFVSIILVRAITFLEKFWKEICTNIRCGHLSSEWITDISCRDSDSVSKILGE
 BnaAX.GH3-8.i LVQRD.....ELARNIRSGHLSSEWITDLSCRDSDSVSILGE
 BnaC01.GH3-8.a LVMRDEVTGIGAVFASIFVQGMIFLEKTWKDMCSNIRSGQLSDWITDLGCRDSDSVSKILGG
 BnaC02.GH3-8.b IVQRDEVVKVGAAAFVSIILVRAITFLEKFWKEICTNIRCGHLSSEWITDISCRDSDSVSKILGE
 BnaC02.GH3-8.c IVQRDEVVKVGAAAFVSIILVRAITFLEKFWKEICTNIRCGHLSSEWITDISCRDSDSVSKILGE
 BnaC02.GH3-8.d IVQRDEVVKVGAAAFVSIILVRAITFLEKFWKEICTNIRCGHLSSEWITDISCRDSDSVSKILGE
 BnaC07.GH3-8.e LVLQRDEVTRVSAFASILVQGITFLENFWKEMCSNIRSGQLSYWITD.NCKDSDSVSMILGG
 BnaC09.GH3-8.f LRQRDEVVMAAASFASSLVGAFTFESYWKELCSNIRSGNVSEWITDLSCREAVTNILGG
 BnaCX.GH3-8.g LVQRDEVVSVGAVFASVLVQVIHFLENYWKELASNIRCGHVSSEWITDLSCRETVTTLVE
 BnaA05.GH3-9.a LIHRHKVMRLGAVFASAFLRRAISYLERKWSQLCQDIRTGHLSPMITDPGCGTAMSSLLAS
 BnaC04.GH3-9.a LIHRHKVMRLGAVFASAFLRRAISYLERKWSQLCQDIRTGHLSPMITDPGCGTAMTSLLAS
 BnaA03.GH3-10.a LHFSSQVDFVASGFAYTIVQAFSFLLENWREICADIKENLSSRITLPMRMTAVLALLIR.
 BnaA09.GH3-10.b LHFSSQVDFVASGFAYTIVQAFSFLFEDTWRDICADIKESLSSRITLPMRMTAVLALLIR.
 BnaC09.GH3-10.a LHFSSQVDFVASGFAYTIVQAFSFLFEDTWRDICADIKESLSSRITLPMRMTAVLALLIR.
 BnaA03.GH3-11.a ILFRDQVQYVFASFAGHLVHAFTTFEQVWEIEIVTDIEDGVLSRITVPSVRSAMSKLLR.
 BnaA04R.GH3-11.b ILFRHQVQYVFASFAGHLVHAFTTFEQVWEIEIVADIKEGVLTSTRITVPSVRSAMSKLLR.
 BnaA05.GH3-11.c ILFRDQVQYVFASFAGHLVHAFTTFEQVWEIEIVTDIKHGVLSRITVPSLRAAMSKLLITA
 BnaC04.GH3-11.a ILFRDQVQYVFASFAGHLVHAFTTFEQVWEIEIVTDIKEGVLTSTRITVPSVRSAMSKLLR.
 BnaCX.GH3-11.b ILFRDQVQYVFASFAGHLVHAFTTFEQVWEIEIVTDIEDGVLSRITVPSVRSAMSKLLSG
 BnaA02.GH3-12.a LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA03.GH3-12.b LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA06.GH3-12.c LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA10.GH3-12.d LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC02.GH3-12.a LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC03.GH3-12.b LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC09.GH3-12.c LVQRDEVVRMGSIIFASVMVRAIKFLETYWEELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA10.GH3-14.a LIORGNVSRIGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC09.GH3-14.a LIORGNVSRIGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA03.GH3-15.a LIQRENSRLGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC03.GH3-15.a LIQRENSRLGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaAX.GH3-16.a LVQRDEVVARLGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaC02.GH3-16.a LVQRDEVVARLGAPFASFLKVINFLGDHWSLELCSNIRSGHLSSEWITDLGCRSSVSLVLGG
 BnaA07.GH3-17.a LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaA08.GH3-17.b LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaA09.GH3-17.c LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaC08.GH3-17.a LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaCX.GH3-17.b LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaCX.GH3-17.c LVQRSHVLRVGTVFASAFLRRAVVFLENDHYKELCADIRTGTVTSWITEPACRSDSVLSVLQG
 BnaA05GH3-18.a ...NEVVRFGATFAHALVRAIDFLESNWKELCSNIRSGHLSSEWITDLGCRSSVSAIIGG
 BnaCX.GH3-18.a ...NEVVRFGATFAHALVRAIDFLESNWKELCSNIRSGHLSSEWITDLGCRSSVSAIIGG
 BnaA06.GH3-19.a LVQRDEVVSVGSVFASVLVQVIHFLENYWKELASNIRSGHLSSEWITDLSCRETSTILVE
 BnaA09.GH3-19.b LVQRDEVVSVGTTFPSVLVQIVHFLENYWKELSSNIRSGHLSSEWITDLSCRETSTILVE
 consensus>70 l..r.ev...ga.fas....i.file..w.el..#ir.G.ls..!td...r..v..il..

	280	290	300	310	320
AtGH3-1	PDQVLAEFIRRE	C.KSDN	WEKII	TRIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
AtGH3-2	PDQELAEFLVGV	C.SQEN	WEGII	TKIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
AtGH3-3	PDQELADFLITSV	C.GQDN	WEGII	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
AtGH3-4	PDQELAEFLIGVC	C.SQEN	WEGII	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
AtGH3-5	PSPKLADFVEFEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
AtGH3-6	PDPKLADFVESEC	C.RKTS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
AtGH3-7	PHPEAADTIEQIC	C.NQKC	WKGII	TRLWPKAKYIET	IVTGSMVQYVPTLNYY.S.NNM
AtGH3-8	PNPELADLIEQEC	C.NNKS	WEGIV	RLWPKAKFIEC	IATGQMAQHPTLEFFS.NK.
AtGH3-9	PNPELASLIEEIC	C.GRSS	WKGIL	QLWPKAKFIEA	VVTGMSAQYIPALEFFSQQK.
AtGH3-10	PNPSLASHIEEIC	C.LELETNLGWF	GLTS	KLWPNAKFIS	IMTGSMLPYLNKLRHYA.GG.
AtGH3-11	PNPELAETIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GD.
AtGH3-12	PNPELADLIEEIC	C.NQNS	WKGIV	RLWPNKYIET	VVTGSMGQYVPMNYYC.ND.
AtGH3-13	PNPDLASLIEQEC	C.SKTS	WEAIV	KRLWPKAKCIEA	VVTGMSAQYIPILEFFY.GG.
AtGH3-14	PNPELASLIEQEC	C.SQTS	WEAIV	KRLWPKAKCIEA	IVTGMSAQYNPILLEFFS.GG.
AtGH3-15	PNPELASLIEQEC	C.SKTS	WEAIV	KRLWPKAKCIEA	IITGTMAQYIPILLEFFS.GG.
AtGH3-16	PDPLANLIEQEC	C.SKTS	WEAIV	SRIWPKAKCIEA	AVITGTMAQYIPILLEFFY.GG.
AtGH3-17	PNQELADEIESEC	C.AEKS	WEGIL	RRLWPKAKYVEV	IVTGMSAQYIPTLEFFS.GG.
AtGH3-18	PDQILADVIEQEC	C.SHKS	WEGII	TRLWPKAKYIDC	IITGQMSQYIPMLEFFS.NK.
AtGH3-19	PDPELADVIEQEC	C.SHKS	WEGII	TRLWPKAKFIEC	IVTGQMAQYIPTLDFFS.NK.
BraX.GH3-1.a	PDQHLAEFIRRE	C.QTEN	WEGII	TRIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BraX.GH3-2.a	PDQELAEFLVEVC	C.SQDN	WEGIV	TKIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BraA09.GH3-3.a	PDQELADYIASVC	C.HDSN	WEGVIT	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
BraA01.GH3-5.a	QSPKLAEFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BraA03.GH3-5.b	PSPKLADFVEFEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BraA02.GH3-6.a	PDPKLADFVESEC	C.MKNS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BraA03.GH3-6.b	PDPKLADFVESEC	C.RKTS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BraA06.GH3-7.a	QPRHKLSDIEESIC	C.SQKS	WKGIM	KLWPKQLCIEA	IATGMSAQYVPTLKHY.S.GD.
BraA08.GH3-7.b	PHPEVANTVEKIC	C.NEKC	WKGIL	KRLWPKTYIET	IVTGMSAQYVPTLNYYC.NDM
BraA02.GH3-8.a	PNPELADLIEQEC	C.NQKS	WEGII	RLWPKTKFIES	IATGQMAQHPTLKFFS.NN.
BraA03.GH3-8.b	PNPELADLIEQEC	C.NQKS	WEGII	RLWPKTKFIES	IATGQMAQHPTLEFFS.NK.
BraA03.GH3-8.c	PNPQLADLIEEDIC	C.NQKS	WKGII	QLWPKTKYIEC	IVTGQMAQHVPILLEFFV.ND.
BraA03.GH3-8.d	PNPQLAVTIEEDIC	C.NQKS	WKGII	QLWPKTKFIEC	IVTGQMAQHVPILLEFFY.GD.
BraA06.GH3-8.e	PNPELADLIEQEC	C.GQKS	WQGIIV	RLWPKAKCIDA	IITGMSAQYIPALEFFSNNE.
BraA06.GH3-8.f	PNPELADLIEQEC	C.GKKS	WQGIIV	LLWPKAKCIEA	IVTGMSAQYIPTLEFFYTNN.
BraA09.GH3-8.g	GNSELADKIEECC	C.KKKS	WKGII	RLWPNVKFIQS	IVTGQMSQYIPMLEFFS.NK.
BraA09.GH3-8.h	PNPELADLIEQEC	C.GQES	WQGIIV	RLWPKTKCIVET	IVTGMAQYIPALEFFS.DK.
BraA10.GH3-8.i	GNSELADRIEEDC	C.NTKS	WEGII	TRLWPKVKFIQS	IVTGQMSQYIPMLEFFS.NN.
BraA09.GH3-10.a	PNPSLASRIEEDC	C.TELESNVG	WGLIP	KLWPNAKYVSS	IMTGSMLPYLTCLRHYA.GG.
BraA03.GH3-11.a	PNPELAETIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GE.
BraA04.GH3-11.b	PNPELADMIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GE.
BraA05.GH3-11.c	PNPELEDITISDKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GD.
BraA02.GH3-12.a	PRPDLADTIEETIC	C.NQSS	WKGIV	TRLWPNKYIET	VVTGSMGQYVPTMNYC.ND.
BraA03.GH3-12.b	PRPDLADTIEETIC	C.NKNS	WEGIV	KRLWPNKYIET	VVTGSMGQYVPTLNYYC.SD.
BraA06.GH3-12.c	QPRPKLSDEIENIC	C.SLKS	WKGIM	KLWPKTMYIEA	IVTGMSAQYVPTLNHYC.DD.
BraA10.GH3-12.d	PRPDLADTIEETIC	C.NQSS	WKGIV	TRLWPNKYIET	VVTGSMGQYVPTLNYYC.SD.
BraA10.GH3-14.a	PNPELASLIEKEC	C.SKTS	WEAIV	RRLWPNAKCIEA	VVTGMSQYIPMLEFFY.GG.
BraA03.GH3-15.a	PNPELASLIEKEC	C.GKTS	WEAIV	RRLWPNAKCIEA	VVTGMSQYIPMLEFFY.CG.
BraA07.GH3-15.b	PNPELASLIEQEC	C.SKTS	WEAIV	RRLWPNAKCIEA	VVTGMSAQYIPMLEFFY.CG.
BraA02.GH3-16.a	PNPDLASLIEKEC	C.SKTS	WEAIV	KRLWPKAKCIEA	VVTGSMVQYIPILLEFFY.GG.
BraA07.GH3-17.a	PNQELADEIESEC	C.AEKS	WEGIL	RRLWPKAKYVEV	IVTGMSAQYIPTLEFFS.GG.
BraA09.GH3-17.b	PNQELADEIESEC	C.AEKS	WEGIL	RRLWPKAKYVEV	IVTGMSAQYIPTLEFFS.GG.
BraAX.GH3-17.c	PNQELADEIEALF	C.NAKS	REGIL	KRLWPKTYIEV	IVTGMSAQYIPTLEFFS.GG.
BraA04.GH3-19.a	PNPELADLIEQEC	C.QQTS	WEGII	RLWPNKFIQS	VVTGQMSQYIPMLEFFS.SK.
BraA06.GH3-19.b	PNPELADLIEQEC	C.GQTS	WQGIIV	TRLWPKAKCIEA	IITGMSAQYIPMLEFFS.NK.
BraA09.GH3-19.c	PNPELADLIEQEC	C.GQES	WQGIIV	KRLWPKTKCIEA	IVTGMSQYIPALDYY.S.NK.
BraA09.GH3-19.d	PNPELADLIEQEC	C.SQKS	WQGIIT	TRLWPKTYIET	IVTGMSQYIPALDYY.S.NE.
BraAX.GH3-19.e	PNPELADLIEQEC	C.SHKS	WEGIV	TRLWPKAKRIEC	VLTGQMAQYIPTLDFFY.NK.
BolC09.GH3-1.a	PDQHLAEFIRRE	C.QTEN	WEGII	TRIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BolC01.GH3-2.a	PDQELAEFLVEVC	C.SQDN	WEGIV	TKIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BolC08.GH3-3.a	PDQELADYITISVC	C.HDSN	WEGVIT	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
BolC01.GH3-5.a	PSPKLAEFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BolC07.GH3-5.b	PSPKLADFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BolC02.GH3-6.a	PDPKLADFVESEC	C.KKNS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BolC03.GH3-6.b	PDPKLADFVESEC	C.RKTS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BolC06.GH3-7.a	QPRPNLSDEIESIC	C.SQKS	WKGIM	KLWPKQTYIEA	IVTGSMVQYIPMLEHYC.SD.
BolC01.GH3-8.a	PNPQLADQIODIC	C.SQKS	WKGII	QLWPNKFEV	VITGQMAQYVPALEFFV.DDQ
BolC03.GH3-8.b	PNPELADLIEQEC	C.DQKS	WEGII	QLWPNKTFM	IVTGQMAQHPTLEFFS.NK.
BolC07.GH3-8.c	PNPQLADLIEEDIC	C.NQKS	WKGII	QLWPKTKYIEC	IVTGQMAQHVPILLEFFV.ND.
BolC08.GH3-8.d	PNPELADLIEQEC	C.TGQES	WQGIIT	TRLWPKTKCIEA	IVTGTLAQYIPTVLEFFS.NK.
BolC09.GH3-8.e	GNSELADRIEKEC	C.NTKS	WEGII	TRLWPKVKFIQS	IVTGQMSQYIPMLEFFS.NN.
BolC09.GH3-10.a	PNPSLASRIEDVC	C.AELESNVG	WGLIP	KLWPNAKYVSS	IMTGSMLTYLTCLRHYA.GG.
BolC03.GH3-11.a	PNPELAETIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GE.
BolC04.GH3-11.b	PNPELAETIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GE.
BolCX.GH3-11.c	PNPELAETIRTKC	MSLSN	WYGLIP	ALFPNAKYVYG	IMTGSMEPYVVKLRHYA.GD.
BolC03.GH3-12.a	PRPDLADTIEETIC	C.NKNS	WEGIV	KRLWPNKYIET	VVTGSMGQYVPTLNYYC.SD.
BolC09.GH3-12.b	PRPDLADTIEETIC	C.NQSS	WKGIV	TRLWPNKYIET	VVTGSMGQYVPTLNYYC.SD.
BolC09.GH3-14.a	PNPELASLIEQEC	C.SKKS	WEAIV	RRLWPNAKCIEA	VVTGMSQYIPMLEFFY.CG.
BolC03.GH3-15.a	PNPELASLIEQEC	C.GKKS	WEAIV	RRLWPNAKCIEA	VVTGMSAQYIPMLEFFY.CG.
BolCX.GH3-16.a	PNPDLASLIEKEC	C.SKIS	WEAIV	KRLWPKAKCIEA	VVTGSMVQYIPMLEFFY.GG.
BolC07.GH3-17.a	PNQELADEIESEC	C.AEKS	WEGIL	RRLWPKAKYVEV	IVTGMSAQYIPTLEFFS.GG.
BolC08.GH3-17.b	PNQELADEIEALF	C.NAKS	REGIL	KRVWPKTYIEV	IVTGMSAQYIPTLEFFS.GG.
BolC08.GH3-19.a	PNPELADLIEQEC	C.GQES	WQGIIT	TRLWPKTKCIEA	IVTGMSQYIPALDYY.S.NK.
BnaA09R.GH3-1.a	PDQHLAEFIRRE	C.QTEN	WEGII	TRIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BnaCX.GH3-1.a	PDQHLAEFIRRE	C.QTEN	WEGII	TRIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BnaA01.GH3-2.a	PDQELAEFLVEVC	C.SQDN	WEGIV	TKIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BnaC01.GH3-2.a	PDQELAEFLVEVC	C.SQDN	WEGIV	TKIWPNTKYLDV	IVTGAMAQYIPTLEYYS.GG.
BnaA09.GH3-3.a	PDQELADYITISVC	C.HDSN	WEGVIT	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
BnaC08.GH3-3.a	PDQELADYITISVC	C.HDSN	WEGVIT	TKIWPNTKYLDV	IVTGAMAQYIPMLEYYS.GG.
BnaA01.GH3-5.a	QSPKLAEFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaA03.GH3-5.b	PSPKLAEFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaC01.GH3-5.a	PSPKLAEFVESEC	C.KKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaC07.GH3-5.b	PSPKLADFVESEC	C.QKKS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaA03.GH3-6.a	PDPKLADFVESEC	C.RKTS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaAX.GH3-6.b	PDPKLADFVESEC	C.KKNS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaC03.GH3-6.a	PDPKLADFVESEC	C.RKTS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaCX.GH3-6.b	PDPKLADFVESEC	C.KKNS	WQGIIT	RLWPNKYVDV	IVTGMSQYIPTLDYYS.NG.
BnaA06.GH3-7.a	QPRHKLSDIEESIC	C.SQKS	WKGIM	KLWPKQLCIEA	IATGMSAQYVPTLKHYC.GD.
BnaA08.GH3-7.b	PHPEVANTVEKIC	C.NEKC	WKGIL	KRLWPKTYIET	IVTGMSAQYVPTLNYYC.NDM
BnaC06.GH3-7.a	QPRPNLSDEIESIC	C.SQKS	WKGIM	KLWPKQTYIEA	IVTGSMVQYIPMLEHYC.SD.
BnaA03.GH3-8.a	PNPELADLIEQEC	C.NQKS	WEGII	RLWPKTKFIES	IATGMSAQYIPTLEFFS.NK.
BnaA03.GH3-8.b	PNPQLADLIEEDIC	C.NQKS	WKGII	QLWPKTKYIEC	IVTGQMAQHVPILLEFFV.ND.
BnaA03.GH3-8.c	PNPQLAVTIEEDIC	C.NQKS	WKGII	QLWPKTKFIEC	IVTGQMAQHVPILLEFFY.GD.
BnaA06.GH3-8.d	PNPELADLIEQEC	C.GEKS	WQGIIV	RLWPKAKCIDA	IITGMSAQYIPALEFFSNNE.

