CLUSTAL multiple sequence alignment by MUSCLE (3.8)

Homo-sapiens Psammomys-obesus Meriones-unguiculatus Acomys-russatus Mastomys-coucha Phodopus-roborovskii Cricetulus-griseus Mesocricetus-auratus Neotoma-lepida Onychomys-torridus Peromyscus-californicus-insignis Mus-caroli Mus-pahari Arvicanthis-niloticus Myodes-glareolus Chionomys-nivalis Microtus-ochrogaster Apodemus-sylvaticus

MAADSDDGAVSAPAASDGGVSKSTTSGEELVVQVPVVDVQSNNFKEMWPSLLLAIKTANF MAADSDDGGLSVPPTSDGVVNKNTKSEEEFVIRVPVVDVQTDNFKEIWPSLLLALKTASF MAADSVDGGLSVPPTSDGVVNKNTKSEEEFVIRVPVVDVQTDNFKEIWPSLLLALKTASF MAADSGDGVPLVPKTSDGGVNKST-SAEEFVARVPVVDVQTDNFKEIWPSLLLALKTASF MAADSADGMPSVPSSSDGGVNKNTQSAKEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF  ${\tt MAADSDDGVPSVPTTSDGGVNKNTKSAEEFVIRVPVVDVQSDNFKEIWPSLLLALKTASF}$ MAADSDDGVPSVPTTSDGGVNKNTKSAEEFVIRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPTTSDGGVNKNTKSAEKFVIRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPTTSDDGVNKNTKSADEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF  ${\tt MAADSDDGVPSVPTTSDGGVNKNTKSADEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF}$ MAADSVDGVPSVPTTSDGGVNKNTKSADEFIVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPPVPTSSDGGVNKNTQSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPPVATSSDGGVNKNTQSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF  ${\tt MAADSDDGVPSVPTSSDGGVNKNTQSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF}$ MAADSDDGVPSVPATSDGDVNKTTKSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPATSDGDVNKNTKSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVSATSDGDVNKNTKPAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPTSSDGGVNKNTQTAEEFVVRVPVVDVQNDNFKEIWPSLLLALKTASF MAADSDDGVPPVPTPSDGGVNKNTQSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPTPSDGGVNRTTOSAEEFVVRVPVVDVOSDNFKEIWPSLLLALKTASF MAADSDDGVPSVPTPSDGGVNRTTQSAEEFVVRVPVVDVQSDNFKEIWPSLLLALKTASF 

Psammomys-obesus Meriones-unguiculatus Acomys-russatus Mastomys-coucha Phodopus-roborovskii Cricetulus-griseus Mesocricetus-auratus Neotoma-lepida Onychomys-torridus Peromyscus-californicus-insignis Mus-caroli Mus-pahari Arvicanthis-niloticus Myodes-glareolus Chionomys-nivalis Microtus-ochrogaster Apodemus-sylvaticus Mus-musculus Rattus-norvegicus

Mus-musculus

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Rattus-rattus

Homo-sapiens Psammomys-obesus

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Homo-sapiens

Rattus-norvegicus Rattus-rattus

Psammomys-obesus Meriones-unguiculatus

Rattus-norvegicus Rattus-rattus

> VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLVQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFRQQPDKGENSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPEKGENSYLAQV  $\hbox{\tt VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKHQADKGENSYLTQV}$ VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENCYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPAKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKNLLNQCIEERYKAVCHAARTRSVLSLGLACFRQQPDKGENSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFRQQPDKGENSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLTQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFRQQPDKGENSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGDSSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGDSSYLAQV \*\*\*\*\*\*\*\*\*  $\verb|FNLTLLCMEEYVIEPKSVQFLIQHGFNFNQQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$

VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSILSLGLACFKRQPDKGEHSYLAQV VAVDTELSGLGDRKSLLNQCIEERYKAVCHAARTRSVLSLGLACFKQQPDKGENSYLAQV

Meriones-unguiculatus Acomys-russatus Mastomys-coucha Phodopus-roborovskii Cricetulus-griseus Mesocricetus-auratus Neotoma-lepida Onychomys-torridus Peromyscus-californicus-insignis Mus-caroli Mus-pahari Arvicanthis-niloticus Myodes-glareolus Chionomys-nivalis Microtus-ochrogaster Apodemus-sylvaticus Mus-musculus Rattus-norvegicus Rattus-rattus

FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL  $\verb|FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$ FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQNQSVRTLFLEL  $\verb|FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$  $\verb|FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$ FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRMLFLEL  $\verb|FNLTLLCVEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|$ FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDQGDESQNQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL  $\verb|FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$ FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL  $\verb|FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL|\\$ FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL FNLTLLCMEEYVIEPKSVQFLVQHGFNFNRQYAQGIPYHKGNDKGDESQSQSVRTLFLEL \*

