

NP_524873- -----
NP_524802- MK-----
NP_572854- -----
BT121711-F M-----
BT121232-F M-----
MK887318-F -----
BT077723-F -----
BT121164-F -----
P02792-FTL -----
P02794-FTH -----
GKAA010092 -----
GKAB010168 -----
HAGX010164 -----
GJIZ011008 -----
GAXK011425 -----
GAXK011686 -----
GAXK011701 -----
GAXK011690 M-----
GBXT010251 -----
GJFL010131 -----
GJFL010098 -----
GJFL010061 MF-----PWMT-----
GJFL010035 M-----
GJRL010689 M-----
GJRL010253 -----
GJQX012439 -----
GJQY012322 -----
GJQY010547 MF-----P-----
GJQY010045 -----
GJQY012928 -----
GIVX010931 -----
GIVX012281 -----
GKAD010080 -----
GKAD010013 -----
GKAD010082 -----
GJRE012107 -----
GJRE010895 -----
GFUA010006 -----
GARW010443 -----
GARW010112 -----
GARW010174 -----
GCIW010237 -----
GFWO011986 -----
GFUD010187 -----
GFUD010193 -----
GFUD010218 -----
GFUD010230 M-----
GFUD010333 -----
GFUD010085 -----
GJRU010328 -----
GJRH010278 -----
GCJT010110 MR-----
GHXK010671 -----
GHXK012857 -----
GHXK011403 -----
GHXK011411 -----
GFCI010964 -----
GHWV011161 M-----
GHWV011130 -----
TRINITY_DN -----
TRINITY_DN -----
TRINITY_DN -----
GKAP010174 MARPTPTTPTAPTISPTNPMARPTPTNPTRPLTINTSIPLISVIILDTTTKAELKKST
GINW011006 M-----
GINW012482 M-----
GINW010990 -----
GINW012479 -----
GINW012344 -----
GJGX010431 -----
GJGX011542 -----
GJGX011121 -----
GJGX011464 -----
GCIT010248 -----
HAHV011241 -----

NP_524873- -----MVKLIASLLLLAVVAQAYGDFKC-SLAVP---EITKDWVDMKDAC---
 NP_524802- -----FFVALALFACLGSLALAKDDEYQC-NTVIT--ACSTSAFSANSICNAR
 NP_572854- -----MAWCFR-D--IR-RHMCMLVRQNFASKC---
 BT121711-F -----ITVMKVLAIFAILITGAHGSCNIGSQTDPKGKATPEDPTNYHEFC---
 BT121232-F -----IKQLLLLSILVASCVGGPDSCGA-HTDVQ--CGNPGTKWESGICNSV
 MK887318-F -----MAQQIRQNYDPEC---
 BT077723-F -----MSSQIRQNYDSEC---
 BT121164-F -----MSSQIRQNYDSEC---
 P02792-FTL -----MSSQIRQNYSTDV---
 P02794-FTH -----MT-TASTSQVRQNYHQDS---
 GKAA010092 -----MGKLMNIVLIAGLAGLVKASCDT-DTINP--VSAQDTPNYRENC---
 GKAB010168 -----MNKLLNIVVMAGMVGLARAACDV-EA INP--VSAREATNYRDNC---
 HAGX010164 -----
 GJIZ011008 -----MTSTIRQNYHEEC---
 GAXK011425 -----MNSTIRQNYHEDC---
 GAXK011686 -----MAMSKVKQNFHSDS---
 GAXK011701 -----MASKIRQNYHEEC---
 GAXK011690 -----KLFVALVSLSVLVVAEDGACYT-HVNDK--CEAPGDDWVSGSCNSV
 GBXT010251 -----MTSQIRQNYHEEC---
 GJFL010131 -----
 GJFL010098 -----
 GJFL010061 -----KITSLVARKLITVGLR-----NTSQT-IMSPATIRQNFHGEC---
 GJFL010035 -----KLFVALASLSVALVVAEDGACYK-HVNDK--CEAPGDDWVSGSCNSV
 GJRL010689 -----FHSKMLSLLMALVVSLSASTCST-NTSDE--KEEAKDTANYQPAC---
 GJRL010253 -----MASKIRQNYHEEC---
 GJQX012439 -----MTSQIRQNYHEDC---
 GJQY012322 -----MSPANIRQNFHDEC---
 GJQY010547 -----KMLTLAARKLITAGLR-----NTSQT-NMSPANIRQNFHDEC---
 GJQY010045 -----
 GJQY012928 -----MASKIRQNYHEEC---
 GIVX010931 -----MALSRCRQNFHEES---
 GIVX012281 -----MASKIRQNYHEEC---
 GKAD010080 -----MLVFAVLLSLLGAVAPSC TT-ENADP--ALARDAANYREHC---
 GKAD010013 -----
 GKAD010082 -----MATIRQNYLEAS---
 GJRE012107 -----MTSQVRQNYHEEC---
 GJRE010895 -----MTSKIRQNYHEEC---
 GFUA010006 -----MMLLSVVGVSLLGAAAATCVS-ERTNP--VRAHDPANYRESC---
 GARW010443 -----
 GARW010112 -----MAISIVRQNYHAES---
