

Supplement 3

Sodium Action Potentials in Placozoa: Insights into Behavioral Integration and Evolution of Nerveless Animals

Daria Y. Romanova^{1¶}, Ivan V. Smirnov^{1¶}, Mikhail A. Nikitin^{2¶}, Andrea B. Kohn³, Alisa I. Borman⁴, Alexey Y. Malyshev¹, Pavel M. Balaban^{1*}, Leonid L. Moroz^{3,5*}

¹Institute of Higher Nervous Activity and Neurophysiology, Moscow 117485, Russia; ²Belozersky Institute of Physico-Chemical Biology, Moscow State University, Moscow 119991, Russia; ³Whitney Laboratory for Marine Bioscience, University of Florida, St. Augustine, FL, 32080, USA; ⁴Department of Evolutionary Biology, Biological Faculty, Lomonosov Moscow State University, Moscow 119991, Russia; ⁵Departments of Neuroscience and McKnight Brain Institute, University of Florida, Gainesville, FL, 32610, USA

Supplementary Data 2: Alignments of predicted sequences encoded Na_v channels in Placozoa: *Trichoplax adhaerens* (H1 haplotype), *Trichoplax* sp. (H2 haplotype), *Hoilungia* sp. (H4 haplotypes), *Hoilungia hongkongensis* (H13 haplotype).

Yellow – polar, acidic amino acids

Light blue – polar, basic amino acids

Grey – non-polar, hydrophobic amino acids

Green – polar, uncharged amino acids

Purple - cysteine

Abbreviations:

DI - Domain I

DII - Domain II

DIII - Domain III

DIV - Domain IV

Inactivation gate

H1_Nav1 1 -----MKGGIRIGHFFRRRQRRTSPLER-----PNDPDDQQTQNNERDLTWTHAQSQSNGQHIANLEPS--PDVVGEEEDIHQGKK
 H2_Nav_1 0 -----
 H4_Nav_1 1 -----MKSGIRMSLIFGRGKRKTSPIEKTDVVNPDDKQVQKKNPPGGNLTWTLAQNPQKDHPEINVVN--TSVDKNGEVKNQTK
 H13_Nav1 0 -----
 H1_Nav_2 1 -----MDQGYGHVISVNT---PDYEDWKDFNQNRK
 H2_Nav_2 1 -----MDQGYGHVISVNT---PDYEDWKDFNQNRK
 H4_Nav_2 1 -----MEANNKYVVPVS---ANMPYEDFDQSRK
 H13_Nav_2 1 -----MEANNKYVVPVS---ANMPYEDFDQSRK
 H1_Nav_3 1 -----MANTNPELVNDGFSQKDVQKQNFRESLTPVKNLDYAMSNSDENRTDVDTGKKD--AVKVEDDIEESKR
 H2_Nav_3 0 -----
 H4_Nav_3 1 -----MSDADIDLVKDRYNRISVKRRRVHQPPIEDNVNTQSVPLNDRNDVVEENDRACQONSEODDIEESKR
 H13_Nav_3 1 -----MSDADIDLVKDRYNRISVKRRVRQPSPIEDNVNTQSVPLNDRNDVASENDRACQONSEODDIEESKR
 H1_Nav_4 1 MRQFAFEICNALLALLHIATLDGWKAIMRNAVDAARGRNLMPEALFNTPARIFILFIVGVFITLNLIAAGVIID--HFYNSRKEEYEMRKG
 H2_Nav_4 0 -----
 H13_Nav_4 0 -----
 H4_Nav_4 1 -----MKTKTLNITVGVKADGRTEIELHDLQNVEEE--GSSCEDITDHSMS
 H1_Nav_5 1 -----MAFSNRNNVRRKSTYHIDINADGGAEVKLLKDVQAVTDD--DSDIEVVSTDENSR
 H2_Nav_5 1 -----MAFSNRNNVRRKSTYHIDINADGGAEVKLLKDVQAVTDD--DSDIEVVSTDENSR
 H4_Nav_6 0 -----
 H13_Nav_6 0 -----
 H13_Nav_7 1 -----MVSETGRRRRSVYTVGVTVDGDARVRFEDILPVKDD--DSDILAEESDQLGN
 H4_Nav_7 1 -----MVSETDRRRRSVYNVGVTVDGDARVRFKDIILPVKDD--DSDILAEESDQLGN
 H4_Nav7 1 -----MVSETGRRRRSVYTVGVTVDGDARVRFEDILPVKDD--DSDILAEESDQLGN
 H13_Nav_7 1 -----MVSETGRRRRSVYTVGVTVDGDARVRFEDILPVKDD--DSDILAEESDQLGN

 H1_Nav1 74 KKKFSNPLYENLLAKGVVGKYVED-----VDPDQQNGFS-----
 H2_Nav_1 0 -----
 H4_Nav_1 80 KKKKLNPVYENLLAKGVVGKYVED-----VDPNQNTFC-----
 H13_Nav1 0 -----
 H1_Nav_2 27 -----CINEQIKKNHLTGKLVKD-----FDQQQTDVSAIFI-----
 H2_Nav_2 27 -----CINEQIKKNHLTGKLVKD-----FDQQQTDVSAIFI-----
 H4_Nav_2 26 -----YINEKIKEQKLPGKLIIRD-----FDEDQIDTVCLLTRRMNSYVY-----RYHTSKALYFFPPNPNP
 H13_Nav_2 26 -----FINEKIKEQKLPGKLIIRD-----FDEDQLDVTCLLTRRMNSYVY-----RYHTSKALYFFPPNPNP
 H1_Nav_3 66 -----LIIQIKIEGLIDVYVQD-----IDPEQENYVGL-----NLIVEVAIIKTTLK
 H2_Nav_3 0 -----
 H4_Nav_3 67 -----LIIQIEREGLVGIYIKE-----SDPEQHNTVCVLRRRRMGEYQIH-----RFNSSPSLFLVLPQTNP
 H13_Nav_3 67 -----LIIQIEREGLVGIYIKE-----SDPEQHNTVCVLRRRRMGEYQIH-----RFNSSPSLFLVLPQTNP
 H1_Nav_4 89 KNIESLFTESQLQWYKMMKKLMRTKLVKSIPPAKFGWQKLRVFFEDRRYEAFNIAVVFVNMVMTATHYQSAQITTTLSIALFKGVKK
 H2_Nav_4 0 -----
 H13_Nav_4 0 -----
 H4_Nav_4 46 -----NRYLKLEQSQAIGKYVMD-----FDP-----
 H1_Nav_5 52 -----RYRILEESQLIGKYVVD-----FDETQDNV-----
 H2_Nav_5 52 -----RYRILEESQLIGKYVVD-----FDETQDNVFCIIVRRFGSYEVY-----
 H4_Nav_6 0 -----
 H13_Nav_6 0 -----
 H13_Nav_7 50 -----RYRTLEDSNVIGKYVVD-----FDASQKH-----
 H4_Nav_7 50 -----RYRTLEDSNVIGKYVVD-----FDASQKHTFCIITKRFGQYDIH-----RFNTARSIFLFPDNW
 H4_Nav7 50 -----RYRTLEDSNVIGKYVVD-----FDASQKHTFCVITKRFGQYDIH-----RFNTARSIFLFPDNW
 H13_Nav_7 50 -----RYRTLEDSNVIGKYVVD-----FDASQKHTFCIITKRFGQYDIH-----

 H1_Nav1 107 -NGQNLSLTLATFFDFVLLIILS-----NCVLLAFRP-----EEISSYNTIEIGYNVVYTIEMTLKIIARGFIIHRFAYLRDPWN
 H2_Nav_1 0 -----
 H4_Nav_1 113 -----IITFRS-----EEIPSYNAVEIGYNIYVTVEMCFKITARGFILHRYAYLRDPWN
 H13_Nav1 1 -----MNTFFDFFILLTILS-----NCILLAFRS-----EEIPSYNAVEIGYNIYVTVEMCFKITARGFILHRYAYLRDPWN
 H1_Nav_2 58 -----NCVLMAFP-----GIDPSIEITFNTIYTVEMLLKIMARGFIFHTYAYLRDPWN
 H2_Nav_2 58 -----NCVLMAFP-----GIDPSIEITFNTIYTVEMLLKIMARGFIFHTYAYLRDPWN
 H4_Nav_2 83 MRLIAMRITSNQFFDIFIFITIFT-----NCVLMAFP-----GFDSSLEIVFNAIYTEMILKILARGFVLHNYAYLRDPWN
 H13_Nav_2 83 MRLIAMRITSNQFFDIFIFITIFT-----NCVLMAFP-----GFDSSLEIVFNAIYTEMILKILARGFVLHNYAYLRDPWN
 H1_Nav_3 110 LLFAKESKKYLRYFEMTLILVILA-----NCIFVAFPTQKSDINALSDMEYVSIYGFNFVYTIEMLLKIVARGFISHQFAYLRDPWN
 H2_Nav_3 1 -----MTLILVILA-----NCIFVAFPTQKSDINALSDMEYVSIYGFNFVYTIEMLLKIVARGFISHQFAYLRDPWN
 H4_Nav_3 124 LRKAASIVTNQYFEMLLILVILA-----NCIFVAFSPKSDTGALDMEYISIAFNAFYTEMILKIIARGFILHRYAYLRDPWN
 H13_Nav_3 124 LRKAASIVTNQYFLPHSSSKTT-----NCIFVAFSPKSDTGALDMEYISIAFNAFYTEMILKIIARGFILHRYAYLRDPWN
 H1_Nav_4 179 QGTIDNTLNFQSYTKATIILIQLSTASGWTDFLDALSIQPPDCVPSNTEETIIPGTGCGSRVLATIIYIITYMIMAWFILINLFIIVILNN
 H2_Nav_4 0 -----
 H13_Nav_4 1 -----MTLKILARGLISKKFTFLRDPWN
 H4_Nav_4 67 -----MLR-----KCTSDIFYF-----YLSGRITFNVIYTIEMLLKILARGLFSKKFTFLRDPWN
 H1_Nav_5 77 -----STTNRIGRFLTRFIPIEMLLKITARGLFRHKFCFLRDLWN
 H2_Nav_5 91 -----RFNTAKSLFVLEPDN
 H4_Nav_6 1 -----MAIFLTLA-----NCITIALPY-----PTPFAVLVIFNVIYTLKEMGIKIVARGLIGHRRFTFLRSFWD

H13_Nav_6 1 -----MAIFLTLA-----NCITIALPY-----PTPFAVLVIFNVIYTL**EMGIK**IIVARGLIGHRFTFLRSLWN
H13_Nav_7 74 -----YFELAILLTIIT-----NCVLIALPY-----AIPLYATIIFNAIYTL**EMVLK**IIARGFILKKFTFLRDLWN
H4_Nav_7 106 IRYLAIKI-----YFELAILLTIIT-----NCVLIALPY-----AIPLYATIIFNAIYTL**EMVLK**IIARGFIRKKFTFLRDLWN
H4_Nav7 106 IRYLAIKIVTSH-----NCVLIALPY-----AIPLYATIIFNAIYTL**EMVLK**IIARGFIWKKFTFLRDLWN
H13_Nav_7 89 -----RFNARSILLFKPDN

H1_Nav1 183 **WDLFL**-----VVVLGFVAaipqLSYI---PGIGVVRVFRALRM-----ITVIDGLKTMVNAMLK**S**
H2_Nav_1 0 -----
H4_Nav_1 163 **WLDFT**-----VVVLGYIAAIPALSIV---PGIGVVRVFRALRM-----ITVIDGLKTMVNAMFK**S**
H13_Nav1 68 **WLDFT**-----VVVLGYIAAIPALSIV---PGIGVVRVFRALRM-----ITVIDGLKTMVNAMFK**S**
H1_Nav_2 108 **WLDFI**-----VVIVGYLTMIPALSVL---PGASVIRVLRALRM-----ITALEGLKAIVNALFK**S**
H2_Nav_2 108 **WLDFI**-----VVIVGYLTMIPALSVL---PGASVIRVLRALRM-----ITALEGLKAIVNALFK**S**
H4_Nav_2 156 **WLDFT**-----VVIVGYLTMIPALSVL---PGASIIRVLRALRM-----ITALEGLKAIVNALFK**S**
H13_Nav_2 156 **WLDFI**-----VVIVGYLTMIPALSVL---PGASIIRVLRALRM-----ITALEGLKAIVNALFK**S**
H1_Nav_3 191 **WLDFI**-----IVIMGYLTLIPALSVL---PSISSVRVLRALRM-----ITAIKGLKTIVNAI**HS**
H2_Nav_3 67 **WLDFI**-----IVIMGYLTLIPALSVL---PSISSVRVLRALRM-----ITAIKGLKTIVNAI**HS**
H4_Nav_3 205 **WLDFI**-----IVIMGYLTLIPALSVL---FSISSLRVLRALRM-----ITAIKGLKTIVNAI**HS**
H13_Nav_3 205 **WLDFI**-----IVIMGYLTLIPALSVL---FSISSLRVLRALRM-----ITAIKGLKTIVNAI**HS**
H1_Nav_4 269 **YQDCVE**ADSANIT**EED**IQGF**F**EWAKY**D**RKATQ**F**IHYNMLSP**LL**ND**LL**PPFGSP**IP**NTY**VC**ISLN**LP**Y**DD**TK**I**HC**LD**LIRALLNK**VM**K**D**
H2_Nav_4 0 -----
H13_Nav_4 24 **WLDLI**-----IVIVGYATLIPGL**EHV**---PAISAIRVFRALRM-----FTIIEGLKRILNAI**IQS**
H4_Nav_4 118 **CLDLV**-----IVLVGYITLIP**LEAI**---PGMSALRVFRALRM-----FTIIEGLKKILNAI**IQS**
H1_Nav_5 118 **WLDLV**-----IVIVGYTVFV**PGL**NVI---PGISVIRVLRALRM-----VTMVKGLKSIVNAV**FQS**
H2_Nav_5 107 **WIRYL**-----AGS-----
H4_Nav_6 59 **WFDLL**-----IVIIGYMIFIP**PAIS**II---PGISIVRVLRALRM-----FTI**IK**GLKRIVNAI**LKS**
H13_Nav_6 59 **WFDLV**-----IVIIGYIIFIP**PAIS**II---PGISIVGVLRALRM-----FTI**IK**GLKRIVNAI**LKS**
H13_Nav_7 136 **WLDLV**-----IVIIGYTVFIP**V**LNVI---PGVSVIRVLRALRM-----FTI**VK**GLKGILNAI**FQS**
H4_Nav_7 175 **WLDLV**-----IVIIGYTVFIP**V**LNVI---PGVSVIRVLRALRM-----FTI**VK**GLKGILNAI**FQS**
H4_Nav7 167 **WLDLV**-----IVIIGYTVFIP**V**LNVI---PGVSVIRVLRALRM-----FTI**VK**GLKGILNAI**FQS**
H13_Nav_7 105 **WIRYL**-----

H1_Nav1 234 -----LRMLT**D**VF-----YLTIF**FL**CF**I**FALLGLQMF**MG**VL**SQK**CCL-PY-----
H2_Nav_1 0 -----
H4_Nav_1 214 -----LRMLT**D**VF-----YLTIF**FL**CF**I**FALLGLQMF**MG**VL**SQK**CCL-PY-----
H13_Nav1 119 -----LRMLT**D**VF-----YLTIF**FL**CF**I**FALLGLQMF**MG**VL**SQK**CCL-PY-----
H1_Nav_2 159 -----FRMLAD**V**F-----CLALFIL**I**IIFALIGV**Q**LFMGIL**TQK**CC**R**-PF-----
H2_Nav_2 159 -----FRMLAD**V**F-----CLALFIL**I**IIFALIGV**Q**LFMGIL**TQK**CC**R**-PF-----
H4_Nav_2 207 -----FKMLAD**V**F-----CLALFIL**I**IIFALIGV**Q**LFMGVL**TQK**CC**R**-PF-----
H13_Nav_2 207 -----FKMLAD**V**F-----CLALFIL**I**IIFALIGV**Q**LFMGVL**TQK**CC**R**-PF-----
H1_Nav_3 240 -----MNMLAN**V**L-----SLTLL**FL**TGFALL**GV**QLFM**GV**LS**RK**CI**KQ**R**F**-----
H2_Nav_3 116 -----MNMLAN**V**L-----SLTLL**FL**TGFALL**GV**QLFM**GV**LS**RK**CI**KQ**R**F**-----
H4_Nav_3 254 -----MDMLAN**V**L-----SLTLL**FL**IAFALL**GV**QLFM**GV**LS**RR**CV**KH**PF-----
H13_Nav_3 254 -----MDMLAN**V**L-----SLTLL**FL**IAFALL**GV**QLFM**GV**LS**RR**CV**KH**PF-----
H1_Nav_4 359 **VIG**E**I**S**Q**E**F**E**E**E**Y**D**L**L**M**K**K**I**A**E**V**C**K**T**K**F**P**K**W**K**P**Q**N**S**Q**V**K**K**T**S**A**V**F**Y**N**E**A**K**S**V**I**L**L**R**A**A**F**Q**H**W**R**Q**E**T**A**K**-**K**F**K**Q**R**K**V**S**V**I**N**V**G**I**K**A**S**G**K**A**K
H2_Nav_4 1 -----MLV**T**V**L**-----SLT**L**Y**F**L**C**G**V**S**L**L**G**V**Q**L**F**M**G**I**L**T**R**K**C**C**K**-**T**Y-----
H13_Nav_4 75 -----INML**L**T**V**L-----SLT**L**F**Y**L**C**G**T**S**L**S**V**Q**L**F**M**G**V**L**T**R**K**C**C**L**-**TY-----
H4_Nav_4 169 -----MNMLAN**V**L-----SLT**L**F**L**C**G**AS**L**SA**Q**L**F**M**G**V**L**T**R**K**C**C**L**-TY-----
H1_Nav_5 169 -----I**H**ML**I**T**V**L-----SLT**L**F**F**L**C**G**V**ALL**GV**QL**F**M**G**V**L**T**R**K**C**C**L**-----
H2_Nav_5 114 -----M**E**LAG**F**G**Y**-----C**S**R**I**Y**S**I**C**T**R**L**K**C**N**P**R**Y**Q**R**Y**S**S**S**K**S-----
H4_Nav_6 110 -----FN**K**L**I**T**V**L-----SLT**L**F**F**L**C**G**V**T**L**L**G**V**Q**L**F**M**G**V**L**T**R**K**C**C**I**-TY-----
H13_Nav_6 110 -----FN**K**L**I**T**V**L-----SLT**L**F**F**L**C**G**V**T**L**L**G**V**Q**L**F**M**G**V**L**T**R**K**C**C**I**-TY-----
H13_Nav_7 187 -----LS**M**L**M**T**V**L-----SLT**L**F**F**L**C**G**V**ALL**GV**QL**F**M**G**I**L**T**R**K**C**C**L**-TY-----
H4_Nav_7 226 -----LS**M**L**M**T**V**L-----SLT**L**F**F**L**C**G**V**ALL**GV**QL**F**M**G**I**L**T**R**K**C**C**L**-TY-----
H4_Nav7 218 -----LS**M**L**M**T**V**L-----SLT**L**F**F**L**C**G**V**ALL**GV**QL**F**M**G**I**L**T**R**K**C**C**L**-TY-----
H13_Nav_7 109 -----G**D**K**D**C**N**-----