Acomys-russatus
Mastomys-coucha
Phodopus-roborovskii
Cricetulus-griseus
Mesocricetus-auratus
Neotoma-lepida
Onychomys-torridus
Peromyscus-californicus-insignis
Mus-caroli
Mus-pahari
Arvicanthis-niloticus
Myodes-glareolus
Chionomys-nivalis
Microtus-ochrogaster
Apodemus-sylvaticus

IRARRPLVLHNGLIDLVFLYQNFYAHLPESLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV  ${\tt IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFEARFV}$ IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPETLGTFTADLCEMFPAGIYDTKYAAEFHARFV  ${\tt IRARRPLVLHNGLIDLVFLYQNFYAHLPETLGTFTADLCEMFPAGIYDTKYAAEFHARFV}$ IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARF-IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV  ${\tt IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV}$ IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYASEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV  ${\tt IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV}$  ${\tt NRRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARF}$ IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYONFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV IRARRPLVLHNGLIDLVFLYQNFYAHLPENLGTFTADLCEMFPAGIYDTKYAAEFHARFV 

ASYLEYAFRKCERENGKQRAAGSPHLTLEFCNYPSSMRDHIDYRCCLPPAT-HRPHPTSI

ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTYHRSHTGGI ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTYHRSHTSGI

ASYLEYAFRKCERENGKQRAAGGPHLALEFCSYPSSMRGHIDYRCCMSPVTDRRSYATGI ASYLEYAFRKCERENGRQQAVGSPHLALEFCSYPSSMRGHIDYRCCMSPVTCRRSYTTGI

ASYLEYAFRKCERENGKRRAAGTPHLVLEFCSYPSSMRGHIDYRCCLSPVTYRRSHTTSI

Psammomys-obesus
Meriones-unguiculatus
Acomys-russatus
Mastomys-coucha
Phodopus-roborovskii
Cricetulus-griseus
Mesocricetus-auratus
Neotoma-lepida
Onychomys-torridus
Peromyscus-californicus-insignis
Mus-caroli
Mus-pahari

ASYLEYAFRKCERENGKQRAAGTPHLALEFCSYPSSMRGHIDYRCCMSPVTYRRSHTTGI
ASYLEYAFRKCERENGKQRAAGTPHLALEFCSYPSSMRSHIDYRCCISPVTYRRSHTTGI
------FCSYPSSMRDHIDYRCCMSPVTYRRSHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLTLEFCSYPSSMGGHIDYRCCMSPVTHRRSHTSSI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTYRRFHTSGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCTSPGTCRRSRPTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTCRRSHTTGI
ASYLEYVFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTCRRSHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTCRRSHTTGI
ASYLEYAFRKCERENGKRQAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTSRRSHTTGI
ASYLEYAFRKCERENGKRQAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTSRRSHTAGI
ASYLEYAFRKCERENGKRQAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTSRRSHTTGI
ASYLEYAFRKCERENGKRQAAGSPHLALEFCSYPSSMRGHIDYRCCMSPVTSRRSHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSNMRGHIDYRCCMPPVTCRPPHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSNMRGHIDYRCCMPPVTCRPPHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSNMRGHIDYRCCMPPVTCRPPHTTGI
ASYLEYAFRKCERENGKQRAAGSPHLALEFCSYPSNMRGHIDYRCCMPPVTCRPPHTTGI

Arvicanthis-niloticus
Myodes-glareolus
Chionomys-nivalis
Microtus-ochrogaster
Apodemus-sylvaticus
Mus-musculus
Rattus-norvegicus
Rattus-rattus
Homo-sapiens

Psammomys-obesus

Mastomys-coucha

Neotoma-lepida

Mus-musculus

Rattus-rattus

Neotoma-lepida

Mus-caroli

Homo-sapiens

Mus-pahari

Arvicanthis-niloticus

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Meriones-unguiculatus Acomys-russatus

Phodopus-roborovskii

Cricetulus-griseus Mesocricetus-auratus

Rattus-norvegicus

Rattus-rattus

Rattus-rattus

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Chionomys-nivalis Microtus-ochrogaster

