

TABLE S7. Alignment of CU and GU strains' virulence determinants required for virulence in the human challenge model of *H. ducreyi* infection.

1) CpxA (HD1470)

```

35000HP      MPKFLKKIKSVRNYLAYQLFAYFGLTFAIMLAITLAI PNFDARSFSRLEKGEHEFFIQES
33921        MPKFLKKIKSVRNYLAYQLFAYFGLTFAIMLAITLAI PNFDARSFSRLEKGEHEFFIQES
CIP542       MPKFLKKIKSVRNYLAYQLFAYFGLTFAIMLAITLAI PNFDARSFSRLEKGEHEFFIQES
DMC64        MPKFLKKIKSVRNYLAYQLFAYFGLTFAIMLAITLAI PNFDARSFSRLEKGEHEFFIQES
DMC111       MPKFLKKIKSVRNYLAYQLFAYFGLTFAIMLAITLAI PNFDARSFSRLEKGEHEFFIQES
*****

35000HP      RQTELQYNLDEIFERRLSVATQSGFNII LFDPKTRIFVGAGADSNRIQS FQVFLYRAQTP
33921        RQTELQYNLDEIFERRLSVATQSGFNII LFDPKTRIFVGAGADSNRIQS FQVFLYRAQTP
CIP542       RQTELQYNLDEIFERRLSVATQSGFNII LFDPKTRIFVGAGADSNRIQS FQVFLYRAQTP
DMC64        RQTELQYNLDEIFERRLSVATQSGFNII LFDPKTRIFVGAGADSNRIQS FQVFLYRAQTP
DMC111       RQTELQYNLDEIFERRLSVATQSGFNII LFDPKTRIFVGAGADSNRIQS FQVFLYRAQTP
*****

35000HP      LEPLQRRFGSLEISGPFLVKS NKREYMQYFAQIVDPQEEFFNRIFD SPWMLMIVLIVSV
33921        LEPLQRRFGSLEISGPFLVKS NKREYMQYFAQIVDPQEEFFNRIFD SPWMLMIVLIVSV
CIP542       LEPLQRRFGSLEISGPFLVKS NKREYMQYFAQIVDPQEEFFNRIFD SPWMLMIVLIVSV
DMC64        LEPLQRRFGSLEISGPFLVKS NKREYMQYFAQIVDPQEEFFNRIFD SPWMLMIVLIVSV
DMC111       LEPLQRRFGSLEISGPFLVKS NKREYMQYFAQIVDPQEEFFNRIFD SPWMLMIVLIVSV
*****

35000HP      PILLWLSWKIARPVKELRICANAVATGNLAINPKLETEG IHEFREVGRS FNQMITSLQEL
33921        PILLWLSWKIARPVKELRICANAVATGNLAINPKLETEG IHEFREVGRS FNQMITSLQEL
CIP542       PILLWLSWKIARPVKELRICANAVATGNLAINPKLETEG IHEFREVGRS FNQMITSLQEL
DMC64        PILLWLSWKIARPVKELRICANAVATGNLAINPKLETEG IHEFREVGRS FNQMITSLQEL
DMC111       PILLWLSWKIARPVKELRICANAVATGNLAINPKLETEG IHEFREVGRS FNQMITSLQEL
*****

35000HP      TEYQQRLLSDISHEKTP LARLQLATALIRRRNGDS AELTRIDNQIMKLD TMVHDLLSLS
33921        TEYQQRLLSDISHEKTP LARLQLATALIRRRNGDS AELTRIDNQIMKLD TMVHDLLSLS
CIP542       TEYQQRLLSDISHEKTP LARLQLATALIRRRNGDS AELTRIDNQIMKLD TMVHDLLSLS
DMC64        TEYQQRLLSDISHEKTP LARLQLATALIRRRNGDS AELTRIDNQIMKLD TMVHDLLSLS
DMC111       TEYQQRLLSDISHEKTP LARLQLATALIRRRNGDS AELTRIDNQIMKLD TMVHDLLSLS
*****

35000HP      RQQINQHLMREVFS INKIWDDILEDAKFEAEQNQIDL FIEQRIDNVEGYF INGNEIILAS
33921        RQQINQHLMREVFS INKIWDDILEDAKFEAEQNQIDL FIEQRIDNVEGYF INGNEIILAS
CIP542       RQQINQHLMREVFS INKIWDDILEDAKFEAEQNQIDL FIEQRIDNVEGYF INGNEIILAS
DMC64        RQQINQHLMREVFS INKIWDDILEDAKFEAEQNQIDL FIEQRIDNVEGYF INGNEIILAS
DMC111       RQQINQHLMREVFS INKIWDDILEDAKFEAEQNQIDL FIEQRIDNVEGYF INGNEIILAS
*****

35000HP      ALENLIRNAQKYAKQSITVLIYIDDKELVMSVDDD GEGVPESEYKQIFRPFYRVGEARDR
33921        ALENLIRNAQKYAKQSITVLIYIDDKELVMSVDDD GEGVPESEYKQIFRPFYRVGEARDR
CIP542       ALENLIRNAQKYAKQSITVLIYIDDKELVMSVDDD GEGVPESEYKQIFRPFYRVGEARDR
DMC64        ALENLIRNAQKYAKQSITVLIYIDDKELVMSVDDD GEGVPESEYKQIFRPFYRVGEARDR
DMC111       ALENLIRNAQKYAKQSITVLIYIDDKELVMSVDDD GEGVPESEYKQIFRPFYRVGEARDR
*****

35000HP      QSGGTGLGLAIVANAAQ QHKGRVEAMKSILGGLRVEIRLPLWLE*
33921        QSGGTGLGLAIVANAAQ QHKGRVEAMKSILGGLRVEIRLPLWLE*
CIP542       QSGGTGLGLAIVANAAQ QHKGRVEAMKSILGGLRVEIRLPLWLE*
DMC64        QSGGTGLGLAIVANAAQ QHKGRVEAMKSILGGLRVEIRLPLWLE*
DMC111       QSGGTGLGLAIVANAAQ QHKGRVEAMKSILGGLRVEIRLPLWLE*
*****

```

Note: The CpxA sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

2) CsrA (HD1430)

The CsrA sequence of all the class I and class II strains were identical to 35000HP.

3) DksA (HD0603)

35000HP MVQVATTTSLGLLALAGVTPYQPKKDEEYMNDAQKEHFRKILRAWHVQIMEEAERTKNQM
33921 MVQVATTTSLGLLALAGVTPYQPKKDEEYMNDAQKEHFRKILRAWHVQIMEEAERTKNQM
CIP542 MVQVATTTSLGLLALAGVTPYQPKKDEEYMNDAQKEHFRKILRAWHVQIMEEAERTKNQM
DMC64 MVQVATTTSLGLLALAGVTPYQPKKDEEYMNDAQKEHFRKILRAWHVQIMEEAERTKNQM
DMC111 MVQVATTTSLGLLALAGVTPYQPKKDEEYMNDAQKEHFRKILRAWHVQIMEEAERTKNQM

35000HP QEEVANFADPADRATQEEEFNLELRNRDRERKLLKKIEQTLNSISEDYGYCQTCGVEIG
33921 QEEVANFADPADRATQEEEFNLELRNRDRERKLLKKIEQTLNSISEDYGYCQTCGVEIG
CIP542 QEEVANFADPADRATQEEEFNLELRNRDRERKLLKKIEQTLNSISEDYGYCQTCGVEIG
DMC64 QEEVANFADPADRATQEEEFNLELRNRDRERKLLKKIEQTLNSISEDYGYCQTCGVEIG
DMC111 QEEVANFADPADRATQEEEFNLELRNRDRERKLLKKIEQTLNSISEDYGYCQTCGVEIG

35000HP LRRLEARPTADMCIDCKTLAEIREKQMG *
33921 LRRLEARPTADMCIDCKTLAEIREKQMG *
CIP542 LRRLEARPTADMCIDCKTLAEIREKQMG *
DMC64 LRRLEARPTADMCIDCKTLAEIREKQMG *
DMC111 LRRLEARPTADMCIDCKTLAEIREKQMG *

Note: The DksA sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

4) DltA (HD0746)

35000HP MKTLGLFSI IGLLSGCYAPPVNDHPIDTVVVIQSEHHHTIYHESDKYDRDKYDRNDRYP
33921 MKTLGLFSI IGLLSGCYAPPVNDHPIDTVVVIQSEHHHTIYHESDKYDRDKYDRNDRYP
CIP542 MKTLGLFSI IGLLSGCYAPPVNDHPIDTVVVIQSEHHHTIYHESDKYDRDKYDRNDRYP
DMC64 MKTLGLFSI IGLLSGCYAPPVNDHPIDTVVVIQSEHHHTIYHESDKYDRDKYDRNDRYP
DMC111 MKTLGLFSI IGLLSGCYAPPVNDHPIDTVVVIQSEHHHTIYHESDKYDRDKYDRNDRYP