 GARW010174 -----MAISVIRQNYHSEA---
 GCIW010237 -----MLPIVLLGLTAAPLARASCSV-SNP NP--AEANDPENYKVCAC---
 GFWO011986 -----MMLYVLLISMALVDMSTAKCDT-SSADP--ASAQDSANYRETC---
 GFUD010187 -----MASKIRQNYHEES---
 GFUD010193 -----MAMSKVKQNFHSDS---
 GFUD010218 -----MNMIRQNYHEEC---
 GFUD010230 -----FQSNMLALLMTVMVGLASSTCSV-SSPDE--KAKASDPANYQQT C---
 GFUD010333 -----MSPASIRQNFHEDC---
 GFUD010085 -----MTSQIRQNYHEEC---
 GJRU010328 -----MSSKIRQNYHEEC---
 GJRH010278 -----MSSKIRQNYHEEC---
 GCJT010110 -----YLATTVSIVLLLSKFRGAVASCSIGEESDPLGKAKSSDGYNHEDC---
 GHXK010671 -----MSPKFLLLALVGLSNASCSVGPHSDPEGPAKASDPENYHEVC---
 GHXK012857 -----MSQSKVRQNFHSNS---
 GHXK011403 -----MSSLARQKFSTAC---
 GHXK011411 -----MSLARQNFAKAS---
 GFCI010964 -----MASNIRQNYHEEC---
 GHVW011161 -----KVTTLI FAGLLMFGVSSVHGSCSV-SNPDP--ALAKDPANYKEEC---
 GHVW011130 -----MASRIRQNYHEDC---
 TRINITY_DN -----MIFTMFLVMTTSTIPLISASCSV-TSTQP--TAKANDSANYQDSC---
 TRINITY_DN -----MAMSKVKQNFHSDN---
 TRINITY_DN -----MSVSKIRQNYHQDS---
 GKAP010174 SSSNSEQFTQIKSKMLVFAAVVLSVMGAVAPT CNS-NPDNP--VSAQDPANYRETC---
 GINW011006 -----RMLLLTLFIGGALACQNRLTLV-QEAVG--HAEDLSTDVHDACNGE
 GINW012482 -----RAFWCFLVFAGSAVAEEESCTM-HAERT--CLEPGSNWKQGPCNSV
 GINW010990 -----MAATQPRQNYHAEC---
 GINW012479 -----MASQIRMNYQDDC---
 GINW012344 -----MASQIRMNYHEDC---
 GJGX010431 -----MPSLIVLFGALGAAAASCST-SNSNP--ALARDAANYRENC---
 GJGX011542 -----MAVSKVKQNFHTES---
 GJGX011121 -----
 GJGX011464 -----
 GCIT010248 -----MASTSPIRQNFHEEC---
 HAHV011241 -----MSSSPIRQNFHEEC---

NP_524873- -----IKGMRNQIQE**E**INASY**Q**YLAMGAYFSRDTVNRPGFAEHFFKAAK**EERE**HGSK
 NP_524802- FA-GIDHIEPIQSYINANLAKSYD**Y**LLLATHFNSYQKNRPGFQKLYQGLSD**RSFE**D**S**IA
 NP_572854- -----EKKLNDQIN**M**E**L**KASH**Q**YLAMAYHFDRSDISSPGMHRFFLKASV**EERE**HAEK
 BT121711-F -----ISSLRNQVK**M**E**F**EAA**LQ**YLVMGAYFDQDTINLKGFQKFFWESAD**EER**HGLQ
 BT121232-F FG-GFKGNTRNLSVLINRHLNDSFK**Y**LVMASYFDSAENVNRMGFNKYIQGYSD**KLWD**NGKD
 MK887318-F -----EDLINKQIN**M**E**L**YAFY**S**YLSMGAYFSRDDVALDGFQKFFYISAS**EETR**HAQK
 BT077723-F -----EALINKQIN**M**E**L**FASY**T**YLSMGAYFSRDDVALEGFQKFFYESS**S**E**ENT**HARN
 P02792-FTL -----EAAVNSLVNL**X**LQASY**T**YLSLGFYFDRDDVALEGVSHFFRELAE**E**K**RE**G**Y**ER
 P02794-FTH -----EAAINRQIN**L**E**L**YASY**V**YLSMSYFDRDDVALKNFAKYFLHQSH**EERE**HAEK
 GKAA010092 -----IDVLAKQVR**M**E**F**EAS**LQ**YLLMAAQFSQDTYHLPGLAGTFWKSAD**EERE**HGKA
 GKAB010168 -----IDVLSKQVR**M**E**F**EAS**LQ**YLLLAQFSQDTYHLPGLAGQFWKSAD**EERD**HGKQ
 HAGX010164 -----MAAHFDRDDVALHGFRDFFKKS**A**E**E**E**S**HAQM
 GJIZ011008 -----EALINKQIN**M**E**F**YASY**V**YLSMSSYFNRYDQALHGFQKFFAKSS**N**E**EERE**HGMK
 GAXK011425 -----EGLINKQIN**T**E**F**YASY**V**YLSMSSYFNRSQALHGFQKFFMERSE**N**E**RT**RGVN
 GAXK011686 -----EALINKQIN**M**E**L**YASY**V**YLSMSSYFARDIDIALGFSKRFEAS**H**E**E**K**E**HAEL
 GAXK011701 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALNGFASFFQKNS**N**E**EERE**HGMK
 GAXK011690 HG-GFKGNSDNLHRIIVD**D**FTDSMN**Y**LLMASSFSSTDKVNRMGFSKFFMEKSD**TMWG**RGKD
 GBXT010251 -----EALINKQIN**M**E**F**YASY**V**YLSMSSFFNRDDQALHGFQKFFQKSS**N**E**EERE**HGMK