BnaA06.GH3-8.e .PNPELADLIEENV.C.GKK.S...WQGI.VS.LLWP.KAKCIEA.IFTGSMA.QYIP.TLEFY.TNNE.
 BnaA09.GH3-8.f .PNPELADLIEENC.C.GQES...WQGI.VS.RLWP.KTKCIVET.IVTGIMA.QYIP.ALEFY.S.DK.
 BnaA09.GH3-8.g .PNPELADLIEENC.C.GQES...WQGI.S.RLWP.KTKCIEA.IVTGTMA.QYIP.ALEFY.S.NK.
 BnaAX.GH3-8.h .PNPELADLIEENC.C.NQKS...WEG.IIP.RLWP.KTKFIES.IATGQMA.QHIP.TLEFY.S.NN.
 BnaAX.GH3-8.i .PNPELADLIEKE.C.TGOES...WQGI.IT.RLWP.KTKCIE.T.IVTGTLA.QYIP.VLEFY.S.NK.
 BnaC01.GH3-8.a .PNPQLADQIQD.C.SQKS...WKGI.IP.QLWP.NTKFVEG.VITGQMA.QYIP.ALEFY.V.DDQ
 BnaC02.GH3-8.b .PNPELADLIEENC.C.NQKS...WEG.IIP.RLWP.KTKFIES.IATGQMA.QHIP.TLEFY.S.NN.
 BnaC02.GH3-8.c .PNPELADLIEENC.C.NQKS...WEG.IIP.RLWP.KTKFIES.IATGQMA.QHIP.TLEFY.S.NN.
 BnaC02.GH3-8.d .PNPELADLIEENC.C.NQKS...WEG.IIP.RLWP.KTKFIES.IATGQMA.QHIP.TLEFY.S.NN.
 BnaC07.GH3-8.e .PNPQLADLIE.DI.C.NQKS...WKGI.IP.QLWP.KTKYIEC.IVTGQMA.QHVP.LLEFY.V.ND.
 BnaC09.GH3-8.f .GNSELADNIEEE.C.NKKS...WKGI.IP.RLWP.NVKFIO.S.IVTGQNS.QYIP.MLEFY.S.NK.
 BnaCX.GH3-8.g .PNPELADLIEENC.C.RQES...WQ.....ALEFY.T.NK.
 BnaA05.GH3-9.a .PNPDLADEIEEI.C.GRPS...WKGI.LC.QLWP.QAKFIEA.VVTGSMA.QYIP.ALEFF.SQ GK.
 BnaC04.GH3-9.a .PNPDLADEVEEI.C.GRPS...WKGI.LC.QLWP.QAKFIEA.VVTGSMA.QYIP.ALEFF.SQ GK.
 BnaA03.GH3-10.a .PNP.SLASRIEEM.CMELES.NLGF.GLIP.KLWP.TAKYVS.IMTGSML.SYLL.KKLRHYA.GG.
 BnaA09.GH3-10.b .PNP.SLASRIE.EV.CTELES.NMGWL.GLIP.KLWP.NAKYVS.IMTGSML.PYLT.KLRRHYA.GG.
 BnaC09.GH3-10.a .PNP.SLASRIE.DV.CAELES.NVGF.GLIP.KLWP.NAKYVS.IMTGSML.TYLT.KLRRHYA.GG.
 BnaA03.GH3-11.a .PNPELAE.TIRNK.CMSLSN...WYGLIP.ALFP.NAKYVYG.IMTGSME.PYVK.KLRRHYA.GE.
 BnaA04R.GH3-11.b .PNPELAD.TERTK.CLSLSN...WYGLIP.ALFP.NAKYVYG.IMTGSME.PYVK.KLRRHYA.GE.
 BnaA05.GH3-11.c .PNPELAE.TIRDK.CLSLSN...WYGLIP.ALFP.NAKYVYG.IMTGSME.PYVK.KLRRHYA.GD.
 BnaC04.GH3-11.a .PNPELAE.TIRAK.CLSLSN...WYGLIP.ALFP.NAKYVYG.IMTGSME.PYVK.KLRRHYA.GE.
 BnaCX.GH3-11.b .PNPELAE.TIRTK.CMSLSN...WYGLIP.ALFP.NAKYVYG.IMTGSME.PYVK.KLRRHYA.GE.
 BnaA02.GH3-12.a .PRPDLAD.TIETI.C.NQSS...WKGI.VT.RLWP.NTKYIET.VVTGSMG.QYVP.TMNYC.ND.
 BnaA03.GH3-12.b .PRPDLAD.TIETI.C.NKNS...WEG.IV.KRLWP.NTKYIET.VVTGSMG.QYVP.TLNYYC.SD.
 BnaA06.GH3-12.c .PRPKLSDEIENI.C.SLKS...WKGI.MKKLWP.QTMYIEA.IVTGSMA.QYVP.TLNHYC.DD.
 BnaA10.GH3-12.d .PRPDLAD.TIETI.C.NQSS...WKGI.VT.RIWP.NTKYIET.VVTGSMG.QYVP.TLNYYC.SD.
 BnaC02.GH3-12.a .PRPDLAD.TIETI.C.NQSS...WKGI.VT.RLWP.NTKYIET.VVTGSMG.QYVP.TMNYC.DD.
 BnaC03.GH3-12.b .PRLDLAD.TIETI.C.NKNS...WEG.IV.KRLWP.NTKYIET.VVTGSMG.QYVP.TLNYYC.SD.
 BnaC09.GH3-12.c .PRPDLAD.TIETI.C.NQSS...WKGI.VT.RIWP.NTKYIET.VVTGSMG.QYVP.TLNYYC.SD.
 BnaA10.GH3-14.a .PNPELAS.IIEKE.C.SKTS...WEA.IV.RRLWP.NAKCIEA.VVTGSMS.QYIP.MLEFY.GG.
 BnaC09.GH3-14.a .PNPELAS.IIEQEC.C.SKKS...WEA.IV.RRLWP.NAKCIEA.VVTGSMS.QYIP.MIEFY.GG.
 BnaA03.GH3-15.a .PNPELAS.LIEQEC.C.GKTS...WEA.IV.RRLWP.NAKCIEA.VVTGSMA.QYIP.MMDFYC.GG.
 BnaC03.GH3-15.a .PNPELAS.LIEQEC.C.GKKS...WEA.IV.RRLWP.NAKCIEA.VVTGSMA.QYIP.MMDFYC.GG.
 BnaAX.GH3-16.a .PNPDLAS.LIEKE.C.SKTS...WEG.IV.KRLWP.KAKCIEA.VVTGSMA.QYIP.LLEFY.GG.
 BnaC02.GH3-16.a .PNPDLAS.LIEKE.C.SKTS...WEG.IV.KRLWP.KAKCIEA.VVTGSMA.QYIP.LLEFY.GG.
 BnaA07.GH3-17.a .PNOELADEIESE.C.AEKS...WEG.I.LRRLWP.KAKYVEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaA08.GH3-17.b .PNOELADEIEALF.NAKS...REGIL.KRIWP.KTKYIEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaA09.GH3-17.c .PNOELADEIESE.C.AEKS...WEG.I.LRRLWP.KAKYVEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaC08.GH3-17.a .PNOELADEIESE.C.AEKS...WEG.I.LRRLWP.KAKYVEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaCX.GH3-17.b .PNOELADEIESE.C.AEKS...WEG.I.LRRLWP.KAKYVEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaCX.GH3-17.c .PNOELADEIESE.C.AEKS...WEG.I.LRRLWP.KAKYVEV.IVTGSMA.QYIP.TLEFY.S.GG.
 BnaA05GH3-18.a .PNPELADLIEQEC.C.SHKS...WEG.IV.TRLWP.KAKRIEC.VLTGQMA.QYIP.ILDFYC.NK.
 BnaCX.GH3-18.a .PNAELADLIEHE.C.GGQKS...WQGI.IT.RLWP.KTKYIET.IVTGTMS.QHIP.ALDYY.S.NK.
 BnaA06.GH3-19.a .PNPELADLIEENC.C.GQTS...WQGI.VT.RLWP.KTKCIEA.IITGSMA.QHIS.ALEFY.S.NK.
 BnaA09.GH3-19.b .PNAELADLIEKE.C.GQES...WQGI.LRRLWP.KTKCIE.T.IVTGTMS.QHIP.ALDYY.S.NK.
 consensus>70 .pnpelad.lie...s...w.gii..llwp..kyie.ivtg.m.qyip.lef%....

	330	340	350	360	370							
AtGH3-1	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....			
AtGH3-2	LPMAC	TM	YASSE	SYFGIN	LKPM	KPSEVSYTIMPNMA	YFEFLPH	.....NHDGD.....			
AtGH3-3	LPMAC	TM	YASSE	SYFGIN	LKPM	KPSEVSYTIMPNMA	YFEFLPH	.....HEVPT.....			
AtGH3-4	LPMAS	MI	YASSE	SYFGIN	LNPM	KPSEVSYTIMPNMA	YFEFLPH	.....NHDGD.....			
AtGH3-5	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	SMA	YFEFLPV.....HRNNGVTNSINL				
AtGH3-6	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	SMA	YFEFLPV.....HRNNGVTNSINL				
AtGH3-7	LPLIST	TI	YASSE	QFGLN	LNPM	KPSEVSYTFM	NVS	YFEFLPV.....HRNSGVTSSISL				
AtGH3-8	LPSIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV.....				
AtGH3-9	LPLVCP	PM	YASSE	TYFGVN	VEPL	KS	SDVFTLL	LNMC	YFEFLPLGKNGTLSFDLDDDEQV			
AtGH3-10	LPLVSA	AD	YGSTE	SWIGVN	VDPL	PPEDVSFAV	IP	TF	S	YFEFLPL	.....
AtGH3-11	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
AtGH3-12	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
AtGH3-13	LPLIS	SW	YGSGE	CFMGVN	VNPL	CKP	SDVSYTI	IP	SMA	YFEFLPV	.....
AtGH3-14	LPVIS	TF	YGSGE	CFMGVN	VNPL	CKP	SDVSYTI	IP	SMA	YFEFLPV	.....
AtGH3-15	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
AtGH3-16	LPLVSW	SW	YGSGE	CFMGVN	VNPL	CKP	SDVSYTI	IP	SMA	YFEFLPV	.....
AtGH3-17	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
AtGH3-18	LPLVTS	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
AtGH3-19	LPLVTS	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraX.GH3-1.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....			
BraX.GH3-2.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....D.....			
BraA09.GH3-3.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....EDATE.....			
BraA01.GH3-5.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNTGVTNSINL		
BraA03.GH3-5.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNTGVTNSINL		
BraA02.GH3-6.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BraA03.GH3-6.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BraA06.GH3-7.a	VPLVST	TI	YASSE	SMFGIN	TDPL	CP	EDVSYTF	MP	NIS	YFEFLPI	.....
BraA08.GH3-7.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NIS	YFEFLPI	.....
BraA02.GH3-8.a	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BraA03.GH3-8.b	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BraA03.GH3-8.c	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA03.GH3-8.d	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA03.GH3-8.e	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA06.GH3-8.f	LSLVS	LR	YASSE	AFGLN	LEPL	KS	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA09.GH3-8.g	VHLFS	PA	YGSGE	TFMGVN	VNPL	CKP	EDVSYTF	MP	NIS	YFEFLIP	.....
BraA09.GH3-8.h	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NIS	YFEFLIP	.....
BraA10.GH3-8.i	VPLIST	TV	YASSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BraA09.GH3-10.a	LPLVSA	AD	YGSTE	SWIGVN	VDPL	PPEDVSFAV	IP	TF	S	YFEFLPL	.....
BraA03.GH3-11.a	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BraA04.GH3-11.b	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BraA05.GH3-11.c	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BraA02.GH3-12.a	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA03.GH3-12.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA06.GH3-12.c	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA10.GH3-12.d	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA10.GH3-14.a	LPVIS	LF	YGSGE	CLFGLN	VNPL	CKP	SDVSYTF	IP	SMA	YFEFLPV	.....
BraA03.GH3-15.a	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BraA07.GH3-15.b	LPLIST	TF	YGSGE	CSVGLN	LDPL	CKP	SDVSYTF	IP	SMA	YFEFLPV	.....
BraA02.GH3-16.a	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA07.GH3-17.a	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA09.GH3-17.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraAX.GH3-17.c	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BraA04.GH3-19.a	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA06.GH3-19.b	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA09.GH3-19.c	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraA09.GH3-19.d	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BraAX.GH3-19.e	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BolC09.GH3-1.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....			
BolC01.GH3-2.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....E.....			
BolC08.GH3-3.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....EDAP.....			
BolC01.GH3-5.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNTGVTNSINL		
BolC07.GH3-5.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....YRNTGVTNSINL		
BolC02.GH3-6.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BolC03.GH3-6.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BolC06.GH3-7.a	LPVVS	TI	YASSE	SIFGIN	TYPL	CKP	EDISYTF	MP	NIS	YFEFLIP	.....
BolC01.GH3-8.a	LPLVSP	PA	YASSE	SPFAVN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BolC03.GH3-8.b	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BolC07.GH3-8.c	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BolC08.GH3-8.d	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BolC09.GH3-8.e	VPLIST	TV	YASSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BolC09.GH3-10.a	LPLVSA	AD	YGSTE	SWIGVN	VDPL	PPEDVSFAV	IP	TF	S	YFEFLPL	.....
BolC03.GH3-11.a	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BolC04.GH3-11.b	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BolCX.GH3-11.c	LPLVSH	HD	YGSGE	GWIAAN	VT	PR	LS	PEATF	AV	IP	NLG	YFEFLPV.....
BolC03.GH3-12.a	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BolC09.GH3-12.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BolC09.GH3-14.a	LPVIS	LF	YGSGE	CLFGLN	VNPL	CKP	SDVSYTF	IP	SMA	YFEFLPV	.....
BolC03.GH3-15.a	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BolCX.GH3-16.a	LPLIST	TF	YGSGE	CSVGLN	LDPL	CKP	SDVSYTF	IP	SMA	YFEFLPV	.....
BolC03.GH3-17.a	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BolC08.GH3-17.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NMS	YFEFLIP	.....
BolC08.GH3-19.a	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BnaA09R.GH3-1.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....			
BnaCX.GH3-1.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....			
BnaA01.GH3-2.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....D.....			
BnaC01.GH3-2.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....E.....			
BnaA09.GH3-3.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....EDATE.....			
BnaC08.GH3-3.a	LPMAC	TM	YASSE	CYFGLN	NPM	KPSEVSYTIMPNMA	YFEFLPI	.....EDAP.....			
BnaA01.GH3-5.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNT.....		
BnaA03.GH3-5.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNTGVTNSINL		
BnaC01.GH3-5.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNTGVTNSINL		
BnaC07.GH3-5.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....YRNTGVTNSINL		
BnaA03.GH3-6.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNSG.....		
BnaAX.GH3-6.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BnaC03.GH3-6.a	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BnaCX.GH3-6.b	LPLVCT	TM	YASSE	CYFGVNL	RLPL	KPSEVSYTLIP	TMA	YFEFLPV	.....HRNNGVTSSISL		
BnaA06.GH3-7.a	VPLVST	TI	YASSE	SMFGIN	TDPL	CP	EDVSYTF	MP	NIS	YFEFLPI	.....
BnaA08.GH3-7.b	LPLVST	TT	YGSEET	TFGIN	VDPL	CKP	EDVSYTF	MP	NIS	YFEFLPI	.....
BnaC06.GH3-7.a	LPVVS	TI	YASSE	SIFGIN	TYPL	CKP	EDISYTF	MP	NIS	YFEFLIP	.....
BnaA03.GH3-8.a	LPLIS	SS	YVSSE	TMFGIN	MSPL	KPENVSYTF	LNLS	YFEFLLV	.....		
BnaA03.GH3-8.b	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BnaA03.GH3-8.c	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....
BnaA06.GH3-8.d	LPLVSN	PN	YASSE	AMFGVN	VNPL	CKP	SDVSYTF	LN	NMS	YFEFLIP	.....