35000HP HYRYTGEIRTYWGECLDQSRSNYKGIISYRCHGGDNQRF TFYRDSIRVNGQCLDVGSENK
33921 HYRYTGEIRTYWGECLDQSRSNYKGIISYRCHGGDNQRF TFYRDSIRVNGQCLDVGSENK
CIP542 HYRYTGEIRTYWGECLDQSRSNYKGIISYRCHGGDNQRF TFYRDSIRVNGQCLDVGSENK
DMC64 HYRYTGEIRTYWGECLDQSRSNYKGIISYRCHGGDNQRF TFYRDSIRVNGQCLDVGSENK
DMC111 HYRYTGEIRTYWGECLDQSRSNYKGIISYRCHGGDNQRF TFYRDSIRVNGQCLDVGSENK
** : ***** : *****

35000HP FDGARI IAYRCHGGKNQRWFRQGHQIRSEMNGKCLEVGRDRNKLTLQQCDGSRSQOFFY *
33921 FDGARI IAYRCHGGKNQRWFRQGHQIRSEMNGKCLEVGRDRNKLTLQQCDGSRSQOFFY *
CIP542 FDGARI IAYRCHGGKNQRWFRQGHQIRSEMNGKCLEVGRDRNKLTLQQCDGSRSQOFFY *
DMC64 FDGARI IAYRCHGGKNQRWFRQGHQIRSEMNGKCLEVGRDRNKLTLQQCDGSRSQOFFY *
DMC111 FDGARI IAYRCHGGKNQRWFRQGHQIRSEMNGKCLEVGRDRNKLTLQQCDGSRSQOFFY *

Note: The DltA sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

5) DsrA (HD0769)

35000HP -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
NZS1 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
NZS2 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
NZS3 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
NZS4 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
NZV1 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
82-029362 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLDSYDYDGKGTWWSSEKDFD
6644 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLDSYDYDGKGTWWSSEKDFD
HD183 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLYSYDYDGKGTWWSNEGDFD
HMC46 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLDSYDYDGKGTWWSSEKDFD
HMC56 -----MKIKCLVAVVGLACSTITTMAQPPKFAGVSSLDSYDYDGKGTWWSSEKDFD
33921 MKMKMKMKMLTALMVGLVASNGSLSAQMPPQNF DLGR I KIGDVSFDVDAFIKRV-DELD
CIP542 MKMKMKMKMLTALMVGLVASNGSLSAQMPPQNF DLGR I KIGDVSFDVDAFIKRV-DELD
DMC64 MKMKMKMKMLTALMVGLVASNGSLSAQMPPQNF DLGR I KIGDVSFDVDAFIKRV-DELD
DMC111 MKMKMKMKMLTALMVGLVASNGSLSAQMPPQNF DLGR I KIGDVSFDVDAFIKRV-DELD
** : * . : * * . * . : * * * : . : * : . : * : *

35000HP -IKVPGIKMKPKKEWISKQATYLELQHYMPYTPVLVTYA-PGVSPSPILLYPMSDDPDLGI
NZS1 -IKAPRIKMKPKKEWISKQVTYLKLQHYMPYTPVLVTSVDP--PSSILLYPMSDDPDLGI
NZS2 -IKAPRIKMKPKKEWISKQVTYLKLQHYMPYTPVLVTSVDP--PSSILLYPMSDDPDLGI
NZS3 -IKAPRIKMKPKKEWISKQVTYLKLQHYMPYTPVLVTSVDP--PSSILLYPMSDDPDLGI
NZS4 -IKAPRIKMKPKKEWISKQVTYLKLQHYMPYTPVLVTSVDP--PSSILLYPMSDDPDLGI
NZV1 -IKAPRIKMKPKKEWISKQVTYLKLQHYMPYTPVLVTSVDP--PSSILLYPMSDDPDLGI
82-029362 -IKAPGIKMKPKKWSRQATYLGLOHYMPYTPVLVTYAS--AEPNTVLLYPMDDPDLGI
6644 -IKAPGIKMKPKKWSRQATYLGLOHYMPYTPVLVTYAS--AEPNTVLLYPMDDPDLGI
HD183 -IKVPGIKMKPKKEWISKQATYLELQHYMPYTPVLVTS--PDVPPSSILLYPMSDDPDLGI
HMC46 -IKAPGIKMKPKKWSRQATYLGLOHYMPYTPVLVTYAS--AEPNTVLLYPMDDPDLGI
HMC56 -IKAPGIKMKPKKWSRQATYLGLOHYMPYTPVLVTYAS--AEPNTVLLYPMDDPDLGI
33921 KNIRDGIGLGEDDFKRKYYSYVDHE-----LGS-----MIGSPFIYKEKNPLNGI
CIP542 KNIRDGIGLGEDDFKRKYYSYVDHE-----LGS-----MIGSPFIYKEKNPLNGI
DMC64 KNIRDGIGLGEDDFKRKYYSYVDHE-----LGS-----MIGSPFIYKEKNPLNGI
DMC111 KNIRDGIGLGEDDFKRKYYSYVDHE-----LGS-----MIGSPFIYKEKNPLNGI
* : :. : : * : : : : : : : : * : * **

35000HP NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
NZS1 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
NZS2 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
NZS3 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
NZS4 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
NZV1 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
82-029362 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
6644 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
HD183 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
HMC46 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
HMC56 NRQQL---KLNLYSYFN-----DLRHDFKLVLDARI----
33921 ARGLGYSGLTMPRYIRGPLLRSVIRGYLLGRVIGRQAHVQAKNRLNMELLSRLMSAS
CIP542 ARGLGYSGLTMPRYIRGPLLRSVIRGYLLGRVIGRQAHVQAKNRLNMELLSRLMSAS
DMC64 ARGLGYSGLTMPRYIRGPLLRSVIRGYLLGRVIGRQAHVQAKNRLNMELLSRLMSAS
DMC111 ARGLGYSGLTMPRYIRGPLLRSVIRGYLLGRVIGRQAHVQAKNRLNMELLSRLMSAS
* **.: *. : : . . : : : : : *

35000HP SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
NZS1 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
NZS2 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
NZS3 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
NZS4 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
NZV1 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----NINKLSKELQTL
82-029362 SQNKQONIDTISEYLLKLGTYLDDSSYRMMEQNTN-----THNINKLSKELQTL
6644 SQNKQONIDTISEYLLKLGTYLDDSSYRMMEQNTN-----THNINKLSKELQTL
HD183 SKNKQONIDTISKHLELGTYLDDSYRMMEQNTN-----THNINKLSKELQTL
HMC46 SQNKQONIDTISEYLLKLGTYLDDSSYRMMEQNTN-----THNINKLSKELQTL
HMC56 SQNKQONIDTISEYLLKLGTYLDDSSYRMMEQNTN-----THNINKLSKELQTL
33921 LLNRAEILNVGNHLSLLKYTEGAFALN---GGVTKNSADIFKNTQRIDALSKNLETGL
CIP542 LLNRAEILNVGNHLSLLKYTEGAFALN---GGVTKNSADIFKNTQRIDALSKNLETGL
DMC64 LLNRAEILNVGNHLSLLKYTEGAFALN---GGVTKNSADIFKNTQRIDALSKNLETGL
DMC111 LLNRAEILNVGNHLSLLKYTEGAFALN---GGVTKNSADIFKNTQRIDALSKNLETGL
* : * . : : * . * : : : : : . * : * : * : * *

35000HP ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
NZS1 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
NZS2 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
NZS3 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
NZS4 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
NZV1 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
82-029362 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
6644 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
HD183 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
HMC46 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
HMC56 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
33921 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
CIP542 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
DMC64 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
DMC111 ANQSALSMLVQPNVGVGKTSVSAAVGGYRDKTALAIGVGSRITDRFTAKAGVAFNTYNGGM
***** * . ***** *****

35000HP SYGASVGYEF
NZS1 SYGASVGYEF
NZS2 SYGASVGYEF
NZS3 SYGASVGYEF
NZS4 SYGASVGYEF

NZV1 SYGASVGYEF
82-029362 SYGASVGYEF
6644 SYGASVGYEF
HD183 SYGASVGYEF
HMC46 SYGASVGYEF
HMC56 SYGASVGYEF
33921 SYGASVGYEF
CIP542 SYGASVGYEF
DMC64 SYGASVGYEF
DMC111 SYGASVGYEF

6) FgbA (HD0192)

35000HP MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
82-029362 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
6644 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
HMC46 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
HMC56 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
33921 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
CIP542 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
DMC64 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA
DMC111 MKKSILALVLGTTFFTLAACDKPQVEEMKQTVTDTAANTKAIIVVEKAGDMKESASEMKDAA

35000HP KAKLEDMKESAAEAKESLAEKANEMKDAAKAKLEGMKESAAEAKESLAEKANEMKDAAKA
82-029362 KAKLEDMKEAAAE-----ASEMKDAAKA
6644 KAKLEDMKEAAAE-----ASEMKDAAKA
HMC46 KAKLEDMKEAAAE-----ASEMKDAAKA
HMC56 KAKLEDMKEAAAE-----ASEMKDAAKA
33921 KAKLEDMKEAAAE-----ANEMKDAAKA
CIP542 KAKLEDMKEAAAE-----ANEMKDAAKA
DMC64 KAKLEDMKEAAAE-----ANEMKDAAKA
DMC111 KAKLEDMKEAAAE-----ANEMKDAAKA
*****:*** * .*****

35000HP KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--
82-029362 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
6644 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
HMC46 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
HMC56 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
33921 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
CIP542 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
DMC64 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
DMC111 KLEDMKEAADKKAEMAEMKMSAADAMKEKVDEMCK*--*
***** . : : * : * . *

Note: The FgbA sequence of NZS1, NZS2, NZS3, NZS4, and NZV1 were identical to that of 35000HP.