 GJRL010131 -----MEMSASY**T**Y**L**ALYSYFIQHDKALHGFAKMF**L**KNS**H**E**EERE**HGGL
 GJFL010098 -----MSSYFNRSQALHGFQKFFMERSE**N**E**RT**RGVN
 GJFL010061 -----EKSLNKQIN**M**E**L**YASY**T**YLSLYSYFIQDQKALHGFAKMF**M**KNS**Q**E**EERE**HSLT
 GJFL010035 HG-GFKGNSDNLHRIIVD**D**FTDSMN**Y**LLMASSFSSTDKVNRMGFSKFFMEKSD**TMWG**RGKD
 GJRL010689 -----IAALEAQIRI**E**F**E**AS**LQ**YLLMAAHFDEDTVNLPKVAELFWSHAD**EERS**HAIQ
 GJRL010253 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFQKFFQKASD**EERE**HGMK
 GJQX012439 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALNGFASFFQKNS**N**E**EERE**HGMK
 GJQY012322 -----EKSLNKQIN**R**E**M**HASY**T**YLSLYSYFIQDQKALYGFQKMF**I**KKS**Q**E**EERE**SLT
 GJQY010547 -----EKSLNKQIN**M**E**M**HASY**S**YLSLYSHFIQHDNALHGFAKMF**I**KNS**Q**E**E**W**E**SLT
 GJQY010045 -----MEMCASY**T**Y**L**ALYSYFSQHDKALHGFAKMF**L**KNS**Q**E**EERE**HGGL
 GJQY012928 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFQKFFQKASD**EERE**HGMK
 GIVX010931 -----EAAINKQIN**M**E**L**YASY**A**Y**L**AMFTYFDRDDVASPGFAKFF**E**EAS**K**E**EERE**HAEK
 GIVX012281 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALPGFASFFQKNS**N**E**EERE**HGMK
 GKAD010080 -----VNALAAQVR**M**E**F**EAS**LQ**YLLMAAQFSQDSYNLPGVAGLFWTHAD**EERD**HAKA
 GKAD010013 -----MEFYASY**V**YLSMASYFNRRDQALSGFASFFQKNS**N**E**ERD**HGMK
 GKAD010082 -----EAGVNKQIN**L**E**L**YASY**T**YLSMAFYFDNTTVALPGAHKY**F**KKASD**EERE**HAML
 GJRE012107 -----EALINKQIN**M**E**F**YASY**V**YLSMSSFFNRDDQALHGFAKFF**E**KSS**N**E**EERE**HGMK
 GJRE010895 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFAKY**F**QKASD**EERE**HGMK
 GFUA010006 -----VAALSNQVR**M**E**F**EAS**LQ**YLLMAAHFTQDNYNLPGVAGLFWTHAD**EERD**HAKQ
 GARW010443 -----MEFQAAM**Q**YLLMGAYFSQDININLDGYSKFFYGHAD**EER**HGVQ
 GARW010112 -----EALLNKQIN**M**E**L**YASY**A**YLSMAAYFDRDDVALHGFAKFF**M**KSSD**EERE**HGMK
 GARW010174 -----EAIINRQIN**M**E**L**YASY**V**YLSMASYFDRDDVALHGFAKFF**R**DN**S**A**EERE**HAME
 GCIW010237 -----ISVLKDQVR**M**E**F**EAS**LQ**YLLMAAFTQDSYNLPGVATIYWTHAD**EERD**HGKA
 GFWO011986 -----ISALSKQVR**M**E**F**EAS**LQ**YLLMAAQFSQDTYNLPGVAKLFWHDAD**EERE**HAKQ
 GFUD010187 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFAKFFQKNS**N**E**EERE**HGMK
 GFUD010193 -----EALINKQIN**M**E**L**YASY**V**YLSMASYFARDDIALGFAKRF**E**AS**K**E**E**K**E**HAEL
 GFUD010218 -----EALINKQIN**M**E**F**YASY**V**YLSMSSYFNRS**D**LALHGFAKFF**M**ERSD**K**E**R**G**Q**GVK
 GFUD010230 -----ITALEQQVR**I**E**F**EAS**LQ**YLLMGAFHDQDTVNLPKVAELFWSHAD**EERS**HAIQ
 GFUD010333 -----EKSLNKQIN**M**E**M**YASY**T**YISLYSYFIQHDKALHGFAKFF**F**KSS**Q**E**EERE**HSM
 GFUD010085 -----EALINKQIN**M**E**L**YASY**V**YLSMSSFFDRDDQALHGFAKFFQKNS**N**E**EERE**HGMK
 GJRU010328 -----EALINKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFAKY**F**QKASD**EERE**HGMK
 GJRH010278 -----EALVNKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFAKFFQKNS**N**E**EERE**HGMK
 GCJT010110 -----TTSLSRQIK**M**E**F**EAS**LQ**YMLMGAFHQDTVNLLGGFSKMF**F**EHAN**EERE**HGIK
 GHXX010671 -----IEALRSQVR**K**E**F**EAS**LQ**YLLMGAYFEQDDINLPGFAKMF**F**EHAD**EERE**HGIK