BnaA06.GH3-8.e LSLVSLR~~Y~~ASSEAF~~F~~G~~L~~N~~L~~EPLSK~~.~~.NVSYTF~~L~~PNMS~~Y~~FEFL~~D~~V.....
 BnaA09.GH3-8.f LPIVLSI~~Y~~GSSETF~~F~~G~~L~~N~~V~~NPLCKP~~Q~~HVSYTF~~L~~PNMS~~Y~~FEFL~~H~~V.....
 BnaA09.GH3-8.g LPLVLSRT~~Y~~ASSEAF~~F~~G~~L~~N~~V~~NPLSKP~~Q~~HVSYTF~~L~~PNMS~~Y~~FEFL~~D~~V.....
 BnaAX.GH3-8.h LPLISS~~Y~~VSSETM~~F~~G~~I~~N~~M~~NPLCKP~~Q~~DVSYTF~~M~~PNFS~~Y~~FEFL~~L~~V.....
 BnaAX.GH3-8.i LPLVSKN~~Y~~ASSETF~~F~~G~~L~~N~~L~~NPLSKP~~E~~HVSYTF~~L~~PNMA~~Y~~FEFL~~D~~V.....
 BnaC01.GH3-8.a LPLVSPAY~~Y~~GSSESP~~F~~AV~~N~~MNPLCKP~~Q~~DISYTF~~I~~PNMS~~Y~~FEFL~~P~~I.....
 BnaC02.GH3-8.b LPLISS~~Y~~VSSETM~~F~~G~~I~~N~~M~~NPLCKP~~Q~~DVSYTF~~M~~PNFS~~Y~~FEFL~~L~~V.....
 BnaC02.GH3-8.c LPLISS~~Y~~VSSETM~~F~~G~~I~~N~~M~~NPLCKP~~Q~~DVSYTF~~M~~PNFS~~Y~~FEFL~~L~~V.....
 BnaC02.GH3-8.d LPLISS~~Y~~VSSETM~~F~~G~~I~~N~~M~~NPLCKP~~Q~~DVSYTF~~M~~PNFS~~Y~~FEFL~~L~~V.....
 BnaC07.GH3-8.e LPLVSPN~~Y~~ASSEAM~~F~~G~~V~~N~~L~~NPLCKP~~Q~~DVSYTF~~L~~PNMS~~Y~~FEFL~~P~~V.....
 BnaC09.GH3-8.f VHLFSPAY~~Y~~GSSETM~~F~~G~~V~~N~~V~~NPLCKP~~E~~DVSYTF~~M~~PNIS~~Y~~FEFL~~L~~A.....
 BnaCX.GH3-8.g LPLVSKS~~Y~~ASSEAF~~F~~G~~L~~N~~L~~EPLSK~~.~~.NVSYTF~~L~~PNMS~~Y~~FEFL~~D~~V.....
 BnaA05.GH3-9.a IPLVCPMY~~Y~~ASSETY~~F~~G~~V~~N~~V~~MPLSKP~~S~~DVVFTLL~~L~~PNMC~~Y~~FEFL~~P~~L~~G~~KNGT~~L~~SFDVEDEEVV
 BnaC04.GH3-9.a IPLVCPMY~~Y~~ASSETY~~F~~G~~V~~N~~V~~KPLSKP~~S~~DVVFTLL~~L~~PNMC~~Y~~FEFL~~P~~L~~G~~KNGT~~L~~SFDVEDEEVV
 BnaA03.GH3-10.a LPLVSGN~~Y~~VSSESL~~I~~G~~V~~N~~V~~DPQL~~P~~PE~~D~~VSFAV~~I~~PTFS~~Y~~FEFL~~P~~L.....
 BnaA09.GH3-10.b LPLVAD~~Y~~GSTESW~~I~~G~~V~~N~~V~~DPQL~~P~~PE~~D~~VSFAV~~I~~PTFS~~Y~~FEFL~~P~~L.....
 BnaC09.GH3-10.a LPLVAD~~Y~~GSTESW~~I~~G~~V~~N~~V~~DPQL~~P~~PE~~D~~VSFAV~~I~~PTFS~~Y~~FEFL~~P~~L.....
 BnaA03.GH3-11.a LPLVSHD~~Y~~GSSEGW~~I~~AAN~~V~~RPRL~~S~~PEEATFAV~~V~~PNLGY~~Y~~FEFL~~P~~L.....
 BnaA04R.GH3-11.b LPLVSHD~~Y~~GSSEGW~~I~~AAN~~V~~TPRL~~S~~PEEATFAV~~V~~PNLGY~~Y~~FEFL~~P~~V.....
 BnaA05.GH3-11.c LPLVSHD~~Y~~GSSEGW~~I~~AAN~~V~~TPRL~~S~~PEEATFAV~~V~~PNLGY~~Y~~FEFL~~P~~V.....
 BnaC04.GH3-11.a LPLVSHD~~Y~~GSSEGW~~I~~AAN~~V~~TPRL~~S~~PEEATFAV~~V~~PNLGY~~Y~~FEFL~~P~~V.....
 BnaCX.GH3-11.b LPLVSHD~~Y~~GSSEGW~~I~~AAN~~V~~RPRL~~S~~PEEATFAV~~V~~PNLGY~~Y~~FEFL~~P~~L.....
 BnaA02.GH3-12.a LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaA03.GH3-12.b LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaA06.GH3-12.c LPLVSTT~~Y~~ASSESI~~F~~G~~I~~N~~I~~DP~~L~~CKP~~E~~DISYTL~~M~~PNIS~~Y~~FEFL~~P~~V.....
 BnaA10.GH3-12.d LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaC02.GH3-12.a LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaC03.GH3-12.b LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaC09.GH3-12.c LPLVSTT~~Y~~GSSETT~~F~~G~~I~~N~~V~~DP~~L~~CKP~~E~~DVSYAF~~M~~PNMS~~Y~~FEFL~~I~~M.....
 BnaA10.GH3-14.a LPVISLFY~~Y~~GSSECL~~F~~G~~L~~N~~V~~NPLCKP~~Q~~DVSYTT~~V~~PSMA~~Y~~FEFL~~E~~V.....
 BnaC09.GH3-14.a LPVISLFY~~Y~~GSSECL~~F~~G~~L~~N~~I~~NPLSKP~~Q~~DVSYTT~~V~~PSMA~~Y~~FEFL~~E~~V.....
 BnaA03.GH3-15.a LPLVLSF~~Y~~ASSECF~~L~~G~~L~~N~~L~~N~~T~~LRKP~~S~~DAAYTI~~I~~PSMA~~Y~~FEFL~~E~~V.....
 BnaC03.GH3-15.a LPLISSF~~Y~~ASSECF~~L~~G~~L~~N~~L~~N~~T~~LRKP~~S~~DAAYTI~~I~~PSMA~~Y~~FEFL~~E~~V.....
 BnaAX.GH3-16.a LPLISSW~~Y~~GASECF~~I~~G~~I~~N~~V~~DP~~L~~SKP~~Q~~DVSYTI~~V~~PSMA~~Y~~FEFL~~E~~V.....
 BnaC02.GH3-16.a LPLISSW~~Y~~GASECF~~I~~G~~I~~N~~V~~DP~~L~~T~~T~~KP~~Q~~DVSYTI~~V~~PSMA~~Y~~FEFL~~E~~V.....
 BnaA07.GH3-17.a LPLVSTM~~Y~~ASSECY~~F~~G~~I~~N~~L~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~VDDKSHEEIH~~F~~ASHSNT
 BnaA08.GH3-17.b LPLVSTM~~Y~~ASSECY~~F~~G~~L~~N~~I~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~VDDKSHEET~~Q~~LESH...
 BnaA09.GH3-17.c LPLVSTM~~Y~~ASSECY~~F~~G~~I~~N~~L~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~VDDKSHEEIH~~F~~ASHSNT
 BnaC08.GH3-17.a LPLVSTM~~Y~~ASSECY~~F~~G~~L~~N~~I~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~VDDKSHEET~~Q~~LESH...
 BnaCX.GH3-17.b LPLVSTM~~Y~~ASSECY~~F~~G~~I~~N~~L~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~VDDKSHEEIH~~F~~ASHSNT
 BnaCX.GH3-17.c LPLVSTM~~Y~~ASSECY~~F~~G~~I~~N~~L~~NPLCKP~~S~~DVSYTLL~~L~~PNMA~~Y~~FEFL~~P~~I.....HFASHSNT
 BnaA05GH3-18.a LPLVSTV~~Y~~GSSESI~~F~~G~~F~~N~~V~~DP~~L~~CKP~~Q~~DVSYTF~~V~~NT~~S~~YFEFL~~P~~V.....
 BnaCX.GH3-18.a LPLVSKV~~Y~~ASSEAF~~F~~G~~M~~N~~V~~NPLSKP~~Q~~HVSYTF~~L~~PNMS~~Y~~FEFL~~E~~V.....
 BnaA06.GH3-19.a LPLVSPF~~Y~~GSSEAF~~F~~G~~L~~N~~L~~EPLCKP~~Q~~HVSYTF~~L~~PNMS~~Y~~FEFL~~E~~V.....
 BnaA09.GH3-19.b LPLVSKV~~Y~~ASSEVF~~Y~~G~~L~~N~~L~~NPLSKP~~Q~~HVSYTF~~L~~PNMS~~Y~~FEFL~~I~~R~~V~~.....
 consensus>70 lplvs..Y.ssE..fg.N..pl.kp.dvs%t..P.m.YFEF.....

		380	390	400
AtGH3-1	.....GGTK	AVELVDVNI	GKEYELVVTTY	AGLCRYR
AtGH3-2	GAAEAS.....LDETS	LVELANVEV	GKEYELVITTY	AGLYRYR
AtGH3-3	.....EKSE	LVELADVEV	GKEYELVITTY	AGLNYRYR
AtGH3-4	GGV.....EATS	LVELADVEV	GKEYELVITTY	AGLYRYR
AtGH3-5	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
AtGH3-6	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
AtGH3-7	.D.....GDKND	VVDLADVKK	GCCYEAVVTNFS	SGLYRIR
AtGH3-8	.D...A.....GDKTE	IVDLVDVKL	GCYEPVLTNHS	GLHRYK
AtGH3-9	PC.....DK	VVDLVNVKL	GRYELVVTF	AGLYRYR
AtGH3-10	.YRRQN.QSDICIDGDFVEDK	PVPLSQVKL	GQEEYELVLTFT	TGLYRYR
AtGH3-11	.SETGE.....GEEK	PVGLTQVKI	GEEYEVVITNY	AGLYRYR
AtGH3-12	.D...G.....GDKND	VVDLEDVKL	GCTYEPVVTNFS	AGLYRMR
AtGH3-13	.....K.....KDQOEAGLDPIENHV	VVDLVDVKI	GHDYEPVVTFS	AGLYRYR
AtGH3-14	.....E.....KDY.ESGHDPAENPV	VVDLVDVKI	GHDYEPVVTFS	AGLYRYR
AtGH3-15	.....E.....KDHQEAGHDPTTEKPV	VVDLVDVKI	GHDYEPVVTFS	AGLYRYR
AtGH3-16	.....V.....KDRQEAGHVPA.DPV	VVDLVDVKI	GHDYELVTF	SGLYRIR
AtGH3-17	DDDDDA.....LKEDL	IVNLVNVEV	GQYIEIVITFT	TGLYRYR
AtGH3-18	.D...HK.....GDMAS	IVDLVDVKL	GCYEPVVTNYF	GLHRYL
AtGH3-19	.D...HE.....EDMNT	IVDLVGVKL	GCYETVVTSYF	GLHRYL
BraX.GH3-1.a	.....GGSK	AVELVDVKI	GKEYELVVTTY	AGLCRYR
BraX.GH3-2.a	GAAG.....DETE	LVELADVEV	GKEYELVITTY	AGLYRYK
BraA09.GH3-3.a	.....RTTE	LVELADVEV	GKEYELVITTY	AGLYRYR
BraA01.GH3-5.a	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BraA03.GH3-5.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BraA02.GH3-6.a	PKALTE.....KEQKE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BraA03.GH3-6.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BraA06.GH3-7.a	.E.....GGNGD	VVDLADVKK	GCSYQLLVTNLWG	LYRMR
BraA08.GH3-7.b	.D.....GDEND	VVDLADLKL	GCSYELVVTNFS	SGLYRIR
BraA02.GH3-8.a	.D...A.....GDKVE	IVDLVDVKL	GSHYEPVLTNHS	GLHRRK
BraA03.GH3-8.b	.D...A.....GDEVE	IVDLVDVKL	GCHYETLVNHS	GLHRYK
BraA03.GH3-8.c	.G...E.....G.KDT	IFDLVNVKL	GLYELVVTNY	AGLHRYR
BraA03.GH3-8.d	.G...E.....G.DDT	IVDLVNVKL	GRYELIVTNY	AGLHRYR
BraA06.GH3-8.e	.D.....GE	IVDLVNVKL	GHHYEPF	GLHRCR
BraA06.GH3-8.f	.D...G.....GAEGE	IVDLVNVKL	GRYIEIVTNFS	GLHRCR
BraA09.GH3-8.g	.D...K.....GNEGE	IVDLVNVEI	GSYIEPLITNY	YGLHRYR
BraA09.GH3-8.h	.D.ADG.....EATGE	IVDLVDVKS	GQYIEPLVTNY	SGLYRCR
BraA10.GH3-8.i	.D...E.....GNKGE	IVDLGNVKI	GSYIEPLITNY	YGLHRYR
BraA09.GH3-10.a	.YRQQT.HQQDLCSEGDVEEK	PVPLSQVKL	GQEEYELVLTFT	TGLYRYR
BraA03.GH3-11.a	.SETGE.....TEQEP	PVGLTEVKI	GQEEYEVVITNY	AGLYRYR
BraA04.GH3-11.b	.S...E.....TEKE	PVGLTDVKI	GEEYEVVITNY	AGLYRYK
BraA05.GH3-11.c	.SETGE.....GEQE	PVGLTEVKV	GQEEYEVLTNY	AGLYRYR
BraA02.GH3-12.a	.D.....GDKRD	VVDLQDVKL	GCTYEPVVTNFS	AGLYRMR
BraA03.GH3-12.b	.D.....GDKRD	VVDLQDVKL	GCTYEPVVTNFS	AGLYRMR
BraA06.GH3-12.c	.E.....EGSDD	VVDLADVKK	GCSYQLLVTNLWG	LYRMR
BraA10.GH3-12.d	.D.....GEKRD	VVDLHDVKI	GCTYEPVVTNFS	AGLYRMR
BraA10.GH3-14.a	.....K.....KD.QEAGHDPLVNPV	IVDLVDVKV	GHDYEPVVTFS	SGLYRYR
BraA03.GH3-15.a	.....E.....KDHQETSHPDPTKN	IVDLVDVKV	GHDYEPVITFS	SGLYRYR
BraA07.GH3-15.b	.....K.....KYHQETGHPDV	VVDLVDVKV	GHDYEPVITFS	SGLYRYR
BraA02.GH3-16.a	.....E.....KDHQETGHNPTKNPV	VVDLADVKKI	GHDYELIITFT	SGLYRDR
BraA07.GH3-17.a	.EDDDA.....IKEDL	IVDLVNVEV	GRYIEIVITFT	TGLYRYR
BraA09.GH3-17.b	DDDDDA.....LKEDL	IVDLVNVEV	GRYIEIVITFT	TGLYRYR
BraAX.GH3-17.c	.DDVSL.....TDKDR	IVDLVSVEI	GRYELIITFT	AGLYRYR
BraA04.GH3-19.a	.D...E.....GNNAG	VVDLVDVKL	GHLIDPV	GLHRCR
BraA06.GH3-19.b	.DVEGG.....TSGE	VLDLVDVKL	GRYELVVTNFS	SGLHRCR
BraA09.GH3-19.c	.D.ADG.....EDTSE	IVDLVDVTL	GYIEPLVTNY	SGLHRCR
BraA09.GH3-19.d	.D.DDG.....ETTGE	IVDLVNVKL	GSYIEPLVTNFS	AGLHRCR
BraAX.GH3-19.e	.D...HE.....GDMTS	IVDLVNVKL	GCYIEPVVTCF	GLNRYL
BolC09.GH3-1.a	.....GGSK	AVELVDVKI	GKEYELVVTTY	AGLCRYR
BolC01.GH3-2.a	.GAG.....DETE	LVELADVEV	GKEYELVITTY	AGLYRYK
BolC08.GH3-3.a	.....ERTE	LVELADVEV	GKEYELVITTY	AGLYRYR
BolC01.GH3-5.a	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BolC07.GH3-5.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BolC02.GH3-6.a	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BolC03.GH3-6.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BolC06.GH3-7.a	.E.....GDNGD	VLDLADVKK	GSSYKLLVTNLWG	LYRMR
BolC01.GH3-8.a	.D...E.....GNDDA	IVDLVDVKL	GSYELVVTTY	SGLHRCR
BolC03.GH3-8.b	.D...A.....GDEVK	IVDLVDVKL	GCHYESLVTNHS	GLHRCR
BolC07.GH3-8.c	.G...E.....G.NDT	IVDLVNVKL	GRYELVVTNY	AGLHRYR
BolC08.GH3-8.d	.G.VDG.....GTEGE	IVDLVDVKL	GHHYIEPLVTNY	YGLHRCR
BolC09.GH3-8.e	.D...E.....GNKGE	IVDLVNVKI	GSYIEPLITNY	YGLHRYR
BolC09.GH3-10.a	.YRQQT.QQDLCSEGDVEEK	PVPLSQVKL	GQEEYELVLTFT	TGLYRYR
BolC03.GH3-11.a	.SETGE.....TEQEP	PVGLTEVKI	GQEEYEVVITNY	AGLYRYR
BolC04.GH3-11.b	.SETEE.....TEEE	PVGLTEVKI	GQEEYEVVITNY	AGLYRYK
BolCX.GH3-11.c	.SETGE.....GEQE	PVGLTEVKV	GQEEYEVLTNY	AGLYRYR
BolC03.GH3-12.a	.D.....GDKRD	VVDLQDVKL	GCTYEPVVTNFS	AGLYRMR
BolC09.GH3-12.b	.D.....GDKRD	VVDLHDVKV	GCTYEPVVTNFS	AGLYRMR
BolC09.GH3-14.a	.....K.....KD.QEAGHDPLVNPV	VVDLVDVKV	GHDYEPVVTFS	SGLYRYR
BolC03.GH3-15.a	.....E.....KDHQETSHPDPTKN	IVDLVDVKV	GHDYEPVITFS	SGLYRYR
BolCX.GH3-16.a	.....E.....KDHQETGHNPTKNPV	VVDLADVKKI	GHDYELIITFT	SGLYRYR
BolC07.GH3-17.a	.EDDDA.....IKEDL	IVDLVNVEV	GRYIEIVITFT	TGLYRYR
BolC08.GH3-17.b	.DDVSL.....MDKDR	IVDLVNVEI	GRYELIITFT	AGLYRYR
BolC08.GH3-19.a	.D.ADG.....EDTSE	IVDLVDVTL	GHHYIEPLVTNY	SGLHRCR
BnaA09R.GH3-1.a	.....GGSK	AVELVDVKI	GKEYELVVTTY	AGLCRYR
BnaCX.GH3-1.a	.....GGSK	AVELVDVKI	GKEYELVVTTY	AGLCRYR
BnaA01.GH3-2.a	GAAG.....DETE	LVELADVEV	GKEYELVITTY	AGLYRYK
BnaC01.GH3-2.a	GGAG.....DETE	LVELADVEV	GKEYELVITTY	AGLYRYK
BnaC08.GH3-3.a	.....RTTE	LVELADVEV	GKEYELVITTY	AGLYRYR
BnaC08.GH3-3.a	.....ERTE	LVELADVEV	GKEYELVITTY	AGLYRYR
BnaA01.GH3-5.a	...ALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BnaA03.GH3-5.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BnaC01.GH3-5.a	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BnaC07.GH3-5.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLCRYR
BnaA03.GH3-6.a	...ALTE.....KEQQD	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BnaAX.GH3-6.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BnaC03.GH3-6.a	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BnaCX.GH3-6.b	PKALTE.....KEQQE	LVDLVDVKL	GQEEYELVVTTY	AGLYRYR
BnaA06.GH3-7.a	.E.....GGNGD	VVDLADVKK	GCSYQLLVTNLWG	LYRMR
BnaA08.GH3-7.b	.D.....GDEND	VVDLADLKL	GCSYELVVTNFS	SGLYRIR
BnaC06.GH3-7.a	.E.....GDNGD	VLDLADVKK	GSSYKLLVTNLWG	LYRMR
BnaA03.GH3-8.a	.D...A.....GDEVE	IVDLVDVKL	GCHYETLVNHS	GLHRCR
BnaA03.GH3-8.b	.G...E.....G.KDT	IVDLVNVKL	GLYELVVTNY	AGLHRYR
BnaA03.GH3-8.c	.G...E.....G.DDT	IVDLVNVKL	GRYELIVTNY	AGLHRYR
BnaA06.GH3-8.d	.D.....GE	IVDLVNVKL	GHHYIEPLVTNFS	AGLHRCR