7) Flp1 (HD1312)

35000HP MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS1 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS2 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS3 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS4 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZV1 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
82-029362 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
6644 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HD183 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HMC46 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HMC56 MLSVLMTQAYISATESLRTSIQFRKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
33921 MLSTLTQAYISATESVRAGIRRFKENQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
CIP542 MLSTLTQAYISATESVRAGIRRFKENQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
DMC64 MLSTLTQAYISATESVRAGIRRFKENQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
DMC111 MLSTLTQAYISATESVRAGIRRFKENQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
*** . * ***** : * : * : * : * : * : * : * : * : * : * : * : *

35000HP LKTKFSDLATGISSANGTSLNSFK*
NZS1 LKTKFSDLATGISSANGTSLNSFK*
NZS2 LKTKFSDLATGISSANGTSLNSFK*

NZS3 LKTKFSDLATGISSANGTTSLSNFK*
NZS4 LKTKFSDLATGISSANGTTSLSNFK*
NZV1 LKTKFSDLATGISSANGTTSLSNFK*
82-029362 LKTKFSDLATGISSANGTTSLSNFK*
6644 LKTKFSDLATGISSANGTTSLSNFK*
HD183 LKTKFSDLATGISSANGTTSLSNFK*
HMC46 LKTKFSDLATGISSANGTTSLSNFK*
HMC56 LKTKFSDLATGISSANGTTSLSNFK*
33921 LQSKFSSLASGISNQINFT*-----
CIP542 LQSKFSSLASGISNQINFT*-----
DMC64 LQSKFSSLASGISNQINFT*-----
DMC111 LQSKFSSLASGISNQINFT*-----
*.:***:**:*:* * . . :

8) Flp2 (HD1311)

35000HP MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS1 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS2 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS3 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZS4 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
NZV1 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
82-029362 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
6644 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HD183 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HMC46 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
HMC56 MLSVLMTQAYISATESLRTSIQRFKKNQGGVTAIEYGLIAVAVAILI IAVFYNNQGF LMK
33921 -----VYISTTEILCSSIQRFKKNQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
CIP542 -----VYISTTEILCSSIQRFKKNQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
DMC64 -----VYISTTEILCSSIQRFKKNQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
DMC111 -----VYISTTEILCSSIQRFKKNQGGVTAIEYGLIAVAVAVLI IAAFYSENSF IKK
.***:** * :*****:**:**
*.:***:**:*:* * . . :

35000HP LKTKFSDLATGISAQSVSFNN*-----
NZS1 LKTKFSDLATGISAQSVSFNN*-----
NZS2 LKTKFSDLATGISAQSVSFNN*-----
NZS3 LKTKFSDLATGISAQSVSFNN*-----
NZS4 LKTKFSDLATGISAQSVSFNN*-----
NZV1 LKTKFSDLATGISAQSVSFNN*-----
82-029362 LKTKFSDLATGISAQSVSFNN*-----
6644 LKTKFSDLATGISAQSVSFNN*-----
HD183 LKTKFSDLATGISAQSVSFNN*-----
HMC46 LKTKFSDLATGISAQSVSFNN*-----
HMC56 LKTKFSDLATGISAQSVSFNN*-----
33921 LQSKFSNLSASGINGTANELNPFHKNS
CIP542 LQSKFSNLSASGINGTANELNPFHKNS
DMC64 LQSKFSNLSASGINGTANELNPFHKNS
DMC111 LQSKFSNLSASGINGTANELNPFHKNS
*.:***:**:*:* * . . :***

9) Flp3 (HD1310)

35000HP MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
NZS1 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
NZS2 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
NZS3 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
NZS4 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
NZV1 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
82-029362 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
6644 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
HD183 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
HMC46 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
HMC56 MLITIIITKPYLSMKETLISWFNCFKINQKGVTAIEYGLIAVAVAILI IAVFYSESGFLFA
33921 MLSTLTTKAYISTSETLNRKMKTFRQDQGGVTAIEYGLIAVAVAVLI IAVFYSEDGF LFK
CIP542 MLSTLTTKAYISTSETLNRKMKTFRQDQGGVTAIEYGLIAVAVAVLI IAVFYSEDGF LFK
DMC64 MLSTLTTKAYISTSETLNRKMKTFRQDQGGVTAIEYGLIAVAVAVLI IAVFYSEDGF LFK
DMC111 MLSTLTTKAYISTSETLNRKMKTFRQDQGGVTAIEYGLIAVAVAVLI IAVFYSEDGF LFK
** * : * * * * * .*** . . : * * : * * :*****:**:*:*:*:*:*:*:*:*:*:**
*.:***:**:*:* * . . :

35000HP LKEKFFQLEGGVGAAPDSYLLNFNKGRL*

NZS1 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 NZS2 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 NZS3 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 NZS4 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 NZV1 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 82-029362 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 6644 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 HD183 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 HMC46 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 HMC56 LKEKFFQLEGGVGKAAPDSYLLNFKGRL*
 33921 LREKFFHLEVGLGNAAPDGDLI-----
 CIP542 LREKFFHLEVGLGNAAPDGDLI-----
 DMC64 LREKFFHLEVGLGNAAPDGDLI-----
 DMC111 LREKFFHLEVGLGNAAPDGDLI-----
 *:****:* *:*:****. *:

10) Hfq (HD0741)

35000HP MAKGQSLQDPYLNALRRRIPVSIYLVNGIKLQGGQIESFDQFVILLKNTVSOVMYKHAIS
 33921 MAKGQSLQDPYLNALRRRIPVSIYLVNGIKLQGGQIESFDQFVILLKNTVSOVMYKHAIS
 CIP542 MAKGQSLQDPYLNALRRRIPVSIYLVNGIKLQGGQIESFDQFVILLKNTVSOVMYKHAIS
 DMC64 MAKGQSLQDPYLNALRRRIPVSIYLVNGIKLQGGQIESFDQFVILLKNTVSOVMYKHAIS
 DMC111 MAKGQSLQDPYLNALRRRIPVSIYLVNGIKLQGGQIESFDQFVILLKNTVSOVMYKHAIS
 *****;*****

35000HP TVVPARSIHNNNGSSQAQAPQAVQTTQPVEAVATDKME*
 33921 TVVPARSIHNNNGSSQAQAPQAVQTTQPVEAVATDKME*
 CIP542 TVVPARSIHNNNGSSQAQAPQAVQTTQPVEAVATDKME*
 DMC64 TVVPARSIHNNNGSSQAQAPQAVQTTQPVEAVATDKME*
 DMC111 TVVPARSIHNNNGSSQAQAPQAVQTTQPVEAVATDKME*

Note: The Hfq sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

11) HgbA (HD2025)

35000HP MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 82-029362 MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 6644 MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 HMC46 MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 HMC56 MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 33921 MKTNKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 CIP542 MKTNKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 DMC64 MKTNKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 DMC111 MKANKLSAITLCLILGYAHTVYAESNMQTEKLETIVVSEDDSVHNKNVGEIKKNAKALSK
 :***

35000HP QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 82-029362 QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 6644 QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 HMC46 QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 HMC56 QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 33921 QQVQDSRDLVRYETGITVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 CIP542 QQVQDSRDLVRYETGITVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 DMC64 QQVQDSRDLVRYETGITVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 DMC111 QQVQDSRDLVRYETGVTVVEKGRFGSSGYAIRGVDENRVAVVVDGLHQAETISSQGFKEL
 *****;*****

35000HP FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 82-029362 FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 6644 FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 HMC46 FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 HMC56 FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 33921 FEGYGNFNTRNGVEVENLKQVVIQKGADAI RTGSGSLGGETVSFESKDVRDYLIDKNYHF
 CIP542 FEGYGNFNTRNGVEVENLKQVVIQKGADAI RTGSGSLGGETVSFESKDVRDYLIDKNYHF
 DMC64 FEGYGNFNTRNGVEVENLKQVVIQKGADAI RTGSGSLGGETVSFESKDVRDYLIDKNYHF
 DMC111 FEGYGNFNTRNGVEVENLKQAVIQKGADAI RTGSGSLGGETVSFESKDARDYLIDKNYHF
 *****.*****

35000HP GYKTGYSSADNQKLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA

82-029362 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA
 6644 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA
 HMC46 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA
 HMC56 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA
 33921 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGHRHYDGSVVRKEREKA
 CIP542 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGHRHYDGSVVRKEREKA
 DMC64 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGHRHYDGSVVRKEREKA
 DMC111 GYKTYGSSADNQLHSVTAAGRYSDFDLLAVHTQRHGNELRNYGYRHYDGSVVRKEREKA
 *****;

35000HP DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 82-029362 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 6644 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 HMC46 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 HMC56 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 33921 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 CIP542 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 DMC64 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 DMC111 DPYKITKQSSLIKIGYQLNDRFTLGYYDSRNTSRGTDWSNAFTSYNGGPFKDVHRHTN
 *****.