H1_Nav1 272 -----D**Y**N**R**S**A**I**D**P**S**P**S**T**L**Q**S**Y**V**L**N**E-----TLAN**W**-----L**R**D**G**-**D**D**Y**I**C**G**N**S**S**T**A**R**S**C**S**K**S**Y**S**P**N**H**V**C**Y**E**G**A
H2_Nav_1 0 -----
H4_Nav_1 252 -----D**Y**N**R**S**T**T**D**P**D**Y**P**A**T**L**Q**K**Y**V**L**N**E**-----TLAG**W**-----L**K**E**G**-**D**D**Y**I**C**G**N**S**S**T**A**R**N**C**S**K**S**Y**S**S**H**I**C**Y**E**G**A**
H13_Nav1 157 -----D**Y**N**R**S**T**T**D**P**D**Y**P**A**T**L**Q**K**Y**V**L**N**E**-----TLAG**W**-----L**K**E**G**-**D**D**Y**I**C**G**N**S**S**T**A**R**N**C**S**K**S**Y**S**S**H**I**C**Y**E**G**A**
H1_Nav_2 197 -----N**S**T**G**D**I**V**G**P**F**T**T**T**K**F**K**N**Y**V**N**V**S**-----S**-**N**W**-----Y**F**E**N**-**G**D**P**V**I**C**G**N**E**S**S**A**R**H**C**---P**A**D**Y**L**C**Y**Q**Y**A**
H2_Nav_2 197 -----N**S**T**G**D**I**V**E**P**F**T**M**T**K**F**K**N**Y**V**N**V**S**-----S**-**N**W**-----Y**F**E**N**-**G**D**P**V**I**C**G**N**E**S**S**A**R**H**C**---P**V**D**Y**L**C**Y**Q**Y**A**
H4_Nav_2 245 -----N**S**T**G**I**P**G**P**F**T**M**A**K**F**K**S**Y**A**N**D**S-----S**-**N**W**-----Y**Y**D**N**-**S**E**P**I**L**C**G**N**G**S**S**A**R**H**C**---P**S**D**Y**L**C**Y**Q**Y**A**
H13_Nav_2 245 -----N**S**T**G**I**P**G**P**F**T**M**A**K**F**K**S**Y**A**N**D**S-----S**-**N**W**-----Y**Y**D**N**-**S**E**P**I**L**C**G**N**G**S**S**A**R**H**C**---P**S**D**Y**L**C**Y**Q**Y**A**
H1_Nav_3 279 -----D**F**N**A**T**Y**---N**S**S**K**A**F**N**D**Y**I**T**N**S-----K**-**N**W**-----V**T**S**G**T**E**S**S**I**C**G**N**D**S**F**T**R**Q**D**Y**I**Q**K**G**S**V**C**Y**Q**D**A
H2_Nav_3 155 -----D**F**N**A**T**Y**---N**S**S**K**A**F**N**D**Y**I**T**N**S-----K**-**N**W**-----V**T**S**G**T**E**S**S**I**C**G**N**D**S**F**T**R**Q**D**H**I**Q**K**G**S**V**C**Y**Q**D**A
H4_Nav_3 293 -----N**Y**T**E**N**V**T**Y**Q**D**Y**L**A**A**K**S**Y**I**T**N**S-----A**-**N**W**-----V**Y**E**G**D**G**E**S**I**C**G**N**S**L**A**R**N**C**S**L**I**S**P**G**A**F**C**Y**Q**D**A
H13_Nav_3 293 -----N**Y**T**E**N**V**T**Y**Q**D**Y**L**A**A**K**S**Y**I**T**N**S-----A**-**N**W**-----V**Y**E**G**D**G**E**S**I**C**G**N**S**L**A**R**N**C**S**L**I**S**P**G**A**F**C**Y**Q**D**A
H1_Nav_4 448 **I**E**R**Q**D**V**E**E**V**D**E**S**E**S**E**V**E**A**T**T**S**T**D**E**L**A**V**K**Y**R**K**L**E**E**S**H**V**V**G**K**Y**V**E**D**Y**D**A**M**Q**N**G**F**A**T**R**R**E**V**L**E**R**V**E**N**N**V**I**V**E**L**L**R**L**Y**K**A**C**---P**S**G**Y**S**C**Y**E**G**I**
H2_Nav_4 36 -----N**W**N**Q**T**D**Y**D**V**D**G**-**L**S**F**D**L**F**I**K**N**K**-----T**-**N**W**-----L**Y**S**G**-**G**S**T**V**L**C**S**N**S**S**I**N**T**A**C**---P**S**G**Y**S**C**Y**E**G**I**
H13_Nav_4 113 -----N**V**N**Q**T**Y**L**N**Q**T**Y**T**P**S**F**N**T**F**I**Q**N**T**-----S**-**N**W**-----L**Y**V**G**-**G**S**S**V**V**C**S**N**A**S**T**N**L**Q**C**---P**S**G**Y**S**C**Y**E**G**L**

H4_Nav_4 207 -----DVNQTYLNNTYMPSTDFVKN-----S--NW-----LQIN-EEYVLCASNASKSLQC---PNGYSCYEGL
H1_Nav_5 205 -----TYNASNYNGSY-ASFNQFVNTTDDSEAFFKYWIG--NW-----LYID-GETKVCNGNTSDNYLC---PSGYSCYEGL
H2_Nav_5 148 -----DQNGDDGESKLPILIKVSGNLA-----VSGNW-----LYID-GETKVCNGNTSDNYLC---PSGYSCYEGL
H4_Nav_6 148 -----NTNHTDYNGSF-ISFNQFVLS-----S--NW-----YHVD-GKPVVCGNFSDNYMC---PSGYSCYEGL
H13_Nav_6 148 -----NTNHTDYNGSF-ISFNQFVLS-----S--NW-----YHVD-GKPVVCGNFSDNYMC---PSGYSCYEGL
H13_Nav_7 225 -----DFNQTNYNDSYLTFFNQFVNS-----S--NW-----YEVD-GSYPVCGNLTDNRYC---PTGYSCYEGL
H4_Nav_7 264 -----DFNQTNYNDSYLTFFNQFVNS-----S--NW-----YEVD-GSYPVCGNLTDNRYC---PTGYSCYEGL
H4_Nav7 256 -----DFNQTNYNDSYLTFFNQFVNS-----S--NW-----YKSD-GSYPVCGNLTDNRYC---PAGYSCYEGL
H13_Nav_7 115 -----MIALYISANSRC---PAGYSCYEGL

DI

H1_Nav_1 332 LPNPND-GYTSFDNFPISELLNSFQLVTDFWEDPYNKISDAVDIGYALFFVFVIIIGSFYLLNLVIAVSMAYNQEDRLMHDL-----
H2_Nav_1 0
H4_Nav_1 312 LPNPNN-GYTSFDNFPLSLLNSFQLVTDFWEDPYNKISDAVDIGYALFFVFVIIIGSFYLLNLVIAVSMAYNQEYRLMHDL-----
H13_Nav1 217 LPNPNN-GYTSFDNFPLSLLNSFQLVTDFWEDPYNKISDAVDIGYALFFVFVIIIGSFYLLNLVIAVSMAYNQEYRLMHDL-----
H1_Nav_2 252 YPNPND-GFTSFDNFVSLLSVFLITLDNWEDIYNKVNDAIDSWCIIFYIPVVLGAFVYMNLVIAIVAMAYNKEDKILQDQ-----
H2_Nav_2 252 YPNPND-GFTSFDNFVSLLSVFLITLDNWEDIYNKVNDAIDSWCIIFYIPVVLGAFVYMNLVIAIVAMAYNKEDKILQDQ-----
H4_Nav_2 300 YPNPND-GDRNFDNFPISELLVVFQVLTLDNWEDVYNKIHDVAVDSWCIIFYIPVVLGAFVYMNLVIAIVAMAYNKEDKLLQDQ-----
H13_Nav_2 300 YPNPND-GYTSFDNFPISELLVVFQVLTLDNWEDVYNKIHDVAVDSWCIIFYIPVVLGAFVYMNLVIAIVAMAYNKEDKLLQDQ-----
H1_Nav_3 335 FPNPGN--LTNYDTFPTSLLVCFQITSQDAWDEDYRS-----
H2_Nav_3 211 FPNPGN--LTNYDTFPTSLLVCFQITSQDAWDEDYRSIISALGPYYIPFFIFILFFGTYYVNLVLAIVIALAYNKEVRLMEDQASIIISM
H4_Nav_3 352 YVMVNHNTLNFYDTFSSLLVCFQVMSQDAWDEDYRAIISALGPYYIPFFFMVILFFGTFFVNLVLAIVIALAYNKEVRLMEDQ-----
H13_Nav_3 352 YVMVNHNTLNFYDTFSSLLVCFQVMSQDAWDEDYRAIISALGPYYIPFFFMVILFFGTFFVNLVLAIVIALAYNKEVRLMEDQ-----
H1_Nav_4 535 FPNPED-GLLNFDNLFASLYVNLQIITDQWDSYQSVLKASNTWYFFYFLAIFLGSDYLLNLILAVSMAYSKQEQLRSEQ-----
H2_Nav_4 90 FPNPED-GLLNFDNLFASLYVNLQIITDQWDSYQSVLKASNTWYFFYFLAIFLGSDYLLNLILAVSMAYSKQEQLRSEQ-----
H13_Nav_4 168 FPNPEN-GLLSFDNLFVLSLYVNLQIITDQWDSYQSVLKASNTWYFFYFLAIFLGSDYLLNLILAVSMAYSKQEQLLEEQ-----
H4_Nav_4 262 FPNPDY-GLFSFDNFIASLYVNLQIITDQWDSYQSVLKASNTWYFFYFLAIFLGSDYLLNLILAVSMAYSKQEQLLEEQ-----
H1_Nav_5 270 FPNPGR-GLLSFDNFPLSLYVNLQIVTDQWDTDYQTVLRATSIWYFPYFLAIFLGSDYLLNLILAVSMAYSKQKLVKEQ-----
H2_Nav_5 205 FPNPGR-GLLSFDNFPLSLYVNLQIVTDQWDTDYQTVLRATSIWYFPYFLAIFLGSDYLLNLILAVSMAYSKQKLVKEQ-----
H4_Nav_6 202 FPNPDD-NLLSFDNFGSGLFVNLIITDQWGDYQTVLRATNTWYFLYFLSIFFGTDYLMNLILAVISMAYSKQQLFEEQ-----
H13_Nav_6 202 FPNPDD-NLLSFDNFGSGLFVNLIITDQWGDYQTVLRATNTWYFLYFLSIFFGTDYLMNLILAVISMAYSKQQLFEEQ-----
H13_Nav_7 280 FPNPKD-GLLSFDNFPLSVFVNLIQIVTDNWDEDYQTVLKAANSMSFIYFAAIVFLGSDYLLNLILAVSMAYSKQKLEEM-----
H4_Nav_7 319 FPNPKD-GLLSFDNFPLSVFVNLIQIVTDNWDEDYQTVLKAANSMSFIYFAAIVFLGSDYLLNLILAVSMAYSKQKLEEM-----
H4_Nav7 311 FPNPKD-GLLSFDNFPLSVFVNLIQIVTDNWDEDYQTVLKAASPIFIYFAAIVFGSYLLNLILAVSMAYSKQKLEET-----
H13_Nav_7 138 FPNPKD-GLLSFDNFPLSVFVNLIQIVTDNWDEDYQTVLKAASPIFIYFAAIVFGSYLLNLILAVSMAYSKQKLEEDT-----

H1_Nav1 413 -----LLNHSMMIATKKSSVFPYSEKAPT LWT LQNPSQSNI EEGTVKKDAISINTTNTENDAI-----
H2_Nav_1 0
H4_Nav_1 393 -----LMNPNKMEATSKSSVFPYSEKAPKLWTPQSLNNDNVEAGSIKCEPGENVNGGHP ELVK
H13_Nav1 298 -----LMNPNKMEATSKSSVFPYSEKAPKLWTPQSPNNQDNVEAGSIKCEPGENVNGGHP ELVK
H1_Nav_2 333 -----KCDIRHMRESYRNSTVFFENEIPKLWIPKIGSNP-----
H2_Nav_2 333 -----KCDIRHMRESYRNSTVFFENEIPKLWIPKIGSNP-----
H4_Nav_2 381 -----KCDIRHMREA CKATVLF FFELELPSLWVPTASNQP-----
H13_Nav_2 381 -----KCDIRHMREA CKATVLF FFELELPSLWVPTASNQP-----
H1_Nav_3 369 -----NASKFNRLRASRGQSSF TFYPDTPVKRW HARTVHVNVE LLPRGFS AARRRIDLNL R-----
H2_Nav_3 299 TQKLDLIYYSENYYLYTMKILKDHKPMKYNASKFNRLRASRGQSSF TFYPDTPVKRW HARTVHVNVE LLPRGFS AARRRIDLNL R-----
H4_Nav_3 434 -----SASKFNRLKASKGQTFYFPDTPVKRWIPKSTKLNLFKRLRDRLSRTRTNINLRLRHIP
H13_Nav_3 434 -----SASKFNRLKASKGQTFYFPDTPVKRWIPKSVKLNLFKRLRDRLSRTRTNINLRLRHIP
H1_Nav_4 616 -----QNNFEK MVRTSRDQTIPYFLSPPHLWYPP-----
H2_Nav_4 171 -----QNNFEK MVRTSRDQTIPYFLSPPHLWYPP-----
H13_Nav_4 249 -----QNNVEK MIQTSRSDTSPYFLDAPPPLWVPP-----
H4_Nav_4 343 -----QNNVEK MIQTSRSETSMRYFLDTPPPLWVPP-----
H1_Nav_5 351 -----QTNIEKFIQMRNETLIPYLLVPPQLWQPA-----
H2_Nav_5 286 -----QTNIEKFIQMRNETLIPYLLVPPQLWQPA-----
H4_Nav_6 283 -----LHNPEK MIQTSKHETIIPYFCQPP ELWLPP-----
H13_Nav_6 283 -----LHNPEK MIQTSKHETIIPYFCQPP ELWLPP-----
H13_Nav_7 361 -----QNNFEK MIQTSRHHSNIPYVLD FPPQLWLPP-----
H4_Nav_7 400 -----QNNFEK MIQTSRHHSNIPYVLD FPPQLWLPP-----
H4_Nav7 392 -----QNNVEK MIQTSRHYTNIPYVLD FPPQLWLPS-----
H13_Nav_7 219 -----QINVEK MIQTSRHYTNIPYVLD FPPQLWLPS-----