 GHXX012857 -----EAFINKQIN**M**E**L**YASY**V**YMSMYTYFCRDDVALKGFAKFF**K**SS**E**E**EERE**HALK
 GHXX011403 -----EALNAQVNA**E**LSASY**V**YRAMAAHFDRDDVALNGFRDFFKAA**E**E**E**TEHAQM
 GHXX011411 -----EEALNDQIHA**E**LSASY**A**YRAMAAHFDRDDIALPGFHKFF**K**HSY**E**E**E**SEHAEM
 GFCI010964 -----EALINKQIN**M**E**M**YASY**V**YLSMASYFSRDDQALDGFQKFF**R**KSSD**EERS**HAIM
 GHVW011161 -----ISSLNQVR**M**E**F**EAS**LQ**YLLMGAFSSQDTYNLPGVANIFWTHAD**EERD**HGKA
 GHVW011130 -----EALINKQIN**M**E**L**YASY**V**YLSMSSYFAREEVALHGFSKFF**R**KSSD**EERE**HATK
 TRINITY_DN -----ISALHDQVR**I**E**M**EAS**LQ**YLLMAAHFTEDTINLPNIAE**I**FWSHAD**EERS**HAIS
 TRINITY_DN -----EALINKQIN**M**E**L**YASY**V**YLSMASYFARDDIALQGFQKRF**L**DSS**Q**E**ERD**HAQK
 TRINITY_DN -----EALVNKQIN**M**E**F**YASY**V**YLSMASYFNRRDQALHGFAKFF**R**KQSD**EERD**HGIK
 GKAP010174 -----ISALSQQVR**M**E**F**EAS**LQ**YLLMAARFSQDTYHLPGVANLFWTHAD**EERE**HAKA
 GINW011006 VGTFLSAHADPYKLLNK**L**SLAMKY**M**AISSHFGSDRNHRLGFKK**L**FRDASD**E**R**F**E**Q**AVD
 GINW012482 YG-GFRGNEDNLQDLMRS**H**LDDSF**K**YLVMAASKFNTDQVNR**L**GMHGL**L**QGHSD**M**EWAKGKD
 GINW010990 -----EAGVNKQIN**L**E**L**YASY**V**YMSMSYFDRDDIALKGFAKY**F**KD**N**SD**EERE**HAEK
 GINW012479 -----EALINKQIN**Q**E**L**YASY**V**YLSMSYFDRDDVALPGMK**K**FMKEASD**EERE**HAEN
 GINW012344 -----EASINKQIN**M**E**L**YASY**V**YMSMSYFDRDDIALPGMK**K**FFKESD**EER**GHAEI
 GJGX010431 -----VNALAAQVR**M**E**F**EAS**LQ**YLLMAAQFSQDSYNLPGVAGLFWTHAD**EERD**HAKA
 GJGX011542 -----ESLINKQIN**M**E**L**YASY**T**YLSMAAYFARDDIALHGFAKRF**E**AS**H**E**EERE**HAEK
 GJGX011121 -----MEFYASY**V**YLSMSSWFARSEVALPGFAAH**F**RTES**N**S**EERE**HGMK
 GJGX011464 -----MEFEES**LQ**YLLMAARFSQATYHLPGVANLFWNHAD**EER**AHAKA
 GCIT010248 -----EALINKQIN**M**E**M**YASY**V**YLSMGYFDRDDALPGFSA**F**FRKSS**T**E**EERE**HGML
 HAHV011241 -----EALINKQIN**M**E**M**YASY**V**YLSMGYFDRDDALPGFSA**F**FRKSS**S**E**EERE**HGML

NP_524873- LVEYLSMRGQLTEGVSD-----LINVPT----VAKQEW-TDGAAALSDALDLEIKVTKSI
NP_524802- LMKQVTRRGIV--DFN-----TRHESSGSVSTKRGTELEVDELHSLALALDTEKQLATGA
NP_572854- LINTYMNKRGLI--ILS-----SVQPL-----PCFA-STLDALKHAMKMLEVFNKHL
BT121711-F FIKYLRHRGDKGLDFFQ----GDIEPI----LRKYSWS-DGLDALRDALMMEKKVSGSI
BT121232-F ILKYVLSRGGSDADPNLKV---TAMQMPN-----YQ-GEVLSMSASLDMMKQLMEDM
MK887318-F LIDYQHLRGGKV--VFE-----SVQTPS-----VQSWD-SPVDAMEAALNLEKVNNASL
BT077723-F LINYQTLRGGRV--VFQ-----DISRPN-----VETWA-SPVEAMEAALQLEKDVNASL
BT121164-F LINYQTLRGGRV--VFQ-----DISRPN-----VETWA-SPVEAMEAALQLEKDVNASL
P02792-FTL LLKMQNQRGGRA--LFQ-----DIKPPA-----EDEWG-KTPDAMKAAMALEKKLNQAL
P02794-FTH LMKLQNQRGGRI--FLQ-----DIKKPD-----CDDWE-SGLNAMECALHLEKVNQSL
GKAA010092 FIDYLRMRGYTGNSFFE----AGPLKPI----LNKNTWE-SASEALRDALDMEKAVTASM
GKAB010168 FIEYLRMRGYQGNSFFE----DGTIKPI----LNKNSWE-SASEALRDALDMEKAVTASM
HAGX010164 FIDYLNKRGGRV--VFK-----PIVAPK-----NEWT-TALEALEDALVLEKDVNEKL
GJIZ011008 LMEYQTKRGGKV--VFQ-----DIKAPS-----SSEWG-TPLEAMEAAIELEKTVNQSL
GAXK011425 LIDYQAKRGGKV--VLL-----EIAKPN-----RLEWG-TAMDAMVAALDLEKTVNKNL
GAXK011686 LIDYQNMRRGGRV--VFR-----EIAKPT-----CDEWG-TALEAIEASLELEKTVNESL
GAXK011701 LMEYQTKRGGKV--VFQ-----DIKAPS-----STEWG-TPIQAMEAALELEKTVNQSL