35000HP DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 82-029362 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 6644 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 HMC46 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 HMC56 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 33921 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 CIP542 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 DMC64 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 DMC111 DQSNRKNISFVYENFDTNDFWDTLKI THNHQIKLKLARLDEYCDVNGEIDCPAIANPSGL
 *;*****.

35000HP YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 82-029362 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 6644 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 HMC46 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 HMC56 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 33921 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 CIP542 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 DMC64 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 DMC111 YINDKGI FLDKHDGEI THKKEGEFN NYFDSKGKEVRVKGFNVD SILINCDQYDCSKPMQL
 *****.

35000HP LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 82-029362 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 6644 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 HMC46 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 HMC56 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 33921 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 CIP542 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 DMC64 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 DMC111 LSSTNNGYGGSPNKYIYKTYELFEKTMNNGNGKYAVLEIRSSGHEKFSRVYLPSEKGYVE
 ***** **;* ** ** ** ***** *.. :*****

35000HP NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 82-029362 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 6644 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 HMC46 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 HMC56 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 33921 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 CIP542 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 DMC64 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA
 DMC111 NQWKDRDLNDDTQQYNIDLTKSFKLKSVENHATYGGLYSEVKKSMINRAGYEAYNRQWWA

35000HP NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 82-029362 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 6644 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 HMC46 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 HMC56 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 33921 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 CIP542 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN
 DMC64 NIFFGKKNKPNKCPYNGNSFTTLC SHEDRLFSFLIPVKTGTGALYVTDKI KLNDKVN

DMC111 NIFFGKKNKPNKCQPYNGNSFTTLCSHEDRLFSLIPVKTGTGALYVTDKI KLNDKVN
 *****;*****

35000HP DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 82-029362 DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 6644 DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 HMC46 DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 HMC56 DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 33921 DLAYRYDRIKHDPKYPGTTPKLPTDLILGRFIELKPKNTYATQDEKNENAENAVYLAS
 CIP542 DLAYRYDRIKHDPKYPGTTPKLPTDLILGRFIELKPKNTYATQDEKNENAENAVYLAS
 DMC64 DLAYRYDRIKHDPKYPGTTPKLPTDLILGRFIELKPKNTYATQDEKNENAENAVYLAS
 DMC111 DVAYRYDRIKHDPKYPGTTPKLPTDLILGRFIEFKPKNTYATQDEKNENAENAVYLAS
 *;*****;*****

35000HP KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 82-029362 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 6644 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 HMC46 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 HMC56 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 33921 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 CIP542 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 DMC64 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 DMC111 KKTKFSANSYSATFSFDPMDFLKIQAKYATGFRAPTSDEIYFVFQHPFSFIYPNLYLKAE
 ***** *****

35000HP RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 82-029362 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 6644 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 HMC46 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 HMC56 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 33921 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 CIP542 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 DMC64 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 DMC111 RSKNKEVAITLHKQKSFLTVNLFQTDYKDFLDLAYLKKGSLPYGNGGSQLETLTYQNVNR
 *****;*****;*****

35000HP DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 82-029362 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 6644 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 HMC46 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 HMC56 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 33921 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 CIP542 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 DMC64 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 DMC111 DKARVKGLEVNSKLHLGDVWVRTLDGFNLSYKLSLQKGRMSSKVGEEGQRDTNKLDTPMN
 *****;*****;*****

35000HP AIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 82-029362 AIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 6644 AIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 HMC46 AIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 HMC56 AIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 33921 VIQPQTHVVGLGYEHTQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 CIP542 VIQPQTHVVGLGYEHTQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 DMC64 VIQPQTHVVGLGYEHTQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 DMC111 VIQPQTHVVGVGYEHPQEKFGVDMYLTHASAKKEKDTFNMFDGKDQKQDQHIKWRSDRYT
 .*****;***** *****

35000HP LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 82-029362 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 6644 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 HMC46 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 HMC56 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 33921 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 CIP542 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 DMC64 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 DMC111 LVDLIAVVKPVKNVTLRAGVYNLNREYGTWDSIRSIRPFGTTNLIQETGKGIKRFNAP
 *****;*****;*****

35000HP GRNFRVNAEITF*
 82-029362 GRNFRVNAEITF*
 6644 GRNFRVNAEITF*
 HMC46 GRNFRVNAEITF*

HMC56 GRNFRVNAEITF*
33921 GRNFRVNAEITF*
CIP542 GRNFRVNAEITF*
DMC64 GRNFRVNAEITF*
DMC111 GRNFRVNAEITF*

Note: The HgbA sequence of NZS1, NZS2, NZS3, NZS4, and NZV1 were identical to that of 35000HP.

12) LspA1 (HD1505)

35000HP MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
NZS1 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
NZS2 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
NZS3 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
NZS4 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
NZV1 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
82-029362 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
6644 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
HD183 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
HMC46 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS
HMC56 MNNKRYKLIFS KVKNC LVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSP LSSS

35000HP IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
NZS1 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
NZS2 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
NZS3 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
NZS4 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
NZV1 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
82-029362 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
6644 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
HD183 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
HMC46 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ
HMC56 IHLGLHNHSP LKVFKGKSLSVVLLSLMPATPLLAQQNYAEALNGKVYVDSQHSSTR IYEQ

35000HP KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
NZS1 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
NZS2 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
NZS3 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
NZS4 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
NZV1 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
82-029362 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
6644 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
HD183 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
HMC46 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL
HMC56 KTDNDSKDGIVVVEIANPEVDGVS DNRKFKEFNIPNSAVFNNSRTESTS QLVGK L HANIQL

35000HP QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
NZS1 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
NZS2 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
NZS3 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
NZS4 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
NZV1 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
82-029362 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
6644 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
HD183 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
HMC46 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI
HMC56 QKEAKLILNQVTGDHESNIQGALE VAGKADLIIVNPNGITLNGVKTINTDRFVVSTSDI

35000HP IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
NZS1 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
NZS2 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
NZS3 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
NZS4 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
NZV1 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
82-029362 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI
6644 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEV VARNIDQKGI TVAKTENQKSVNPANI

HD183 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEVVARNDQKGIITVAKTENQKSVNPANI
HMC46 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEVVARNDQKGIITVAKTENQKSVNPANI
HMC56 IPHRENGLLSVRNGKVTIDKGGVATNGLSHFEVVARNDQKGIITVAKTENQKSVNPANI

35000HP TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
NZS1 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
NZS2 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
NZS3 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
NZS4 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
NZV1 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
82-029362 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
6644 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
HD183 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
HMC46 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG
HMC56 TFAAGSLNYNLKTREATPISSGTSRTSDTPAISADSAGSMYGSNIKFFVTDKGAGVKHKG

35000HP IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
NZS1 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
NZS2 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
NZS3 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
NZS4 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
NZV1 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
82-029362 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
6644 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
HD183 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
HMC46 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR
HMC56 IIFSENDINIKMDGGNASLKELYAKKIDILAKDIELTEKGQLQANNKIILNSTGKINLR

35000HP NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
NZS1 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
NZS2 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
NZS3 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
NZS4 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
NZV1 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
82-029362 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
6644 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
HD183 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
HMC46 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG
HMC56 NASEVSADNVNVKSENLALENASMSANSLDVIITKIEVNRSSKVSAGTANIKASNITLDG

35000HP SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
NZS1 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
NZS2 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
NZS3 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
NZS4 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
NZV1 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
82-029362 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
6644 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
HD183 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
HMC46 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN
HMC56 SSVVANKITLNVTNATLNNQSKLSAKDMELNVTHNITLNNITSKLSAQKANIKTENLTLN

35000HP GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
NZS1 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
NZS2 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
NZS3 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
NZS4 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
NZV1 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
82-029362 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
6644 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
HD183 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
HMC46 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV
HMC56 GEASLVAEKLDINAIDKITNNGTIAGLTANITTKALENRDNALILAHQNLNFTVNGSHYV

35000HP NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNPNITQGSSEIILHGNTLNA
NZS1 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNPNITQGSSEIILHGNTLNA
NZS2 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNPNITQGSSEIILHGNTLNA

NZS3 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
NZS4 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
NZV1 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
82-029362 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
6644 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
HD183 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
HMC46 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA
HMC56 NKGDIVSKDKAIVTFSNNSDFTSNGSKLVDAQNNLTVNVNFFNITQGSEIILHGNVTLNA

35000HP KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
NZS1 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
NZS2 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
NZS3 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
NZS4 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
NZV1 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
82-029362 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
6644 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
HD183 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
HMC46 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS
HMC56 KGNFTNSGNLTTMKELNISNIESFINAGNLTGKNLEVHSNTTVKNDGKLVSIENLNISS