Apodemus-sylvaticus

Psammomys-obesus

Onychomys-torridus

Rattus-norvegicus

Meriones-unguiculatus Acomys-russatus

Phodopus-roborovskii

Cricetulus-griseus Mesocricetus-auratus ASYLEYAFRKCERENGKQRAAGSPHVALEFCSYPSSMRGHIDYRCCMSPVSCRRSHTTGI
CDNFSAYGWCPLGPQCPQSHDIDLIIDTDEAAAEDKRRRR--RREKRKRALLNLPGTQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRRRALLSQPGMQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRRRALLSQPGMQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRKR--RRKDKRRRALLRQPGTQT
CDKFSAYGWCPLGPECPQSHDIDLIIDTDEAVAEDKRRKR-RKDKRRRALLRQPGTQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR-RKDKRRRALLSQLGTQN
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRRRALLSQLGTQN
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPETQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPETQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRRRALLSQPETQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGAQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGAQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGAQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGAQT
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGTQA
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGTQA
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGTQA

Onychomys-torridus
Peromyscus-californicus-insignis
Mus-caroli
Mus-pahari
Arvicanthis-niloticus
Myodes-glareolus
Chionomys-nivalis
Microtus-ochrogaster
Apodemus-sylvaticus

CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALQSQPQTQT
CTKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDRRKRALLNQPGTET
CTKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDRRKRALLSQPGTGT
CTRFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDRRKRALLSQPGTET
CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALLSQPGTET

CDKFSAYGWCPLGPQCPQSHDIDLIIDTDEAVAEDKRRRR--RRKDKRKRALQSQPGTQN

Homo-sapiens
Psammomys-obesus
Meriones-unguiculatus
Acomys-russatus
Mastomys-coucha
Phodopus-roborovskii
Cricetulus-griseus
Mesocricetus-auratus

Peromyscus-californicus-insignis

SGEAKDGPPKKQVCGDSIKPE-----ETEQEVAAD FEEAEEGPPTKOVCEDSLKTE-----NTEOKVAEG FEEAEEGPPTKQVCEDSLKTE-----NPEOKVAEG FEEGEDGPPTKQVREDSLNTE-----NTEQKVAEG LEEAEGGPPTKOVCEDSLKAE-----KMEOKVAEG FEEADDGPPTKQVCEDNLKTQ-----ELEORVTER FEEAEDGPPTKQVCEDSLKTE-----EMEQRVTEG FEEAEDGPPTKQVCEDNLKTE-----EIEQRVTEG FEEAEDGPPTKQVCEDSLKTE-----EIEOKVTEG FEEAEDGPPTKQICEDSLKTE-----ETEQKVTEG FEEAEDGPPTKQVCEDSLKTE-----EIEOKVTEG LAEAEDGPPTKQVCEDSLKTE-----KMEOKVAEG LAEAEDGPPTKQVCEDSLKTE-----KMEQKVAEG LEEAEDGPPTKQVCEDSLQTE-----KIEQIMAEG FEEAEDGPPTKQVCEDSLKTE-----IEOKVTEG FEEAEDGPPTKQVCEDSLKTETEQKVTEGESRDQAEDGLPTKQVCEGSLKTEIEQKVTEG

Mus-pahari
Arvicanthis-niloticus
Myodes-glareolus
Chionomys-nivalis
Microtus-ochrogaster
Apodemus-sylvaticus
Mus-musculus
Rattus-norvegicus
Rattus-rattus

LEEAEDGPPTKQVCEDSLKTE-----KIEQKVAEG

ETRNLPHSKQGNKNDLEMGIKAARPEIADRATSEVPGSQASPNPVPGDGLHRAGFDAFMT

FEEAEDGPPIKOVCEDSLKTE-----IEOKVTEG

LEEAEDGPPTKQVCEDNVKTE-----KVEQKVAEG

Meriones-unguiculatus
Acomys-russatus
Mastomys-coucha
Phodopus-roborovskii
Cricetulus-griseus
Mesocricetus-auratus
Neotoma-lepida
Onychomys-torridus
Peromyscus-californicus-insignis
Mus-caroli