GAXK011690 MIKYVLKRGKGKMGTFQI---PPFGESNQR--VGDYDYS-NEMKGLGVTLDDLKSRASDV
GBXT010251 LMEYQTKRGGKV--VFQ-----DIKAPS-----STEWG-TPIQAMEAALELEKTVNQSL
GJFL010131 LVEYVTKRGGKV--VLE-----DLKKPE-----MELS-TAKNAVEAALNLEKDVNQSL
GJFL010098 LMEYQAKRGGKV--VLL-----EIAKPN-----RLEWG-TAMDAMIAALDLEKTVNKNL
GJFL010061 LIDYQAKRGGKV--VME-----DIKKPE-----VELK-TAKDAVEAALQLEKEVNQSL
GJFL010035 MIKYVLKRGKGKMGTFQI---PPFGETNQR--VGDYDYS-NEMKGLGVTLDDLKARASDV
GJRL010689 FIKYLRMRGAEENDDFFG----GASIQPR-----EKVFAWA-GVEEALKMALKMEKDV TAKM
GJRL010253 LMTYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALELEKTVNQSL
GJQX012439 LMTYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALELEKTVNQSL
GJQY012322 LIDYQTKRGGKV--IME-----DIKKPE-----IELM-TAKDAVEAALQLEKEVNQSL
GJQY010547 LIDYLTKRGGKV--VME-----DIKKPE-----VELK-TAKDAVEAALQLEKEVNQSL
GJQY010045 LIEYVTKRGGKV--VME-----NIKKPE-----IELS-TAKNAVEAALNLEKDVNQSL
GJQY012928 LMTYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALDLEKTVNQSL
GIVX010931 LIKYLNRKGGRV--IYH-----PIEKPM-----KQEWG-SCLEAMEDALSM EKDVNESL
GIVX012281 LMEYQAKRGGRC--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALELEKTVNQSL
GKAD010080 FIGYLRMRGYEETDFFG----GQPIKPI----LEKNTWS-TVSEALRDGLMMEKKVTGSM
GKAD010013 LMTYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALELEKTVNQSL
GKAD010082 LMKFQNQRGGTI--VLQ-----DVKKPE-----NDSWG-SLKDAVQAALALEKHVNQSL
GJRE012107 LMEYQTKRGGKV--VFQ-----DIKAPS-----STEWG-TPLQAMEAALELEKTVNQSL
GJRE010895 LMSYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPLEAMEAALELEKTVNQSL
GFUA010006 FIEYLRMRGSHENDFFG----SDPIKPI----LGKNTWT-SVSEALRDALKMEKAVSASM
GARW010443 FIDYLRHRGDNDDLFPP-----DIVPI----LGKTFWI-DGEAALRDALFMEKEVSKSI
GARW010112 FVKYQNMRRGGRV--VFQ-----DILKPN-----TAEWG-SALEAVQAALDLEKVNNTSL
GARW010174 FMKYQNMRRGGRV--VFQ-----DITKPN-----NDEWG-SALEAIQAAFDLEKKVNLSL
GCIW010237 FIEYLRMRGYEDNDFFG----GEPLRPR----LSKSNWT-SVSESIRDALAMEKAVSGSM
GFWO011986 FIGYLRRLRGSLENDFFG----GNPIKPI----LGKNQWG-SVAEALRDALGMEKAVSGSM
GFUD010187 LMEYQAKRGGKV--VFQ-----DIKAPS-----SMEWG-TPVDAMEAALELEKTVNQSL
GFUD010193 LIDYQNMRRGGRV--VFR-----EIAKPT-----CDEWG-TALEAIEASLELEKTVNESL
GFUD010218 LMGYQANRGGKV--VLL-----EIAKPS-----RLEWG-TAMDAMTAALELEKTVNQNL
GFUD010230 FIQYLRMRGAVNNDFFG----GNPIQPK----EKVYTWAGIEEALQLALKMEKDVSGKM
GFUD010333 LIDYQAKRGGKV--VME-----DIKKPE-----IEFS-TAKDAVEAALKLEKEVNQSL
GFUD010085 LMEYQTKRGGKV--VFQ-----DIKAPS-----STEWG-TPLQAMEAALELEKTVNQSL
GJRU010328 LMNYQAKRGGRV--VFQ-----DIARPS-----SMEWG-TPLDAMEAALELEKTVNQSL
GJRH010278 LMNYQAKRGGRV--VFQ-----DIKAPS-----SMEWG-TPVDAMEAALELEKTVNQSL
GCJT010110 FIEYLRMRGDATDLDGI----DELTPI----LYKSTWE-DGEEALRDALKMEKAVTRSI
GHXX010671 FMDYIRMRGDDLTNFIPS---SASLTPI----LGKTSWV-DGEDALRDALTM EKLV T GSI
GHXX012857 LIDYQNMRRGGRV--VFQ-----NVDKPN-----KSEWG-SPLEAVEAALELEKTVNQSL
GHXX011403 FIDYINKRGGRV--VLK-----AIGAPK-----CEWS-TALEALEDAMTLEKDVNEKL
GHXX011411 FTEYQNKRRGGRV--VLK-----PIAAPK-----QEWS-SALEAVEDALALEKDVNEKL
GFCI010964 FMDYQNKRRGGKC--VFQ-----DIKAPT-----PAEWG-SPLEAVMAALELEKKVNQTL
GHWV011161 FISYLRMRGAQDQDFFA----GQPIKPI----LQKFSWD-SATEALRDALSM EKTVSGSM