35000HP KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
NZS1 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
NZS2 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
NZS3 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
NZS4 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
NZV1 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
82-029362 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
6644 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
HD183 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
HMC46 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT
HMC56 KTDFTNNGTLLGLEALKIASGGNFTNASNGSLASNKSLDIYGNFTNNGTIESVKSLNIT

35000HP NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
NZS1 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
NZS2 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
NZS3 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
NZS4 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
NZV1 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
82-029362 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
6644 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
HD183 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
HMC46 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN
HMC56 NNYTFINNATIKSYGVLNITSQGNFTNDSNGTVM SHDLLNITSQANI INKNLLAGGQGLN

35000HP LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
NZS1 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
NZS2 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
NZS3 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
NZS4 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
NZV1 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
82-029362 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
6644 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
HD183 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
HMC46 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS
HMC56 LTAKGNITNDSNSTAIAVLHSNNDINLNANNKVYNIGEIYSQAGNISVEAKLLHNDVKLS

35000HP GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
NZS1 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
NZS2 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
NZS3 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
NZS4 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
NZV1 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
82-029362 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
6644 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
HD183 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
HMC46 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN
HMC56 GNITTTTTSKSGNATVKTNSIGGGLHDANSIRVGELTLNGKFADLDNQLKVALRGKIYAGSN

35000HP LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMRSMQVNLYEKIFNGDN
NZS1 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
NZS2 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
NZS3 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
NZS4 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
NZV1 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
82-029362 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
6644 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
HD183 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMRSMQVNLYEKIFNGDN
HMC46 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN
HMC56 LTFKAKEGEKEQKSTAQAKI INRGTINVKNKLEYGSNVDVENNMHSMQVNLYEKIFNGDN

35000HP PITLTLKNGVTFKDFSNRRRRASNDGEGTNKKTFFDNVAHLIEEAFSGYSNGNDHRASDD
NZS1 PITLTLKNGVTFKDFSGRR-RASNDGGGTNKKTFDNVAHLIEEAFSGYSNGNDHGASGD
NZS2 PITLTLKNGVTFKDFSGRR-RASNDGGGTNKKTFDNVAHLIEEAFSGYSNGNDHGASGD
NZS3 PITLTLKNGVTFKDFSGRR-RASNDGGGTNKKTFDNVAHLIEEAFSGYSNGNDHGASGD
NZS4 PITLTLKNGVTFKDFSGRR-RASNDGGGTNKKTFDNVAHLIEEAFSGYSNGNDHGASGD
NZV1 PITLTLKNGVTFKDFSGRR-RASNDGGGTNKKTFDNVAHLIEEAFSGYSNGNDHGASGD
82-029362 PITLTLKNGVTFKDFSKRRRRASGDS SGTNEKTFDNVAHLIEEAFSGYSDGNDHGASDG
6644 PITLTLKNGVTFKDFSKRRRRASGDS SGTNEKTFDNVAHLIEEAFSGYSDGNDHGASDG
HD183 PITLTLKNGVTFKDFSNRRRRASNDGEGTNKKTFFDNVAHLIEEAFSGYSNGNDHRASDD
HMC46 PITLTLKNGVTFKDFSKRRRRASGDS SGTNEKTFDNVAHLIEEAFSGYSDGNDHGASDG
HMC56 PITLTLKNGVTFKDFSKRRRRASGDS SGTNEKTFDNVAHLIEEAFSGYSDGNDHGASDG

35000HP GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
NZS1 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
NZS2 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
NZS3 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
NZS4 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
NZV1 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
82-029362 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
6644 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
HD183 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
HMC46 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW
HMC56 GHVKSPYYLLVLAQAVNTEGENYLKKTALQHI FGPWNWDLTTTNNDDTTINDKWNQKLLKW

35000HP EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
NZS1 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
NZS2 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
NZS3 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
NZS4 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
NZV1 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
82-029362 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
6644 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
HD183 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
HMC46 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK
HMC56 EKFKNNGENNHS INLNI YPADEGVEKAKI FAGVLRNGTNGVEDKVYQELNDKAKKEYEDK

35000HP FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
NZS1 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
NZS2 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
NZS3 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
NZS4 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
NZV1 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
82-029362 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
6644 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
HD183 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
HMC46 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP
HMC56 FAKKFQGRFKS RFQNGEFDWAGDWAKEGNESYGSKETEEKYNGIKKEHTVNI GKHEIKVP

35000HP TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY
NZS1 TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY
NZS2 TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY
NZS3 TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY
NZS4 TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY
NZV1 TVSFENLNNINHQQDKSDGIDKSI ISELLAQPI YVAKADVPD VPRVAQNDKAVDEDGLY

82-029362 TVSFENLNNINHQQDKSDGIDKSIISELLAQPIYVAKADVPDPRVAQNDKAVDEDGLY
6644 TVSFENLNNINHQQDKSDGIDKSIISELLAQPIYVAKADVPDPRVAQNDKAVDEDGLY
HD183 TVSFENLNNINHQQDKSDGIDKSIISELLAQPIYVAKADVPDPRVAQNDKAVDEDGLY
HMC46 TVSFENLNNINHQQDKSDGIDKSIISELLAQPIYVAKADVPDPRVAQNDKAVDEDGLY
HMC56 *****

35000HP RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
NZS1 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
NZS2 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
NZS3 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
NZS4 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
NZV1 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
82-029362 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQLITRLEIKVADNHLTLK
6644 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQLITRLEIKVADNHLTLK
HD183 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQLITRLEIKVADNHLTLK
HMC46 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQLITRLEIKVADNHLTLK
HMC56 RTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQLITRLEIKVADNHLTLK

35000HP HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
NZS1 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
NZS2 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
NZS3 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
NZS4 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
NZV1 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
82-029362 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
6644 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
HD183 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
HMC46 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ
HMC56 HGLHDIALVKKLIDSASIQAKDLNLKVGEALTKEQKDNLKEDIVWYVKTEVNGQEVLPQ

35000HP VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
NZS1 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
NZS2 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
NZS3 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
NZS4 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
NZV1 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
82-029362 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
6644 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
HD183 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
HMC46 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL
HMC56 VYLAQTIEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKNKLKNTGDIL

35000HP SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
NZS1 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
NZS2 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
NZS3 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
NZS4 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
NZV1 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
82-029362 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGS
6644 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGS
HD183 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGN
HMC46 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGS
HMC56 SQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHIIYLETDKDKNVDLTASELKGS

35000HP TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
NZS1 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
NZS2 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
NZS3 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
NZS4 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
NZV1 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
82-029362 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
6644 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
HD183 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
HMC46 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL
HMC56 TGQIKAKDLNLNDIYETSYKYYEKLFGKNGGEIGDRVTQTSQAKSVGTASFDHLHLSL

35000HP EGDVNQTSNLKANRTTGVVKGDFNTKAGKDLFHRQIDVTSTGVYSASASGGQSAGIS

NZS1 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
NZS2 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
NZS3 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
NZS4 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
NZV1 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
82-029362 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
6644 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
HD183 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
HMC46 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS
HMC56 EGDVNQ TGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVVYASASGGGQSAGIS

35000HP LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
NZS1 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
NZS2 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
NZS3 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
NZS4 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
NZV1 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
82-029362 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
6644 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
HD183 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
HMC46 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG
HMC56 LTDQGVET YTNKTATAGANADV TNFMKRTRETETSLTHRNFNALS GELYVMGKADIGG

35000HP VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
NZS1 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
NZS2 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
NZS3 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
NZS4 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
NZV1 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
82-029362 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
6644 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
HD183 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
HMC46 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP
HMC56 VDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEEAENDNVAEKDKTKP

35000HP KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
NZS1 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
NZS2 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
NZS3 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
NZS4 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
NZV1 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
82-029362 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
6644 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
HD183 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
HMC46 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL
HMC56 KFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARDEKETTYEYL

35000HP KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
NZS1 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
NZS2 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
NZS3 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
NZS4 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
NZV1 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
82-029362 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
6644 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
HD183 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
HMC46 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK
HMC56 KVGVGAEAEHSAADAISNKARQIIDTQNGLKQDGTVALQEASDVNLNATGDLGASAK

35000HP LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
NZS1 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
NZS2 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
NZS3 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
NZS4 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
NZV1 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
82-029362 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
6644 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS
HD183 LKFE LSTIEKKS RGASDGRS ILGGR LNL AARGD I TLNNVET TENS HLS LKARD NVN VNS

HMC46 LKFELSTIEKKSREGASDGRSILGGRLNLAARGDITLNNVETTESHLSLKARDNVNNS
HMC56 LKFELSTIEKKSREGASDGRSILGGRLNLAARGDITLNNVETTESHLSLKARDNVNNS

35000HP GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
NZS1 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
NZS2 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
NZS3 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
NZS4 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
NZV1 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
82-029362 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
6644 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
HD183 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
HMC46 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG
HMC56 GVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTESTSHTNSLLRG

35000HP KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
NZS1 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
NZS2 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
NZS3 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
NZS4 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
NZV1 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
82-029362 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
6644 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
HD183 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
HMC46 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA
HMC56 KSLRVEAGKDFNLISSNVVDVHLLDVKGDTNVVSKQDSYSRKERGVNYSVSAGVGVSTA

35000HP GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
NZS1 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
NZS2 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
NZS3 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
NZS4 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
NZV1 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
82-029362 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
6644 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
HD183 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
HMC46 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK
HMC56 GGARPNGSVGLGVAENENSKI VKQQAGISAKRITGE INNLNLTGGY IENKGNPDELNVK

35000HP GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
NZS1 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
NZS2 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
NZS3 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
NZS4 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
NZV1 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
82-029362 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
6644 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
HD183 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
HMC46 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG
HMC56 GDITTHELKDDEHKKDGGSFGGSVGVSETGVTQVNVNNGRVEQKHYEATQHSS ISGINTKG

35000HP KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
NZS1 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
NZS2 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
NZS3 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
NZS4 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
NZV1 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
82-029362 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
6644 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
HD183 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
HMC46 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA
HMC56 KTVGNFKTDRSQSTEVHRDDTIAATNFNLFELGDI AELAKKGKEKWDNRSAKTTSSSQDSA

35000HP HDPRSRSVENGYSELPRFKTADNDAGVDSPLIKGEAEQAQTLALTKAGNDV IPEVQSLT
NZS1 HDPRSRSVENGYSELPRFKTADNDAGVDSPLIKGEAEQAQTLALTKAGNDV IPEVQSLT
NZS2 HDPRSRSVENGYSELPRFKTADNDAGVDSPLIKGEAEQAQTLALTKAGNDV IPEVQSLT
NZS3 HDPRSRSVENGYSELPRFKTADNDAGVDSPLIKGEAEQAQTLALTKAGNDV IPEVQSLT

NZS4 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
NZV1 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
82-029362 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
6644 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
HD183 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
HMC46 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT
HMC56 HDPRSRSVENGYSELPRFKTADNDAGVDSRLIKGEAEQAQTLALTKAGNDV IPEVQSLT

35000HP QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
NZS1 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
NZS2 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
NZS3 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
NZS4 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
NZV1 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
82-029362 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
6644 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
HD183 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
HMC46 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA
HMC56 QKARQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFRTKVS DGDEGN YAEITFPPTNKA

35000HP AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
NZS1 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
NZS2 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
NZS3 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
NZS4 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
NZV1 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
82-029362 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
6644 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
HD183 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
HMC46 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR
HMC56 AISSTQDVGDTPPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISDAIEPQTRSR

35000HP KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
NZS1 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
NZS2 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
NZS3 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
NZS4 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
NZV1 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
82-029362 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
6644 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
HD183 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
HMC46 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA
HMC56 KLDEPEPIYGTINKSPEAIARANAKADEAIQALGYDPRIKPVVPEEAPPALPRNLQTKA

35000HP ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
NZS1 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
NZS2 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
NZS3 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
NZS4 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
NZV1 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
82-029362 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
6644 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
HD183 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
HMC46 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP
HMC56 ISDYDDVSYPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGYDPRIKPVVP

35000HP EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
NZS1 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
NZS2 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
NZS3 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
NZS4 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
NZV1 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
82-029362 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
6644 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
HD183 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
HMC46 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS
HMC56 EDAPPALPPRTQSLIDSTEVPYSRSALANVKFDDASWPQPSALRSKAFADEPSSETPKS

35000HP RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
NZS1 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
NZS2 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
NZS3 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
NZS4 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
NZV1 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
82-029362 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
6644 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
HD183 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
HMC46 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ
HMC56 RGKRGISEESLSSTVQPRSRKI SEEDSSFERLPLRIIDNGSDYAEILPRNVKQTNEPATQ

35000HP AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
NZS1 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
NZS2 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
NZS3 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
NZS4 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
NZV1 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
82-029362 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
6644 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
HD183 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
HMC46 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE
HMC56 AIRAPKALDNNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPIITRQVKTVQE

35000HP ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
NZS1 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
NZS2 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
NZS3 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
NZS4 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
NZV1 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
82-029362 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
6644 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
HD183 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
HMC46 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS
HMC56 ETPVTDLVNKRELKEDRSLLDKVQDTFQPLKVRSKINDVRSVVEEYGGVTFKYAQS

35000HP EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
NZS1 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
NZS2 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
NZS3 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
NZS4 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
NZV1 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
82-029362 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
6644 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
HD183 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
HMC46 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK
HMC56 EVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLKDGQKGRKGLNKDAIESIEK

35000HP LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
NZS1 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
NZS2 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
NZS3 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
NZS4 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
NZV1 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
82-029362 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
6644 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
HD183 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
HMC46 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL
HMC56 LQTEFINAGTATQQFKLTNTWLEEQQVVPKQYFGKLSRADEVAGTVSKNDVSALVKAIL

35000HP DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
NZS1 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
NZS2 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
NZS3 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
NZS4 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
NZV1 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK
82-029362 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSF EKWMKNAFWK

6644 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSFEKWMKNAFWK
HD183 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSFEKWMKNAFWK
HMC46 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSFEKWMKNAFWK
HMC56 DTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGEITFKDKKSFEKWMKNAFWK

35000HP KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
NZS1 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
NZS2 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
NZS3 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
NZS4 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
NZV1 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
82-029362 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
6644 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
HD183 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
HMC46 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG
HMC56 KSGYAGKDDTKRFFNVVNYHKNSKRNVIDVNQNHIIQQLAGSEGFSPSLPTRPQLANAAG

35000HP IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
NZS1 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
NZS2 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
NZS3 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
NZS4 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
NZV1 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
82-029362 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
6644 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
HD183 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
HMC46 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE
HMC56 IKSNEMSSLSWSKLLHLSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAE

35000HP GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
NZS1 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
NZS2 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
NZS3 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
NZS4 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
NZV1 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
82-029362 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
6644 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
HD183 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
HMC46 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL
HMC56 GEIRVNMNDIKKAFNPRDKHYNSQEARSLRSLYNQDPSMSGTRFIIENQVIANPFSSADL

35000HP QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
NZS1 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
NZS2 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
NZS3 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
NZS4 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
NZV1 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
82-029362 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
6644 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
HD183 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
HMC46 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK
HMC56 QSYIQAQQSKLPELGRQARRALPELPTAANKGRGSRVEEQNI VTRPRVEDVYATVNGKAK

35000HP HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
NZS1 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
NZS2 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
NZS3 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
NZS4 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
NZV1 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
82-029362 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
6644 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
HD183 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
HMC46 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV
HMC56 HGEAQPPGSFYTKKLVQVSHVPNTEPVYADLHFNRNRGRVVRQTEPEVIYEKIRGQQVEV

35000HP DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
NZS1 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD

NZS2 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
NZS3 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
NZS4 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
NZV1 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
82-029362 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
6644 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
HD183 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
HMC46 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD
HMC56 DDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDD

35000HP YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
NZS1 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
NZS2 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
NZS3 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
NZS4 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
NZV1 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
82-029362 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
6644 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
HD183 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
HMC46 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ
HMC56 YAPALPARPELNAAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNQ

35000HP ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
NZS1 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
NZS2 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
NZS3 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
NZS4 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
NZV1 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
82-029362 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
6644 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
HD183 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
HMC46 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI
HMC56 ENSLEIKTIEHIPTRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAI

35000HP LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
NZS1 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
NZS2 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
NZS3 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
NZS4 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
NZV1 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
82-029362 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
6644 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
HD183 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
HMC46 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND
HMC56 LADSYIGKLNLFGEFGEFTKFAKQVKDKGVTEQDIQNIASFNDETAKLARRSEPKNRIND

35000HP ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
NZS1 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
NZS2 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
NZS3 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
NZS4 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
NZV1 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
82-029362 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
6644 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
HD183 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
HMC46 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT
HMC56 ANVDDNQR I IRELINNEAAVDALKRIATLSDQEKAMHSTLRANEKFDMDLEESPNYT

35000HP ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
NZS1 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
NZS2 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
NZS3 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
NZS4 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
NZV1 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
82-029362 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
6644 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
HD183 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ
HMC46 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ

HMC56 ENKSIRDYKDTQKALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQ

35000HP INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
NZS1 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
NZS2 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
NZS3 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
NZS4 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
NZV1 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
82-029362 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
6644 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
HD183 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
HMC46 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE
HMC56 INMDKLDVFNPNHEHYDSVTSRELRYLYENYKDNPNLKFTLKDHVIANPLKTLKTSISE

35000HP SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
NZS1 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
NZS2 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
NZS3 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
NZS4 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
NZV1 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
82-029362 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
6644 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
HD183 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
HMC46 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV
HMC56 SDLKSSPRRARQEGPSSLQVRNLFDKSSSNKRSEKDTAQTSGYRNTNIDI INDKTKGV

35000HP NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
NZS1 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
NZS2 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
NZS3 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
NZS4 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
NZV1 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
82-029362 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
6644 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
HD183 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
HMC46 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP
HMC56 NHIVENGVEVALTNTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEI IASSANSIP