H1_Nav1 474 KKNQSLQSSPRRLMKRTSLYEDALLSGIME-NKDLLRRLLIEINRECPDLSLPYTKSQSQEASKVSGKQNNHSDMASNSSD GSLDPNHGQ
H2_Nav_1 0
H4_Nav_1 455 KSSGYIPPSHKRLMKRTSLYEDALLSGIIE-SKEILRQLRIAINKECPDLS---MQSVSNEASDTSGKQCNQSDMASDLS EGS LDHQGGQ
H13_Nav1 360 KSSGYIPPSHKRLMKRTSLYEDALLSGIIE-SKEILRQLRIAINKECPDLS---MQSVSNEASDTSGKQCNQSDMASDLS EGS LDHQGGQ
H1_Nav_2 370 YGNHVLKIRNQGVLSSRSEGDIE MNLMK-----GRNGYNEEFKGLK NIGKPEQIPK-GNHIDQGS LKKEGK
H2_Nav_2 370 YGNHVLKIRNQGVLSSRSEGDIE MNLMK-----GRNGYNEEFKGLK NIGKPEQIPK-GNHIDQGS LKKEGK
H4_Nav_2 418 KLSNQIQQISSKESTQNSINERGIEMDLME-----GGKLRDRFRRHSGGLPSNSHKIVRSDDDRIGN
H13_Nav_2 418 KLSNQIQQISSKESTQNSINERGIEMDLME-----GGKLRDRFRRHSGGLPSNSHKIVRSDDDRIRN
H1_Nav_3 427 HNYDEELAPPDAYARNEDLGQTDNGLSPISLHNASTKNQHNHIGFTDEEGCITEHNDGPLQGRANCHDL DQGVKNGIDTLNSRRDEEE

H2_Nav_3 385 HNYDEELAPPDACARNEDLGQTDNGLSPISLHNAATKNQHNNIGFTDEEGCITEHNDGPLQGD RANCHDLQGGKVKNGIDTLNSRRDEEE
H4_Nav_3 496 HKSDNLPTGSTNATNPTFEESNQRLRLQRPNSVSVSHGHNDIAFSKDKDDHINRNRNLVLDSPNHHHPNDLNSVNGMNGFQDLSVQP
H13_Nav_3 496 HKSDNLPTGSTNATNPTFEESNQRLRLQRPNSVSVSHGHNDIAFSKDKDDHINRNRNLVLDSPNHHHPNDLNSVNGMNGFQDLSVQP
H1_Nav_4 648 RRKNILPIVLSGIRSSISLNSRHLDEKEDPS-----EYKDENKPTISRELIAFHNHGNDCEGGDDIMP
H2_Nav_4 203 RRKNILPIVLSGIRSSISLNSRHLDEKEDPS-----EYKDENKPTISRELIAFHNHGNDCEGGDDIMP
H13_Nav_4 281 KRKNVIVLSMSGIRTSFSHFSREQDEENSG-----QLDAYIRSSATHELQNFHGNNDNCEYAAANSQOLA
H4_Nav_4 375 DNRNILLNSLVSGRSSLSIHRHQDKHSSQN-----NSYEEESPVTHELHNIHEHDSNYEEAAADGQDLT
H1_Nav_5 383 GHAGCFISIFYSRLAKKPKKPKQHQNKISV-----NQSKIIEPSPFSYNTINSNDEDNMRNDLNIIEI
H2_Nav_5 318 GHAGCFISIFYSRLAKKPKKPKQHQNKISV-----NQSKIIEPSPFSYNTINSNDEDNMRNDLNIIEI
H4_Nav_6 315 KRKNLLSAVTSNIVRSVSQLNLNQDGGAMT-----QRFSSFRKGSNASNEPTTECQNNGVSHVDIDVNSSM
H13_Nav_6 315 KQKNLLSAVTSNIVRSVSQLNLNQDGGTIT-----QRFSSFRKGSNASNEPTTECQNNGVSHVDIDVNSFK
H13_Nav_7 393 EPNVIFSIYHSSKRKSKKDNGAQSIRTDH-----SDCSYNHSVNTISHDKSGRDRQSNITIV
H4_Nav_7 432 EPNVIFSIYHSSKRKSKKDNGAQSIRTDH-----SDCSYNHSVNTVSHDKSGRDRQSNITIV
H4_Nav7 424 EPVDLFSIYSSKRKIKKENRAQSINNDDH-----SGCSYNHSVNTISYDNTGRDRESNSII
H13_Nav_7 251 EPVDLFSIYSSKRKIKKENRAQSINNDDH-----SGCSNNHSVNTISYDNTGRDRESNSIT

H1_Nav1 563 SSQASSNSRHDKNKERRGANSISSLTSTELTNASSLSSTTIKQRESLELQILQKGEHHDHSEEREAAIITENDDTDK-----NDEDH
H2_Nav_1 0 -----
H4_Nav_1 541 SSQASSDSRHAKSEQR-GTNSVSSLTSTELTNASSL-----
H13_Nav1 446 SSQASSDSRHAKSEQR-GTNSVSSLTSTELTNASSLGGSGVTVKQRESMELELQILQKQKHNQAAEEKQTAIGSDDEDIHHNNSNNRNDKCN
H1_Nav_2 440 INIISLKISAAIDDPKMQP-----
H2_Nav_2 440 INIISLKISAAIDDPKMQP-----
H4_Nav_2 482 FNFPKRNLDKSNKNGDKSN-----
H13_Nav_2 482 VNFQKRNLDKSNKNGDKSN-----
H1_Nav_3 517 TNEINRMENHDLPLVNIIDVVVCEKYIEEEDSKAKEMKMTDEDASKNLYPKSAKLNKIKEGEINTVQ-----
H2_Nav_3 475 TNEINRMENHDLPLVNIIDVVVCEKYIEEEDSKAKEMKMTDEDASKNLYPKSAKLNKIKEGEINTVQ-----
H4_Nav_3 586 TNDQNCARKYSLNQIDADTIAYLQHVQDENT-ANKLESIEEEDSODISAKLPPKRNQQQHPFPAQ-----
H13_Nav_3 586 TNDQNCARKYSLNQIDADTIAYLQHVQDENT-ANKLESIEEEDSODISAKLPPKRNQQQHPFPAQNKFNNDISGQNTTPANKLESIEEEDS
H1_Nav_4 710 IDDESEIRRN-----
H2_Nav_4 265 IDDESEIRRN-----
H13_Nav_4 346 NGDIRNQPN-----
H4_Nav_4 438 NEDIRKRSSSNQSM-----
H1_Nav_5 447 SEEVNGREYHNALKPAP-----
H2_Nav_5 382 SEEVNGREYHNALKPAP-----
H4_Nav_6 381 GNESEDENQPSSELYPIQ-----
H13_Nav_6 381 GNESEDENQPSSELYPIQ-----
H13_Nav_7 450 LSDINNNQDMDRSFGHDEL-----
H4_Nav_7 489 LSDINNNQDMDRSFGHDEL-----
H4_Nav7 481 LSDINNNQDMDSRAFGHDEL-----
H13_Nav_7 308 LSDINNNQDMDSRAFGHDEL-----

H1_Nav1 646 HRPTQRKAADNDLDELINESTQLALRNITKSST--TSSNRGKNSAKASNGKRKESSELETSSIS----QAGFSLKRENSLIS-LN
H2_Nav_1 0 -----
H4_Nav_1 575 -----VMIAHRNAQKNSNISSNLAKRLATNRKINSAKRHENGSDASSIS----QAAFSLKSRDSSQIS-LD
H13_Nav1 535 GNSSVQKRMKVSDSLDDLINE SAMIAHRNAQKNSNISSNLAKGLATNRKINSAKRHENGSDASSIS----QAAFSLKSRDSSQIS-LD
H1_Nav_2 459 -----HEGNSSSTKIENTALDNPINENRKTSSARYSALSRSDEID----RIKPNVVSVSHFTFTSKLS
H2_Nav_2 459 -----HEGNSSSTKIENTALDNPINENRKTSSARYSALSRSDEID----RIKPNVVSVSHFTFTSKLS
H4_Nav_2 501 -----IQRNQGHSYASKNTTSYSSNNHSKIATSSKYSNISRSDEGLN----KIKVAARETKPVTTYITN
H13_Nav_2 501 -----IKRNQGHSYASKNTTSYSSNNHSKIATSSKYSNISRSDEGLN----EIKVAAREIKPVTTYITN
H1_Nav_3 582 -----ISPDSGNNEENRHFVNVLKELOEYHTNRQTGRQDKLGSTELSSSLKKAATKIDQNHVDEDAGKGLDG
H2_Nav_3 540 -----ISPDSGNNEENRHFVNVLKELOEYHTNRQTGRQDKLGSTELSSSLKKAATKIDQNHVDEDAGKGLDG
H4_Nav_3 649 -----NKFNNDISGQNTTPHQAIISIELEDYHTTSAQRCDQNRDVSQPRPSTEAAATSNDRDSEMEEMKLNKDL
H13_Nav_3 675 QDISAKLPPKRNQQQHPFPAQNKFNNDISGQNTSPHQAIISIELEDYHTTSAQKCDQNRDVSQPRPSTEAAATSNDRDSEMEEMKLNKDL
H1_Nav_4 719 -----SNLSTSLHTP--NMSKANFDSVAHSDILEN----GYDNPYPAMASP---LP
H2_Nav_4 274 -----SNLSTSLHTP--NMSKANFDSVAHSDVMEN----GYDNPYPAMARP---LP
H13_Nav_4 354 -----SNLSATPHDDIIDLAKTGY--LTYDDNIK----KKDSSYYPVINRQ---LS
H4_Nav_4 451 -----TPYENTDVAKTGYLTYDGVAN----KHNDAYYSVLRNQ---LS
H1_Nav_5 463 -----ENVPERALESSLSANLRLKISLSDGGKK----NNSGSELLIPND---FS
H2_Nav_5 398 -----ENVPERALESSLSANLRLKISLSDGGKK----NNSGSELLIPND---FS
H4_Nav_6 397 -----TSIHDDDCMTGIDLQRHHLNFIHQDRSNNFLQVEAAYSRRRTSVVNDEVTLDH
H13_Nav_6 397 -----TSIHDDDCMTGIDLQPHQLPNFIHQDRPNNFLQVEDAYSRRRTSVVNDEVTLDN
H13_Nav_7 469 -----DTITSPENEGIDMLRMQNNVTENNVPDN----NNSTSNYLLFSSGSDVLR
H4_Nav_7 508 -----DTITSPENEGIDMLRMQNNVTENNVPDN----NNSTSNYLLFSSGSDVLR
H4_Nav7 500 -----DTITDTPENERMIDMLTMQNNVTD-----KNSTSNYLLFSSSEADVLP
H13_Nav_7 327 -----DTIDASPENERMIDMLTMQNNVTD-----KNSTSNYLLFSSSEADVLP

H1_Nav1 728 AK-----APNKARESIGGFAEPAIAEAKELVSISENG-DPAMSDSVTDPSIPRVGK-----PCWQTFRSPINKIVTDPLFDLII
H2_Nav_1 1 -----MSDSVTDPSIPRVGK-----PCWQTFRSPINKIVTDPLFDLII
H4_Nav_1 638 AK-----AIANAKEAINGFTEPTIAEDKEHTSIESQNEEDPPINDSVTDPSIPQIGK-----PCWLTQKPIGKIVTDPLFELTI
H13_Nav1 619 AK-----ATANAKEATNGFTEPTIAEDKEHTSIESQNEEDPPINDSVTDPSIPQIGK-----PCWLTQKPIGKIVTDPLFELTI
H1_Nav_2 520 AA-----NKIGNNGEVNGKSPSTLMKKREKVIIRLVP EGGQSSGSATVTTVSIVLNAETTSTKS---TIWRQIRVLVGRIVDDSLFELFI

H2_Nav_2 520 AA-----NKIGNNGEINGKSPSTLMKKREKVIIRLVEEGGQSSGSATVTTVSIVLNAETTSTKS----TIWRQIRVLVGRIVDDSLFLFI
H4_Nav_2 562 AI-----HRIHSRPSVRSESNLGTPKNREKIVRLSDYGDSSSSNAMITTVSVLNTQRTSKS-----ASWRRARVMVCTFVDDGLFLFI
H13_Nav_2 562 AI-----HRIHSRPSLRSESNLGTPKNREKIVRLSDYGDSSSSNAMITTVSVLNTQRTSKS-----ASWRRARVMVCTFVDDGLFLFI
H1_Nav_3 651 AV-----ARRDLRISVRV-AKTSTIKSKHVEVLLPPPSVSEGEVKSLDGHNTKDKSEDDQNL-----SCFGRFRKRLRSIFLSPLYEPAM
H2_Nav_3 609 AV-----ARRDLRISVRV-AKTSTIKSKHVEVLLPPPSVSEGEVKSLDGHNTKDKSEDDQNL-----SCFGRFRKRLRSIFLSPLYEPAM
H4_Nav_3 718 KNRDLRRSFVHSRKQVPRQSIDSLNTRSELVNEIPQRALRGNVANSVGHPRDRISLNSSTRHDEDSGQFCCKQLSHFLKSPLYEPAM
H13_Nav_3 765 KNRDLRRSFVHSRKQVPRQSIDSLNTRSELVNEIPQRALRGNVANSVGHPRDRISLNSSTRHDEDSGQFCCKQLSHFLKSPLYEPAM
H1_Nav_4 762 AS-----PHLSVPM-----QSNIVARNHW-----IQFTTLNCVAVRAAPTAKK-----TVWKRFRKVLKIVQNVLFEIFI
H2_Nav_4 317 AS-----PYLSVPM-----QSNIVARNHW-----IQFTTLNCVAVRAAPTAKK-----TVWKRFRKVLKIVQNVLFEIFI
H13_Nav_4 397 VS-----PYLSSNRKANLSSSNG--RNIKISQIKRPOAELTTLNCVVAIRSVPTQR-----TIWKRFRKILLKITQHVLFIVI
H4_Nav_4 489 VS-----SYLSDNKT---ASQSSLTRKQDKKSKAKRPRAELTTLNCVVTIRSVPTPRK-----TIWRRFRKILLKITQHVLFIVI
H1_Nav_5 509 DK-----LSINGREINLSKASNQSI RMNEN-----RSKPPYVFM----YFIILM
H2_Nav_5 444 DK-----LSINGREINLSKASNQSI RMNEN--RNSLGMVEYTTLNCVIAIHAVATTKK-----SANEKIRKFLKIVQSVTFEIFM
H4_Nav_5 451 TAGG---TTVHDEVILDGRARGQSIKRKR--QDPQGRIOCTTLNCIVAVHAVPTTKR-----SKWEFIKKVLLKIVQNTCFEFIM
H13_Nav_6 451 TAGG---TTVHDEVILDGVASGQSIKRKR--QDPQGRIOCTTLNCIVAVHAVPTTKR-----SKWEFIKKVLLKIVQNTCFEFIM
H13_Nav_7 517 SN-----SPMTARDHLLRRTYGETVNKKEN--RDEQGIIELTTLNCVAVHAVAPSKK-----PMKEKMQRFLLKVIQNFLEFII
H4_Nav_7 556 SN-----SPMTARDHLLRRTYGETVNKKEN--RDEQGIIELTTLNCVAVHAVAPSKK-----PMKEKLRKFLKVIQNFLEFII
H4_Nav7 544 SN-----APMTARDEHLLRRTYSETVKKKEN--RDEQGMVELTTLNCVAVHAVAPSKK-----PMQEKIRKFLKIIQNFLEFII
H13_Nav_7 371 SN-----APMTARDEHLLRRTYSETVKKKEN--RDEQGMVELTTLNCVAVHAVAPSKK-----PMKEKIRKFLKIIQNFLEFII