BnaA06.GH3-8.e	.D...G.....GAEGE.....	IVDLVNVKLG	RY..	.....	..	..	..	..
BnaA09.GH3-8.f	.D.ADG.....EATGE.....	IVDLVDVKLG	AYEP	LV	TN	YS	GS	LYR
BnaA09.GH3-8.g	.D.GD.....GE.....	IVDLVNVKLG	GYEP	LV	TN	YS	GS	LYR
BnaAX.GH3-8.h	.D...A.....GDKVE.....	IVDLVDVKLG	SHYEP	LV	TN	YS	GS	LYR
BnaAX.GH3-8.i	.G.VDG.....GTEGE.....	IVDLVDVKLG	HHYEP	LV	TN	YS	GS	LYR
BnaC01.GH3-8.a	.D...E.....GNDDA.....	IVDLVDVKLG	SHYEP	LV	TN	YS	GS	LYR
BnaC02.GH3-8.b	.D...A.....GDKVE.....	IVDLVDVKLG	SHYEP	LV	TN	YS	GS	LYR
BnaC02.GH3-8.c	.D...A.....GDKVE.....	IVDLVDVKLG	SHYEP	LV	TN	YS	GS	LYR
BnaC02.GH3-8.d	.D...A.....GDKVE.....	IVDLVDVKLG	SHYEP	LV	TN	YS	GS	LYR
BnaC07.GH3-8.e	.G...E.....G.NDT.....	IVDLVNVKLG	RYYEL	LV	TN	YS	GS	LYR
BnaC09.GH3-8.f	.D...E.....GNKGE.....	IVDLVHVEIG	SHYEP	LV	TN	YS	GS	LYR
BnaCX.GH3-8.g	.D...G.....GTEGE.....	IVDLVNVKLG	HHYEP	LV	TN	YS	GS	LYR
BnaA05.GH3-9.a	PC.....DK.....	VVDLVDVKLG	RYYEL	LV	TN	YS	GS	LYR
BnaC04.GH3-9.a	PC.....DK.....	VVDLVDVKLG	RYYEL	LV	TN	YS	GS	LYR
BnaA03.GH3-10.a	.HRQQN.QQDMTSDGDFVEEK.....	PVPLSQVKLG	QEEYEP	LV	TN	YS	GS	LYR
BnaA09.GH3-10.b	.YRQQTQQDLCSGDFVEEK.....	PVPLSQVKLG	QEEYEL	LV	TN	YS	GS	LYR
BnaC09.GH3-10.a	.YRQQT.QQDLCSGDFVEEK.....	PVPLSQVKLG	QEEYEL	LV	TN	YS	GS	LYR
BnaA03.GH3-11.a	.SETGE.....TEERP.....	PVGLTEVKVG	QEEYEP	LV	TN	YS	GS	LYR
BnaA04R.GH3-11.b	.S...E.....TEKE.....	PVGLTDVKIG	QEEYEP	LV	TN	YS	GS	LYR
BnaA05.GH3-11.c	.SETGE.....GEQE.....	PVGLTEVKVG	QEEYEP	LV	TN	YS	GS	LYR
BnaC04.GH3-11.a	.SETEE.....TEEE.....	PVGLTEVKIG	QEEYEP	LV	TN	YS	GS	LYR
BnaCX.GH3-11.b	.SETGD.....TEQEP.....	PVGLTEVKIG	QEEYEP	LV	TN	YS	GS	LYR
BnaA02.GH3-12.a	.D.....GDKRD.....	VVDLQDVKLG	GCTYEP	LV	TN	YS	GS	LYR
BnaA03.GH3-12.b	.D.....GDKRD.....	VVDLQDVKLG	GCTYEP	LV	TN	YS	GS	LYR
BnaA06.GH3-12.c	.E.....EGSDD.....	VVDLADVKLG	CSYQLLITNLWG	LYR				
BnaA10.GH3-12.d	.D.....GEKRD.....	VVDLHDVKVG	GCTYEP	LV	TN	YS	GS	LYR
BnaC02.GH3-12.a	.D.....GDKRD.....	VVDLQDVKLG	GCTYEP	LV	TN	YS	GS	LYR
BnaC03.GH3-12.b	.D.....GDKRD.....	VVDLQDVKLG	GCTYEP	LV	TN	YS	GS	LYR
BnaC09.GH3-12.c	.D.....GDKRD.....	VVDLHDVKVG	GCTYEP	LV	TN	YS	GS	LYR
BnaA10.GH3-14.a	.....K.....KD.QEAGHDPLVNPV	VIDLVDVKVG	GHDYEP	LV	TN	YS	GS	LYR
BnaC09.GH3-14.a	.....K.....KD.QEAGHDPLVNPV	VVDLVDVKVG	GHDYEP	LV	TN	YS	GS	LYR
BnaA03.GH3-15.a	.....E.....KDHQETSHDPTKN..	IVDLVDVKVG	GHDYEP	LV	TN	YS	GS	LYR
BnaC03.GH3-15.a	.....E.....KDHQETSHDPTKN..	IVDLVDVKVG	GHDYEP	LV	TN	YS	GS	LYR
BnaAX.GH3-16.a	.....E.....KDHQETGHNPTKNPV	VVDLADVKIG	GHDYEL	LV	TN	YS	GS	LYR
BnaC02.GH3-16.a	.....E.....KDHQETGHNPTKNPV	VVDLADVKIG	GHDYEL	LV	TN	YS	GS	LYR
BnaA07.GH3-17.a	DDDDDA.....LKEDL.....	IVDLVNVEVG	GRYIEI	LV	TN	YS	GS	LYR
BnaA08.GH3-17.b	.....R.....	IVDLVSVEIG	GRYIEL	LV	TN	YS	GS	LYR
BnaA09.GH3-17.c	DDDDDA.....LKEDL.....	IVDLVNVEVG	GRYIEI	LV	TN	YS	GS	LYR
BnaC08.GH3-17.a	.....R.....	IVDLVNVEIG	GRYIEL	LV	TN	YS	GS	LYR
BnaCX.GH3-17.b	DDDDDA.....LKEDL.....	IVDLVNVEVG	GRYIEI	LV	TN	YS	GS	LYR
BnaCX.GH3-17.c	DDDDDA.....LKEDL.....	IVDLVNVEVG	GRYIEI	LV	TN	YS	GS	LYR
BnaA05GH3-18.a	.D..HE.....GDMTS.....	IVDLVNVKLG	CSYEP	LV	TN	YS	GS	LYR
BnaCX.GH3-18.a	.D.DDG.....GTTGE.....	IVDLVNVKLG	CSYEL	LV	TN	YS	GS	LYR
BnaA06.GH3-19.a	.D.VDGG.....TTSGE.....	VLDLVDVKLG	RYYEL	LV	TN	YS	GS	LYR
BnaA09.GH3-19.b	.D.ADG.....EDTSE.....	IVDLVDVTLG	RYYEL	LV	TN	YS	GS	LYR
consensus>70		.vdL.dvk.G..ye.vvt.y.g.l.r.r						

	410	420	430	440	450	460
AtGH3-1	VGDIL	RVTG	FHNS	APQFHFVR	RKNNVLSI	DS
AtGH3-2	VGDIL	RVTG	FHNS	APQFKFI	RKNNVLSV	ES
AtGH3-3	VGDIL	QVTG	FYNS	APQFKFVR	RKNNVLSI	ES
AtGH3-4	VGDIL	RVTG	FHNS	APQFKFI	RKNNVLSI	ES
AtGH3-5	VGDLL	RVTG	FKNK	APQFSFI	CRKNVLSI	DS
AtGH3-6	VGDVL	SVAG	FKNK	APQFSFI	CRKNVLSI	DS
AtGH3-7	VGDIL	VVTG	FHNK	APQFRFI	RRDNVLSI	DL
AtGH3-8	MGDIL	LVTG	FYNN	APQFRFVR	RGNLTLSI	HL
AtGH3-9	IGDVL	QVAG	FYNG	APQFRFI	CRNNVLSI	DL
AtGH3-10	LGDVV	EVTG	FHHG	TPKLSFI	YRRKLILT	INI
AtGH3-11	LGDVV	KVIG	FYNN	TPQLKFI	CRNNLILS	INI
AtGH3-12	VGDIL	LVTG	FYNN	APQFKFVR	RKNNVLSI	DS
AtGH3-13	VGDLL	RVTG	FYNN	SPHFREFV	GRQKVLSI	LM
AtGH3-14	LGDVL	RVTG	FYNN	APQFHFV	GRQKVLSI	DM
AtGH3-15	VGDVL	RATG	FYNN	APHFCFV	GRQKVLSI	DM
AtGH3-16	LGDVL	RVTG	FHNN	APQFVFV	GRQNVLSI	DL
AtGH3-17	VGDIL	KVTG	FHNK	APQFRFVR	QRRNVLSI	DT
AtGH3-18	IGDIL	QVTG	FYNN	TPQFRFVR	RRKNVLSV	RS
AtGH3-19	IGDIL	QVTG	FYNN	TPQFRFVR	RRKNIVLSV	NS
BraX.GH3-1.a	VGDIL	RVTG	FHNS	APQFHFVR	RKNNVLSI	DS
BraX.GH3-2.a	VGDVL	RVTG	FHNS	APQFKFI	RKNNVLSI	ES
BraA09.GH3-3.a	VGDIL	QVTG	FYNS	APQFKFVR	RKNNVLSI	ES
BraA01.GH3-5.a	VGDLL	KVTG	FKNK	APQFSFI	CRKNVLSI	DS
BraA02.GH3-5.b	VGDLL	RVTG	FKNK	APQFSFI	CRKNVLSI	DS
BraA02.GH3-6.a	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BraA03.GH3-6.b	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BraA06.GH3-7.a	IGDIV	KVTG	FHNK	APKFRVI	IGRENTLSI	DT
BraA08.GH3-7.b	VGDIL	LVTG	FYNN	APQLRFI	RRDNVLSI	DM
BraA02.GH3-8.a	MGDVL	QVTG	FYNS	APQFRFVR	RGNLTLSV	HL
BraA03.GH3-8.b	MGDIV	QVTG	FYNN	APQFRFVR	RRKNVLSV	HME
BraA03.GH3-8.c	VGDVL	QVTG	FYNS	APQFKFI	RRQNTVLS	VY
BraA03.GH3-8.d	VGDVL	QVTG	FYNS	APQFKFI	RRQNVLSV	VY
BraA06.GH3-8.e	VGDVL	QVTG	FYNN	APQFRFVR	RRKNIVLSV	YA
BraA06.GH3-8.f	VGDVL	EVTG	FYNN	APQLRFV	RKNNALS	VH
BraA09.GH3-8.g	MGDIL	QVTG	FYNN	APQFRFVR	GRKKLVSV	NLE
BraA09.GH3-8.h	VGDVL	HVTG	FYNN	APQFRFVR	RRKNIVLSI	FS
BraA10.GH3-8.i	MGDIL	QVSG	FYND	APQFRFVR	RRKNVLSV	LE
BraA09.GH3-10.a	LGDVV	EVTG	FHHG	TPKLSFI	YRRKLILT	INI
BraA03.GH3-11.a	LGDVV	KVIG	FYNN	TPQLKFI	CRNNLILS	INI
BraA04.GH3-11.b	LGDVV	RIIG	FYNN	TPQLKFI	CRNNLILS	INI
BraA05.GH3-11.c	LGDVV	KIMS	FYNN	TPQLKFI	CRNNLILS	INI
BraA02.GH3-12.a	VGDVL	LVTG	FYNN	APQFKFVR	RKNNVLSI	DS
BraA03.GH3-12.b	VGDVL	VVTG	FYNN	APQFKFVR	RKNNVLSI	DS
BraA06.GH3-12.c	IGDML	KVTG	FHNK	APQFRFM	GRENTLSI	DT
BraA10.GH3-12.d	VGDVL	LVTG	FYNN	APQFRFVR	RKNNVLSI	DS
BraA10.GH3-14.a	LGDVL	RVTG	FYNN	APQFHFV	GRNNVLSI	DM
BraA03.GH3-15.a	LGDVL	RVTG	FYNN	APQFHFV	GRNNVLSI	DM
BraA02.GH3-15.b	LGDVL	RVTG	FYNN	APQFRFVR	GRQKVLSI	DM
BraA02.GH3-16.a	MGDVL	RVTG	FYNN	APQFVFV	GRQKVLSM	DI
BraA07.GH3-17.a	VGDIL	KVTG	FYNN	APQFRFVR	RRKNVLSI	DT
BraA09.GH3-17.b	VGDIL	KVTG	FHNK	APQFRFVR	QRRNVLSI	DT
BraAX.GH3-17.c	VGDIL	KVTG	FHNK	APQFSFI	RRKNVLSI	DT
BraA04.GH3-19.a	.....	VVTG	FYNN	TPQFRFVR	RKNDIVSV	HI
BraA06.GH3-19.b	VGDVL	EATG	FYNN	TPQFRFVR	RKNTVLSV	HLE
BraA09.GH3-19.c	VGDVL	QVTG	FYNN	TPQFRFVR	RRNTVLCV	DV
BraA09.GH3-19.d	VGDVL	QVTG	FYNN	TPQFRFVR	RKNDIVSV	HI
BraAX.GH3-19.e	IGDIL	EVTG	FYNN	TPQFRFVR	RKNNVLSV	ET
BolC09.GH3-1.a	VGDIL	RVTG	FHNS	APQFHFVR	RKNNVLSI	DS
BolC01.GH3-2.a	VGDVL	RVTG	FYNS	APQFKFI	RKNNVLSI	ES
BolC08.GH3-3.a	VGDIL	QVTG	FYNS	APQFKFVR	RKNNVLSI	ES
BolC01.GH3-5.a	VGDLL	KVTG	FKNK	APQFSFI	CRKNVLSI	DS
BolC07.GH3-5.b	VGDLL	RVTG	FKNK	APQFSFI	CRKNVLSI	DS
BolC02.GH3-6.a	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BolC03.GH3-6.b	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BolC06.GH3-7.a	IGDMV	KVTG	FYNN	APQFRFL	GRNALLSI	DT
BolC01.GH3-8.a	VGDVL	QVTG	FYNS	APQFKFVR	RKNNVLSI	DS
BolC03.GH3-8.b	.....	VVTG	FYNS	APQFRFS	RRGNVLSV	HME
BolC07.GH3-8.c	VGDVL	QVTG	FYNS	VFPQKFI	RRNNVLSV	LE
BolC08.GH3-8.d	VGDVL	QVTG	FYNN	APQFRSV	RKNNIVLSI	YV
BolC09.GH3-8.e	MGDIL	QVSG	FYND	APQFRFVR	RKNNVLSV	LE
BolC09.GH3-10.a	LGDVV	EVTG	FHHG	TPKLSFI	YRRKLILT	INI
BolC03.GH3-11.a	LGDVV	KVIG	FYNN	TPQLKFI	CRNNLILS	INI
BolC04.GH3-11.b	LGDVV	KIIG	FYNN	TPQLKFI	CRNNLILS	INI
BolCX.GH3-11.c	LGDVV	KIMS	FYNN	TPQLKFI	CRNNLILS	INI
BolC03.GH3-12.a	VGDVL	VVTG	FYNN	APQFKFVR	RKNNVLSI	DS
BolC09.GH3-12.b	VGDVL	LVTG	FYNN	APQFRFVR	RKNNVLSI	DS
BolC09.GH3-14.a	LGDVL	RVTG	FYNN	APQFHFV	GRNNVLSI	DM
BolC03.GH3-15.a	LGDVL	RVTG	FYNN	APQFHFV	GRNNVLSI	DM
BolCX.GH3-16.a	LGDVL	RVTG	FYNN	APQFVFV	GRQKVLSM	DI
BolC07.GH3-17.a	VGDIL	KVTG	FHNK	APQFRFVR	RRKNVLSI	DT
BolC08.GH3-17.b	VGDIL	KVTG	FHNK	APQFSFI	RRKNVLSI	DT
BolC08.GH3-19.a	VGDIL	QVTG	FYNN	TPQFRFVR	RRNTVLCV	DV
BnaA09R.GH3-1.a	VGDIL	RVTG	FHNS	APQFHFVR	RKNNVLSI	DS
BnaCX.GH3-1.a	VGDIL	RVTG	FHNS	APQFHFVR	RKNNVLSI	DS
BnaA01.GH3-2.a	VGDVL	RVTG	FHNS	APQFKFI	RKNNVLSI	ES
BnaC01.GH3-2.a	VGDVL	RVTG	FYNS	APQFKFI	RKNNVLSI	ES
BnaA09.GH3-3.a	VGDIL	QVTG	FYNS	APQFKFVR	RKNNVLSI	ES
BnaC08.GH3-3.a	VGDIL	QVTG	FYNS	APQFKFVR	RKNNVLSI	ES
BnaA01.GH3-5.a	VGDLL	KVTG	FKNK	APQFSFI	CRKNVLSI	DS
BnaA03.GH3-5.b	VGDLL	RVTG	FKNK	APQFSFI	CRKNVLSI	DS
BnaC01.GH3-5.a	VGDLL	KVTG	FKNK	APQFSFI	CRKNVLSI	DS
BnaC07.GH3-5.b	VGDLL	RVTG	FKNK	APQFSFI	CRKNVLSI	DS
BnaA03.GH3-6.a	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BnaAX.GH3-6.b	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BnaC03.GH3-6.a	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BnaCX.GH3-6.b	VGDVL	RVAG	FKNK	APQFSFI	CRKNVLSI	DS
BnaA06.GH3-7.a	IGDIV	KVTG	FHNK	APKFRVI	IGRENTLSI	DT
BnaC06.GH3-7.b	VGDIL	LVTG	FYNN	APQLRFI	RRDNVLSI	DM
BnaC06.GH3-7.a	IGDMV	KVTG	FYNN	APQFRFL	GRNALLSI	DT
BnaA03.GH3-8.a	.....	VVTG	FYNN	APQFRFA	RRGNVLSV	HME
BnaA03.GH3-8.b	VGDVL	QVTG	FYNS	APQFKFI	RRQNTVLS	VY
BnaA03.GH3-8.c	VGDVL	QVTG	FYNS	APQFKFI	RRQNVLSV	Y
BnaA06.GH3-8.d	VGDVL	QVTG	FYNN	APQFRFVR	RKNTVLSV	YA