GHWV011130 FMEFQNRRGGKV--VFQ-----DIKAPT-----TTEWG-SPLQAVEAALELEKTVNQSL
TRINITY_DN FINYLMRGATDNDFFH----GQPIQPK----ERAYDWPEGASEALEMALKMEKDVSGRM
TRINITY_DN LIEYQIRRGGRV--VFR-----EITKPS-----VDEWG-SALEATEASLELEKTVNESL
TRINITY_DN LMSYQAKRGGAV--VFQ-----DIKAPS-----SMEWG-TPIDAMEAALELEKTVNQSL
GKAP010174 FISYLRMRGSQENDFFE----GNPIKPI----LGKNTWD-SVAEALRDALNM EKAVSKSM
GINW011006 MIKYIVKRGGNIKQTLDVQVPLAVTKP-----QALPSLGMALADAKEIYAKQ
GINW012482 LLGYVLKRGGKLGKQPLEV---NEFDVSR-----VE-GEVDALASSLDMYKRHAETA
GINW010990 LMKFQNQRGGRI--VLQ-----AVQKPE-----KDEWG-SGLEAMQAALALEKVNQSL
GINW012479 LMTYQNKRRGGRI--VLQ-----AIAVPS-----HQEWG-KALDALQAALDLEKTVNQSL
GINW012344 LMEYQNKRRGGRI--VLQ-----AIAAPS-----LQEWG-SAHDALQAALDLEKTVNQSL
GJGX010431 FISYLRMRGYQETDFFQ----GQPIKPI----LQKNSWD-SVSEALRDGLSM EKAVTGSM
GJGX011542 LIDYQNRKGGRV--VFK-----EIAKPS-----VDEWG-TAIEAIEASMELEKTVNASL
GJGX011121 LMEYQAKRGGKV--VFQ-----NIEKPT-----SMEWG-TPLQAMEAALELEKSVNQSL
GJGX011464 VINYLMRGSRDNNFFQ----GNPIKPI----RGKNTWD-SVAEALRDALTM EKAVSKSM
GCIT010248 FMEYQNKRRGGRI--VLQ-----DIKAPT-----RNEWG-SALEAMQTALELEKTVNQSL
HAHV011241 FMEYQNKRRGGRI--VLQ-----DIKAPT-----RNEWG-SALEAVQTALELEKTVNQSL

NP_524873- RKLIQTCENK-----PYNHYHLVDYLTGVYLEEQVHLGQRELAGKLTTLKKMMD-
 NP_524802- THVHSRATHA-----TDAERDPELAHYFEENFLGKAESVRKLSGYANDFAKLMKV
 NP_572854- LDLHALAG-----KEADPNLCDFIEANFLQEQVDGQKILADYISQLEKAQ--
 BT121711-F KKIIDICSVE-----GKQDYLSGDWLTGTWLEEQMDGQRKLAGLINTLSNFRI-
 BT121232-F RLVYKHAANK--HVSNTQPERESYDPPLLHYLEESFFEDYTERIRDLAGKLNILGKIARN
 MK887318-F LHIHSVAA-----EKDDAQLCDFLESEYLKEQVEGIKISIGTLLTRMKRVG--
 BT077723-F LNVHGSAS-----KKEDPQLCDFLES DYLKEQVDGIKKIGTLLTRMKRVG--
 BT121164-F LNVHGSAS-----KKEDPQLCDFLES DYLQEQVDGIKKIGILLTRMKRVG--
 P02792-FTL LDLHALGS-----ARTDPHLCDFLETHFLDEYVKLIKKMGDHLTNLHRLGG-
 P02794-FTL LELHKLAT-----DKNDPHLCDFIETHYLNQVKAIKELGDHVTNLRKMG-
 GKAA010092 KNMIDVCTQV-----GMDDPHAADWLTSTWLEEQLAGQRQLAGLINSLERFNR-
 GKAB010168 KNMIDVCSKD-----GEDDPHAADWLTGTWLEEQLNGQRHLAGLINSLERFNR-
 HAGX010164 LRMHSVAD-----AQNDPQMTDFIEGNFLNEQVDAIKDLADKITNLKRVG--
 GJIZ011008 LDLHKASD-----GKGAHLCDYLEAEFLGEQVDGIKEIGDMITKIKRAG--
 GAXK011425 LDLQKTCE-----QKEDAHLGDYIPSEFLDEQVEGIKAIGDMITQTKRVG--
 GAXK011686 LNMHKMAD-----SHNDAQLTDFIEGTYLKEQVEAIKEIGDLVTMRRAG--
 GAXK011701 LDLHKASD-----GKGAHLCDYLEAEFLGEQVEGIKEIGDMITKIKRAG--
 GAXK011690 ITAYKXSLSSSKV----DDPSFPDPATAHMLEE-LSEDYTGEINEVAKKLNILGKMVRK
 GBXT010251 LDLHKASD-----GKGAHLCDYLEAEFLGEQVEGIKEIGDMITKIKRAG--
 GJFL010131 LNLHILAG-----EKGDCHLSNFLEEHLFLEEQVDAIKEIGDILLTRLEMAG--
 GJFL010098 LDLQKICE-----QKEDAHLGDYIPSEFLDEQVKGIKTIGDMITQMKRVG--
 GJFL010061 LDLHVLAG-----EKGDVHLSDFLEEHLFLEEQVDSIKEMGDLVTRLEMAG--
 GJFL010035 ITAYKXSLSSSKT-----PSPFDPATAHMLEE-LSEDYTGEINEVAKKMNILGKMVRK
 GJRL010689 KEMIDICSTS-----GHDDPHAADWLTGTWLEEQLHGQRHLAGLINTFNNFKR-
 GJRL010253 LDLHKAAG-----GQGAHLCDYLEAEYLTEQVEGIKEIGDMITKIKRAG--
 GJQX012439 LDLHKASD-----SKGDAHLCDYLEAEYLGEQVEGIKEIGDMITKIKRAG--
 GJQY012322 FDLHVLAG-----DKGDADLSNFLEEHLFLEEQVDSIKKIGDLVTRLEMAG--
 GJQY010547 LDLHVLAG-----NKGDAHLSDFLEEHLFLEEQVDAIKRIGDLVTRLEIAG--
 GJQY010045 LNLQVLAG-----EKGDGHLSNFLEEHLFLEEQVDSIKEFGDLITRLKMAG--