H1_Nav1 803 TFCIALNTLFMALYQPNPR-NDPGKASLNNVIQIANYVFTGIFTLEMVLLKIAFTPSGYISSKWNVFDGLVVIISYLDLFDLSTILQQR-
H2_Nav_1 40 TFCIALNTLFMALYQPNPR-NDPGKASLNNVIQIANYVFTGIFTLEMVLLKIAFTPSGYISSKWNVFDGLVVIISYLDLFDLSTILQQR-
H4_Nav_1 714 TFCIGLNTLFMALYQPNPL-NDPGKASFNNAIQVANYVFTGIFTLEMVLLKIVFTPSGYISSKWNIFDGLVVIISYLDLFDLSAILRQNR-
H13_Nav1 695 TFCIGLNTLFMALYQPNPR-NDPGKASFNNAIQVANYVFTGIFTLEMVLLKIVFTPSGYISSKWNIFDGLVVIISYLDLFDLSAILRQNR-
H1_Nav_2 601 TGCIIINTILMSMYQPLEE-YNSKVPAQN---IDNYVFTCIFTTEMTLKLIAFGFTGYIQSKWNVFDGIVVIISLVLDLLEFISISSN-
H2_Nav_2 601 TGCIIINTVLSMYQPLEE-YNSKVPAQN---IDNYVFTCIFTTEMTLKLIAFGFTGYIQSKWNVFDGIVVIISLVLDLLEFISISSN-
H4_Nav_2 642 TGCIIISNTILMSMYQPLEE-YNSQPVQN---IDNYVFTGIFTIEMILKLFAYGFCGYINSKWNVFDGVVVIISLVLDLLEFISVSSN-
H13_Nav_2 642 TGCIIISNTILMSMYEPLKE-YNSQPVQN---IDNYVFTGIFTIEMILKLFAYGFCGYINSKWNVFDGVVVIISLVLDLLEFISVSSN-
H1_Nav_3 730 EIFVIIDSTVMALYIPLDDKSQWRI-----ITIIYVLSGIFVMEVTLKLIARHPQFIKSKWIDFDLITLPTLAQAAILITGVKETE
H2_Nav_3 688 EIFVIIDSTVMALYIPLDDKSQWRI-----ITIIYVLSGIFVMEVTLKLIARHPQFIKSKWIDFDLITLPTLAQAAILITGVKETE
H4_Nav_3 808 SIIIVIELTVMALYIPLPEPEFEPRT-----IIYILSGIFALETVLKFIAFGPRRFIKNKWIDFDLIVFPTSQAAILMIIGLKETE
H13_Nav_3 855 SIIIVIELTVMALYIPLPEPEFEPRT-----IIYILSGIFALETVLKFIAFGPRRFIKNKWIDFDLIVFPTSQAAILMIIGLKETE
H1_Nav_4 825 MSCVLADFVIAISNPLEP-KFWES-----MAEYVFAALFFVEMILKLIASPRCYVKDSWNILDGVMITIGLVDVILILARISSP-
H2_Nav_4 380 MSCVLADFVIAISNPLEP-KFWES-----MAEYVFAALFFVEMILKLIASPRCYVKDSWNILDGVMITIGLVDVILILARISSP-
H13_Nav_4 470 MACVIADFVIAISNPLYP-NRLED-----LLEFIFSFIFCGELIKLIASPKCYMQSRWNILDVVTIIGLIDITLTLANIHS-
H4_Nav_4 562 MACVIADFVIAISNPLHR-NLWED-----ILGYIFSIFFGEMVLLKLIASPKCYMQSSWNILDFTLTNIGLIDITLTLANIHS-
H1_Nav_5 549 ITCVLCDFVILALSPLTP-WPWEM-----YVGYAFASLFFVEMVLLKLIASPRCYVKDSWNILDVIVTVIGIVDVLTLMQISTA-
H2_Nav_5 518 ITCVLCDFVILALSPLTP-WPWET-----YVGYAFASLFFVEMVLLKLIASPRCYVKDSWNILDVIVTVIGIVDVLTLMQISTA-
H4_Nav_6 527 MTAVITDFVILAI SNMYP-WWNEA-----YVSSGFALLFTLEMILKLIASPRCYVKDSWNILDVIVTVIGLNMVFTLLYILSP-
H13_Nav_6 527 MTAVITDFVILAI SNMYP-WWNEA-----YVSSGFALLFTLEMILKLIASPRCYVKDSWNILDVIVTVIGLNMVFTLLYILSP-
H13_Nav_7 591 NSCIITDFVILAI SNPLSP-WPWEN-----SVSIAFAFLFLEMILKLIASPRCYFRDKWNILDVIVTVIGIVDAFLSIAQVPAA-
H4_Nav_7 630 NSCIITDFVILAI SNPLNP-WPWEN-----GVSNGFAFLFLEMILKLIASPRCYFRDKWNILDVIVTVIGIVDAFLSIAQVPAA-
H4_Nav7 618 NSSIITDFVILAI SNPLYP-WQWEN-----GVGIGFAFLFLEMILKLIASPRCYFKHKWNILDVIVTVIGLVDAILTIAQVPAA-
H13_Nav_7 445 NSSIITDFVILAI SNPLYP-WQWEN-----GVGIGFAFLFLEMILKLIASPRCYFKHKWNILDVIVTVIGLVDAILTIAQVPAA-

H1_Nav1 890 -GLAVLRTRFRLLRVFKLAQSWTAMRTLVRRAIVRSLSAIFYVTLILFLVLYVFAVLGMKIFRQPYLNYSTVNFPRWNFNFFDSFMLIFR
H2_Nav_1 127 -GLAVLRTRFRLLRVFKLAQSWTAMRTLVRRAIVRSLSAIFYVTLILFLVLYVFAVLGMKIFRQPYLNYSTVNFPRWNFNFFDSFMLIFR
H4_Nav_1 801 -GLAVLRTRFRLLRVFKLAQSWTAMRTLVRRAIVSSLSAIFYVTLIMFLVLYVFAVLGMQIFRQPYLNHYSSASFPRWNFNFFDSFMLIFR
H13_Nav1 782 -GLAVLRTRFRLLRVFKLAQSWTAMRTLVRRAIVSSLSAIFYVTLIMFLVLYVFAVLGMQIFRQPYLNHYSSASFPRWNFNFFDSFMLIFR
H1_Nav_2 684 -SLSVLRTRLLRVFKLARSWTTMRRLLSTIVSGAKALLYILLILITIIYVFAVLGMKIFRDAYRKHFE--NLPRWNFFDDFIDSFMMIFR
H2_Nav_2 684 -SLSVLRTRLLRVFKLARSWTTMRRLLSTIVSGAKALLYILLILITIIYVFAVLGMKIFRDAYRKHFE--NLPRWNFFDDFIDSFMMIFR
H4_Nav_2 725 -SLSVLRTRLLRVFKLARSWTTMRRLLTTIASGAKALLYVLLILITIIYVFAVLGKIFRTAYREHFH--PMPRWNFFDDFIDSFMMIFR
H13_Nav_2 725 -SLSVLRTRLLRVFKLARSWTTMRRLLTTIASGAKALLYVLLILITIIYVFAVLGKIFRTAYREHFH--PMPRWNFFDDFIDSFMMIFR
H1_Nav_3 812 WIIAALVTLRVTRIFRLARTWPAMYRLRLTLIFNMSALIYVNLMMVIFIIYIFAVLGQKMFDRDAYRKKFT--EMPRFNFDNFESSCMMIFR
H2_Nav_3 770 WIIAALVTLRVTRIFRLARTWPAMYRLRLTLIFNMSALIYVNLMMVIFIIYIFAVLGQKMFDRDAYRKKFT--EMPRFNFDNFESSCMMIFR
H4_Nav_3 890 FVIALLVTLRVIRIFRLGRTWTAMRYLLRLTVSNMSALIYVNLMMVIFIIYIFAVLGQKFFQTAYQNYKD-NLPQFHFNDLSSCMMIFR
H13_Nav_3 937 FVIALLVTLRVIRIFRLGRTWTAMRYLLRLTVSNMSALIYVNLMMVIFIIYIFAVLGQKFFQTAYQNYKD-NLPQFHFNDLSSCMMIFR
H1_Nav_4 904 -ATSALKTLRVFRIFKLAKTWEAMRRLTLALGNSMTAIMYVGLMVLIIYIFAVMGMKLFKKSYEKKFGK-NQPRFNFDLPDAFILIFR
H2_Nav_4 459 -ATSALKTLRVFRIFKLAKAWKAMRRLTLALGNSMTAIMYVGLMVLIIYIFAVMGMKLFKKSYPYKFKG-NQPRFNFDLPDACLIFR
H13_Nav_4 549 -ATSALKTLRVLRVFKLAKSWTMRRELSAIGSMSGLGYVGLMMIYIYIFAVMGMKLFKAYHNKFGS-TQPRFNFDFAEACMLIFR
H4_Nav_4 641 -ITSALKPLRVLRVFKLARTWGMARLTLTAVGKLSAISYVGLMMLIYIYIFAVMGTKLFKKSAYAVKFGK-LQPRYNFDSFAESCLVVF
H1_Nav_5 628 -TVNALRTRVFRVFKLAKSWPAMRKLLSALGKSSAIMYIGLMVLIYIYIFAVLGKLFEPGYKTFGK-NQPRFNFDGFFNSCLVIFR
H2_Nav_5 597 -TVNALRTRVFRVFKLAKSWPAMRKLLSALGKSSAIMYIGLMVLIYIYIFAVLGKLFEPGYKTFGK-NQPRFNFDGFFNSCLVIFR
H4_Nav_6 606 -ATSALKTLRVLRVFKLAKSWPAMRKLLSALGMSLSAIMYVGLLLIYIYIFAVLGKLFQARYRYVFGS-NQPRFNFNFDLACMLIFR
H13_Nav_6 606 -ATSALKTLRVLRVFKLAKSWPAMRKLLSALGMSLSAIMYVGLLLIYIYIFAVLGKLFQARYRYVFGS-NQPRFNFNFDLACMLIFR
H13_Nav_7 670 -IINVLKAFRVFRIFKLAKSWSAMRRIMLALGKMSAIGYVGLLVLIIYIYIFAVLGKLFQPFYKHKFKS-KQPQFNFDGFFNACLIFR
H4_Nav_7 709 -IINVLKAFRVFRIFKLAKSWSAMRRIMLALGKMSAIGYVGLLVLIIYIYIFAVLGKLFQPFYKHKFKS-KQPQFNFDGFFNACLIFR
H4_Nav7 697 -IVNLKTRFRVFRIFKLAKSWSAMRRIMLALGKMSAIGYVGLMVLIIYIYIFAVLGKLFQPFYKHKFKS-KQPQFNFDGFFNACLIFR
H13_Nav_7 524 -IVNLKTRFRVFRIFKLAKSWSAMRRIMLALGKMSAIGYVGLLVLIIYIYIFAVLGKLFQPFYKHKFKS-KQPQFNFDGFFNACLIFR

DII

H1_Nav1 980 VLCGEWIEPLYEAMRATNP-ASIIFFISAYVIGNLLVNLFLALLLSSFENVSFTET-----YDQDTIINRRRASPMSIALR-LAQI
H2_Nav_1 217 VLCGEWIEPLYEAMRATNP-ASIIFFISAYVIGNLLVNLFLALLLSSFENVSFTET-----YDQDTIINRRRASPMSIALR-LAQI
H4_Nav_1 891 VLCGEWIEPLYEAMQATNP-ASIIFFISAYVIGNLLVNLFLALLLSSFENVSFTET-----YDQDTIINRRRASPMSIALR-LAQI
H13_Nav1 872 VLCGEWIEPLYEAMQATNP-ASIIFFISAYVIGNLLVNLFLALLLSSFENVSFTET-----YDQDTIINRRRASPMSIALR-LAQI
H1_Nav_2 772 ILCGEWIEPLYDAIQATNI-SSILFFLAAYVVGKLLVHLFLALLLSSFENQSFQEA-----YSVNSG--SQKNGNLYDALRYLIVT
H2_Nav_2 772 ILCGEWIEPLYDAIQATNI-SSILFFLAAYVVGKLLVHLFLALLLSSFENQSFQEA-----YSVNSG--SQKNGNLYDALRYLIVT
H4_Nav_2 813 ILCGEWIEPLYDAIKATNI-SAILFFLSVYVVGKLLVHLFLALLLSSFENQSFQDA-----YSINSG--SQKNSGYREAFQYLIVT
H13_Nav_2 813 ILCGEWIEPLYDAIKATNI-SAILFFLSVYVVGKLLVHLFLALLLSSFENQSFQDA-----YSINSG--SQKNSGYRYAFQYLIVT
H1_Nav_3 900 IMCGEWIQPLGVAVKATSS-WAIVFFLMVFLIGNLLVNLFLVALILSTLEDQSFQEK-----YNTENDSHLDQN-----FMHQ
H2_Nav_3 858 IMCGEWIQPLGVAVKATSS-WAIVFFLMVFLIGNLLVNLFLVALILSTLEDQSFQEK-----YNTENDSHLDQN-----FMHQ
H4_Nav_3 979 IMCGEWKQPLTQAIKATNV-WAIIFFLTVFIVGNLLVNLFLVALILNTELEDQSFHEK-----YNSENKEKPPQT-----LMEK
H13_Nav_3 1026 IMCGEWKQPLTQAIKATNV-WAIIFFLTVFIVGNLLVNLFLVALILNTELEDQSFHEK-----YNSENKEKPEQT-----LMEK
H1_Nav_4 993 ILCGEWSDPISNAVKATNSYASITFFVAVYVIGNLLVNLFLALLLSSLEDASEDDN-----NSNGTKNDEGVSrneKSSFFRRFLGP
H2_Nav_4 548 ILCGEWSDPISNAVKATNSYASITFFVAVYVIGNLLVNLFLALLLSSLEDASEDDN-----NSNGTKNDEGVSrneKSSFFQKFLGP
H13_Nav_4 638 ILCGEWSDPIKDAVAATGSYASIIFFILAYVIGNLLVNLFLALLLSSLEDKSSDEN-----NNVDNTEENSSNEQKPLSCVQKFLNF
H4_Nav_4 730 ILCGEWSEPATNAVRATGSYASVLFIIAYIIGNLLVNLFLALLLSSLEEASDES-----NVDETDEDSLENKASPSFFRKFQF
H1_Nav_5 717 IICGEWSPVNDIAIKATGSYVSIVFFLSAYIIGNLLVNLFLAMLLSLENASIEEDSINNGEVNncnngDNDNDKKEGLTRMQRMSRA
H2_Nav_5 686 IICGEWSPVNDIAIKATGSYVSIVFFLSAYIIGNLLVNLFLAMLLSLENASIEEDSINNGEVNncnngDNDNDKKEGLTRMQRMSRA
H4_Nav_6 695 ILCGEWSDPIHDIAIHATGSHVVILFFITAYIIGNLLVNLFLALLLSSLEASNTDDE-----NSTNEKESDAKNEEQPKSRLQQLRQS
H13_Nav_6 695 ILCGEWSDPIHDIAIHATGSHVVILFFITAYIIGNLLVNLFLALLLSSLEASNTDDV-----NSTNEKESDAKNEEQPKSRLQQLRQS
H1_Nav_7 759 ILCGEWSPVHDIAIKATRSFVPIIFFVIAYVIGNLLVNLFLALLLDSLQDASSNEDD-----HSYENESSSLASHSKDLTLPQKFYRV
H4_Nav_7 798 ILCGEWSPVHDIAIKATRSFVPIIFFVIAYVIGNLLVNLFLALLLDSLQDASSNEDD-----HSYENESSSLASHSKDLTLPQKFYRV
H4_Nav7 786 ILCGEWSPVHDIAIKATRSFVPIIFFVIAYVIGNLLVNLFLALLLDSLQDASSNEDD-----HSYENESSSLASHSKDLTLPQKFYRV
H13_Nav_7 613 ILCGEWSPVHDIAIKATRSFVPIIFFVIAYVIGNLLVNLFLALLLDSLQDASSNEDD-----HSYENESSSLASHSKDLTLPQKFYRV

H1_Nav1 1061 LRADKLYFYMR AHFGCCRAEVAEINPP-----NKEDESSVISQSIVMDPIDLGYPG-SSLPIQQGKVFKL
H2_Nav_1 298 LRADKLYFYMR AHFGCCRAEVAEINPP-----NKEDESSVISQSIVMDPIDLGYPG-SSLPIQQGKVFKL
H4_Nav_1 972 TRIDKLYWYIRRCCKCPTTQVLEINPPSN-----IDDMSSVLSQSITIQPDEFYGPGTAPLSMPQAKVYKL
H13_Nav1 953 TRIDKLYWYIRRCCKCPTTQVLEINPPSN-----IDDMSSVLSQSITIQPDEFYGPGTAPLSMPQAKVYKL
H1_Nav_2 852 LRLNKLWNYTFA-----RI
H2_Nav_2 852 LRLNKLWNYTFA-----RI
H4_Nav_2 893 LRLDKLWKYTFG-----KL
H13_Nav_2 893 LRLDKLWKYTFG-----KL
H1_Nav_3 972 LK----SIFTSSCCFKKESVDARPLDLESNQNHLYLT-----VFNDSESMTDSVDQETETQLVELSDHSRNGDNIGRRNKL
H2_Nav_3 930 LK----SIFTSSCCFKKESVDARPLDLESNQNHLYLT-----VFNDSESMTDSVDQETETQLVELSDHSRNGDNIGRRNKL
H4_Nav_3 1051 IK----AAFATTCCCLKKKNKAD-----DIEQISNQL EYNQSRFNVTIFNDSDDSSVSLNDRPETQI
H13_Nav_3 1098 IK----AAFATTCCCLKKKNKAD-----DIEQISNQL EYNQSRFNVTIFNDSDDSSVSLNDRPETQI
H1_Nav_4 1076 IRNSKICSLARCHCSLSKRKHSLSDSDESVPSDDRREFSTSKSDSRQAYIDPIADDASLADTVSFDNHVIRINTGNSFLSNKAE--NR
H2_Nav_4 631 IRNSKICSLARCHCSLSKRKHSLSDSDESVPSDDRREFSTSKSDSRQAYIDPIADDASLADTVSFDNHVIRINTGNSFLSNKAE--NR
H13_Nav_4 720 LKIGQGCCFYKSCCDSRKSNSLEQNNASTDQQDDYH-----HPTPIDGSQADTISFDNYPARLQAEGNSSTTEVDHMAM
H4_Nav_4 813 LKIEQGCWFC SKYCCHSKTPDSNLEDNRVPPGQTDHDD-----NPAQIDRSQNDTISFDNYPAIVQPEINSLTIEIDHPAT
H1_Nav_5 807 MKVDRVWATLTPCYHHSRKEKDSKCSDEEELISVP ISTANENKIASETS IYHTESENAYTNQDGPDTKSNDSNLDQMAIDDNGNLMIR
H2_Nav_5 776 MKVDRVWATLTPCYHHSRKEKDSKCSDEEELISVP ISTANENKIASETS IYHTESENAYINQDGPDTKSNDSNLDQMAIDDNGNLMIR
H4_Nav_6 779 LRFENACIYL TNMVCVCFKTCGSKNQHGTC A-----WFRNKLGLWLNTRNSNKQKEMGLEKIATVEAANGK--SS
H13_Nav_6 779 LRFENACIYL TNMVCVCFKTCGSKNQHGTC A-----WFRNKLGLWLNTRNSNKQKEMGLEKIATVEAANGK--SS
H1_Nav_7 843 FKLD RVSEMLC RCNRKRDHQSDIEQDQISNFFTNVGDISNPTNIG-----YSRPRRSAYS IQDIAMGHTNMDYHDHTNRSNVDVADSSF
H4_Nav_7 833 -----MDYHDHTNRSNVDVADSSF
H4_Nav7 870 FKLD RVSEMF C RCNRKRDHQSDIEQDQISNFFSIIGDISDPTNIG-----YPRSQSAYS NQDNPMGHTNMYYHDHTDRGDNVADSTF
H13_Nav_7 697 FKLD RVSEMLC RCNRKRDHQSDIEQDQISNFFTNVGDISNPTNIG-----YSRPRRSAYS IQDIAMGHTNMDYHDHTNRSNVDVADSSF