BnaA06.GH3-8.eMRSWSQ.....
 BnaA09.GH3-8.f VGDVLTHTGTFYNNAPQFRFVRRKNIVLSIFVESTTEEDVLKALDRA.TVVVL..ESSDLML
 BnaA09.GH3-8.g VGDVLTQVTGTFYNNTPQFRFARRKNIVLSVYVEPTTEEDLLNALTSA.TTLAL..ESSDLIL
 BnaAX.GH3-8.h MGDVLTQVTGTFYNSAPQFRFVRRGNLVLSVHLEITTEEDLLNAVTHA.KMVL..ESSNML
 BnaAX.GH3-8.i VGDVLTQVTGTFYNNAPQFRFVRRKNIVLSIYVEESTTEEDLLKALA.....
 BnaC01.GH3-8.a VGDVLTQVTGTFYNSAPQFRFVRRQNVVISVYLEATTEEDLLKAVKRA.TEVI..ESSNML
 BnaC02.GH3-8.b MGDVLTQVTGTFYNSAPQFRFVRRGNLVLSVHLEITTEEDLLNAVTHA.KMVL..ESSNML
 BnaC02.GH3-8.c MGDVLTQVTGTFYNSAPQFRFVRRGNLVLSVHLEITTEEDLLNAVTHA.KMVL..ESSNML
 BnaC02.GH3-8.d MGDVLTQVTGTFYNSAPQFRFVRRGNLVLSVHLEITTEEDLLNAVTHA.KMVL..ESSNML
 BnaC07.GH3-8.e VGDVLTQVTGTFYNSVPQFKFIRRRQNVLSVYLEATTEEDLLKGVTHA.TQVL..KSSDML
 BnaC09.GH3-8.f MGDILTQVSGFYNNAPQFRFVGRKNLVLSVNLVETTEEDILKALNNA.TLVL..QRSDLL
 BnaCX.GH3-8.g VGDVLTQVTGTFYNNAPQFRFVRRKNAAALSVHLEESTTEEDLLKALARA.TLVL..ESSDLVI
 BnaA05.GH3-9.a IGDVLTQVAGFYNNAPQFKFICRRNVVLSIDLDKTNEEDLHRSITLA.KKKL..ENKAFL
 BnaC04.GH3-9.a IGDVLTQVAGFYNNAPQFRFICRRNVVLSIDLDKTNEEDLHRSITLA.KKKL..ENKAFL
 BnaA03.GH3-10.a LGDVVTEVSGFHNGTPKLSFIYRRKLILNINIDKNTKDLQEVVDKA.SQLL.SKTTQAEV
 BnaA09.GH3-10.b LGDVVTEVSGFHNGTPKLSFIYRRKLILNINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaC09.GH3-10.a LGDVVTEVSGFHNGTPKLSFIYRRKLILNINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaA03.GH3-11.a LGDVVKIVGFIYNNTPQLKFICRRNLILSINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaA04R.GH3-11.b LGDVVRIGFIYNNTPQLKFICRRNLILSINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaA05.GH3-11.c LGDVVKIMSFYNNTPQLKFICRRNLILSINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaC04.GH3-11.a LGDVVKIIGFIYNNTPQLKFICRRNLILSINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaCX.GH3-11.b LGDVVKIVGFIYNNTPQLKFICRRNLILSINIDKNTKDLQEVVDKA.SQLL.SRTTHAEV
 BnaA02.GH3-12.a VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLTL
 BnaA03.GH3-12.b VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLTL
 BnaA06.GH3-12.c IGDMLKVTGFHNKAPQFRFMGRENLTLSIDTDRTNKYLFFKALNRA.TLVL..ESSDLRL
 BnaA10.GH3-12.d VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLFL
 BnaC02.GH3-12.a VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLTL
 BnaC03.GH3-12.b VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLTL
 BnaC09.GH3-12.c VGDVLTQVTGTFYNNAPQFRFVRRQNVVLSIDSDKTNEEDLFFKALSQA.KLVL..DSSDLFL
 BnaA10.GH3-14.a LGDVLTQVTGTFYNNAPQFHFVGRNKVVLSIDMDKTYEEDLLNAVTA.KLVL..EPHDFVL
 BnaC09.GH3-14.a LGDVLTQVTGTFYNNAPQFHFVGRNKVVLSIDMDKTYEEDLLNAVTA.KLVL..EPHDFVL
 BnaA03.GH3-15.a LGDVLTQVTGTFYNNAPQFQVAGRKKVVLSIDMDKTYEEDLLKAVTNA.KLVL..EPHDLML
 BnaC03.GH3-15.a LGDVLTQVTGTFYNNAPQFQVAGRKKVVLSIDMDKTYEEDLLKAVTNA.KLVL..EPHDLML
 BnaAX.GH3-16.a MGDVLTQVTGTFYNNAPQFYFVGRQKVVLSMDIDKTYEEDLLHKAHTSA.THL..EPHDLML
 BnaC02.GH3-16.a LGDVLTQVTGTFYNNAPQFYFVGRQKVVLSMDIDKTYEEDLLHKAHTSA.THL..EPHDLML
 BnaA07.GH3-17.a VGDILTQVTGFHNKAPQFRFVRRQNVVLSIDTDKTSEEDLLNAVTA.KLVL..LQKPSCLL
 BnaA08.GH3-17.b VGDILTQVTGFHNKAPQFSFVRRQNVVLSIDTDKTSEEDLLMKAHTQA.KLVL..LQGLFLL
 BnaA09.GH3-17.c VGDILTQVTGFHNKAPQFRFVRRQNVVLSIDTDKTSEEDLLNAVTA.KLVL..LQKPSCLL
 BnaC08.GH3-17.a VGDILTQVTGFHNKAPQFSFVRRQNVVLSIDTDKTSEEDLLMKAHTQA.KLVL..LQGLFLL
 BnaCX.GH3-17.b VGDILTQVTGFHNKAPQFRFVRRQNVVLSIDTDKTSEEDLLNAVTA.KLVL..LQKPSCLL
 BnaCX.GH3-17.c VGDILTQVTGFHNKAPQFRFVRRQNVVLSIDTDKTSEEDLLNAVTA.KLVL..LQKPSCLL
 BnaA05GH3-18.a IGDILEVTGFIYNNTPQFRFVRRKNMVLSVETETTEEDILKALARA.TFVL..ESSNML
 BnaCX.GH3-18.a VGDVLTQVTGTFYNNTPQFRFVRRKNIVLSDVDEPTTEEDILKALARA.TVVL..ESSDLIL
 BnaA06.GH3-19.a VGDVLEATGYNNTPQFRFVRRKNIVLSDVDEPTTEEDILKALARA.TVVL..ESSDLIL
 BnaA09.GH3-19.b VGDVLTQVTGTFYNNTPQFRFVRRKNIVLSDVDEPTTEEDILKALARA.TVVL..ESSDLIL
 consensus>70 .gdvltvtgf.n.apqf.fv.r.n.vlsid.d.t.#.dl..av..a....1.....1