 GJQY012928 LDLHKASD-----SKGDAHLCDYLEAEYLGEQVEGIKEMGDMITKIKRAG--
 GIVX010931 LKLHKVAS-----TREDPHLT KYLEDEFLEQVESIYKIAHHVTRLRRVG--
 GIVX012281 LDLHKASD-----SNGDAHLCDYLEAEYLTEQVEGIKQIGDMITKIRRAG--
 GKAD010080 KNMIDLCSQG-----GEDDPHAADWLTGTWLEEQLNGQRHLAGLINTLETFSL-
 GKAD010013 LDLHKASD-----SNGDAHLCDFLEEEYLGEQVEGIKEMGDMITKIKRAG--
 GKAD010082 LDLHKLAD-----SQGDAQMCDWIESHFLTEQVEAIKELGDHITQLTRVG--
 GJRE012107 LDLHKASD-----GKGAHLCDYLEAEFLGEQVDGIKEIGDMITKIKRAG--
 GJRE010895 LDLHKASE-----GKGAHLCDYLEAEYLAEQVEGIKEIGDMITKIKRAG--
 GFUA010006 KNMIDLCSQG-----GEDDPHAADWLTGTWLEEQLNGQRHLAGLINS LD AFAR-
 GARW010443 KKLIDVCDND-----DNDDYHAADWLT SQWLEEQLAGQRKLAGMINNLT FKR-
 GARW010112 LEVHSTAS-----GHNDAQLTDFLEGEFLKEQVESIKEL-----
 GARW010174 LEVHATAS-----KHDDAQLTDFLEGFTLKEQVEAIKHLGDLITKMKRAG--
 GCIW010237 KRMIDICSQG-----GEDDPHAADWLTGTWLEEQLTGQRHLAGLINTLENFSR-
 GFWO011986 KQ MIDLCSQG-----GEDDPHAADWLTGTWLEEQLNGQRHLAGLINTLESFSR-
 GFUD010187 LDIHKVSG-----TKGDAHLCDFLETEYLTEQVEGIKEIGDMITKIKRAG--
 GFUD010193 LNMHKMAA-----GHADAQFTDFIEGTFLKEQVEAIKEIADISTKMKRAG--
 GFUD010218 LDLQKTCE-----LKEDAHLSDYIPGEFLDEQVEGIKMIGDLITKMKRTG--
 GFUD010230 KEMIDICSTA-----QDDPHAADWLTGTWLEEQLHGQRHLAGLINTFNNFKR-
 GFUD010333 LDLHVIAG-----EKGDGHLADFLEEHLFKEQVESIKEIGDLVTKLEMAG--
 GFUD010085 LDLHKASD-----GKGAHLCDYLEAEYLGEQVDGIKEIGDMITKIKRAG--
 GJRU010328 LDIHKISS-----SKGDAHLCDFLETEYLTEQVEGIKEIGDMITKIKRAG--
 GJRH010278 LDVHKVSD-----NKGDAQLCDFLESEYLNQVEGIKEIGDMITKIKRAG--
 GCJT010110 KDIIDVCE-----PKGDFYSADWLTGNWLEEQLQGQRKLAGMINS LHTFRQ-
 GHXK010671 KKLIDVCDND-----QTKDYHAADWLTGKWLEEQLDGQRKLAGMINS LNSFRI-
 GHXK012857 LDMHKTAD-----GSADPQLCDFIESNYLEEQVESIKELGDLVTRLKRAG--
 GHXK011403 INLHGVAD-----NDNDAQLADFI EGTFLEQVDAIKDLADKITNLKRVGA-
 GHXK011411 LRLHAIAD-----AANDAQMTDFIEGNFLNEQVDAIKHLSDMITNLKRVG--
 GFCI010964 LDLHAVVG-----KRNDPHLADYLEGNFLNEQVDSIKELSDLITKMKRAG--
 GHWV011161 KHMIDICSQG-----GSDDPHAADWLTSTWLEEQLTGQRHLAGLINTLETFSR-
 GHWV011130 LDMHKVVG-----DRGDAHTCDFLESEFLGEQVEAAKELSDLITKMKRAG--
 TRINITY_DN KLMIDVCSET-----GMDDPHAADWLT SNWLEEQLTGQRHLAGLINS LN NF KH-
 TRINITY_DN LEVHKSAG-----AHNDGQLSDFLESNYLEEQVEAIKEIGDLITQMKNVG--
 TRINITY_DN LDMHKTVG-----DKGDAHLCDYLESEYLTEQVDSIKEIGDLITKIKRAG--
 GKAP010174 KNMIDLCSQG-----GEDDPHAADWVTGTWLEEQLHGQRHLAGLINTLEMFSR-
 GINW011006 ASLHRAALCLTPSAGGIADAGCAIDADLAHK-SQDAIEDYVERVHDLASKANQLSNMFTA
 GINW012482 IEAYQASKD-----GDSYDPGVKHYLEESLIEPKTETIRELAGKLNILSKMAKV
 GINW010990 LDLHTLSD-----SHGDYQFSDFIEANYLTEQTEAIKELSDKITNLKRVG--
 GINW012479 LDLHNSAS-----CKKDPQLTKFLEDEFLEEQIKSMKKLGDMITKLKRAGT-
 GINW012344 LDLHAVGA-----SKNDPHLT KMIEDNFLDEQVESMKKIGDMITRLKRAGT-
 GJGX010431 KNMIDLCSQG-----GEDDPHAADWLTGTWLEEQLNGQRHLAGLINTLESFSL-
 GJGX011542 LAMHKSAD-----NGGDAQFTDFIEGNFLFEEQVEAIKEIGDLITKMKRAG--
 GJGX011121 LALHTAAG-----EKGDAHLQDFLESNYLDEQVEGIKEIGAFITKIKRAG--
 GJGX011464 KNMLDLCSQG-----GEDDPHAADWLTGTWLEEQLNCQRHLAGLINTLEAFSR-
 GCIT010248 LTLHECAG-----KHGDAHLADFLESNYLGEQVDAAKELADLITRMKRAG--
 HAHV011241 LTLHECAG-----KHGDAHLADFLESNYLGEQVDAAKELADLVTRMKRAG--

NP_524873- -TNGELGEFLFDKTL-----
NP_524802- -PDPSLSVYLFDEYLQKQ-----