H1_Nav1 1126 EPIPRKTS DAPSRSITDLRGFIIPSAQ-----DLQSRKSVPNISL--QGHLRGMTQDLRN-TTR-----
H2_Nav_1 363 EPIPRKTS DAPSRSITDLRGFIIPSAQ-----DLQSRKSVPNISL--QGHLRGMTQDLRN-TTR-----
H4_Nav_1 1040 EPIR-RKTS DTPSKSTANLRNLVVP T AQ-----DLQSRQSVPNIGL--QGSNLLKLTQDLRN-TTR-----
H13_Nav1 1021 EPIR-RKTS DTPSKSTANLRNLVVP T AQ-----DLQSRQSVPNIGL--QGSNLLKLTQDLRN-TTR-----
H1_Nav_2 866 LPQKKT PKPKPKLESAG-----NVNLASSNY-NPQI--LQHTEILKDENNRRN-GLD-----
H2_Nav_2 866 LPQKKT PKPKPKLESAG-----NVNLASSNY-NPQI--LQHTEILKDENNRRN-GLD-----
H4_Nav_2 907 LPVKTAKPQPQIANALA-----NINLATVNYNAQGR--SNMDELLATNHL D-----
H13_Nav_2 907 LPVKTAKPQPQIANALA-----NINLATVNYNAQGL--SNMDELLATNLLD-----
H1_Nav_3 1043 LKSDGREIDDEIQVQVSVEQNLVDNSIKVST DQASNQGYKVEHNNNSKSKS--FQT NATMAKINNEG-SYRDEL-----
H2_Nav_3 1001 LKSDGREIDDEIQVQVSVEQNLVDNSIKVST DQASNQGYKVEHNNNSKSKS--FQT NATMAKINNEG-SYRDEL-----
H4_Nav_3 1107 IELNDITNENQKKDEIK-MPALVEQDI-----NGSHIELSFDHQDC--SQDDTYLLKYSKSTP-----
H13_Nav_3 1154 IELNDITNENQKKDEIK-MPALVEQDI-----NGSHIELSFDHQDC--SQDDTYLLKYSKSTP-----
H1_Nav_4 1164 DETDSAMNHANRNGN ILMNPSTDSNNHSMDEHLRLNHSQLIQQSLSTAHLPSKSKDEYIAEVELDK-GLNCPNPSNDQLEVKLTATDKST
H2_Nav_4 719 DETDSAMNHANRNGN ILMNPSTDSNNHSMDEHLGINSQLIQQSLSTAHLPSKSKDEYIAEVELDK-GLNCPNPSNDQLEVKLTATDKST
H13_Nav_4 796 IDLNRSTNSLNRNENAIHHR LQTSNNNSTDRFDKADVSAYDNGLQLSQL--IQNSENRDKQNMDDIDLDKTNSSPYMDNLQKQATND--
H4_Nav_4 889 LDINKPINS LDANQNATANLQLQTDHNNNSVDNVDKVDMPGNDGHQSLSI--QKAKTINIENKDDSDLDKST-----
H1_Nav_5 897 NPIK-LTSETLMTSNTTNSPILIEAENDKVDINSQKEQPIITKDF-NANI--EKNEQIGNHHQIKS-GTSGETNRNSSRNSIERDPHS--
H2_Nav_5 866 NPIK-LTSETLMTSNTTNSPILIEAENDKVDINSQKEQPIITKDF-NVNI--EKNEQIGNHHQIKS-GTSGETNRNSSRNSIERDPHS--
H4_Nav_6 845 QGKIEMSENGFGSQDLTTEFTDIKHSDSWYDTT---EVITTEKVAVDPSL--NKRLSHTLAIDVQC-NDSRDQSI LHDNVPQQLTNQSP
H13_Nav_6 845 QGKIEMSENGFGSQDLTTEFTDIKHSDSWYDTT---EVITTEKVAVDPSL--NKRLSHTLAIDVQC-NDSRDQPTLHDNIPTQQLTNQSP

H13_Nav_7 926 NTISAVSKNQFSAESITNKPYTITDDRS--DNLDINNVARVKDSHTMPDI---ANEHGLNYSYIEH-DHELQHSVYANDITNATACME--
 H4_Nav_7 853 NTISAVSKNQFSAESITNKPYTITDDRS--DNLDINGVAYVKDSHTMPDI---ANEHGLNYSYIKQ-DLELQHSVYDNDITNATACME--
 H4_Nav7 953 NTIPAIKSKNQFSAESITNKPYVTGDRS--DNLDINDVAYVKDSHTMPDI---ANEHGLTHSITKQ-DHELHHSLNANDIANATVCM--
 H13_Nav_7 780 NTISAVSKNQFSAESITNKPYTITDDRS--DNLDINNVARVKDSHTMPDI---ANEHGLNYSYIEH-DHELQHSVYANDITNATACME--

 H1_Nav1 1184 -----SKNSVQTIPIESKI-EFMAVNASNRSSNNE SDY-
 H2_Nav_1 421 -----SKNSVQTIPIESKI-EFMAVNASNRSSNNE SDY-
 H4_Nav_1 1097 -----SRNNVQAVSIESKI-HSMAKHASNKILHHDHY-
 H13_Nav1 1078 -----SRNNVQAVSIESKI-HSMAKHASNKILHHDHY-
 H1_Nav_2 912 -----EINTLSRSIAE EKI-STSANNGKGGQSSSKDPKL-
 H2_Nav_2 912 -----EINTLSRSIT E EKI-STSANNGKGGQSSSKGPKL-
 H4_Nav_2 950 -----RKFNLTLDTRNNLQ-ENVGISNQAEQE PSSKDC-
 H13_Nav_2 950 -----RKFNLTLDTRNNLQ-ENAGISNQAEQE PYSKDR-
 H1_Nav_3 1112 -----ERFSILSESETSYA-NRMTLSSADLDESQIDV-
 H2_Nav_3 1070 -----ERFSILSESETSYA-NRMTLSSADLDESQIDV-
 H4_Nav_3 1160 -----RQSKSDIKQLTENN-SQCGINMIDPLSTSNVDS-
 H13_Nav_3 1207 -----RQSKSDIKQLTENN-SQCGINMIDPLSTSNVDS-
 H1_Nav_4 1253 KPVVENDESPTLTTEIEVEASPNAELGLTSKNKSVSDSHITNKSLTKSMASDARKSRKKRFHRNKSTTNQ-ANIARKDSEIHELQOEKRP
 H2_Nav_4 808 KPVVENDESPTLTTEIEVEASPNAELGLTSKNKSVSDSHITNKSLTKSTASDARKSRKKRFHRNKSTTNQ-ANITRKDSEIHELQOEKRP
 H13_Nav_4 881 -VVTHGSMRKNHDLGHNNIAADIEVINTAVPIADNHTIDD SKKLP RSIQADPVKSRRLFGRRRTAAGL-KKNRMNDSQNQNVQKKEP
 H4_Nav_4 958 -----SLHNIENCCKQKQTI-TDDTITHNSMK SINQRH-
 H1_Nav_5 979 -----LTTLHSNNIEGASIHGVAILN-PNTVEQTNVKKRKM LFSGRLSQSKSTPQMKQ-NIELKESPPKIGRRVAINRLKPLKFNRRV-
 H2_Nav_5 948 -----LTTLHSNNIEGASIHGVAILNPNTVEQTNVKKRKM LFSGRLSQSKSTPQMKQNI ELKESPPKIG-RRVAIRRLKPLKFNRRV-
 H4_Nav_6 929 NERPIDDKISVYATKI-----RDLQYDDRTNRLSH-ENFNMNKSGLHTGLHDKF-
 H13_Nav_6 929 NERPIDDKRSVHATKI-----RDLQYDDRTNRLSH-ENFNMNKSGLHTGLHDKF-
 H13_Nav_7 1007 -----ENNVSSENVNLEQIQPDNTVNGPSFHPQMNIKKRQNFRRQKMENE STNQIKRRGVPLVRKMF-TKHSAVNEKFINSVDDHCS
 H4_Nav_7 934 -----ENAVSSENMNLEQIQPDNTVNGPSFHPQMNIKKRQNFRRPKIGNE STNQIKRRGVPLVRKMF-RKHFVNEFTTSSVDDNNS
 H4_Nav7 1034 -----ENNVSSQNVNLEQIQPDKTVNGHSLHPQINVKRRQNLFRQKIDNE STNQIKRTNVPLVRRLMR-KRSAVNEKFANGSVDDHNS
 H13_Nav_7 861 -----ENNVSSENVNLEQIQPDNTVNGPSFHPQMNIKKRQNFRRQKMENE STNQIKRRGVPLVRKMF-TKHSAVNEKFINSVDDHCS

 H1_Nav1 1216 -----PVDLHNKVVYATSS-----KKNGLLSTNSNGKALSASCNHL PVGTRHH
 H2_Nav_1 453 -----PVDLRNKVVYATSS-----KKN DGLLSTNSNGKALSASCNHL PVGTRHH
 H4_Nav_1 1129 -----SDDLHSHSDSYTHSQR-----K DSTDHLHVQGNAQILSASFHLPNGGSS-
 H13_Nav1 1110 -----SDDLHSHSDSYTHSQR-----K DSTDHLHVQGNAQILSASFHLPNGGSS-
 H1_Nav_2 944 -----LVEYNESALVSDQPQR-----KKSANHREVRNTLSDGDAHSA CDYNYN-
 H2_Nav_2 944 -----LVEYNESALVSDQPQR-----KKSANHREVRNTLSDGDAHSA CDYNYN-
 H4_Nav_2 982 -----KLLSIEYRPTLTSDKQKQR-----EQNNQHLQVRHTVSDSDGRMSDCS-
 H13_Nav_2 982 -----KLLSIEYRPTLPSDKQKQR-----EKNNQHLQVRHTVSDSDGHSISDCS-
 H1_Nav_3 1144 -----AKGYDRIEHHLHQSE-----QESTLISMIPYNESTITPKKSTINDTKESE
 H2_Nav_3 1102 -----AKGYDRIEHHLHQSE-----QESTLISMIPYNESTITPKKSTINDTKESE
 H4_Nav_3 1192 -----HKEMNDNINESKEEST-----IVPATLNDESTLIAQVSNAAEIQVSDQ-
 H13_Nav_3 1239 -----HKEMNDNINESKEEST-----IVPATLNDESTLIAEVSNAAEIQVSDQ-
 H1_Nav_4 1342 RFRKRKSKVEDSQLTLESDTISTQKSNKGDLKVENINYMRRTLGRKSKKGSLEIENARSKDAFVLIETAK EDEGDEGRQTANNLSHSD
 H2_Nav_4 897 RFRKRKSKVEDSQLTLESDTISTQKSNKGDLKVENINYMRRTLGRKSKKGSLEIENARPKDAFVLIETAK EDEGDEGRQITANNLSRSD
 H13_Nav_4 970 RKVKKHKRQKQGHNSKQQSEDMNQPEESAD-----KMINYRLRTIRGSFDPESLEAMDAFVLLERQDEGQADGNL IAEVNDVNKQN
 H4_Nav_4 990 -----DLGNDNIAADIEIACQKDT-----EPTNATEPIAYNYAINDQKGLQKPVTT E FV
 H1_Nav_5 1061 -----INSSTAGDLHDQNESDQDDLM-----ANVAKFRTRTLKKTASDFPGTEASQDDVYLVESVDEKRNISNYFHKNTFNSSSL
 H2_Nav_5 1030 -----INSSTAGDLHDQNESDQDDQM-----ANVAKFRTRTLKKTASDFPGTEASQDDVYLVESVDEKRNISNYFHKNTFNSSSL
 H4_Nav_6 976 -----NLPEESNIHNTLLKQR-----AERVDVVIIRGSNGSNIADIQKQSNYAQKI
 H13_Nav_6 976 -----NLPEETNIHNTLLKQR-----AERVDVVIIRGSNGSNIADIQKQSNYAQKI
 H13_Nav_7 1092 EQIGFAAKK-SHRPGGLNEYNDHNLQKQ-----YSSRKL SLLDNDLTATLASRD AIIIEEATNQNVFQDKDCKND CNHIS
 H4_Nav_7 1019 EQVGSAAKK-SHRHGGSIDNNDYNFLQKR-----YSSRKL SLLDNDRTATLASRD AIIIEEATNQNVFQDKDCKNDW NHIS
 H4_Nav7 1119 EQVGFAAKN-SHRHGGLNDNNDLNLQKQ-----YRSRKL SLLDNDLSATLASRD AIIIEEATDDNQVTDKDKDCKND CNHIS
 H13_Nav_7 946 EQIGFAAKK-SHRPGGLNEYNDHNLQKQ-----YSSRKL SLLDNDLTATLASRD AIIIEEATNQNVFQDKDCKND CNHIS

 H1_Nav1 1260 S-----GSGTLTCHVGTGMASSENL DNGISNPKTSLMSKSVTQ
 H2_Nav_1 497 S-----GSGTLTCHVGTGIASSENL DNGISNPKTSLMSKSVTQ
 H4_Nav_1 1174 -----LSLHNP NPKSGSENLP SGHSRTSSNAKLVHASKST
 H13_Nav1 1155 -----LSLHNP NPKSGSENLP TGHSTRSSNAKLVHASKST
 H1_Nav_2 987 -----QEKKQ RSLNQTEEDSDYLDLQRTLGLLVPDQ-
 H2_Nav_2 987 -----QEKKQ RSLNQTEEDSDYLDLQRTLGLLVPDQ-
 H4_Nav_2 1026 -----REYKORSSIQSQEEDSDYLELVKAFKLSRFEQAS-
 H13_Nav_2 1026 -----REYKORSSLSQEQEEDSDYLELVKAFKLSRFEQAS-
 H1_Nav_3 1190 TFHG-----QDNGNPNNEKATNPISNNLNTAGEFPLTNRCNNS EID
 H2_Nav_3 1148 TFHK-----QDNGNPNNEKATNPISNNLNTAGEFPLTNRCNNS EID
 H4_Nav_3 1236 -----PAKSDQNHLDKNC KSNPTFTNDEESPTDQSDVIQAV
 H13_Nav_3 1283 -----PAKFDQNHLDKNC KSNPTFTNDEESPTDQSDVIQAV
 H1_Nav_4 1432 PLDNRNLVNANKMETLQQPRASIEAKQVVRSSIAMYDEKGN T-----QVDTSVNGRQEESTQIDYLTTEROKRNIQMDQLADKR
 H2_Nav_4 987 PLDDRNLVNANKMETLQQPRASIEAKQVVRSSIAIYDGGKNT-----QVDTSVNGRQEESTQIDYLTTERH KRNIQMDQLADKR
 H13_Nav_4 1050 KSTSQLTTDN RNSCRNNA AITS-----SQEAILANTAEQLGDSSPHNTLRNKPEEDNDKNVINE
 H4_Nav_4 1040 K-----PRRKIFGRRTAAVLNHNFTNEKSNKPKKEQRKFRKN

H1_Nav_5 1137 RGDKT-----YNTSSESYHLPSSDIPSPVIVEDTTEDDGTNKQKIIIE
H2_Nav_5 1106 RGGKT-----YNTSSESSHLPSSDIPSPVIVEDTTEDDGTNKQKIIIE
H4_Nav_6 1024 EKNNVLHVKDVPLSDT-----TQQPIKRGLFRGRKKKSNAMHKRASGGAILHKRQVPD
H13_Nav_6 1024 EKNNVLHIKDVPLSDT-----TQQPIKRGLFRGRKKKSNAMLKRASGGAILHKRQVPD
H13_Nav_7 1169 VKQQDAI--ASKLSDPNLPVAILDPMTIKKDIVQDDEVNSKTVSTPQNFYSATDSNKTLNHNDVSNRHNVLKERNASGGSNVEDNAVVE
H4_Nav_7 1096 FKQQDAI--ASKLSDPNLPVATLDPVTVKKDIVQDDEVNSKSVSTHQNFYSATDSNNTLNHNDVSNRHNVLERNASGGSNVEDNAVVE
H4_Nav7 1196 VKQQD--VAASKLSDPNLPVTTLDPATIKKDIMQDNEANSETLSTPQNYSTTDSNNTLNHNDVIRNRLNLIKDRNASKCSNVEDNAMVE
H13_Nav_7 1023 VKQQDAITAD-----RMVYLRRRDNDVSNRHNVLKERNASGGSNVEDNAVVE

