

KC40 idgltlaafavdsfmaaeggadllghsn-----issdkp---stapfk-----ldsignlyggaa
7P-6.12 idgltlaafavdsfmaaeggallghsn-----istts---nqarfk-----vdslnlygaaa
10C-6.1 idgltlaafaadsfmaaeggadllghsn-----tstatp---nqapfk-----vdsvgnlygaaa
10KF-1.16 idgltlaafavdsfmaaeggsdlvgang-----safk-----vdsignlygaaa
10KF-4.12 idgltlaafamdsfneasdtvtitqdnnqkitgvqfnrgnpgkdsdvsga-----ldwskniygaaa
10-VTDD8 idgltlaafavdsfmaaeggallghsn-----istts---nqapfk-----vdsvgnlygaaa
KC59.1 idgltlaafavdsfmaaeggadllgqst-----isttq---naapfk-----vdsvgnlygaaa
KC64.1 idgltlaafamdsfneasdtvti--tq-----dsnqki---tgqfnrgnpgkdvsgaldwskniygaaa
KC67.2 idgltlaafavdsfmaaeggadllghsn-----tstatp---nqvpfk-----vdsvgnlygaaa
KC84.2 idgltlaafamdsfneasdtvtitqdn-----sqki---tgqfnrgnpgkdsdvsgaldwskniygata
KC96.1 idgltlaafavdsfmaaeggadllghsn-----istts---nqapfk-----vdsvgnlygaaa
KC101 idgltlaafavdsfmaaeggadllghst-----tsttq---kaapfk-----vdsvgnlygaaa

Cam12/0214 idgltlaafavdsfmaaeggadllghsn-----istt-p---nqapfk-----vdsvgnlygaaa
Cam12/0231 idgltlaafavdsfmaaeggallgrsn-----istts---nqapfk-----advgnlygaaa
Cam12/0146 idgltlaafavdsfmaaeggadllghsn-----istt-p---nqapfk-----vdsvgnlygaaa
Cam12/0152 idgltlaafaadsfmaaeggadllghsn-----istts---nqapfk-----vdsvgnlygaaa
Cam12/0173 idgltlaafamdsfneasdtvtitqdnnqkitgvqfnrgnpgkdsdvsga-----ldwskniygaaa
Cam12/0197 idgltlaafavdsfmaaeggadllghst-----tsttq---kaapfk-----vdsvgnlygaaa
Cam12/0156 idgltlaafavdsfmaaeggsdlvgang-----safk-----vdsignlygaaa
Cam12/0190 idgltlaafaadsfmaaeggadllghsn-----istts---nqapfk-----vdsvgnlygaaa
Cam12/0202 idgltlaafavdsfmaaeggadllghst-----tsttq---kaapfk-----vdsvgnlygaaa
Cam12/0222 idgltlaafaadsfmaaeggadllghsn-----istttp---nqapfk-----vdsvgnlygaaa
Cam12/0183 idgltlaafavdsfmaaeggallghsn-----iptts---nqapfk-----vdsvgnlygaaa

52/P idgltlaafavdsynsdeqggdlgtvln-----fne-----nlygaaa
70/P idgltlaafavdsynsdeqggdlgtvln-----fne-----nlygaaa
K43/5 idgltlaafavdsynsdeqigdlgkvlN-----fne-----nlygaaa
KC7 idgltlaafavdsynsdeqggdlgtvln-----fne-----nlygaaa
MB3361 idgltlaafaidsvntdeqgdgvffkng-----nlt dag---dnspy-----ldwsgniygaaa

$\beta 7$

L4

$\beta 8$

KC40 vgsyeflgqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tht-ngnlf
7P-6.12 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--t---tht-ngnffa
10C-6.1 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--t---tha-ngnlf
10KF-1.16 vgsydlaggqqfnpqlwlaywdqvaffiyaldasysttifdginwtlegaylgnslseld--d--k---tya-ngnlf
10KF-4.12 igstydiaggqqfnpqlwlaymsdnaflyaldaaysttifdginwtlegaylgnsvdnklkd--r---ldaangnffa
10-VTDD8 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
KC59.1 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
KC64.1 igstydiaggqqfnpqlwlaymsdnaflyaldaaysttifdginwtlegaylgnsvdnklkd--r---lgvangnffa
KC67.2 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--t---tha-ngnlf
KC84.2 igstydiaggqqfnpqlwlaymsdnaflyaldatysttifdginwtlegaylgnsvdnklkd--r---ldaangnffa
KC96.1 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
KC101 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf

Cam12/0214 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0231 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--t---tht-ngnffa
Cam12/0146 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0152 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0173 igstydiaggqqfnpqlwlaymsdnaflyaldaaysttifdginwtlegaylgnsvdnklkd--r---ldaangnffa
Cam12/0197 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0156 vgsydlaggqqfnpqlwlaywdqvaffiyaldasysttifdginwtlegaylgnslseld--d--k---tya-ngnlf
Cam12/0190 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0202 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0222 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf
Cam12/0183 vgsydlaggqqfnpqlwlaywdqvaffiyavdaaysttifdginwtlegaylgnslseldd--k---tha-ngnlf