	470	480	490
AtGH3-1	AEYTS	YADTSTI.P	GHVLYWEL LVR....DGERQ.....PSHETI
AtGH3-2	IEYTS	YAETKTI.P	GHVLIYWEL LGR....DQSNAL.....MSEEV
AtGH3-3	IEYTS	YAETKTI.P	GHVLIYWEL LVK....DQTNP.....PNDEV
AtGH3-4	IEYTS	YADTKTI.P	GHVLIYWEL LSR....DQSNAL.....PSDEV
AtGH3-5	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
AtGH3-6	SEYTS	YADTSSI.P	GHVLFWEL CLNGNT
AtGH3-7	IDFTS	YADI STI.P	GHVVVYWEV KNKN....EDKSKKHI..ELKEET
AtGH3-8	MDFTS	YADI STI.P	GHVLYWEL KAKY....RNDIVE.....IDKNV
AtGH3-9	AEYTS	YADTSSV.P	GHVLFWEI QGH....LEPKLM
AtGH3-10	VDFTS	HADV IAR.P	GHVLIWEI RGE....ADDKAL
AtGH3-11	IDFSS	YIDV STD.P	GHYAI FWEI SGE....TNEDVL
AtGH3-12	KDFTS	YADTSTF.P	GHVVVYLEV DTKE....GEEKET...AQFELDEEAL
AtGH3-13	MEFTS	RVDSSSF.V	GHVLYWEL GSKV....KDAKLE....PNRDV
AtGH3-14	MDFTS	RVDSSSY.P	GHVLYWEL GRKV....KDAKLE....LDQNV
AtGH3-15	MDFTS	RVDSSSF.P	GHVLIYWEL GSKV....KDAKFE....PNRDV
AtGH3-16	MDFTS	RVDLSSL.P	GHVLYWEL GNKF....KNAKLD....PKSNV
AtGH3-17	TEYTS	YADTSSI.P	GHVLFWEL KPRH....SNDPPK....LDDKT
AtGH3-18	MGFTC	YADI STF.P	GHVFEYWEL KAKD....VQDVFE....LEEKV
AtGH3-19	TGFTC	YADI SSF.P	GHVFEYWEL KAKD....VDDVVE....LDENV
BraX.GH3-1.a	AEYTS	YADTSTI.P	GHVLYWEL LVR....EGERQ.....PSHDTL
BraX.GH3-2.a	IEYTS	YADTKTI.P	GHVLIYWEL.....TNAV....PGDDV
BraA09.GH3-3.a	IEYTS	YADTKTI.P	GHVLIYWEL LVK....DQANP....PSDEV
BraA01.GH3-5.a	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BraA03.GH3-5.b	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BraA02.GH3-6.a	SEYTS	YADTSSI.P	GHVLFWEL CLNGNT
BraA03.GH3-6.b	SEYTS	YADTSSI.P	GHVLFWEL CLNGGT
BraA06.GH3-7.a	VAFTS	YADI SSS.P	GHVLIWEV KTKE....EDMKE....LDEKTF
BraA08.GH3-7.b	TDFTS	HGDI STI.P	GHVLIWEV EDKR....EDKTK..HICMELKGD
BraA02.GH3-8.a	IDFTS	YADV STT.P	GHVLYWEL KGKY....NNDIAE....IDNKV
BraA03.GH3-8.b	MDFTG	YADI STT.P	GHVLYWEL KGKY....SNDIAK....IDNKV
BraA03.GH3-8.c	RDFTC	YPHV SDA.P	GHVLYWEL KGNN....DDGISE....IDTNM
BraA03.GH3-8.d	KDFTC	YPHI STV.P	GHVLYWEL KGNN....NDDINEL....IDTNV
BraA06.GH3-8.e	TGFTC	YADI STV.P	GHVFEYMEI KAKV.NNTSIDDLV....LDTKV
BraA06.GH3-8.f	MGFTC	YGDI STV.P	GHVFEYLEI KSKV.DNNTITNVL
BraA09.GH3-8.g	MGFTS	YADI STL.P	GHYFIYWEL KAKN....ISDIVK....PDNKV
BraA09.GH3-8.h	TGFTC	FGDV STV.P	GHVFEYLEI KAKV..NNDITNVL
BraA10.GH3-8.i	MGFTC	YADI STL.P	GHYFIYWEL KSKT....ISDIVK....LDNKV
BraA09.GH3-10.a	VDFTS	HADV KAR.P	GRYIIYWEI RGE....AEDKAL
BraA03.GH3-11.a	IDFSS	HVDV TTE.P	GHVLIWEI SGE....TEDDVL
BraA04.GH3-11.b	IDFSS	HVDV TTE.P	GHVIFWEV SGE....TEGDVL
BraA05.GH3-11.c	IDFSS	HVDL STE.P	GHVIFWEI SGE....TNEDVL
BraA02.GH3-12.a	VDFTS	YADTSTF.P	GHVLFVEV KAKE....GNNRLE....LNEEAF
BraA03.GH3-12.b	VDFTS	YADTSTF.P	GHVLIYLEI KEKK....GENKKN....NVELSEEV
BraA06.GH3-12.c	VAFTS	YADTSSS.P	GHVLIYLEV KAKN....EDIRD....LEFDEKTF
BraA10.GH3-12.d	EDFTS	YADTSTF.P	GHVLIYVEV KAKG....GNNHLE....LNEEV
BraA10.GH3-14.a	IDFTS	RVDSSSY.P	GHVLYWEL GSKV....KDKKIE....PERKV
BraA03.GH3-15.a	IDFTS	RVDSSSF.P	GHVLYWEL GSKV....NDAKLE....PDDEV
BraA07.GH3-15.b	IDFTS	RVDSSSF.P	GHVLYWEL GCKV....KDVKVE....PDDEV
BraA02.GH3-16.a	IDFTS	RVDSSSF.P	GHVLIYWEL GRKL....KDAKVE....PHRHV
BraA07.GH3-17.a	TEYTS	YADTSSI.P	GHVLFWEL KPRY....NNDPPK....LDDKT
BraA09.GH3-17.b	TEYTS	YADTSSI.P	GHVLFWEL KPRH....NNEPPE....LENKT
BraAX.GH3-17.c	TEYTS	YADTSSI.P	GHVLFWEL KPRY....DNDPPK....LDKMM
BraA04.GH3-19.a	MGFTC	KSDM STF.P	GHVFEYWEI KAKK....IDCIVK....LDNNV
BraA06.GH3-19.b	TGFTC	YGDI STV.P	GHVFEYLEI KAKV.NNNSIDDEV....LDNKV
BraA09.GH3-19.c	TGFTC	YGDI STV.P	GHVFEYLEV KAKV..NNGTNVLQ....LDNKV
BraA09.GH3-19.d	TGFTC	YGDI STV.P	GHVFEYVEL IAKV..NNGTNVLQ....LDNKV
BraAX.GH3-19.e	MDFTS	SADI STF.P	GHVFEYWEL KGKE....VNDVLV....LDEKTL
BolC09.GH3-1.a	AEYTS	YADTSTI.P	GHVLYWEL LVR....DGERQ.....PSHDTL
BolC01.GH3-2.a	IEYTS	YADTKTI.P	GHVLIYWEL.....TNAV....PGDDV
BolC08.GH3-3.a	IEYTS	YADTKTI.P	GHVLIYWEL LVK....DQANP....PSDEV
BolC01.GH3-5.a	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BolC07.GH3-5.b	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BolC02.GH3-6.a	SEYTS	YADTSSI.P	GHVLFWEL YLNGNT
BolC03.GH3-6.b	SEYTS	YADTSSI.P	GHVLFWEL CLNGGT
BolC06.GH3-7.a	VDFTS	YADI SSSDP	GHVLIWEV NVKN....EDMKN....LQFYKTF
BolC01.GH3-8.a	RDFTC	YPHI ADT.P	GHVLYWEL KGNN....YDGISE....LDPDMM
BolC03.GH3-8.b	MDFTG	YADI STT.P	GHVLYWEL KGKY....SNDIAE....IDDKV
BolC07.GH3-8.c	RDFTC	YPHV SDV.P	GHVLYWEL KGNN....EDGISE....LNTNM
BolC08.GH3-8.d	TGFTC	YADI STV.P	GHVFEYLEI KAKV..NSGTNVL
BolC09.GH3-8.e	MGFTC	YADI STL.P	GDSHEVYT....LSHNLL
BolC09.GH3-10.a	VDFTS	HADV TAR.P	GRYIIYWEI RGE....AEDKAL
BolC03.GH3-11.a	IDFSS	HVDV STE.P	GHVLIWEI SGE....TEDDVL
BolC04.GH3-11.b	IDFSS	HVDV TTE.P	GHVIFWEI SGE....TEGDVL
BolCX.GH3-11.c	IDFSS	HVDL STE.P	GHVIFWEI SGE....TNEDVL
BolC03.GH3-12.a	VDFTS	YADTSTF.P	GHVLIYLEI KEKE....GENKKN....NVELSEEV
BolC09.GH3-12.b	EDFTS	YADTSTF.P	GHVLIYVEV RAKE....GKKYLELNKEALDNKEAF
BolC09.GH3-14.a	IDFTS	RVDSSSY.P	GHVLYWEL GSKV....KDKKLE....PKREV
BolC03.GH3-15.a	IDFTS	RVDSSSF.P	GHVLYWEL GSKV....KDAKLE....PDDEV
BolCX.GH3-16.a	IDFTS	RVDSSSF.P	GHVLIYWEL GRKL....KDAKVE....PHRHV
BolC07.GH3-17.a	TEYTS	YADTSSI.P	GHVLFWEL KPRY....NNDPPK....LDDKT
BolC08.GH3-17.b	TEYTS	YADTSSI.P	GHVLFWEL KPRY....DNDPPM....LDKMM
BolC08.GH3-19.a	TGFTC	YGDI STV.P	GHVFEYVEL KAKV..KNGTNVLQ....LDNKV
BnaA09R.GH3-1.a	AEYTS	YADTSTI.P	GHVLYWEL LVR....DGERQ.....PSHDTL
BnaCX.GH3-1.a	AEYTS	YADTSTI.P	GHVLYWEL LVR....DGERQ.....PSHDTL
BnaA01.GH3-2.a	IEYTS	YADTKTI.P	GHVLIYWEL.....TNAV....PGDDV
BnaC01.GH3-2.a	IEYTS	YADTKTI.P	GHVLIYWEL.....TNAV....PGDDV
BnaA09.GH3-3.a	IEYTS	YADTKTI.P	GHVLIYWEL LVK....DQANP....PSDEV
BnaC08.GH3-3.a	IEYTS	YADTKTI.P	GHVLIYWEL LVK....DQANP....PSDEV
BnaA01.GH3-5.a	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BnaA03.GH3-5.b	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BnaC01.GH3-5.a	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BnaC07.GH3-5.b	SEYTS	YADTSSI.P	GHVLFWEL CLDGNT
BnaA03.GH3-6.a	SEYTS	YADTSSI.P	GHVLFWEL CLNGDT
BnaAX.GH3-6.b	SEYTS	YADTSSI.P	GHVLFWEL CLNGNT
BnaC03.GH3-6.a	SEYTS	YADTSSI.P	GHVLFWEL CLNGGT
BnaCX.GH3-6.b	SEYTS	YADTSSI.P	GHVLFWEL YLNGNT
BnaA06.GH3-7.a	VAFTS	YADI SSS.P	GHVLIWEV KTKE....EDMKE....LDEKTS
BnaA08.GH3-7.b	TDFTS	HGDI STI.P	GHVLIWEV EDKR....EDKTK..HICMELKGD
BnaC06.GH3-7.a	VDFTS	YADI SSSDP	GHVLIWEV NVKN....EDMKN....LQFYKTF
BnaA03.GH3-8.a	MDFTG	YADI STT.P	GHVLYWEL KGKY....SNDIAK....IDDKV
BnaA03.GH3-8.b	RDFTC	YPHV SDA.P	GHVLYWEL KGNN....DDGISE....IDTNM
BnaA03.GH3-8.c	KDFTC	YPHI STV.P	GHVLYWEL KGNI....NDDINEL....IDTNV
BnaA06.GH3-8.d	TGFTC	YADI STV.P	GHVFEYMEI KAKV.NNTSIDDLV....LDTKV

[illegible]

	500	510	520	530	540		
AtGH3-1	TRCC	LGMEESL	NSVYRQSRVADN	SVG	PLEIRVVVRN	GTFFELMD	
AtGH3-2	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
AtGH3-3	ARCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
AtGH3-4	AKCC	LEMEESL	NAVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
AtGH3-5	EDCC	LAVEESF	NTVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
AtGH3-6	EDCC	LTIEESL	NSVYRQGRVSDK	SIG	PLEIKMVES	GTFFDKLMD	
AtGH3-7	SECC	LLMEDSL	DSVYKICRFKEE	SVG	PLEIKVVRQ	GTFFDKLMD	
AtGH3-8	VECC	YVVEESL	NNSYRVYRSKGL	LIG	ALAIRLVQQ	GTFFDALME	
AtGH3-9	EECC	VAVEEEL	DYIYRQCRTER	SIG	ALAIRVVVKP	GTFFDKLMD	
AtGH3-10	EECC	REMDTAF	VDYGYVVSRR	RMNSIG	PLELRVVVER	GTFFGKVAE	
AtGH3-11	QDCC	NCLDRAF	IDAGYVSSR	KCKTIG	ALAIRVVVAK	GTFFRKIQE	
AtGH3-12	STCC	CLVMEESL	DNVYKRCRFKDG	GSIG	PLEIRVVVRQ	GTFFDKLMD	
AtGH3-13	EECC	FTVEKYL	DPLYRQERKDK	NIG	PLEIKVVVKP	GAFFDELNM	
AtGH3-14	EECC	FTIEESL	DAVYRKGRKNDK	NIG	PLEIKVVVKP	GAFFDKLMN	
AtGH3-15	EECC	FTVEESL	DAVYRKGRKNDK	NIG	PLEIKVVVKP	GAFFDELNM	
AtGH3-16	EECC	LTVEESL	DSIYREGRKNDK	LIG	PLEIKVVVKP	GAFFDELNM	
AtGH3-17	EDCC	SEVEDCL	DYVYRRCRNKDK	SIG	PLEIRVVVSL	GTFFDKLMD	
AtGH3-18	VKCC	SLLEESF	DEVYRKNSKDE	CIG	PLEIRVVVQ	GTFFDSLME	
AtGH3-19	EECC	YALEESF	DALYKRLRSKEG	SIG	ALAIRVVVQ	GTFFDSLME	
BraX_GH3-1.a	TRCC	LEMEESL	NSVYRQSRVADN	SVG	PLEIRVVVRN	GTFFELMD	
BraX_GH3-2.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BraA09_GH3-3.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BraA01_GH3-5.a	EDCC	LALAEESL	NTVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BraA03_GH3-5.b	EDCC	LAVEESF	NSVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BraA02_GH3-6.a	EDCC	LTIEESF	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BraA03_GH3-6.b	EDCC	LTIEESL	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BraA06_GH3-7.a	LECC	SVMEDTL	DEEYMYCR	ANEFIG	PLEIRVVND	GTFFDSLNM	
BraA08_GH3-7.b	SECC	LVMEDSF	DNVYKRCRFREK	TVG	PLEIKVVVH	GTFFDSLMD	
BraA02_GH3-8.a	VECC	YVVEESL	NNFYKEFRSKDG	SIG	ALAIRVVVQ	GTFFDSLME	
BraA03_GH3-8.b	VECC	YVVEESL	DNFYKEYR	KNGSIG	ALAIRVVVQ	GTFFDSLME	
BraA03_GH3-8.c	VECC	SVVEESL	GALYKRYRSKER	SIG	ALAIRVVVQ	GTFFDALME	
BraA03_GH3-8.d	MECC	SVVEESL	DALYKFRSKDE	SIG	ALAIRVVVQ	GTFFDSLME	
BraA06_GH3-8.e	VECC	CVMEESL	NGSYRSFRKNGW	IG	ALAIRVVVQ	GTFFASLMD	
BraA06_GH3-8.f	VECC	CVIEESL	NRIYRHFRRSK	EGSIG	ALAIRVVVQ	GTFFGSLMD	
BraA09_GH3-8.g	VECC	CVMEESL	SALYREIRSKDG	GSIG	PLEIRIVVQ	GTFFNSLME	
BraA09_GH3-8.h	VEYCC	CVMEESL	SSFYRSLRCKDG	PIG	PLEVRVVQ	GTFFDSLME	
BraA10_GH3-8.i	VECC	CVMEESL	CALYREIRLSDNG	GSIG	ALAIRVVVQ	GTFFNSLME	
BraA09_GH3-10.a	EDCC	REMDAGF	VDHGYVVSRR	RMKSIG	PLELRVVGR	GTFFGKVAE	
BraA03_GH3-11.a	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVVVER	GTFFRKVQE	
BraA04_GH3-11.b	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVVVER	GTFFRKVQE	
BraA05_GH3-11.c	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVLEK	GTFFKKIQE	
BraA02_GH3-12.a	SKCC	SVIEDSL	DNVYKRCRFKDG	GSVG	PLEIRVVVQ	GTFFDSLMD	
BraA03_GH3-12.b	SKCC	SVMEDSL	DNVYKRCRFKDG	GSVG	PLEIRVVVRQ	GMFFDSLMD	
BraA06_GH3-12.c	LECC	LVMEDSF	DDEYRYCR	SNEFVG	PLEIRVVND	GSFFSLMN	
BraA10_GH3-12.d	SKCC	SVMEDSL	DNVYKRCRFKDG	GSVG	PLEIRVVVKP	GTFFESLMD	
BraA10_GH3-14.a	EECC	FTVEESL	DSVYRKGRKNDK	NIG	PLEIKVVVR	GAFFDELMS	
BraA03_GH3-15.a	EECC	FTMEESL	DSIYRKGRKNDK	NIG	PLEIKVVKS	GAFFDELNM	
BraA07_GH3-15.b	EECC	FAVEECL	FAVEECL	DSVYRNGRRNDK	NIG	PLEIKVVRS	GAFFDELMS
BraA02_GH3-16.a	EECC	FTIEKSL	NSVYRKLKNDG	TVG	PLEIKVVVR	GAFFDELNM	
BraA07_GH3-17.a	EKCC	SEVEDRL	DYVYRRCRNKDK	SIG	PLEIRVVVSL	GTFFDLMD	
BraA09_GH3-17.b	ELCC	SEVEDYL	DYVYRRCRNKDK	SIG	PLEIRVVVSL	GTFFDLMD	
BraAX_GH3-17.c	EDCC	SEVEDCL	DYVYRRCRNKDR	SIG	ALAIRVVVSL	GTFFDALMD	
BraA04_GH3-19.a	VKCC	CVMEESF	NALYRHRKRYG	TIG	PLEIRVMQ	GTFFDSLME	
BraA06_GH3-19.b	VECC	RVMEESL	NGTYRFRKNG	GSIG	ALAIRVVVQ	GTFFDSLMD	
BraA09_GH3-19.c	VECC	CIIEESL	SSLYRRLRGDE	GSIG	ALAIRVVVQ	GTFFDSLME	
BraA09_GH3-19.d	VEYCC	CVMEESL	SSLYRRLRVKDG	PIG	PLEVRVVE	GTFFDSLME	
BraAX_GH3-19.e	MGCC	YVLEESF	GSTYRLKR	RTGLIG	ALAIRVVVEQ	GTFFNSLTD	
BolC09_GH3-1.a	TRCC	LEMEESL	NSVYRQSRVADN	SVG	PLEIRVVVRN	GTFFELMD	
BolC01_GH3-2.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BolC08_GH3-3.a	AKCC	LEMEESL	NSVYRQSRVADN	SIG	PLEIRVVVRN	GTFFELMD	
BolC01_GH3-5.a	EDCC	LALAEESL	NTVYRQGRVSDK	SIG	PLEIKIVG	GTFFDKLMD	
BolC07_GH3-5.b	EDCC	LAVEESF	NSVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BolC02_GH3-6.a	EDCC	LTIEESF	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BolC03_GH3-6.b	EDCC	LTIEESL	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BolC06_GH3-7.a	LECC	SVMEDSF	DDEYRYCR	SNEFVG	PLEIRVVND	GTFFSLMN	
BolC01_GH3-8.a	VECC	SVIEESL	NALYKFRSK	KEKTIG	ALAIRVVQ	GTFFDSLME	
BolC03_GH3-8.b	V						
BolC07_GH3-8.c	VECC	SVVEESL	GALYKRYRSKEG	GSIG	PLEIRVVVQ	GSFFDALME	
BolC08_GH3-8.d	VEYCC	CVMEESL	SSSYRTLRRQD	GLIG	ALAIRVIVQ	KEFTFFDSLME	
BolC09_GH3-8.e	LAHAAE	AV	EEFRKCAKCKD	GNIG	IVRSPMWFEP	YEKSSSE	
BolC09_GH3-10.a	EDCC	REMDAGF	VDHGYVVSRR	RMKSIG	PLELRVVVER	GTFFGVAE	
BolC03_GH3-11.a	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVVVER	GTFFRKVQE	
BolC04_GH3-11.b	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVVVER	GTFFRKVQE	
BolCX_GH3-11.c	QDCC	NCLDKGF	IDAGYMSSR	KCKTIG	ALAIRVLEK	GTFFKKIQE	
BolC03_GH3-12.a	PKCC	SVMEDSL	DNVYKRCRFKDG	GSVG	PLEIRVVVRQ	GMFFDSLMD	
BolC09_GH3-12.b	SKCC	SVMEDSL	DNVYKRCRFKDG	GSVG	PLEIRVVVKP	GTFFDSLNM	
BolC09_GH3-14.a	EECC	FTVEESL	DSVYRKGRKNDK	NIG	PLEIKVVVR	GAFFDELNM	
BolC03_GH3-15.a	EECC	FTMEESL	DSIYRKGRKNDK	NIG	PLEIKVVKS	GAFFDELNM	
BolCX_GH3-16.a	EECC	FTIEKSL	NSVYRKLKNDG	TVG	PLEIKVVVR	GAFFDELNM	
BolC07_GH3-17.a	EKCC	SEVEDRL	DYVYRRCRNKDK	SIG	PLEIRVVVSL	GTFFDLMD	
BolC08_GH3-17.b	EDCC	SEVEDCL	DYVYRRCRNKDK	GSIG	ALAIRVVVSL	GTFFDALMD	
BolC08_GH3-19.a	VEYCC	CVMEESL	SGIYRRLRGDE	GSIG	PLEVRIVVQ	GTFFDSLME	
BnaA09R_GH3-1.a	TRCC	LEMEESL	NSVYRQSRVADN	SVG	PLEIRVVVRN	GTFFELMD	
BnaCX_GH3-1.a	TRCC	LEMEESL	NSVYRQSRVADN	SVG	PLEIRVVVRN	GTFFELMD	
BnaA01_GH3-2.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BnaC01_GH3-2.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BnaA09_GH3-3.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BnaC08_GH3-3.a	AKCC	LEMEESL	NSVYRQSRVADK	SIG	PLEIRVVVRN	GTFFELMD	
BnaA01_GH3-5.a	EDCC	LALAEESL	NTVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BnaA03_GH3-5.b	EDCC	LAVEESF	NSVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BnaC01_GH3-5.a	EDCC	LALAEESL	NTVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BnaC07_GH3-5.b	EDCC	LAVEESF	NSVYRQGRVSDK	SIG	PLEIKIVVP	GTFFDKLMD	
BnaA03_GH3-6.a	EDCC	LTIEESL	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BnaAX_GH3-6.b	EDCC	LTIEESF	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BnaC03_GH3-6.a	EDCC	LTIEESL	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BnaCX_GH3-6.b	EDCC	LTIEESF	NSVYRQGRVSDK	SIG	PLEIKVVES	GTFFDKLMD	
BnaA06_GH3-7.a	LECC	SVMEDTL	DEEYMYCR	ANEFIG	PLEIRVVND	GTFFDSLNM	
BnaA08_GH3-7.b	SECC	LVMEDSF	DNVYKRCRFREK	TVG	PLEIKVVVH	GTFFDKLMD	
BnaC06_GH3-7.a	LECC	SVMEDSF	DDEYRYCR	SNEFVG	PLEIRVVND	GTFFDSLNM	
BnaA03_GH3-8.a	VECC	CVMEESL	NGSYRSFRKNGW	IG	ALAIRVVVQ	GTFFDSLME	
BnaA03_GH3-8.b	VDCC	CVVEESL	GALYKRYRSKER	SIG	ALAIRVVVQ	GTFFDALME	
BnaA03_GH3-8.c	MECC	SVVEESL	DALYKFRSKDE	SIG	ALAIRVVVQ	GTFFDSLME	
BnaA06_GH3-8.d	VECC	CVMEESL	NGSYRSFRKNGW	IG	ALAIRVVVQ	GTFFDSLME	