H1_Nav1 1297 -----LESKNETRLIIDRRR--STRS-----VNRNH---SHLSE-----DDDDYYYPEQ-----DSDESD
H2_Nav_1 534 -----LESKNETRLIIDRRR--STRS-----VNRNHSHLSE-----DDDDYYYPEQ-----DSDESD
H4_Nav_1 1212 TQ-----LDKEGQSRLIIDRRR--STRS-----VNRNV---GHQSD-----DDDYHYPEDVSDR--SSDDSD
H13_Nav1 1193 TQ-----LDKEGQSRLIIDRRR--STRS-----VNRNV---GHQSD-----DDDYHYPEDVSDR--SSDDSD
H1_Nav_2 1019 -----IDDES DSGQIIDKRNYSVRR-----ASSRR-----KSMQTSTSSIFDSNSRDVSS
H2_Nav_2 1019 -----IDDES DSGQIIDKRNYSVRR-----ASSRR-----KSMQTSTSSIFDSNSRDVSS
H4_Nav_2 1060 -----IDDEANANPINDKRNFLSVRR-----ASTRR-----RSLNRSTSSLFDSNSRDVSN
H13_Nav_2 1060 -----IDDEANANPINDKRNFLSVRR-----ASTRR-----RSLNRSTSSLFDSNSRDVSN
H1_Nav_3 1231 IGDPLSSTFHATTHDNPLKLLDEQSSVINQH-----QYCNQ---AGNNN-----RSESHLPPSILKQFDADISE
H2_Nav_3 1189 IGDPLSSTFHATTHDNPLKLLDEQSSVINQH-----QHCNR---AGNNN-----RSESHLPPSILKQFDADISE
H4_Nav_3 1274 IHHSANSSIDICFRDNL ELADETKGQANHY-----QNCNGDAVRS DNNAQ-----QEMYLDTNGIAEDSLKQYKN
H13_Nav_3 1321 IHHSATSSIDICIRDNLQLADETKGQANHY-----QNCNGDAFRSDNNA-----QEMHLDTNGIAEDSLKEYKN
H1_Nav_4 1511 YKQNAQMDQ-VDDGRK VQSIIVSVTSPNLQATTLEYKLRNRVWSNSMPPIDSKSGLPNS EKNRTEVSTQTEDLDNSEENDSNSTKMF EKN
H2_Nav_4 1066 YKQNAQMDH-VDDGRK VQSIIVSVTSPNLRQTITQ EYKLRNRVWSNSMPPIDSKSGLPNS EKNRTEVSTQTEDLDNSEENDSNSTKMF EKN
H13_Nav_4 1109 SQRQSFIIISVTD PDAKQTQIDKYIYIKSKSNGVNR SQSM-----SVENNKVEVSKSGNRNSVGEQDDSTSTLGNSSNNFTVYEE
H4_Nav_4 1078 QKLKGRSN--IQQSED TNQQAESAENMIHYR-----LRTIRGSFNQGSADTADAFVLLERQDDSQADGNLVTDS
H1_Nav_5 1179 SQDFGALAN-IDDVTKDVILSPRE RNNATNLKIFNG-----ITREDYIHF RKDSNTMQIPATDINDQERKLSVSSTNFDRR
H2_Nav_5 1148 SQDFGALAN-IDDVTKDVILSPRE RNNATNLKIFNG-----ITREDYIHF RKDSNTMQIPATDINDQERKLSVSSTNFDRR
H4_Nav_6 1077 INEQYEINKGKIFNESQLTALETSSLNDFVIIGSID-----QNGMIDGNSCSNHGKDDH SKVDMISKHGNNSNINFASSSH
H13_Nav_6 1077 INEQYEINKGKIFNESQLTALETSSLNDFVIIGSID-----QNGMIDGNSCSNQGKDDH SKVDMISKYGNNSNINFASSSH
H13_Nav_7 1257 VHQSSNNTG-VNTLKKKSMDEQVSDSIGDHGHTQDL-----QDLNDGKCDLKRSSQTSATAEDNHATQKSNKQIVTGVD
H4_Nav_7 1184 VHQSSNNTGVNTLEKKKSMDEQVSDSIGDHGHTQDL-----QDLNDGKCDLKRSSQTSATAEDNHATQKSNKQIVTGVD
H4_Nav7 1284 VHQSSNNTG-VKTLSEKSTDAKVSNNIDDDHYTQDL-----QDLKDEKRDPRRSSQTSATTQDYHHVAQKTSKQIIADLD
H13_Nav_7 1070 VHQSSNNTG-VNTLKKKSMDEQVSDSIGDHGHTQDL-----QDLNDGKCDLKRSSQTSATAEDNHATQKSNKQIVTGVD

H1_Nav1 1343 DEVIISDDKPSRVATPPLR---RGQVSRSSFVRLGSD-----GD
H2_Nav_1 580 DEVIISDDKPSRVATPPLR---RGQVSRSSFVRLGSD-----GD
H4_Nav_1 1262 DEVIVADNDHHSRVATPPLR---RGQVSRASLRRPGPD-----GD
H13_Nav1 1243 DEVIVADNDHHSRVATPPLR---RGQVSRSSLRRPGPD-----GD
H1_Nav_2 1066 DYIY-----CETPNVS---RQDSARSDSQC TDTE-----AN
H2_Nav_2 1066 DYIY-----CETPNVS---RQDSARSDSQC TDTE-----AN
H4_Nav_2 1107 DSLF-----YATPTIS---RQGSGRSESMWT-----TS
H13_Nav_2 1107 DSLF-----YATSTIS---RQGSGRSESKWT-----TS
H1_Nav_3 1292 RNTNLPEDNAAASN-----HQSSNDRNCSVIHTN-----GI
H2_Nav_3 1250 RNTNLPEDNAAASN-----HQSSNDRNCSVIHTN-----GI
H4_Nav_3 1339 NGLTVPVAVKQQLSTEI-----KHSSLPVSIT-----NE
H13_Nav_3 1386 NGLTVPVAVKQQLSTEI-----KHSSLPVSIT-----NE
H1_Nav_4 1600 QYLTVGMDARGSRNNLPNSE---SRARLRGSTSPPGNI-----AT
H2_Nav_4 1155 QYLTVGTDARGSRNNLPNSE---SRARLRGSTSPPGNI-----AT
H13_Nav_4 1188 SRQKTQFVNSEEEELGINKVYLHDDENS LNTLQISKPKSP-----LR
H4_Nav_4 1147 IHQLNKSQSQVVKAVL-----DNAVMKQLADSPHT-----TS
H1_Nav_5 1254 RHVYQRDPGRE TQASIGTLSERIEAKLEDGVDGKSGTK-----KI
H2_Nav_5 1223 RHVYRRDPGRE TQASIGTLS-----ERIEAK-----LE
H4_Nav_6 1153 DHRLQE QVNHNLNQSSNPVIM---DRHSSHSMIANGHD-----DL
H13_Nav_6 1153 DHRLQE QVNHNLNQSSNPVIM---DRHPNHSMIANGHDDLKSGNANIINASNAISDLDKVKCHNVLPQVQV EDIE SNSVPSNSSIDSGK
H13_Nav_7 1333 SYSVNESDE---TDLVSIR---NQARSRSNTLRTART-----TS
H4_Nav_7 1261 SYSVNESDE---SDLVSIR---NQARSRSNTLRTART-----TS
H4_Nav7 1360 SIPVNEIDE---TDLASIR---NKARSRSNTLRTART-----TS
H13_Nav_7 1146 SYSVNESDE---TDLVSIR---NQARSRSNTLRTART-----TS

H1_Nav1 1380 IDANEDEDWSAS-----RCESTVGDAEEAATTNLPAPCFPRFVSKC-FPACRSD EWAITNYWVTMRIYVKRLVEHRVFE
H2_Nav_1 617 IDANEDEDWSAS-----RCESTVGDAEEAATTNLPAPCFPRFVSKC-FPACRSD EWAITNYWVTMRIYVKRLVEHRVFE
H4_Nav_1 1299 FDYND EEHWSES-----RCQSEIDEAEQSATNTVLPAPCFPAFITDR-FPNCHSENWIITDYWVLMRMYIKRLVEHRVFE
H13_Nav1 1280 FDYND EEHWSES-----RCQSEIDEAEQSATNTVLPAPCFPAFITDR-FPNCHSENWIITDYWVLMRMYIKRLVEHRVFE
H1_Nav_2 1094 NSVGMKAMSNTS-----CNGGLQYSERSISQPIDCFPKVCMKR-IPYCIQGETSLCQAWMTVRNHVKNVVEHRFFE
H2_Nav_2 1094 NSVGMKAMSNTS-----CNGGLQYSERSISQPIDCFPKVCMKR-IPYCIQGETSLCQAWMTVRSHVKNVVEHRFFE
H4_Nav_2 1129 -DFGNEANGKPL-----SNGAQCSQEVTSPPSDCFPKACMKY-APCCMHDEGTL CNVWKKVRYRVKNVVEHRIFE
H13_Nav_2 1129 -DFGNEANGKPL-----SNGAQYSQEVTSPPSDCFPKACMKY-APCCMQDEGTL CNVWKKVRYRVKNVVEHRIFE
H1_Nav_3 1323 DNFTARDGNSYNT-----SSDDIFGKKGDISVSHCLPDCIGEK-FSKCIKVDSSSYQAWIAARKMIQKWMTHWVYN
H2_Nav_3 1281 NNFTARDGNSYNT-----SSDDIFGKKGDISVSHCLPDCIGEK-FSKCIKVDSSSYQAWIAARKMIQKWMTHWVYN
H4_Nav_3 1367 ATINENAHSSVT-----VPSRRSSVCSDRDVI ELSNCLPEVVG DQ-FFKCIKVSSPSYQAWISVRRMVHSWITSRYYN
H13_Nav_3 1414 ATINENAHSSVT-----VPSRRSSVCSDRDVI ELSNCLPEVVG DQ-FFKCIKVSSPSYQAWISVRRMVHSWITSRYYN

H1_Nav_4 1637 IGKEYDRSSRNSYGGPPVRLIVILTNLAVKGDNKKLLALFSTEREVPYYFPCFLRDA-FHCQITYDWRLVRAITYIRRKALLVLDNITH
H2_Nav_4 1192 IGKEYDRSSRNS-----YGGPGKDNKKLLALFSTEREVPYYFPCFLRDA-FHCQITYDWRLVRAITYIRRKALLVLDNITH
H13_Nav_4 1229 TDDSTKSNWKSRRANSK-----MDEEYNNKKEKRLALFNATAEIPYYFPLIRWI-CHCHADHWTLVKAVTYLRRKSVLVEESCYFR
H4_Nav_4 1180 SSILQENNGKHL-----VNGSHRQSFITVTDPDANQTKIDKYLYIKNKSDDAKRSESSISSATGKVDVIEKGNKEN
H1_Nav_5 1295 YVLLNCHHQYII-----NSIQNFQRALTFLFGSENTVPAFFPSFLTNF-CHCQVTYDWKLVRLITYIRKKLLLVLENRWYK
H2_Nav_5 1251 DGVGDKKSGYTK-----KNFQRALTFLFGSENTVPAFFPSFLTNF-CHCQVTYDWKLVRLITYIRKKLLLVLENRWYK
H4_Nav_6 1190 KSGNANIINASN-----AISDLIDVVKCHSVLVPVQEDIESNSVPS--NSSIDSEKAQQENTEHEKSKKLLTVKMLSAN
H13_Nav_6 1239 AQQENTEHEKSK-----KKLTKNLQSAKFLGLTETIQVPPFFPNVISNL-FHCQVTYNWRILIKILTIRKKILIIENRWYQ
H13_Nav_7 1366 ALTTDRRKSPDK-----LKEFQHALEFLFGSEVYVPPFFPSIVTNS-CHCQATYDWRIVRLITEIRRKLIYFTENRWYQ
H4_Nav_7 1294 ALTTDRRKSPDK-----VKKFQHALEFLFGSEVYVPPFFPSIVTNS-CHCQATYDWRIVRLITEIRRKLIYFTENRWYQ
H4_Nav7 1393 ALIAADRRHKSPD-----KLKKLQHALEFLFGSEVYVPPFFPSIVTNS-CHCQATYDWRIVRLITEIRRKLIYFTENRWYR
H13_Nav_7 1179 ALTTDRRKSPDK-----LKEFQHALEFLFGSEVYVPPFFPSIVTNS-----WPLPSYL-----RLENSSTYH

H1_Nav1 1454 GIILLILIFASSVILA-LEDAYIL--QRQDLARATEALNVFFAIAFTVEMVLKWIIGLGFVAYFTNPWNLLDASIVAISLVTIILRNLAADR
H2_Nav_1 691 GIILLILIFASSVILA-LEDAYIL--QRQDLARATEALNVFFAIAFTVEMVLKWIIGLGFVAYFTNPWNLLDASIVAISLVTIILRNLAADR
H4_Nav_1 1373 AIILILIFASSIILA-LEDVYIL--QRQDLARVTEALNIFFAVAFTIEMVLKWIIGLGFVAYFTNPWNLLDASIVAISLMTIILSNLAADR
H13_Nav1 1354 AIILILIFASSIILA-LEDVYIL--QRQDLARVTEALNIFFAVAFTIEMVLKWIIGLGFVAYFTNPWNLLDASIVAISLMTIILSNLAADR
H1_Nav_2 1164 GIILLILIVASSISLV-----LYVSNIFFAAASFIEMLIKLIGIGVHGYSICSPWNILDAIVVVSIIITLVLENVSAFR
H2_Nav_2 1164 GIILLILIVASSISLV-----LYVSNIFFAAASFIEMLIKLIGIGVHGYSICSPWNILDAIVVVSIIITLVLENVSAFR
H4_Nav_2 1198 GIIFLIVASSITLT-FEDIHLH--NNPIMIQLVSVGNIFFAAASFIEMLIKLIGLGIYGYVSSPWNILDAIVVVSIIITLVLENVSAFR
H13_Nav_2 1198 GIILLILIVASSITLT-FEDIHLH--NNPIMIQLVSVGNIFFAAASFIEMLIKLIGLGIYGYISSPWNILDAIVVVSIIITLVLENVSAFR
H1_Nav_3 1392 LLMILLIMASSILLA-MEDKRAV--QNPPYWYNIRLAESIVTLFIVTIIIFEIFARGISQYFSNGWNVLDFTVIVITLTVNLLPRNIYLI
H2_Nav_3 1350 LLMILLIMASSILLA-MEDKRAV--QNPPYWYNIRLAESIVTLFIVTIIIFEIFARGISQYFSNGWNVLDFTVIVITLTVNLLPRNIYLI
H4_Nav_3 1439 ILMILITASSILLA-MEGRNAV--TNQAIWYRIRWGEAIVTMFTVTVLEMFACGISKYFTNGWNILDFSVILITLVNLLPRNVYLI
H13_Nav_3 1486 ILMILITASSILLA-MEGRNAV--TNQAIWYRIRWGEAIVTMFTVTVLEMFACGISKYFTNGWNILDFSVILITLVNLLPRNVYLI
H1_Nav_4 1726 KIILLIIMHVSLLV-FNDKTIQ--SNQNMKNIIFNMDYLLTIFFTVELALEFISFGPSTFCTSPWKIVDVIIIVALSFATYHLDLSASVS
H2_Nav_4 1267 KIILLIIVMHSVLLI-FNDKTIQ--SNQNMKNIIFNMDYLLTIFFTVELALEFMSFGPSTFCTSPWKIVDVIIIVALSFATYHLDLSTSAR
H13_Nav_4 1312 LFMLILIVGHSILLT-FNDKHMV--SSTAIWNATYLVDDYMSIFFAGELIVEIACFGPNGYFGSPWKVIDAIIIVTISLVSFLIDEQITLD
H4_Nav_4 1251 EII-----YYNTNLIARERGNQPSINN-----NGEELVEFACFGPNGFFGGSWKVIDSVIVAV-----
H1_Nav_5 1371 TFMLLLIIFHCVILRVINENGVNTISSPSAFSMLEIINSFFAGELIVSFFAHGCVNFCTSPWKMMDVIIIVGL--LFL-----
H2_Nav_5 1323 TFMLLLIIFHCVILV-INENGVT-NTISPPSAFMLEIINSFFAGELIVSFFAHGCVNFCTSPWKMMDVIIIVGLSITTYFVDTKDRRI
H4_Nav_6 1262 GNLFLLKSYVYSI--INDRNI--EKSHFQILMQIEFGMSLFFAGELLVAFIAYGIEENFCTSPWKIMDVILVGLSITTYFVDTKDRRI
H13_Nav_6 1315 RLILLILIAHVSLLI-INDRNI--EKSHFQILMQIEFGMSLFFAGELLVAFIAYGIEENFCTSPWKIMDVILVGLSITTYFVDTKDRRI
H13_Nav_7 1439 AFILLIIFHCFLV-INNRESTTEQNGQFQMTFLIEFIIDVFFIVELLVRIFAIGLVTFFTPSPWKILELIVLGLSITTYFYIDIISKLL
H4_Nav_7 1367 AFILLIIFHCFLV-INNRESTTEQDKQFQMTFLIEFIVDVFVTELLVRIFAIGLVTFFTPSPWKILELIVLGLSITTYFYIDIISKLL
H4_Nav7 1467 AFILLIIFHSSLLV-INNRESTTEQARQFQETLDSVEFIINMFFSVLELLVRIFAIGLVTFFTPSPWKILELIVLGLSIATFYIDDSAKKL
H13_Nav_7 1236 RNSQEINLFYRKSLLV-INNRESTTEQARQFQETLDSVEFIINMFFSIELLVRIFAIGLVTFFTPSPWKILELIVLGLSIATFYIDDSAKKL