NP_572854- ---NQVGEFLFDKYMGSgmHPAK----
BT121711-F -DHEALGDWMFSESLE-----
BT121232-F DKTKYMGFHLFDKSM-----
MK887318-F ---PGVGIHLIDEELKRSSTGHSPSNY
BT077723-F ---PGVGMHLIDQELLKE-----
BT121164-F ---PGVGMHLIDQELLKKIT-----
P02792-FTL -PEAGLGEYLFERLTlkHD-----
P02794-FTH -PESGLAEYLFdkHTLGSDNES----
GKAA010092 -DHQDLGEWMFDKEL-----
GKAB010168 -DHKELGEWLFDKEL-----
HAGX010164 ---DGLGVYMFdKNLS-----
GJIZ011008 ---DGLGLHIMDKKEIGS-----
GAXK011425 ---DGLGLHIMDKKELEG-----
GAXK011686 ---DGLGLHIIDKELLG-----
GAXK011701 ---DGLGLHIMDKKEIGS-----
GAXK011690 ANSNAMALHLFDNTLA-----
GBXT010251 ---DGLGLHIMDKKEIGS-----
GJFL010131 ---DGLGVIYIDNELKKRFGDKASE--
GJFL010098 ---DGLGLHIMDRELEG-----
GJFL010061 ---DGLGVIYIDNELKTIYGKE-----
GJFL010035 ANSNAMALHLFDNTL-----
GJRL010689 -GHEELAEWMFDQEL-----
GJRL010253 ---DGLGLHIMDKKEIGS-----
GJQX012439 ---DGLGLHIMDKKEIGS-----
GJQY012322 ---DGLGVIYIDNELKNIYGAE-----
GJQY010547 ---DGLGVIYIDNELKTIYGKE-----
GJQY010045 ---DGLGVIYIDNELKKRFGGEDTE--
GJQY012928 ---DGLGLHIMDKKEIGS-----
GIVX010931 ---DGLGVYIFDKDLKN-----
GIVX012281 ---DGLGLHIMDKKEIGS-----
GKAD010080 -DHGELGEWMFDKEL-----
GKAD010013 ---DGLGLHIMDKKEIGS-----
GKAD010082 ---PGLGEYTYDKENLGED-----
GJRE012107 ---DGLGLHIMDKKEIGS-----
GJRE010895 ---DGLGLHIMDKKEIGS-----
GFUA010006 -DHDELAEWMFDKEI-----
GARW010443 -EHPALADWMFSQQLLKA-----
GARW010112 -----
GARW010174 ---DGLGVHIIDKELSS-----
GCIW010237 -DHVELGEWMFDQQLLGH-----
GFWO011986 -DHNELGEWMFAKEI-----
GFUD010187 ---DGLGLHIMDKKEIGS-----
GFUD010193 ---DGLGLHIIDKELLG-----
GFUD010218 ---DGLGLHIMDRELES-----
GFUD010230 -GHEELAEWMFDQEL-----
GFUD010333 ---DGLGVIYIDNELKEKYGKE-----
GFUD010085 ---DGLGLHIMDKKEIGS-----
GJRU010328 ---AGLGLHIMDKKEIGS-----
GJRH010278 ---DGLGLHIMD-----
GCJT010110 -SHEHLADWMFSNQLLNE-----
GHXK010671 -NHENLADWMFSNQLLQQA-----
GHXK012857 ---DGLGVHIIDKEMD-----
GHXK011403 ---EGLGLYLFDK-----
GHXK011411 ---DGLGVYLFDKDIKID-----
GFCI010964 ---DGLGLHLIDKDMA-----
GHWV011161 -DHQELAEWMFdQHLAA-----
GHWV011130 ---TGLGEHIIDKELEA-----
TRINITY_DN -GHEELAEWMFDQNL-----
TRINITY_DN ---EGLGLHIIDKELQG-----
TRINITY_DN ---EGLGLHIMDKEMES-----
GKAP010174 -DHEEMGEWMFDKEL-----
GINW011006 -TEYSLAEHMFdKSLM-----
GINW012482 DNTRNMALHLFDKSM-----
GINW010990 ---TGLGEYMYDKELQS-----
GINW012479 ---SGLGEFIFDKEL-----
GINW012344 ---SGLGEYTFDKEFQ-----
GJGX010431 -DHGELGEWMFDQEL-----
GJGX011542 ---DGLGLHIIDKELLG-----
GJGX011121 ---AGLGTHILDKELAA-----
GJGX011464 -DHDEMA-----
GCIT010248 ---EGVGLIMIDKEMKKKAE-----
HAHV011241 ---EGVGLIMIDKEMKEKAE-----

Figure S1. Ferritin sequence alignment. Ferritin sequences identified for copepods in this study were aligned with known sequences from *D. melanogaster* (NP_524873, NP_524802, NP_572854), *L. salmonis* (LsFer1-4) (BT121711, BT121232, MK887318, BT077723, BT121164) and homologs from *H. Sapiens* (P02794, P02792). Copepod sequences are in alphabetical order as in Table 1. In green, ferritin known as Light chain (FTL). Amino acids that make up the ferroxidase center of the heavy chain in human are bolded in red. Highlighted in yellow the amino acids which were not conserved.