[illegible]

	550				560				570			
AtGH3-1	YAI	SRGA	SINQ	YKVP	PRC	VN	F	TP	IVE	LLD	SR	
AtGH3-2	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
AtGH3-3	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
AtGH3-4	FST	SRGS	SINQ	YKVP	PRC	VS	L	TP	IMK	LLD	SR	
AtGH3-5	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
AtGH3-6	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
AtGH3-7	YFI	SQGA	SIGQ	YKTP	PRC	IK	S	GK	AL	VLE	EN	
AtGH3-8	FFI	TQGA	SSTQ	YKTP	IC	IK	S	TE	AL	VLE	EN	
AtGH3-9	LIT	SQGG	SENG	YKTP	PRC	VK	S	NSA	T	FK	LLN	GH
AtGH3-10	RCV	GKCG	GLNQ	FKTP	PRC	T		TNSV	M	L	D	ILN
AtGH3-11	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
AtGH3-12	FFI	SQGA	SIGQ	YKTP	PRC	IK	S	GK	AL	Q	VLE	TC
AtGH3-13	FFI	SRGS	SVSQ	YKTP	PRS	VK	T	EE	AV	K	I	LE
AtGH3-14	FFI	SRGS	SVSQ	YKTP	PRS	VT	N	EE	AL	K	I	LE
AtGH3-15	FFI	SRGS	SVSQ	YKTP	PRS	VT	N	EE	AL	K	I	LE
AtGH3-16	FFI	SRGS	SVSQ	YKTP	PRS	VT	H	EE	AL	N	I	LE
AtGH3-17	FCV	SQGS	SINQ	YKTP	PRC	VK	S	GG	AL	E	I	LD
AtGH3-18	YFI	SQGG	SIAQ	YKTP	IC	IN	S	SE	AL	A	VLE	NK
AtGH3-19	YFI	SKGG	SVAQ	YKTP	PMC	IN	S	SE	T	L	A	VLE
BraX.GH3-1.a	YAI	SRGA	SINQ	YKVP	PRC	VN	F	TP	IVE	LLD	SR	
BraX.GH3-2.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BraA09.GH3-3.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BraA01.GH3-5.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BraA03.GH3-5.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BraA02.GH3-6.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BraA03.GH3-6.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BraA06.GH3-7.a	LSI	SKGA	SITQ	YKTP	TC	IT	S	EE	G	L	Q	VLE
BraA08.GH3-7.b	FFI	SQGA	SIGQ	YKTP	PRC	IG	S	GK	P	L	E	LLE
BraA02.GH3-8.a	FFI	TQGA	SSTQ	YKTP	IC	IK	S	SE	AL	A	I	LE
BraA03.GH3-8.b	FFI	SQGA	SSTQ	YKTP	IC	IK	S	TE	A	I	A	I
BraA03.GH3-8.c	YFI	SQGA	SIAQ	YKTP	PRC	IK	S	SE	AL	Q	VLE	NR
BraA03.GH3-8.d	YFI	AQGA	SIGQ	YKTP	PRC	IK	S	SA	AL	E	L	RP
BraA06.GH3-8.e	FFV	CRGS	SISQ	YKTP	PMC	LE	S	AE	AL	K	VLE	DK
BraA06.GH3-8.f	FFV	SRGC	SITQ	YKTP	IC	LN	S	AE	AL	K	VLE	DK
BraA09.GH3-8.g	FST	SQGA	SPSQ	YKTP	PMC	IK	S	SE	AL	V	VLD	NN
BraA09.GH3-8.h	FFV	SRGA	SITQ	YKTP	IC	IN	S	VE	AS	R	VLE	DK
BraA10.GH3-8.i	LAI	SQGA	SPSQ	YKTP	IC	IN	S	SE	AS	A	VLE	SN
BraA09.GH3-10.a	RCV	GKCG	GLNQ	FKTP	PRC	T		TNSV	M	L	D	ILN
BraA03.GH3-11.a	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BraA04.GH3-11.b	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BraA05.GH3-11.c	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BraA02.GH3-12.a	FFI	KQGA	SIGQ	YKTP	PRC	IK	S	GK	AL	E	F	MEDY
BraA03.GH3-12.b	FFI	SQGA	SIGQ	YKTP	PRC	IK	S	VK	AL	E	F	MEDY
BraA06.GH3-12.c	LSI	SKGT	SVNQ	YKTP	TC	IT	S	EK	G	V	Q	VLE
BraA10.GH3-12.d	FFI	NQGA	SIGQ	YKTP	PRC	IK	S	GK	AL	E	L	ME
BraA10.GH3-14.a	FFV	SRGT	SVSQ	YKTP	PRS	VK	N	EE	AL	K	I	LE
BraA03.GH3-15.a	FFV	SRGS	SVSQ	YKTP	PRS	VT	N	EE	AL	K	VLE	AS
BraA07.GH3-15.b	FFV	SRGS	SVSQ	YKTP	PRS	LT	N	EE	AL	K	I	LE
BraA02.GH3-16.a	LFL	SRGS	SVSQ	YKTP	PRS	VT	S	EE	AM	K	I	LE
BraA07.GH3-17.a	FCV	SQGS	SVNQ	YKTP	PRC	VK	S	GG	AL	E	I	LD
BraA09.GH3-17.b	FCV	SQGS	SVNQ	YKTP	PRC	VK	P	GG	AL	E	I	LD
BraAX.GH3-17.c	FST	SQGS	SVNQ	YKTP	PRC	VK	S	GG	AL	Q	I	LD
BraA04.GH3-19.a	YFI	SQGA	FAHQ	YKTP	PLC							K
BraA06.GH3-19.b	FFV	SRGS	SISQ	YKTP	PMC	IN	S	AE	AL	K	VLE	DK
BraA09.GH3-19.c	FFI	SRGS	SISQ	YKTP	IC	IK	S	TE	AL	K	LLE	DK
BraA09.GH3-19.d	FFV	TRGA	SITQ	YKTP	IC	IN	S	VE	AL	K	VLE	DK
BraAX.GH3-19.e	YFI	SRGS	SRAQ	YKTP	PLC	IN	S	SE	AS	A	VLE	NK
BolC09.GH3-1.a	YAI	SRGA	SINQ	YKVP	PRC	VN	F	TP	IVE	LLD	SR	
BolC01.GH3-2.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BolC08.GH3-3.a	YAI	SRGA	SINQ	YKVP	PRC	VT	F	TP	IME	LLD	SR	
BolC01.GH3-5.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BolC07.GH3-5.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BolC02.GH3-6.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BolC03.GH3-6.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BolC06.GH3-7.a	FST	SKGT	SITQ	YKTP	TC	IT	S	EE	G	L	Q	VLE
BolC01.GH3-8.a	YFI	AQGA	TITQ	YKTP	PRC	IK	S	PE	AL	Q	VLE	SKS
BolC03.GH3-8.b												GK
BolC07.GH3-8.c	YFI	SQGA	SIAQ	YKTP	PRC	IK	S	SE	AL	Q	VLE	NR
BolC08.GH3-8.d	FFV	SRGA	SITQ	YKTP	IC	IN	S	VE	AL	K	VLE	DK
BolC09.GH3-8.e	FFI	GCTK	SRVQ	DWFS	G	EKD	V	LQD	A	L	S	DSN
BolC09.GH3-10.a	RCV	GKCG	GLNQ	FKTP	PRC	T		TNSV	M	L	D	ILN
BolC03.GH3-11.a	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BolC04.GH3-11.b	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BolCX.GH3-11.c	HFL	GLGS	SAGQ	FKMP	PRC	VKP	S	NAK	V	L	Q	ILC
BolC03.GH3-12.a	FFI	SQGA	SIGQ	YKTP	PRC	IK	S	VK	AL	E	F	MEDY
BolC09.GH3-12.b	FFI	NQGA	SIGQ	YKTP	PRC	IK	S	GK	AL	E	L	ME
BolC09.GH3-14.a	FFV	SRGT	SVSQ	YKTP	PRS	VK	N	EE	AL	K	I	LE
BolC03.GH3-15.a	FFV	SRGS	SVSQ	YKTP	PRS	VT	D	EE	AV	K	VLE	AS
BolCX.GH3-16.a	LFL	SRGS	SVSQ	YKTP	PRS	VT	S	EE	AM	K	I	LE
BolC07.GH3-17.a	FCV	SQGS	SVNQ	YKTP	PRC	VK	S	GG	AL	E	I	LD
BolC08.GH3-17.b	FST	SQGS	SVNQ	YKTP	PRC	VK	S	GG	AL	Q	I	LD
BolC08.GH3-19.a	FFV	SQGS	SISQ	YKTP	IC	IK	S	TE	AL	K	VLD	DK
BnaA09R.GH3-1.a	YAI	SRGA	SINQ	YKVP	PRC	VN	F	TP	IVE	LLD	SR	
BnaCX.GH3-1.a	YAI	SRGA	SINQ	YKVP	PRC	VN	F	TP	IVE	LLD	SR	
BnaA01.GH3-2.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BnaC01.GH3-2.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BnaA09.GH3-3.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BnaC08.GH3-3.a	YAI	SRGA	SINQ	YKVP	PRC	VS	F	TP	IME	LLD	SR	
BnaA01.GH3-5.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaA03.GH3-5.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaC01.GH3-5.a	YAI	OLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaC07.GH3-5.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaA03.GH3-6.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaAX.GH3-6.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaC03.GH3-6.a	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaCX.GH3-6.b	YAI	SLGA	SINQ	YKTP	PRC	VK	F	API	IE	LLN	SR	
BnaA06.GH3-7.a	LSI	SKGA	SITQ	YKTP	TC	IT	S	EE	G	L	Q	VLE
BnaA08.GH3-7.b	FFI	SQGA	SIGQ	YKTP	PRC	IG	S	GK	P	L	E	LLE
BnaC06.GH3-7.a	LSI	SKGT	SITQ	YKTP	TC	IT	S	EE	G	L	Q	VLE
BnaA03.GH3-8.a	FFI	SQGA	SSTQ	YKTP	IC	IK	S	TE	A	I	A	I
BnaA03.GH3-8.b	YFI	SQGA	SIAQ	YKTP	PRC	IK	S	SE	AL	Q	VLE	NR
BnaA03.GH3-8.c	YFI	AQGA	SIAQ	YKTP	PRC	IK	S	SK	AL	E	VLE	NR
BnaA06.GH3-8.d	FFV	SRGS	SISQ	YKTP	PMC	LE	S	AE	AL	K	VLE	DK

BnaA06.GH3-8.e	FFV.SRGC	SITQ	YKTPIC	TS.S.AE	ALKVLE	DK
BnaA09.GH3-8.f	FFFL.SRLK	FVFV	HLLACC	GLDTK	LD.T.IS	SPS
BnaA09.GH3-8.g	YYVV.SRGS	SISQ	YKTPIC	IN.S.AE	ALEVLE	EK
BnaAX.GH3-8.h	FFI.TQGA	SSTQ	YKTPIC	IK.S.SE	ALAILE	EK
BnaAX.GH3-8.i	FFV.SRGA	SITQ	YKTPIC	IN.S.VE	ALKVLE	DK
BnaC01.GH3-8.a	YFI.AQGA	TLTQ	YKTPRC	IK.S.PE	ALQVLE	SKSGKCLKIAKQEIKNKGKHV
BnaC02.GH3-8.b	FFI.TQGA	SSTQ	YKTPIC	IK.S.SE	ALAILE	EK
BnaC02.GH3-8.c	FFI.TQGA	SSTQ	YKTPIC	IK.S.SE	ALAILE	EK
BnaC02.GH3-8.d	FFI.TQGA	SSTQ	YKTPIC	IK.S.SE	ALAILE	EK
BnaC07.GH3-8.e	YFI.SQGA	SLAQ	YKTPRC	IK.S.SE	ALQVLE	NR
BnaC09.GH3-8.f	FSI.SQGA	SPSQ	YKTPMC	IK.S.SE	ALVVDN	NN
BnaCX.GH3-8.g	FFV.SRGA	SITQ	YKTPIC	IN.S.AE	ALKVLE	DK
BnaA05.GH3-9.a	MII.SQGG	SLNQ	YKTPRC	VK.SNS	AMLKLL	GH
BnaC04.GH3-9.a	MII.SQGG	SLNQ	YKTPRC	VK.SNS	AMLKLL	GH
BnaA03.GH3-10.a	RCV.GKCG	GLNQ	FKTPRC	T.TNS	VMLD	ILDAS
BnaA09.GH3-10.b	RCV.GKCG	GLNQ	FKTPRC	T.TNS	VMLD	ILDGS
BnaC09.GH3-10.a	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaA03.GH3-11.a	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaA04R.GH3-11.b	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaA05.GH3-11.c	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaC04.GH3-11.a	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaCX.GH3-11.b	HFL.GLGS	SAGQ	FKMPRC	VKP.SN	VKVLQ	ILCDN
BnaA02.GH3-12.a	FFI.KQGA	SISQ	YKTPRC	IK.S.GK	ALEFME	NY
BnaA03.GH3-12.b	FFI.TQGA	SISQ	YKTPRC	IK.S.VK	ALEFME	EC
BnaA06.GH3-12.c	LSI.SKGT	SVNQ	YKTPIC	IT.S.EK	GVQVLE	TN
BnaA10.GH3-12.d	FFI.NQGA	STGQ	YKTPRC	IK.S.GK	ALELME	DR
BnaC02.GH3-12.a	FFI.KQGA	SISQ	YKTPRC	IK.S.GK	ALEFME	Y
BnaC03.GH3-12.b	FFI.SQGA	SISQ	YKTPRC	IK.S.VK	ALEFME	EC
BnaC09.GH3-12.c	FFI.NQGA	SISQ	YKTPRC	IK.S.GK	ALEFME	DR
BnaA10.GH3-14.a	FFV.SRGT	SVSQ	YKTPRS	VK.N.EE	ALKILE	AT
BnaC09.GH3-14.a	FFV.SRGT	SVSQ	YKTPRS	VK.N.EE	ALKILE	AT
BnaA03.GH3-15.a	FFV.SRGS	SVSQ	YKTPRS	VT.N.EE	ALKVLE	AS
BnaC03.GH3-15.a	FFV.SRGS	SVSQ	YKTPRS	VT.N.EE	ALKVLE	AS
BnaAX.GH3-16.a	LFL.SRGS	SVSQ	YKTPRS	VT.S.EE	AMKILE	EA
BnaC02.GH3-16.a	LFL.SRGS	SVSQ	YKTPRS	VT.S.EE	AMKILE	EA
BnaA07.GH3-17.a	FCV.SQGS	SVNQ	YKTPRC	VK.S.GG	ALQILD	SR
BnaA08.GH3-17.b	FSI.SQGS	SVNQ	YKTPRC	VK.S.GG	ALQILD	SR
BnaA09.GH3-17.c	FCV.SQGS	SVNQ	YKTPRC	VK.P.GG	ALQILD	SR
BnaC08.GH3-17.a	FSI.SQGS	SVNQ	YKTPRC	VK.S.GG	ALQILD	SR
BnaCX.GH3-17.b	FCV.SQGS	SVNQ	YKTPRC	VK.P.GG	ALQILD	SR
BnaCX.GH3-17.c	FCV.SQGS	SVNQ	YKTPRC	VK.P.GG	ALQILD	SR
BnaA05GH3-18.a	YFI.SRGS	SRAQ	YKTPIC	IN.S.SE	ASAVLE	NK
BnaCX.GH3-18.a	FFV.ARG	SISQ	YKTPMC	IN.S.AE	ALKVLE	DK
BnaA06.GH3-19.a	FFV.SRGS	SISQ	YKTPMC	IN.S.AE	ALKVLE	DK
BnaA09.GH3-19.b	FFI.SRGS	SISQ	YKTPIC	IK.S.TE	ALKLLE	DK
consensus>70	f.i.s.g.s.q		yktprc	v	l.le	