H1_Nav1 1541 S---LRTLALRPLRAVSHWEGMKVVVNALFGSIPSIANVILVGAIIWLFIFGSGMYIFGGFLFYKCE--DAAGNRMNASIIIPNRTVCLDNG
H2_Nav_1 778 S---LRTLALRPLRAVSHWEGMKVVVNALFGSIPSIANVILVGAIIWLFIFGSGMYIFGGFLFYKCE--DAAGNRMNASIIIPNRTVCLDNG
H4_Nav_1 1460 S---LRTLALRPLRAVSHWEGMKVVVNALFGSIPSIANVILVGAIIWLFIFGITGMYIFGGFLFYKCE--DSAGNRLNATIIPNRTVCLDNN
H13_Nav1 1441 S---LRTLALRPLRAVSHWEGMKVVVNALFGSIPSIANVILVGAIIWLFIFGITGMYIFGGFLFYKCE--DSAGNRLNATIIPNRTVCLDNN
H1_Nav_2 1236 S---LRVLRALRPLRAISHWEGMRAVVNALFGCIPHITNVIIVCAFFWLVFVGGVNFVGGKFKYKCL-DLDNLLIPASIIISNKTDCCLANN
H2_Nav_2 1236 S---LRVLRALRPLRAISHWEGMRAVVNALFGCIPHITNVIIVCAFFWLVFVGGVNFVGGKFKYKCL-DLDNLLIPASIIISNKTDCCLANN
H4_Nav_2 1285 S---FRVLRALRPLRAISHWEGMRAVVNALFGCIPHIANVIIVCAFFWLVFVGVAVNFVGGKFKYKCV-DSSDQVLSTSIIVNKSQCLDKG
H13_Nav_2 1285 S---FRVLRALRPLRAVSHWEGMRAVVNALFGCIPHIANVIIVCAFFWLVFVGVAVNFVGGKFKYKCV-DSSDQVLSTSIIVNKSQCLDKG
H1_Nav_3 1478 ----ARTTKAIGPLRVIRRVQSIKMMFLAILESIPKIMNVFLVCMVFWYIFAVSGIYFFGGKFFRCIYVSNSSLVDSALVGDKDSCKGND
H2_Nav_3 1436 ----ARTTKAIGPLRVIRRVQSIKMMFLAILESIPKIMNVFLVCMVFWYIFAVSGIYFFGGKFFRCIYVSNSSLVDSALVGDKDSCKGND
H4_Nav_3 1525 ----ARTVKAIGPFRIRHVESLKTTFLSILDSIPKIMNVFLVCMVFWYIFAVSGIYFFGGKFFQCYKSNSSLVDFIVNNTKTECQGSN
H13_Nav_3 1572 ----ARTVKAIGPFRIRHVESLKTTFLSILDSIPKIMNVFLVCMVFWYIFAVSGIYFFGGKFFQCYKSNSSLVDFIVNNTKTECQGSN
H1_Nav_4 1813 QSLFENIINSIRPIRIIPRLGSLQVIVAALVLSIPSIVNVLVCSIFWLIFAITGVQLFAGTFGRCL--INVDNSTLANVTNKTECDNMG
H2_Nav_4 1354 QSLFENIINSIRPIRIIPRLGSLQVIVAALVMSIPSIVNVLVCSIFWLIFAITGVQLFAGTFGRCL--INVDNSTLANVTNKTECDNMG
H13_Nav_4 1399 Q---YNIINSLRPVRIIPRLKLNQIIVAALLMSIPSIIINFLVCSIFWVFAVAVTGVQVFAAGKFGRC--ASPTVSTLVNVTDKVECDKLG
H4_Nav_4 1304 -----IVAALFLSIPSIIINFLVCSIFWVFAVAVTGVQVFAAGKFGRC--LSPNHQTLANVSNKIECDNMG
H1_Nav_5 1452 -----QWKQLLIVM-----RCL-----
H2_Nav_5 1410 ----YNIIVNSLRISIRIIPRMNQLQIIVAALLSIPSIFNVLVCSIFWLIFAITGVQVFAAGKFGRC--NSHLKSVTFNYITNRTDCLMYG
H4_Nav_6 1347 ----YDLVNSIRPVRAIPRLKLNQIIVAALFSLPSILNVLVCSIFWLIFAITGVQVFAAGKFGRC--DKFSNNVVLAKITNKTDICISNG
H13_Nav_6 1401 ----YDLVNSIRPVRAIPRLKLNQIIVAALFSLPSILNVLVCSIFWLIFAITGVQVFAAGKFGRC--DKFSNNVVLAKITNKTDICISNG
H13_Nav_7 1527 ----YDVVNSIRPFRIIPRINSIQVAATAILISIPSIIINFLVCFLLFWLVFA-----FVVC-----KRW
H4_Nav_7 1455 ----YVVVNSIRPFRIIPRINSIQVAATAILISIPSIIINFLVCFLLFWLVFAICGVQVFAAGTFGRCV--DASLEQISDYNITDKAQCLRDG
H4_Nav7 1555 ----YDVVNSIRPFRIIPRVNGIQIATAILMSIPSIIINFLVCFLLFWLVFAICGVQVFAAGTFGRCV--NANLEQISSNITDETCQCLRDG
H13_Nav_7 1324 ----YDVVNSIRPFRIIPRVNGIQR-----W-----

DIII

H1_Nav1 1626 -LTWQNSLINFDSVPAALFALFQVATFEGWMEIMRDATAK-----IDLQPVRLYNKG
H2_Nav_1 863 -LTWQNSLINFDSVPAALFALFQVATFEGWMEIMRDATAK-----IDLQPVRLYNKG
H4_Nav_1 1545 -YEWKNSLINFDSVPAALFALFQVATFEGWMEVMRDAVDARG-----PNLQPIRLYNKA
H13_Nav1 1526 -YEWKNSLINFDSVPAALFALFQVATFEGWMEVMRDAVDARG-----PNLQPIRLYNKA
H1_Nav_2 1321 -YIWKNSQINFDSVPQAFALFEVATFEGWIQVMGDAVDARE-----IDQQPIPLNKS
H2_Nav_2 1321 -YIWKNSQINFDSVPQAFALFEVATFEGWIQVMGDAVDARE-----IDQQPIPLNKS

H4_Nav_2 1370 -YVWQNSPINFDSVPQAF LALFEVATFEGWIIQIMGDAVDARE-----INQQPIPLYNKS
H13_Nav_2 1370 -YVWQNSPINFDSVPQAF LALFEVATFEGWIIQIMGDAVDARE-----INQQPIPLYNKS
H1_Nav_3 1564 -YKWTNSLIHFDDFPQAIILLFHVATFDGWKRALYNAVDARG-----INLQPVTYYNPA
H2_Nav_3 1522 -YKWTNSLIHFDDFPQAIILLFHVATFDGWKRALYNAVDARG-----INLQPVTYYNPA
H4_Nav_3 1612 IYEWKNAIVHFDFFPHAIILLFHVATFDGWKRTLLNAVNARQ-----INLQPVALHNQW
H13_Nav_3 1659 IYEWKNAIVHFDFFPHAIILLFHVATFDGWKRTLLNAVNARQ-----INLQPVALHNQW
H1_Nav_4 1900 -YYWRNPVMNFDNLGNALISLFHIATLDGWKRLMKSAVDARG-----KDLQPKSLNLP
H2_Nav_4 1441 -YYWRNPVMNFDNLGNALISLFHIATLDGWKRLMKSAVDARG-----KDLQPKSLNLP
H13_Nav_4 1483 -YYWRKRDINFNLGNALLSLFHVATLDGWKRAMKSAVDARG-----VNLQPSNLHNPA
H4_Nav_4 1367 -YYWRNRVINFDNLGNALLSLFHVATLDGWKRAMQSAVDARG-----VNLQPSNLHNPA
H1_Nav_5 1464 -----
H2_Nav_5 1495 -YLWEPY-----
H4_Nav_6 1432 -YSWKPYDLNFDNLGNSLLSLLHIASMDGWKRLMKQAVDSRG-----IDLQPQILYNPA
H13_Nav_6 1486 -YSWKPYDLNFDNLGNSLLSLLHIASMDGWKRLMKQAVDSRG-----IDLQPQILYNPA
H13_Nav_7 1582 -LPWRPYDTNFDNLGNALLLHFIATLDGWTKIMRHTVEARG-----VGLVPKPLFNTA
H4_Nav_7 1540 -YLWRPYDTNFDNLGNALLLHFIATLDGWTKIMRHTVEARGVGLVPKPLFNTAARIFVVCIFVIGVFISLNLIAGVIVGLVPKPLFNTA
H4_Nav7 1640 -YLWRPYDTNFDNLGNALLLHFIATLDGWTKIMRHTVEARG-----VGVVPKPLFNTA
H13_Nav_7 1346 -LPWRPYDTNFDNLGNALLLHFIATLDGWTKIMRHTVEARG-----VGVVPKPLFNTA

Inactivation gate

H1_Nav1 1680 AYVYFVIFIFFGTFFTLNLIVSVIIDNFYKLR-----TYERNAAGIPTDILLTESQKKWYKTMQKLSKKKPTKQIPPS
H2_Nav_1 917 AYVYFVIFIFFGTFFTLNLIVSVIIDNFYKLR-----TYERNAAGIPTDILLTESQKKWYKTMQKLSKKKPTKQIPPS
H4_Nav_1 1599 AYLYFVIFIFFGTFFTLNLIVSVIIDNFYKLR-----TYERNAAGIPTDILLTESQKKWYKTMQKLSKKKPTKQIPPS
H13_Nav1 1580 AYLYFVIFIFFGTFFTLNLIVSVIIDNFYKLR-----TYERNAAGIPTDILLTESQKKWYKTMQKLSKKKPTKQIPPS
H1_Nav_2 1375 AYIYFVAFIIIGSFSLNLIVSVIIDCFYALKQ-----KESGSLGIPTDFMTEQKRWYNVMKTMSKSKPVRRIPLP
H2_Nav_2 1375 AYIYFVAFIIIGSFSLNLIVSVIIDCFYALKQ-----KESGSLGIPTDFMTEQKRWYNVMKTMSKSKPVRRIPLP
H4_Nav_2 1424 AYIYFVAFIIVGSFSLNLIISVVIDSFYTLKR-----KSENGSLGIPVEIFLTESQKRWYNVMKTMSKSRPVKRIPPP
H13_Nav_2 1424 AYIYFVAFIIVGSFSLNLIISVVIDSFYTLKR-----KSENGSLGIPVEIFLTESQKRWYNVMKTMSKSRPVKRIPPP
H1_Nav_3 1618 AHGYFVAFIIIGVFVALNLIVGVIIIDGFYVSHQ-----KLERQSGSALAEAYLTDQRWYRMMRKLKTKPKKSIPRG
H2_Nav_3 1576 AHGYFVAFIIIGVFVALNLIVGVIIIDGFYVSHQ-----KLERQSGSALAEAYLTDQRWYRMMRKLKTKPKKSIPRG
H4_Nav_3 1666 ANAYFVAFIIIGVFVALNLIVGVIEGFYVSHK-----QRQHGNALEAFLESQRRWYRMMRKLKTKPKKSIPPA
H13_Nav_3 1713 ANAYFVAFIIIGVFVALNLIVGVIEGFYVSHK-----QRQHGNALEAFLESQRRWYRMMRKLKTKPKKSIPPA
H1_Nav_4 1954 ARLFFIAFIVGVFVFLTLNLIAGVVIDQFYSSRK-----KSRISYEVKALALNQT-----KPKSLNQLCP-
H2_Nav_4 1495 ARLFFIAFIVGVFVFLTLNLIAGVVIDQFYSSRK-----KINPVCQI-
H13_Nav_4 1537 ARLYFVAFIATGVFVFLTLNLIAGVVIDQFYSSRK-----KYMSKRNSNSIEALFTDQHWYRMMRKLMRKLIIRVPPP
H4_Nav_4 1408 -----
H1_Nav_5 1464 -----
H2_Nav_5 1501 -----
H4_Nav_6 1486 ARLYFVAFIIIGVFITLNLIVGVIIIDRFYSSRK-----KYESRD-GSNISLFTDSQIHWYKMIKRLMRSKLIKSVPA
H13_Nav_6 1540 ARLYFVAFIIIGVFITLNLIVGVIIIDRFYSSRK-----KYESRD-GSNISLFTDSQIHWYKMIKRLMRSKLIKSVPA
H13_Nav_7 1636 ARIFVVCIFIVIGVFISLNLIAGVVIDRFYNSRK-----KYESSK-GKNIESLLTESQIRWYKMMKLMRVKLVKSIPPA
H4_Nav_7 1630 ARIFVVCIFIVIGVFISLNLIAGVVIDRFYNSRK-----KYESSE-GKNIESLLTESQIRWYKMMKLMRVKLVKSIPPA
H4_Nav7 1694 ARIFMVCIFIVGVFISLNLIAGVVIDRFYNSRKGLLHPFSYSWDAKKYKYESK-GKNLESLLTESQIRWYRMMKLMRIKLVKSIPPA
H13_Nav_7 1400 ARIFMVCIFIVGVFISLNLIAGVVIDRFYNSRK-----KYESSK-GKNLESLLTESQIRWYRMMKLMRVKLVKSIPPA

H1_Nav1 1754 RYKQWQHLLGYVQTRFDLFIIMTIIFANTITMMVNHYQEAKESWLFYIFARQTRIIDI-----IFTSIYTLAAILKILAMR
H2_Nav_1 991 RYKQWQHLLGYVQTRFDLFIIMTIIFANTITMMVNHYQEAKESWLFYIFARQTRIIDI-----IFTSIYTLAAILKILAMR
H4_Nav_1 1673 KYQWQNDLLGYVQTRFELFIMVIFANTITMMVNHYQESKQ-----VTDALHILL-----ILLSAKAILKITAMR
H13_Nav1 1654 KYQWQNDLLGYVQTRFELFIMVIFANTITMMVNHYQESKQ-----VTDALHILL-----ILLSAKAILKITAMR
H1_Nav_2 1449 KRDSQKRLLAIVQSNKFE LAIILVIVANTAAMMVVHFDQSQE-----VTRVLDILFL-----MR
H2_Nav_2 1449 KRDSQKRLLAIVQSNKFE LAIILVIVANTAAMMVVHFDQSQE-----VTRVLDILFFTSKSYNEILVQVFGFILTIIYVLEAILKIIAMR
H4_Nav_2 1498 KRDSQRLLAIVQSNKFEVTIIIVILINTIAMMMVHFDQSKD-----
H13_Nav_2 1498 KRDSQRLLAIVQSNKFEVTIIIVILINTIAMMMVHFDQSKD-----
H1_Nav_3 1692 NHQWQIRLRKFVENPKFEMTVIYIIVANVIVMMVTHYHESNE-----VHETALFFNG-----YLLGFNYFFTIFYVIEAVLKIIIVFR
H2_Nav_3 1650 NHQWQIRLRKFVENPKFEMTVIYIIVANVIVMMVTHYHESNE-----VHETALFFNG-----YLLGFNYFFTIFYVIEAVLKIIIVFR
H4_Nav_3 1738 TVRF-----IFKNSIMTK-----
H13_Nav_3 1785 TSEWQNQLRKLVQDSRFEMLVIYIIVSNIVMMVTHYHESDE-----
H1_Nav_4 2014 -----
H2_Nav_4 1535 -----YQLGELIALLQLVI-----
H13_Nav_4 1611 EYKWKQILIRIFEDKKYEIFSITVIILNVIAMAITHYKQS-----
H4_Nav_4 1408 -----
H1_Nav_5 1464 -----
H2_Nav_5 1501 -----
H4_Nav_6 1559 RTAWQNLMKFFEDKRYEIFNMVILLNVIVMTVTHYQSQNQ-----LTFILSILNY-----CFTAYYTLKILKLMAYR
H13_Nav_6 1613 RTAWQNLMKFFEDKRYEIFNMVILLNVIVMTVTHYQSQNQ-----LTFILNILNY-----CFTAYYTLKILKLMAYR
H13_Nav_7 1709 MFGWQNKLIKFFEDRRYEFANMAVFLNIIAMTATHYQSSAQ-----ITLILNIMNY-----SFTAYFGLKILKLLAFR
H4_Nav_7 1703 MFGWQNKLIKFFEDRRYEFANMAVFLNIIAMTATHYQSSAQ-----ITLILNIMNY-----SFTAYFGLKILKLLAFR
H4_Nav7 1783 MFGWQNKLIKFFEDRRYEFANMAVFLNIIAMTATHYQSSAQ-----ITLIL-----TYFGLKILKLLAFR
H13_Nav_7 1473 MFGWQNKLIKFFEDRRYEFANMAVFLNIIAMTATHYQSSAQ-----ITLILNIMNY-----SFTAYFGLKILKLLAFR