52/P igsyevfngqlnpqlwlaymtdnaffiyavdaaynttifdgvnwtlegaylgnslseld--l---gng-ngnffa
70/P igsyevfngqlnpqlwlaymtdnaffiyavdaaynttifdgvnwtlegaylgnslseld--l---gng-ngnffa
K43/5 igsyevfngqlnpqlwlaymtdnaffiyavdaaynttifdgvnwtlegaylgnslseld--l---gng-ngnffa
KC7 igsyevfngqlnpqlwlaymtdnaffiyavdaaynttifdgvnwtlegaylgnslseld--l---gng-ngnffa
MB3361 igsyevfngqlnpqlwlaymtdnaflyaldvaynttifdgvnwtlegaylgnslseldl--l---yyagrsa-ngnffa

$\beta 9$

$\beta 10$

$\beta 11$

L5

KC40 lrgsvelngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
7P-6.12 lkggievngwdaslgglyygdkekastvvi edqgnlssllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
10C-6.1 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
10KF-1.16 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
10KF-4.12 lrgtvevngwdaslgglyygdkekastvvi edqgnlgsllagee ifytnsgnlngdigrnifgyvtagytfn etvr
10-VTDD8 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
KC59.1 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
KC64.1 lrgtvevngwdaslgglyygdkekastvvi edqgnlgsllagee ifytrgsnlngdlgrnifgyvtggytfn etvr
KC67.2 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
KC84.2 lrgtvevngwdaslgglyygdkekastvvi edqgnlgsllagee ifytrgsnlngdlgrnifgyvtggytfn etvr
KC96.1 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
KC101 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr

Cam12/0214 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0231 lkggievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0146 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0152 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0173 lrgtvevngwdaslgglyygdkekastvvi edqgnlgsllagee ifytnsgnlngdigrnifgyvtagytfn etvr
Cam12/0197 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0156 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0190 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0202 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0222 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr
Cam12/0183 lkgsievngwdaslgglyygdkekastvvi edqgnlgsllagee ifyttgsrlngdtgrnifgyvtggytfn etvr

52/P lngsievngwdatl gglyygdkekastvvi edqgnlgsllagee ifytnsgklngdtgrnifgfvkagytfn etvr
70/P lngsievngwdatl gglyygdkekastvvi edqgnlgsllagee ifytnsgklngdtgrnifgfvkagytfn etvr
K43/5 lngsievngwdatl gglyygdkekastvvi edqgnlgsllagee ifytnsgklngdtgrnifgfvkagytfn etvr
KC7 lngsievngwdatl gglyygdkekastvvi edqgnlgsllagee ifytnsgklngdtgrnifgfvkagytfn etvr
MB3361 lrgsvevngwdatl ggllyygdkekastvvi edqgnlgsllagee ifytnsgklngdtgrnifgyvka gytfn etvr
β12 β13 L6 β14

KC40 v g a d f v y g g t k t e t a g - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
7P-6.12 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l a
10C-6.1 v g a d f v y g g t k t e a a s - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
10KF-1.16 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
10KF-4.12 v g a d f v y g g t k t n i i g - q - - g g k k l e a v a r v d y k y s p k l n f s a f y s y v n v d
10-VTDD8 v g a d f v y g g t k t e a a s - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
KC59.1 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
KC64.1 v g a d f v y g g t k t n i i g - q - - g g k k l e a v a r v d y k y s p k l n f s a f y s y v n v d
KC67.2 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
KC84.2 v g a d f v y g g t k t n i i g - q - - g g k k l e a v a r v d y k y s p k l n f s a f y s y v n v d
KC96.1 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
KC101 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d

Cam12/0214 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0231 v g a d f v y g g t k t e a a s - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0146 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0152 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0173 v g a d f v y g g t k t n i i g - q - - g g k k l e a v a r v d y k y s p k l n f s a f y s y v n v d
Cam12/0197 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l a
Cam12/0156 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0190 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0202 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0222 v g a d f v y g g t k t e a a n h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d
Cam12/0183 v g a d f v y g g t k t e a a n - h l g g g k k l e a v a r v d y k y s p k l n f s a f y s y v n l d

52/P v g a d f v y g g t k t e - - - - n h s g g d k l e a v a r v d y k y s p k l n f s a f y s y v n v d
70/P v g a d f v y g g t k t e - - - - n r s g g d k l e a v a r v d y k y s p k l n f s a f y s y v n v d
K43/5 v g a d f v y g g t k t k - - - - n h s g g d k l e a v a r v d y k y s p k l n f s a f y s y v n v d
KC7 v g a d f v y g g t k t e - - - - n h s g g d k l e a v a r v d y k y s p k l n f s a f y s y v n v d
MB3361 v g a d f v y g g t k t e s n t - y v g g g d k l e a v a r v s y k y s p k l n f s a w s y v n v d
β15 L7 β16 β17