 ${\tt ETRDQPGSKQGHKGGLEMEHEAVSSEIADVATSELPVNQTSPNPVPGDGLHRAGFDAFMT}$ ETRDOVGSKOGHEGGLEMEHEAPSSEIADVATSELPVNOASPNPVPGDGLHRAGFDAFMT ETSDQLGSKQGHKGGLEMKHEATGSETADVATSELQVNQASPNPVPGDGLHRAGFDAFMT DAGDQLGSRQGHTGSLEIAHRRTSAETADVAPSELPVSQASTNPLPGDGLHRAGFDAFMT ETRDELDSKOGHKSDLEMEHKATGSETADVAISELPVSOASPNPMPGDGLHRAGFDAFMT ETRDELGSKQAHKSGLEMEHKATSSETVDVATTELPVSQASPNPVPGDGLHRAGFDAFMT EIRDELGSKOAHKSGSEMEHKATSSETVDVATSELPVSOASPNPVPGDGLHRAGFDAFMT  ${\tt ETRDQLGSQQGHKSSLEIEYKATSSKIADVATSELPVSQASPNPMPGDGLHRAGFDAFMT}$  ${\tt ETKDQLGSQQDHKSGLAIRRKATSSETADVATSELPVSQANPNPVPGDGLHRAGFDAFMT}$ ETRDQLGSQQGHKSGLAVERKATSSETAEVATSELPVSQANPNPGPGDGLHRAGFDAFMT EAGDOPGSREGHTSSLEMAHRRTSAETADVATSELLVNOASTNPVPGDGLHRAGFDAFMT EAGDQPGSRQDHTGSLEMEHRRTRAETAEVATSELLVSQARTDPVPGDGLHRAGFDAFMT EAKDQLGSKQGHTGSLVMAHKRTSSETADMATSDLLVNQGSTNPVPGDGLHRAGFDAFMT  ${\tt ETRDQLGSNQDHKSDLEVEHKATSSEIADVAASELPVSQASPNPVPGDGLHRAGFDAFMT}$ GSKOCHNSDLEVEHKATSSEIADVAASELPASOASPNPVPGDGLHRAGFDAFM ESRDQLGSKQDQNSDLEVEHKATSSEIADVAASELPVSQASPNPVPGDGLHRAGFDAFMT EAGDELGSRQGHTGSPEMAHR-TSADTADVATSELPVNQANANPVPGDGLHRAGFDAFMT \_\_\_\_\_\_

GYVMAYVEVSQGPQPCSSGPWLPECHNKVYLSGKAVPLTVAKSQFSRSSKAHNQKMKLTW GYVMAYVGLSQGTQLCSSEPWLPECHNKVYLSGKTVPLTVAKSQFSRPSKAHNQKMKLAW GYVMAYVGLSOGTOLCSSEPWLPECHNKVYLSGKTVPLTVAKSOFSRPSKAHNOKMKLAW  ${\tt GYVMAYVGLSQGLQLCSSEPWLPECHNKVYLSGKTVPLTVAKSQFSRPSKAHNQKMKLAW}$ GYVMAYVGLSQGLQLCSSEPWLPKCHNKVYLSGKTVPLTVAKSQFSHPSKAHKQKMKLAW GYVMAYVGLSOGPOLCSSGPWLPECHNKVYLSGKTVPLTVAKSOFSHSSKAHNOKMKLAW GYVMAYVGLSQGPQLCSSRPWLPECHNKVYLSGKTVPLTVAKSQFSHSSKAHNQKMKLAW GYVMAYVGLSQGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSHSSKAHNQKMKLAW GYVMAYVGLSQGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSRSSKAHNQKMKLAW GYVMAYVGLSQGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSRSSKAHNQKMKLAW GYVMAYVGLSQGPQLCSSGPWLPECHNKVYLSGKTVPLTVARSQFSRSSKAHNQKMKLAW GYVMAYVGLSQGLQLCSSEPWLPECHNKVYLSGKTVPLTVTKSQFSRPSKAHNQKMKLAW GYVMAYVGLSQGLQLCSSEPWLPECHNKVYLSGKTVPLTVAKSQFSRPSKAHNQKMKLAW GYVMAYVGLSQGLQLCSSEPWLPECHNKVYLSGKTVPLTVAKSQFSRPSKAHNQKMKLAW GYVMAYVGLRHGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSRSSKAHNQKMKLAW GYVMAYVGLRHGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSRSSKAHNQKMKLAW GYVMAYVGLRHGPQLCSSGPWLPECHNKVYLSGKTVPLTVAKSQFSRSSKAHNQKMKLAW GYVMAYVGLSQGLQLCSSEPWLPECHNKVYLSGKTVPLTVAKSQFSRPSKAHNQKMKLAW -----SLATHI----------PMA-----

Onychomys-torridus
Peromyscus-californicus-insignis
Mus-caroli
Mus-pahari
Arvicanthis-niloticus
Myodes-glareolus
Chionomys-nivalis
Microtus-ochrogaster
Apodemus-sylvaticus
Mus-musculus

GSS

Homo-sapiens GSS Psammomys-obesus Meriones-unguiculatus GSS Acomys-russatus GNS Mastomys-coucha GSS Phodopus-roborovskii SSS Cricetulus-griseus GSS Mesocricetus-auratus GSS Neotoma-lepida GSS Onychomys-torridus GSS Peromyscus-californicus-insignis GSS Mus-caroli GSS Mus-pahari GSS Arvicanthis-niloticus GSS Myodes-glareolus GSS Chionomys-nivalis GSS Microtus-ochrogaster GSS Apodemus-sylvaticus GSS Mus-musculus ---Rattus-norvegicus GAL

GSS