H1_Nav1 1830 RYFFNIPWNVDFCIVILSIIGLVLDIIAQTN-----SIPISPSVLRVLRVFRITRVLRLIEVAKGVRRLMSLAMS L PALLNIGCLLF
H2_Nav_1 1061 RYFFNIPWNVDFCIVILSIIGLVLDIIAQTN-----SIPISPSVLRVLRVFRITRVLRLIEVAKGVRRLMSLAMS L PALLNIGCLLF
H4_Nav_1 1740 QYFFKIPWNVDFCIVILSIVGLVLDIIAQTN-----SIPISPSVLRILRVFRITRVLRLIEVAKGVRRLMSLAMS L PALLNIGCLLF
H13_Nav1 1721 QYFFKIPWNVDFCIVILSIVGLVLDIIAQTN-----SIPISPSVLRILRVFRITRVLRLIEVAKGVRRLMSLAMS L PALLNIGCLLF
H1_Nav_2 1503 QHYFKNLWNLFDFIIVLVAIIGIILDVMDSSNA-----SIPINPSMLRTLRLFRIVRILRVLEFAKGIRKLLTAFAMSPALFNVALLVF
H2_Nav_2 1533 QHYFKNLWNLFDFIIVLVAIIGIILDVMDSSNA-----SIPINPSMLRTLRLFRIVRILRVLEFAKGIRKLLTAFAMSPALFNVALLVF
H4_Nav_2 1539 -----ITRLLDILDN-----
H13_Nav_2 1539 -----ITRLLDILDN-----
H1_Nav_3 1769 LYYFKDAWNLFDFAVVILSISGLVFEILTRANIISTTANTTINPSTIRILRIFRIVRILRLVQYAQGI RRLLSLAMSAPALLNIGMLTF
H2_Nav_3 1727 LYYFKDAWNLFDFAVVILSISGLVFEILTRANIISTTANTTINPSTIRILRIFRIVRILRLVQYAQGI RRLLSLAMSAPALLNIGMLTF
H4_Nav_3 1750 -----
H13_Nav_3 1826 -----VGLV LNIFF-----
H1_Nav_4 2014 -----L FLLLASITGIVLSNLASV-----TFRVSPAIRAIRIFRIVRIRLLRHAQGM RRLLMALIASIPALFNIAILIA
H2_Nav_4 1549 -----SPLASITGIVLSNLPSV-----TFRVSPAIRAIRIFRIVRIRLLRHAQGM RRLLMALIASIPALFNIAILIA
H13_Nav_4 1650 -----AVMTVALNILSMN-----
H4_Nav_4 1408 -----
H1_Nav_5 1464 -----
H2_Nav_5 1501 -----
H4_Nav_6 1629 LYFFKDIWNVDFM VVVIASLGGIILSLLPAL-----TFRISP AIVRILRVFRVVRILRLLRHARGM RRLMSLIASAPALFNIAALIA
H13_Nav_6 1683 LYFFKDIWNVDFIVVVIASLGGIILSLLPAL-----KFRISP AIVRILRVFRVVRILRLLRHARGM RRLMSLITASAPALFNIAALIA
H13_Nav_7 1779 LYFFKDIWNVDFLIVVLASVGLIFSL LPSI-----NFPVSPSIIIRIVRIVRILRLLRHARGM RRLMSLIVASIPALLNIAALLA
H4_Nav_7 1773 LYFFKDIWNVDFLIVVLASVGLIFSL LPSV-----NFPVSPSIIIRIVRIVRILRLLRHARGM RRLMSLIVASIPALLNIAALLT
H4_Nav7 1845 IYFFKDIWNVDFLIVVLASVGLIFSL LPSI-----KFPVSPSIIIRIVRIVRILRLLRHARGM RRLMSLIVASIPALLNIAALLV
H13_Nav_7 1543 LYFFKDIWNVDFLIVVLASVGLIFSL LPSI-----NFPVSPSIIIRIVRIVRILRLLRHARGM RRLMSLIVASIPALLNIAALLA

DIV

H1_Nav1 1914 LV MFIYAIIGMSLFGSMVHHGTITDTINFETFPNAMALLFR LMTAAGWNDVLDLSLMTDGPNCNASLT--NLAPTGTG NPGAAIPYMVTF
H2_Nav_1 1145 LV MFIYAIIGMSLFGSMVHHGTITDTINFETFPNAMALLFR LMTAAGWNDVLDLSLMTDGPNCNASLT--NLAPTGTG NPGAAIPYMVTF
H4_Nav_1 1824 LV MFIYAIIGMSLFGGMVHHGTITDTINFETFPNAMAVLFR LMTSAGWNDVLDLSLMTDGPNCNATLT--NISPTGTG NPGAAIPYMVTF
H13_Nav1 1805 LV MFIYAIIGMSLFGGMVHHGTITDTINFETFPNAMAVLFR LMTSAGWNDVLDLSLMTDGPNCNATLT--NISPTGTG NPGAAIPYMVTF
H1_Nav_2 1588 LV MFIYAIIVGMSSFAVVKHQTAITK NMFETFPNGLLLL FRLSTSAGWNDVLDLDMVQPPDCNNSAT--AFSWNGDCG NPPVAITFLITY
H2_Nav_2 1618 LV MFIYAIIVGMSSFAVVKHQTAITK NMFETFPNGLLLL FRLSTSAGWNDVLDLDMVQPPDCNNSAT--AFSWNGDCG NPPVAITFLITY
H4_Nav_2 1549 -----
H13_Nav_2 1549 -----
H1_Nav_3 1859 LV IFIYAVLGM SVFYNVKHTGVLTNVFNFD DFFNSLIVL FQLMTAAGWTDVSSALSIE SPNCNSNDT--TISPF GNCGRSLSLLFTSSY
H2_Nav_3 1817 LV IFIYAVLGM SVFFNVKHTGVLTNVFNFD DDFNLSLIVL FQLMTAAGWTDVSSALSIE SPNCNSNDT--TISPF GNCGRPLSLLFTSSY
H4_Nav_3 1750 -----
H13_Nav_3 1835 -----
H1_Nav_4 2086 VVSFYAIIGMSVFSHVKYHG VITKSLNFE NFVTT SII L VQFST AAGWTFH H ALSIQPPKCTSASAIPTFVPTGNC GSPHLATIYIISY
H2_Nav_4 1620 VVSFYAIIGMSVFNHVKYHG VITKSLNFE NFITTSIIL VQLST AAGWTFH H ALSIQPPKCTSASAVSTFVPTGNC GSPHLATIYIISY
H13_Nav_4 1663 -----
H4_Nav_4 1408 -----
H1_Nav_5 1464 -----
H2_Nav_5 1501 -----
H4_Nav_6 1712 IISYIYAVFGI A VFRNVKYQSVISATLNFQSFVK SSILLIQISTGSGWTDILHELSIQPPKCKPAATNSTFFPSGNC GDHTIAMIYVVSY
H13_Nav_6 1766 VISYIYAVFGMAVFRNVKYQSVISATLNFQSFV KSSILLIQISTGSGWTDILHELSIQPPKCKPAATNSTFFPSGNC GDHTIAMIYVVSY
H13_Nav_7 1862 IISFTYTIIGIALFKDVKYQGIIDATLNFQSYFK ASMILFQLSTAGWTFH H K ALSVQPPKCEANIT--TIIPTGNC GSPVLATIYIITY
H4_Nav_7 1856 IISFTYTIIGITL F KDVKYQGIIDATIN FQSYFK ASMILFQLSTAGWTFH H K ALSVQPPKCEANIT--TIIPTGNC GSPVLATIYIMITY
H4_Nav77 1928 IVSFMYAIIGMTL FKNVKYQGIIDATIN FHSFYKTSIILFQLSTAGWTFH H K ALSVQPPKCEANIT--TIIPTGNC GSPVLATIYIITY
H13_Nav_77 1626 IISFTYTIIGIALFKDVKYQGIIDATLNFQSYFK ASMILFQLSTAGWTFH H K ALSVQPPKCEANIT--TIIPTGNC GSPVLATIYIITY

H1_Nav1 2002 VFITFLVLVNMVVAIILN NYQE VVEDEEIG-IT TGDIDMYE LWSKYDPYATQFIDYHFLSQFVADLN PPLKIPQPNKYACVALN LPLYD
H2_Nav_1 1233 VFITFLVLVNMVVAIILN NYQE VVEDEEIG-IT TGDIDMYE LWSKYDPYATQFIDYHFLSQFVADLN PPLKIPQPNKYACVALN LPLYD
H4_Nav_1 1912 VFITFLVLVNMVVAIILN NYQE VVEDEEIG-IT TSDIDMYE LWSKYDPYATQFIDYHFLSPFVAELN PPLKIPQPNKYACVALN LPLYD
H13_Nav1 1893 VFITFLVLVNMVVAIILN NYQE VVEDEEIG-IT TSDIDMYE LWSKYDPYATQFIDYHFLSPFVAELN PPLKIPQPNKYACVALN LPLYD
H1_Nav_2 1676 IFITTFVLINM VVAIILN NYQE VVEDEEIGSVITAEDINVFYE TWAKYDPEASQFISFRYLSPLVAELK PPLRIPQPNKYPLIALDLALYD
H2_Nav_2 1706 IFITTFVLINM VVAIILN NYQE VVEDEEIGSVITAEDINVFYE TWAKYDPEASQFISFRYLSPLVAELK PPLRIPQPNKYPLIALDLALYD
H4_Nav_2 1549 -----PNK-----
H13_Nav_2 1549 -----PNK-----
H1_Nav_3 1947 VYLTWLVL SNL FVAVILSNYQD VVDTEAGG-VTE M D I D I F Y E V W A K Y D T E A T Q F I D Y S S L S P L V A D I K P P L G V P Q P N R Y A C I A L D L P L Y R
H2_Nav_3 1905 VYLTWLVL SNL FVAVILSNYQD VVDTEAGG-VTE M D I D I F Y E V W A K Y D T E A T Q F I D Y S S L S P L V A D I K P P L G V P Q P N R Y A C I A L D L P L Y R
H4_Nav_3 1750 -----
H13_Nav_3 1835 -----
H1_Nav_4 2176 ILLT C Y S I R R R Y ----- Q C F F E T W A K Y D P E A T Q F I H Y E E L S L L L N E L P P P F G T P I P N I Y V C I S L N L P V Y Y
H2_Nav_4 1710 ILLT W F V L I N L F V A V I L S N Y Q D C V D A D S A T - V S E E D I S T F F E T W A K Y D P E A T Q F I H Y E E L S L L L N E L P P P F G T P I P N I Y V C I S L N L P V Y Y
H13_Nav_4 1663 -----
H4_Nav_4 1408 -----
H1_Nav_5 1464 -----
H2_Nav_5 1501 -----
H4_Nav_6 1802 LLLIWFILINL FIAVILN NYQD C V E S D S A V - V S E E D I Q S F Y E T W A K Y D P K A T Q F I H Y N K L S N L L N D L S P P F G S P I P N T Y V C I S L H L P L Y E

H13_Nav_6 1856 LLLIWFILINLFIIVILNNYQDCVDES SAV-VSEEDIQSFYETWAKYDPKATQFIHYNKLSNLLNDLPPFPFGSPIPNTYVCISLHLPLYE
 H13_Nav_7 1950 LVVAWFILLNLFIAVILNNYQDCVDADSAS-ISDEKIQSFFEETWAKYDPRATQFIHYNMLSSLLNDLEEPFGSPIPNTYVCIRLNLPIYD
 H4_Nav_7 1944 LIAAWFILLNLFIAVILNNYQDCVDADSAS-ISDENIQSFFEETWAKYDPEATQFIHYNMLSSLLNDLEEPFGSPIPNTYVCIRLNLPIYD
 H4_Nav7 2016 LVVAWFILLNLFIAVILNNYQDCVDADSAS-ISDENIQSFFEETWAKYDPKATQFIHYNMLSSLLNDLEKPPFGSPIPNTYVCIGLNLPIYD
 H13_Nav_7 1714 LVVAWFILLNLFIAVILNNYQDCVDADSAS-ISDEKIQSFFEETWAKYDPRATQFIHYNMLSSLLNDLEEPFGSPIPNTYVCIRLNLPIYD

 H1_Nav1 2091 EDRLHCLDILEGLLFRVLGNPFEE-GTQAVEEFFILKRQMEKKFAEAFPNWR--ADSANRNARTTMQLSRENWAAKVIQRAYRQWKYRSDI
 H2_Nav_1 1322 EDRLHCLDILEGLLFRVLGNPFEE-GTQAVEEFFILKRQMEKKFAEAFPNWR--ADSANRNARTTMQLSRENWAAKVIQRAYRQWKYRSDI
 H4_Nav_1 2001 EDRLHCLDILEGLLFRVLGNPFEE-GTQAVEEFFALKRQMEKKFAEAFPNWR--ADTANRNARTTMQLSRENWAAATVIQRAYRQWKYQSDI
 H13_Nav1 1982 EDRLHCLDILEGLLFRVLGNPFEE-GTQAVEEFFALKRQMEKKFAEAFPNWR--ADTANRNARTTMQLSRENWAAATVIQRAYRQWKYQSDI
 H1_Nav_2 1766 SRLVHCLDVLEALVERVIGQPNADAEAGDVVEE---IKRQIQKKFSETFPSSGIPKQYDKSKRLKQLAVQEIKAAAVIIQRAYRHYRLRKAC
 H2_Nav_2 1796 SRLVHCLDVLEALVERVIGQPNADAEAGDVVEE---IKRQIQKKFSETFPSSGIPKQYDKSKRLKQLAVQEIKAAAVIIQRAYRHYRLRKAC
 H4_Nav_2 1552 -----
 H13_Nav_2 1552 -----
 H1_Nav_3 2036 SNRLHCLDIIEALLFRIIGNPADS-DEELTAEFDILIRRIKKSFLKFFPSR---VPAHQINRISELEKANITAAIIVQRAYRQWKYRSDI
 H2_Nav_3 1994 SNRLHCLDIIEALLFRIIGNPADS-DEELTAEFDILIRRIKKSFLKFFPSR---VPAHQINRISELEKANITAAIIVQRAYRQWKYRSDI
 H4_Nav_3 1750 -----
 H13_Nav_3 1835 -----
 H1_Nav_4 2241 GGNIHCLDVIAALLSKLMEKVIDEISQEFKDEYEQLLEKIHGVFHTKFFPKW---SNKSGETVTSRVLSDEVEPVILLRSSFRRWKALTYK
 H2_Nav_4 1799 GGNIHCLDVIAALLSKLMEKIIDEISQEFKDEYEQLLEKIHGVFHTKFFPKW---SNKSGETVTSRVLSDEVEPVILLRSSFRRWKALTYK
 H13_Nav_4 1663 -----
 H4_Nav_4 1408 -----
 H1_Nav_5 1464 -----
 H2_Nav_5 1501 -----
 H4_Nav_6 1891 GNKIHCLDVIHALLNKLMVDVIGEISDEFQDEYNLLIETINKAFQSKYPKW---KPHSNAKRIPSEYYKLVQSNLLLLKSYFYHWWKQRTKE
 H13_Nav_6 1945 GNKIHCLDVIHALLNKLMVDVIGEISDEFQDEYNLLMETINKAFQSKYPKW---KPHSNAKRIPSEYYKLVKSNLLLLKSYFHHWWKQRTKE
 H13_Nav_7 2039 ETKIHCLDLIRALIDKMMHDIIGEISTEFQEEYDLMMEKIGDVFKTRFPKW--KSKHSQDKKSSQLFDDQAKSVLLLRASFQHWKQKTTK
 H4_Nav_7 2033 E-----
 H4_Nav7 2105 ETKIHCLDLIRALIDKMMRDIIGEISTEFQEEYDLMMEKIGDVFKTRFPKW--KSEHGQEKSSKLFYDQAKSVLLLRASFQHWKQKTTK
 H13_Nav_7 1803 ETKIHCLDLIRALIDKMMHDIIGEISTEFQEEYDLMMEKIGDVFKTRFPKW--KSKHSQDKKSSQLFDDQAKSVLLLR-----

 H1_Nav1 2179 HKATYRHVHSRRRH-----
 H2_Nav_1 1410 HKATYRHVHSRRRH-----
 H4_Nav_1 2089 HKANYQHVHSRRRH-----
 H13_Nav1 2070 HKANYQHVHSRRRH-----
 H1_Nav_2 1853 KEHCQMRMRQSVIHLHQNLMKS-----
 H2_Nav_2 1883 KEHCQMRMRQSVIHL-----
 H4_Nav_2 1552 -----
 H13_Nav_2 1552 -----
 H1_Nav_3 2122 NDRVERHQLVYRNVANRCEKKPQKIGLKKIRNARNVNNA
 H2_Nav_3 2080 NDRVERHQLVYRNVANRCEKKPQKIGLKKIRNARNVNNA
 H4_Nav_3 1750 -----
 H13_Nav_3 1835 -----
 H1_Nav_4 2328 RRQGYDVNFWILIM-----
 H2_Nav_4 1886 RRQGYDVNFWILFM-----
 H13_Nav_4 1663 -----
 H4_Nav_4 1408 -----
 H1_Nav_5 1464 -----
 H2_Nav_5 1501 -----
 H4_Nav_6 1978 RRQNALRKSS-----
 H13_Nav_6 2032 RRQNALRKSSL-----
 H13_Nav_7 2127 LQAFLLN-----
 H4_Nav_7 2033 -----
 H4_Nav7 2193 LQ-----
 H13_Nav_7 1878 -----