		580	590
AtGH3-1	V	VSAHFS	PSLPHWTPERRRR
AtGH3-2	V	VSAHFS	PSLPHWSPERRR
AtGH3-3	V	VSTHFS	PALPHWSPERRR
AtGH3-4	V	VSAHFS	PSLPHWSPERRH
AtGH3-5	V	VDSYFS	PKCPKWVPGHKQWGSN
AtGH3-6	V	VDSYFS	PKCPKWSPGHKQWGSN
AtGH3-7	V	VATFFS	T
AtGH3-8	V	HACFFT	DKSLSLNFSS
AtGH3-9	V	MASFFS	PRDPTWVP
AtGH3-10	T	IKRFRS	SAYD
AtGH3-11	V	VSSYFS	TAF
AtGH3-12	V	VAKFFS	I
AtGH3-13	V	VSEFLS	QETPPWG
AtGH3-14	V	VSEFLS	QKTPSWELHELHSSR
AtGH3-15	V	ISEFLS	RKIPSWELHELHSSR
AtGH3-16	V	VSEFLS	RKTPSWELHELHSSR
AtGH3-17	V	IGRFFS	KRVQPWEPLGLDS
AtGH3-18	V	LARFFS	EKSPPLDS
AtGH3-19	V	IARFYS	QKSPPLNL
BraX.GH3-1.a	V	VSAHFS	PALPHWTPERRRR
BraX.GH3-2.a	V	VSAHFS	PSLPHWSPERRR
BraA09.GH3-3.a	V	ASTHFS	PALPQWSPERRR
BraA01.GH3-5.a	V	VDSYFS	PKCPKWVPGHKQWGSN
BraA03.GH3-5.b	V	VDSYFS	PKCPKWVPGHKQWGSN
BraA02.GH3-6.a	V	VKS YFS	PKCPKWTPGHKQWGSN
BraA03.GH3-6.b	V	VKT YFS	PKCPKWIPGHKQWGSN
BraA06.GH3-7.a	V	VARFFS	TLRASHVLKP
BraA08.GH3-7.b	V	VATFFS	TGDCSFKN
BraA02.GH3-8.a	V	RSRFFT	DKVPFL
BraA03.GH3-8.b	V	BARFFT	DKSLSLKFSS
BraA03.GH3-8.c	V	LARFFS	EKLP
BraA03.GH3-8.d	V	...	...
BraA06.GH3-8.e	V	LARFFS	DKSPPI
BraA06.GH3-8.f	V	LARFFN	DKSPTI
BraA09.GH3-8.g	V	LARFFS	DKSPPF
BraA09.GH3-8.h	V	LARFFS	DKSPTI
BraA10.GH3-8.i	V	LACFFS	DKSPTL
BraA09.GH3-10.a	T	VKRFFS	SAYN
BraA03.GH3-11.a	V	VSRFFS	TAFE
BraA04.GH3-11.b	A	VSRFFS	TAFD
BraA05.GH3-11.c	V	VSRFFS	TAFE
BraA02.GH3-12.a	V	VARFFS	T
BraA03.GH3-12.b	V	VARFFS	T
BraA06.GH3-12.c	V	VAKFFS	TLRASHFA
BraA10.GH3-12.d	V	VAKFFS	S
BraA10.GH3-14.a	V	VSKSFS	RKVP SWELHELHSSR
BraA03.GH3-15.a	V	VSKFVS	RKTPSWELHELHSSR
BraA07.GH3-15.b	V	VSKFVS	RKVP SWELHELHSSR
BraA02.GH3-16.a	V	VSEFLS	TKTPSWEPREMHSSR
BraA07.GH3-17.a	V	IGRFFS	QRVQPWEPLGLDS
BraA09.GH3-17.b	V	IGRFFS	QRVQPWQPLGLDS
BraAX.GH3-17.c	V	IGRFFT	KRVQPWEPLGLDS
BraA04.GH3-19.a	V	...	...
BraA06.GH3-19.b	V	LARFFS	DKSPPI
BraA09.GH3-19.c	V	LARFFS	DRSPTL
BraA09.GH3-19.d	V	LARFFS	DKSPPI
BraAX.GH3-19.e	V	LARFHS	EKSPPLDL
BolC09.GH3-1.a	V	VSAHFS	PALPHWTPERRRR
BolC01.GH3-2.a	V	VSAHFS	PSLPHWSPERRR
BolC08.GH3-3.a	V	ASTHFS	PALPQWSPERRR
BolC01.GH3-5.a	V	VDSYFS	PKCPKWVPGHKQWGSN
BolC07.GH3-5.b	V	VDSYFS	PKCPKWVPGHKQWGSN
BolC02.GH3-6.a	V	VKS YFS	PKCPKWTPGHKQWGSN
BolC03.GH3-6.b	V	VKT YFS	PKCPKWIPGHKQWGSN
BolC06.GH3-7.a	V	VTKFFS	TLRASHFA
BolC01.GH3-8.a	V	LLVDPKSVTDINGAVO	LTNMLMDRNSVMEFLPKGWLKLAGVGOLVYQWVA
BolC03.GH3-8.b	V	...	...
BolC07.GH3-8.c	V	LARFFS	EKLP
BolC08.GH3-8.d	V	LARFFS	DKSPPI
BolC09.GH3-8.e	V	TMVFLTR	
BolC09.GH3-10.a	T	VKRFFS	SAYN
BolC03.GH3-11.a	V	VSRFFS	TAFE
BolC04.GH3-11.b	V	VSRFFS	TAFD
BolCX.GH3-11.c	V	VSRFFS	TAFE
BolC03.GH3-12.a	V	VARFFS	T
BolC09.GH3-12.b	V	VAKFFS	A
BolC09.GH3-14.a	V	VSKSFS	QKVP SWELHELHSSR
BolC03.GH3-15.a	V	VSKFVS	RKTPSWELHELHSSR
BolCX.GH3-16.a	V	VSEFLS	TKTPSWEPREMHSSR
BolC07.GH3-17.a	V	IGSFFS	KRVQPWEPLGLDS
BolC08.GH3-17.b	V	IGKFFT	KRVQPWEPLGLDS
BolC08.GH3-19.a	V	LARFFS	DRSPTL
BnaA09R.GH3-1.a	V	VSAHFS	PALPHWTPERRRR
BnaCX.GH3-1.a	V	VSAHFS	PALPHWTPERRRR
BnaA01.GH3-2.a	V	VSAHFS	PSLPHWSPERRR
BnaC01.GH3-2.a	V	VSAHFS	PSLPHWSPERRR
BnaA09.GH3-3.a	V	ASTHFS	PALPQWSPERRR
BnaC08.GH3-3.a	V	ASTHFS	PALPQWSPERRR
BnaA01.GH3-5.a	V	VDSYFS	PKCPKWVPGHKQWGSN
BnaA03.GH3-5.b	V	VDSYFS	PKCPKWVPGHKQWGSN
BnaC01.GH3-5.a	V	VDSYFS	PKCPKWVPGHKQWGSN
BnaC07.GH3-5.b	V	VDSYFS	PKCPKWVPGHKQWGSN
BnaA03.GH3-6.a	V	VKT YFS	PKCPKWIPGHKQWGSN
BnaAX.GH3-6.b	V	VKS YFS	PKCPKWTPGHKQWGSN
BnaC03.GH3-6.a	V	VKT YFS	PKCPKWIPGHKQWGSN
BnaCX.GH3-6.b	V	VKS YFS	PKCPKWTPGHKQWGSN
BnaA06.GH3-7.a	V	VARFFS	TLRASHVLKP
BnaA08.GH3-7.b	V	VATFFS	TGDCSFKN
BnaC06.GH3-7.a	V	VTKFFS	TLRASHFA
BnaA03.GH3-8.a	V	BARFFT	DKSLSLKFSS
BnaA03.GH3-8.b	V	LARFFS	EKLP
BnaA03.GH3-8.c	V	MAHERFIAY	
BnaA06.GH3-8.d	V	LARFFS	DKSPPI

BnaA06.GH3-8.e	V	L	ARFFNDKSPTI
BnaA09.GH3-8.f	.	S	YISKRIPVWL
BnaA09.GH3-8.g	V	L	ARFFS
BnaAX.GH3-8.h	V	RSR	FFTDKVPFL
BnaAX.GH3-8.i	V	L	ARFFS
BnaC01.GH3-8.a	V	LLVDPKSVTDINGAVQVRCVNYVLI	NMFLMDRNSVMEFLPKGWLKLAGVGQLVYQWVA
BnaC02.GH3-8.b	V	RSR	FFTDKVPFL
BnaC02.GH3-8.c	V	RSR	FFTDKVPFL
BnaC02.GH3-8.d	V	RSR	FFTDKVPFL
BnaC07.GH3-8.e	V	L	ARFFSEKLP
BnaC09.GH3-8.f	V	L	ARFFS
BnaCX.GH3-8.g	V	L	ARFFS
BnaA05.GH3-9.a	V	TGS	FFSPRDPTWSA
BnaC04.GH3-9.a	V	TGS	FFSPRDPTWSP
BnaA03.GH3-10.a	T	V	KIFCS
BnaA09.GH3-10.b	T	V	KRFSS
BnaC09.GH3-10.a	T	V	KRFSS
BnaA03.GH3-11.a	V	V	SRFFSTAFE
BnaA04R.GH3-11.b	A	V	SRFFSTAFD
BnaA05.GH3-11.c	V	V	SRFFSTAFE
BnaC04.GH3-11.a	V	V	SRFFSTAFD
BnaCX.GH3-11.b	V	V	SRFFSTAFE
BnaA02.GH3-12.a	V	V	ARFFST
BnaA03.GH3-12.b	V	V	ARFFST
BnaA06.GH3-12.c	V	V	AKFFSTLSASHFA
BnaA10.GH3-12.d	V	V	AKFFSS
BnaC02.GH3-12.a	V	V	ASFFST
BnaC03.GH3-12.b	V	V	ARFFST
BnaC09.GH3-12.c	V	V	AKFSSA
BnaA10.GH3-14.a	V	V	SKSFS
BnaC09.GH3-14.a	V	V	SKSFS
BnaA03.GH3-15.a	V	V	SKFVS
BnaC03.GH3-15.a	.	.	.
BnaAX.GH3-16.a	V	V	SEFLS
BnaC02.GH3-16.a	V	V	SEFLS
BnaA07.GH3-17.a	V	I	GRFFS
BnaA08.GH3-17.b	V	I	GRFFT
BnaA09.GH3-17.c	V	I	GRFFS
BnaC08.GH3-17.a	V	I	GKFFT
BnaCX.GH3-17.b	V	I	GRFFS
BnaCX.GH3-17.c	V	I	GRFFS
BnaA05GH3-18.a	V	L	ARFHSEKSPPLDL
BnaCX.GH3-18.a	V	L	ARFFS
BnaA06.GH3-19.a	V	L	ARFFS
BnaA09.GH3-19.b	V	L	ARFFS
consensus>70	V	.	ffs

AtGH3-1	.
AtGH3-2	.
AtGH3-3	.
AtGH3-4	.
AtGH3-5	.
AtGH3-6	.
AtGH3-7	.
AtGH3-8	.
AtGH3-9	.
AtGH3-10	.
AtGH3-11	.
AtGH3-12	.
AtGH3-13	.
AtGH3-14	.
AtGH3-15	.
AtGH3-16	.
AtGH3-17	.
AtGH3-18	.
AtGH3-19	.
BraX.GH3-1.a	.
BraX.GH3-2.a	.
BraA09.GH3-3.a	.
BraA01.GH3-5.a	.
BraA03.GH3-5.b	.
BraA02.GH3-6.a	.
BraA03.GH3-6.b	.
BraA06.GH3-7.a	.
BraA08.GH3-7.b	.
BraA02.GH3-8.a	.
BraA03.GH3-8.b	.
BraA03.GH3-8.c	.
BraA03.GH3-8.d	.
BraA06.GH3-8.e	.
BraA06.GH3-8.f	.
BraA09.GH3-8.g	.
BraA09.GH3-8.h	.
BraA10.GH3-8.i	.
BraA09.GH3-10.a	.
BraA03.GH3-11.a	.
BraA04.GH3-11.b	.
BraA05.GH3-11.c	.
BraA02.GH3-12.a	.
BraA03.GH3-12.b	.
BraA06.GH3-12.c	.
BraA10.GH3-12.d	.
BraA10.GH3-14.a	.
BraA03.GH3-15.a	.
BraA07.GH3-15.b	.
BraA02.GH3-16.a	.
BraA07.GH3-17.a	.
BraA09.GH3-17.b	.
BraAX.GH3-17.c	.
BraA04.GH3-19.a	.
BraA06.GH3-19.b	.
BraA09.GH3-19.c	.
BraA09.GH3-19.d	.
BraAX.GH3-19.e	.
BolC09.GH3-1.a	.
BolC01.GH3-2.a	.
BolC08.GH3-3.a	.
BolC01.GH3-5.a	.
BolC07.GH3-5.b	.
BolC02.GH3-6.a	.
BolC03.GH3-6.b	.
BolC06.GH3-7.a	.
BolC01.GH3-8.a	NWSRIRHEGTWHDPVGETC.
BolC03.GH3-8.b	.
BolC07.GH3-8.c	.
BolC08.GH3-8.d	.
BolC09.GH3-8.e	.
BolC09.GH3-10.a	.
BolC03.GH3-11.a	.
BolC04.GH3-11.b	.
BolCX.GH3-11.c	.
BolC03.GH3-12.a	.
BolC09.GH3-12.b	.
BolC09.GH3-14.a	.
BolC03.GH3-15.a	.
BolCX.GH3-16.a	.
BolC07.GH3-17.a	.
BolC08.GH3-17.b	.
BolC08.GH3-19.a	.
BnaA09R.GH3-1.a	.
BnaCX.GH3-1.a	.
BnaA01.GH3-2.a	.
BnaC01.GH3-2.a	.
BnaA09.GH3-3.a	.
BnaC08.GH3-3.a	.
BnaA01.GH3-5.a	.
BnaA03.GH3-5.b	.
BnaC01.GH3-5.a	.
BnaC07.GH3-5.b	.
BnaA03.GH3-6.a	.
BnaAX.GH3-6.b	.
BnaC03.GH3-6.a	.
BnaCX.GH3-6.b	.
BnaA06.GH3-7.a	.
BnaA08.GH3-7.b	.
BnaC06.GH3-7.a	.
BnaA03.GH3-8.a	.
BnaA03.GH3-8.b	.
BnaA03.GH3-8.c	.
BnaA06.GH3-8.d	.

BnaA06.GH3-8.e	.....
BnaA09.GH3-8.f	.....
BnaA09.GH3-8.g	.....
BnaAX.GH3-8.h	.....
BnaAX.GH3-8.i	.....
BnaC01.GH3-8.a	NWSRIRHEGTWHPVGETLAASLLMAIMFSAMITSSRATKQLTKKQTLKPKFFGQPFPPKP
BnaC02.GH3-8.b	.....
BnaC02.GH3-8.c	.....
BnaC02.GH3-8.d	.....
BnaC07.GH3-8.e	.....
BnaC09.GH3-8.f	.....
BnaCX.GH3-8.g	.....
BnaA05.GH3-9.a	.....
BnaC04.GH3-9.a	.....
BnaA03.GH3-10.a	.....
BnaA09.GH3-10.b	.....
BnaC09.GH3-10.a	.....
BnaA03.GH3-11.a	.....
BnaA04R.GH3-11.b	.....
BnaA05.GH3-11.c	.....
BnaC04.GH3-11.a	.....
BnaCX.GH3-11.b	.....
BnaA02.GH3-12.a	.....
BnaA03.GH3-12.b	.....
BnaA06.GH3-12.c	.....
BnaA10.GH3-12.d	.....
BnaC02.GH3-12.a	.....
BnaC03.GH3-12.b	.....
BnaC09.GH3-12.c	.....
BnaA10.GH3-14.a	.....
BnaC09.GH3-14.a	.....
BnaA03.GH3-15.a	.....
BnaC03.GH3-15.a	.....
BnaAX.GH3-16.a	.....
BnaC02.GH3-16.a	.....
BnaA07.GH3-17.a
BnaA08.GH3-17.b
BnaA09.GH3-17.c
BnaC08.GH3-17.a
BnaCX.GH3-17.b
BnaCX.GH3-17.c
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BnaCX.GH3-18.a
BnaA06.GH3-19.a
BnaA09.GH3-19.b
consensus>70

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BraA03.GH3-5.b	
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BraA03.GH3-6.b	
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BraA08.GH3-7.b	
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BraA03.GH3-8.b	
BraA03.GH3-8.c	
BraA03.GH3-8.d	
BraA06.GH3-8.e	
BraA06.GH3-8.f	
BraA09.GH3-8.g	
BraA09.GH3-8.h	
BraA10.GH3-8.i	
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BraA10.GH3-12.d	
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BraA09.GH3-19.c	
BraA09.GH3-19.d	
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BolC03.GH3-6.b	
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BolC03.GH3-8.b	
BolC07.GH3-8.c	
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BolC08.GH3-17.b	
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BnaC07.GH3-5.b	
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BnaA03.GH3-8.c	
BnaA06.GH3-8.d	

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BnaA09.GH3-8.g
BnaAX.GH3-8.h
BnaAX.GH3-8.i
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BnaC02.GH3-8.c
BnaC02.GH3-8.d
BnaC07.GH3-8.e
BnaC09.GH3-8.f
BnaCX.GH3-8.g
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BnaC04.GH3-9.a
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BnaA09.GH3-10.b
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consensus>70

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BraA07.GH3-15.b
BraA02.GH3-16.a
BraA07.GH3-17.a
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BnaC01.GH3-5.a
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consensus>70