35000HP KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
NZS1 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
NZS2 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
NZS3 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
NZS4 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
NZV1 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
82-029362 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
6644 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
HD183 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
HMC46 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE
HMC56 KEHLLKALIEVTEGKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLDGKDGKQILRSVAE

35000HP IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
NZS1 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
NZS2 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
NZS3 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
NZS4 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
NZV1 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
82-029362 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
6644 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
HD183 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
HMC46 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ
HMC56 IYKNLPLSDTYQAVRNYVNNRLEKLSNRLLLEHLANSKISGNEYAIKYIFDVTVSRAKQ

35000HP EIFEQELNTE LAPVSLDIMRRAKANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNGGEV
NZS1 EIFEQELNTE LAPVSLDIMRRAKANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNGGEV
NZS2 EIFEQELNTE LAPVSLDIMRRAKANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNGGEV
NZS3 EIFEQELNTE LAPVSLDIMRRAKANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNGGEV
NZS4 EIFEQELNTE LAPVSLDIMRRAKANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNGGEV

NZV1 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV
82-029362 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV
6644 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV
HD183 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV
HMC46 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV
HMC56 EIFEQELNTE LAPVSLDIMRRKAANILSSEHGSYKDGTL SIYDKPVKSAFHSRLKNNGEV

35000HP LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
NZS1 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
NZS2 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
NZS3 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
NZS4 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
NZV1 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
82-029362 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
6644 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
HD183 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
HMC46 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV
HMC56 LNTIVHELTHHEQDALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSV

35000HP SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
NZS1 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
NZS2 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
NZS3 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
NZS4 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
NZV1 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
82-029362 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
6644 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
HD183 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
HMC46 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE
HMC56 SEAFMCKAKEYHERTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDSRSE

35000HP VEFNRVSHKSVR*
NZS1 VEFNRVSHKSVR*
NZS2 VEFNRVSHKSVR*
NZS3 VEFNRVSHKSVR*
NZS4 VEFNRVSHKSVR*
NZV1 VEFNRVSHKSVR*
82-029362 VEFNRVSHKSVR*
6644 VEFNRVSHKSVR*
HD183 VEFNRVSHKSVR*
HMC46 VEFNRVSHKSVR*
HMC56 VEFNRVSHKSVR*

Note: Due to difficulty in sorting reads of *lspA1* and *lspA2* genes of class II strains, *LspA1* sequences of class II strains were excluded from this analysis.

13) *LspA2* (HD1156)

35000HP MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
NZS1 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
NZS2 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
NZS3 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
NZS4 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
NZV1 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
82-029362 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
6644 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
HD183 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
HMC46 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS
HMC56 MNNKRYKLIFSKVKNCLVPVAENIKSASGNSGSSSNSKIAEDQEEEPDSLACSLSPSS

35000HP IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
NZS1 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
NZS2 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
NZS3 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
NZS4 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
NZV1 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
82-029362 IHLGLHNHSPKLVFKGKNSVLLSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG

6644 IHLGLHNHSPLKVFKGKNSVVLSSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
HD183 IHLGLHNHSPLKVFKGKNSVVLSSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
HMC46 IHLGLHNHSPLKVFKGKNSVVLSSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG
HMC56 IHLGLHNHSPLKVFKGKNSVVLSSLMPAMQVWADSSNAIVDHSHGAKQTAVDERDPKNG

35000HP KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
NZS1 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
NZS2 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
NZS3 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
NZS4 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
NZV1 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
82-029362 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
6644 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
HD183 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
HMC46 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK
HMC56 KEKVVVINIAKPDEQGISDNHFSKFNI PNSAVFNNSI KEGNSQLVGLLGENKNLGSQAAK

35000HP TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
NZS1 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
NZS2 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
NZS3 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
NZS4 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
NZV1 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
82-029362 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
6644 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
HD183 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
HMC46 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI
HMC56 TIFNQVTDQESKISGGLEVFGEKADLFI INPNGVTLNGVKTINTDRFVASTSEVVEPHI

35000HP KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
NZS1 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
NZS2 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
NZS3 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
NZS4 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
NZV1 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
82-029362 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
6644 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
HD183 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
HMC46 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT
HMC56 KQLNVQRGKVIIGKDG VATNGLSHFDV VAKNIEQQGKVSIEGDSKPAKLANVTF AAGNLT

35000HP YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
NZS1 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
NZS2 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
NZS3 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
NZS4 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
NZV1 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
82-029362 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
6644 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
HD183 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
HMC46 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF
HMC56 YDVNTRDVNRNTNPKKPITDNTRKDNIAISGESAGSMYGRNIFIVTDKGAGVNHQGVIF

35000HP AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
NZS1 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
NZS2 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
NZS3 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
NZS4 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
NZV1 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
82-029362 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
6644 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
HD183 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
HMC46 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS
HMC56 AEDDINILTDDGNSRLNKVYADYVRVVGKDIELANNGQIHADQQLILNATGHVKLNDGSS

35000HP VISNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
NZS1 VISNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS

NZS2 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
NZS3 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
NZS4 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
NZV1 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
82-029362 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
6644 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
HD183 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
HMC46 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS
HMC56 VISNNNLGISALNLTLENATVSANNLSFRVTNDTKLNNLSKVSARAADLQSGNLLNDKAS

35000HP VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
NZS1 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
NZS2 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
NZS3 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
NZS4 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
NZV1 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
82-029362 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
6644 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
HD183 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
HMC46 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK
HMC56 VLAHKLTNINISNDVSLNNQSKLSANNLKIKKVRDLNLNSELSANNLTNTSNNITLKNK

35000HP SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
NZS1 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
NZS2 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
NZS3 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
NZS4 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
NZV1 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
82-029362 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
6644 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
HD183 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
HMC46 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL
HMC56 SKFTAGNMTLNV TNNVTLNNDSELAANNLTNVTKNVTLNDASKLSANKLDDLNVTDNVTL

35000HP NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
NZS1 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
NZS2 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
NZS3 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
NZS4 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
NZV1 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
82-029362 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
6644 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
HD183 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
HMC46 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL
HMC56 NSKSTLSAGELTFKKVKVNTLNNDESLAANNLSLNASHNVTLNKNKSLSAQKADIKAVNL

35000HP TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
NZS1 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
NZS2 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
NZS3 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
NZS4 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
NZV1 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
82-029362 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
6644 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
HD183 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
HMC46 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH
HMC56 TLNDTTELTAKNLDINSTTITNNGTIAGIFANITTEKLNKKEKALILAEQNLNFTVNGSH

35000HP YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
NZS1 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
NZS2 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
NZS3 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
NZS4 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
NZV1 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
82-029362 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
6644 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
HD183 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
HMC46 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL
HMC56 YENKGDIVSKDKATVTF SKNSDFTSNGSKLVNAQNQLKVVNNFTISQGGDITLIGNVTL

HMC56 YENKGDIVSKDKATVTFKNSDFTSNGSKLVNAQNQLKVVNNFTISQGDITLIGNVTL

35000HP NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
NZS1 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
NZS2 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
NZS3 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
NZS4 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
NZV1 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
82-029362 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
6644 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
HD183 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
HMC46 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI
HMC56 NASGFTFNSGNLTTVKTLVDVGD IQNFNTKGNLTVGEDLHIKSKTKITNDGKLIS IKNLNI

35000HP SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
NZS1 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
NZS2 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
NZS3 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
NZS4 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
NZV1 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
82-029362 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
6644 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
HD183 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
HMC46 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK
HMC56 SSEADFINNGTLLGIEALKIATKGNFTNKEKAILASNSLLDISVAEGKKTFFNNGTIESGK

35000HP NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
NZS1 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
NZS2 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
NZS3 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
NZS4 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
NZV1 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
82-029362 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
6644 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
HD183 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
HMC46 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV
HMC56 NLNITNTGAFNLVDNATIRSFVGLNITSTGNVSNNGT LISNERLNITSAANFTNESNGTV

35000HP MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
NZS1 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
NZS2 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
NZS3 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
NZS4 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
NZV1 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
82-029362 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
6644 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
HD183 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
HMC46 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK
HMC56 MSNGLLNI IAKQGNITNKNLIASRQQLNLTAVADNITNDSNINSKIAVLHSLGNISLNSK

35000HP DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
NZS1 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
NZS2 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
NZS3 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
NZS4 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
NZV1 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
82-029362 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
6644 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
HD183 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
HMC46 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS
HMC56 DQVYNLGEIYAGNNISVKAHQKNDVKLMGDI TTKTKEGQAS YKLYQASNGGHFGNDGSS

35000HP GYSEGLN IKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGTINVKNKLS
NZS1 GYSEGLN IKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGTINVKNKLS
NZS2 GYSEGLN IKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGTINVKNKLS
NZS3 GYSEGLN IKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGTINVKNKLS
NZS4 GYSEGLN IKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGTINVKNKLS

NZV1 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS
82-029362 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS
6644 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS
HD183 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS
HMC46 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS
HMC56 GYSEGDNLNKGKFADLDNKLTVQRIGKIYAGRDLTFNKS NAGGKSEI INRGT INVKNKLS

35000HP YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
NZS1 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
NZS2 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
NZS3 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
NZS4 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
NZV1 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
82-029362 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
6644 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
HD183 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
HMC46 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT
HMC56 YSDVSVFENMQSQKVDLYTKIFEAKSDIELTFKTNGTHPVYLNFKSNNEKKYRNSENT

35000HP KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
NZS1 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
NZS2 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
NZS3 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
NZS4 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
NZV1 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
82-029362 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
6644 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
HD183 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
HMC46 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK
HMC56 KNFKSIGDLINEALSDS APEAIEAYYSGSSSNY INPVSYLAALGNANNS SNPHYLNTALK

35000HP HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
NZS1 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
NZS2 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
NZS3 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
NZS4 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
NZV1 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
82-029362 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
6644 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
HD183 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
HMC46 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND
HMC56 HILGNGWQDDLKQENIKVLKQKWEDFKKDKGASKMLDLYPNTDKEKAKIFAGI IRNGND

35000HP TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
NZS1 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
NZS2 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
NZS3 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
NZS4 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
NZV1 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
82-029362 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
6644 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
HD183 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
HMC46 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI
HMC56 TISDVESEDFKKKYSKFQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKEN IDEHKLNI

35000HP GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
NZS1 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
NZS2 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
NZS3 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
NZS4 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
NZV1 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
82-029362 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
6644 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
HD183 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
HMC46 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN
HMC56 GKHEITVPGVSFENLNNKNMDHQPKLGEIDKSI ISELLAQPVYTEKSAARDS DPRVNQN

35000HP DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
NZS1 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
NZS2 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
NZS3 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
NZS4 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
NZV1 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
82-029362 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQILITRLIEK
6644 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQILITRLIEK
HD183 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEHQILITRLIEK
HMC46 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQILITRLIEK
HMC56 DKEALDNLRYRTRLSYINQNNYLGAKEYFFNQLDTEDDKLGKIKRIGDNYFEYQILITRLIEK
*****.*****

35000HP VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
NZS1 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
NZS2 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
NZS3 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
NZS4 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
NZV1 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
82-029362 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
6644 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
HD183 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
HMC46 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
HMC56 VADNHLTLKHGLHDIALVKKLIDSASIQAKDLNLKVGGEALTKEQKDNLKEDI VVYVKTEV
*****.*****

35000HP NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
NZS1 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
NZS2 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
NZS3 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
NZS4 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
NZV1 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
82-029362 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
6644 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
HD183 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
HMC46 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
HMC56 NGQEVLPQVYLAKQTI EEEVEKQRGVGTGQIRAGIIDVKVDDVRNTGTIAGYAVGLEAKN
*****.*****

35000HP KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
NZS1 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
NZS2 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
NZS3 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
NZS4 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
NZV1 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
82-029362 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
6644 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
HD183 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
HMC46 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
HMC56 KLKNTGDILSQRLSKLVGKKGLESTGVTYVDETGATKVRKARIKSEGHYLETDKDKNVD
*****.*****

35000HP LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
NZS1 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
NZS2 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
NZS3 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
NZS4 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
NZV1 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
82-029362 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
6644 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
HD183 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
HMC46 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
HMC56 LTASELKGNTGQIKAKDLNLNDIYETSYKYKYEKFLFGKNGGEIGDRVTQTSQAKSVGTDA
*****.*****

35000HP SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
NZS1 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
NZS2 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
NZS3 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
NZS4 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
NZV1 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
82-029362 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS
6644 SFDHLHLSLEGDVNQTSNLSKANRTTG VVKGFNTKAGKDLFHRQIDTVTSGTVYSASAS

HD183 SFDHLHLSLEGDVNQGTGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVYSASAS
HMC46 SFDHLHLSLEGDVNQGTGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVYSASAS
HMC56 SFDHLHLSLEGDVNQGTGSNLKANRTTGVVKGDFNTKAGKDLFHRQIDTVTSGTVYSASAS

35000HP GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
NZS1 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
NZS2 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
NZS3 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
NZS4 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
NZV1 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
82-029362 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
6644 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
HD183 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
HMC46 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY
HMC56 GGGQSAGISLTDQGVETYNKTATAGANADVTFMFKRTRETETSLTHRNSEFNALSGLY

35000HP VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
NZS1 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
NZS2 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
NZS3 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
NZS4 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
NZV1 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
82-029362 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
6644 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
HD183 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
HMC46 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN
HMC56 VMGKADIGGVDINRDVEVIKTPEEIAAEQKAAEEAKKAEVKENEASETAAKETEAAENDN

35000HP VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
NZS1 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
NZS2 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
NZS3 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
NZS4 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
NZV1 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
82-029362 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
6644 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
HD183 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
HMC46 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD
HMC56 VAEKDKTKPKFKKLTDEEIAAAFETKGEDFFAAYKAREEEDRKKGFTLSAEQIESTKARD

35000HP EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
NZS1 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
NZS2 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
NZS3 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
NZS4 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
NZV1 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
82-029362 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
6644 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
HD183 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
HMC46 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT
HMC56 EKETTYEYELKVGVGAEAEHSAADAISNKARQIIDTQNLKQDGTVALQEASDVLNLAT

35000HP GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
NZS1 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
NZS2 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
NZS3 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
NZS4 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
NZV1 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
82-029362 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
6644 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
HD183 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
HMC46 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK
HMC56 GDLAGASAKLKFEELSTIEKKSARGASDGRSILGRLNLAARGGDI TLNNVETTENSLSLK

35000HP ARDNVNVNSGVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
NZS1 ARDNVNVNSGVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
NZS2 ARDNVNVNSGVTEQKDESNSQSLKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST

NZS3 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
NZS4 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
NZV1 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
82-029362 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
6644 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
HD183 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
HMC46 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST
HMC56 ARDNVNVNSGVTEQKDESNQS LKVTAGASSGCGVMAGGCSAGVSAGVSGSYNESNTEST

35000HP SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
NZS1 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
NZS2 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
NZS3 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
NZS4 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
NZV1 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
82-029362 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
6644 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
HD183 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
HMC46 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV
HMC56 SHTNSLLRGKSLRVEAGKDFNLISSNVVDVHHLHLDVKGDTNVVSKQDSYSRKRERGVNYSV

35000HP SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
NZS1 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
NZS2 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
NZS3 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
NZS4 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
NZV1 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
82-029362 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
6644 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
HD183 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
HMC46 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK
HMC56 SAGVGVSTAGGARPNGSVGLGVAENENSKIIVKQOAGISAKRITGEINNLNL TGGYIENK

35000HP GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
NZS1 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
NZS2 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
NZS3 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
NZS4 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
NZV1 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
82-029362 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
6644 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
HD183 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
HMC46 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS
HMC56 GNPDELNVKGDITTHELKDEHHKDGGSFGGSVGVSETGVTQVNVNNGRVEQKH YEATQHS

35000HP SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
NZS1 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
NZS2 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
NZS3 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
NZS4 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
NZV1 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
82-029362 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
6644 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
HD183 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
HMC46 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK
HMC56 SISGINTKGKTVGNFKTDRSQS TEVHRDDTIAATNFN FELG DIAELAKKGKEKWDNRSAK

35000HP TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
NZS1 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
NZS2 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
NZS3 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
NZS4 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
NZV1 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
82-029362 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
6644 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
HD183 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
HMC46 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND
HMC56 TTSSSQSAHDPRSRSVENGYSELPRFKTADNDAGVDS PRLIKGEAEQAOTLAL TKAGND

35000HP VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
NZS1 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
NZS2 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
NZS3 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
NZS4 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
NZV1 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
82-029362 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
6644 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
HD183 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
HMC46 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA
HMC56 VIVEVQSLTQKARPQSLVDESPYAEIPALTRPQVKSNI AESIEVPQFR TKVSDGDEGNYA

35000HP EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
NZS1 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
NZS2 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
NZS3 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
NZS4 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
NZV1 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
82-029362 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
6644 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
HD183 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
HMC46 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD
HMC56 EITFPFNKAAISSTQDVGDTPTPRALRLESESGYESAENLGLIPRGFKSSPKGEYEDISD

35000HP AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
NZS1 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
NZS2 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
NZS3 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
NZS4 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
NZV1 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
82-029362 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
6644 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
HD183 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
HMC46 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL
HMC56 AIEPQTRSRKLEPEPIYGTINKSPEAIARANAKADEAIQALGYDPR IKPVVPEEAPPAL

35000HP PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
NZS1 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
NZS2 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
NZS3 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
NZS4 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
NZV1 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
82-029362 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
6644 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
HD183 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
HMC46 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY
HMC56 PPRNLQTKAISDYDDVS YVPDFKVRKTDEPEPIYGTINKSPEAIARANAKADEAIQASGY

35000HP DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
NZS1 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
NZS2 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
NZS3 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
NZS4 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
NZV1 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
82-029362 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
6644 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
HD183 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
HMC46 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD
HMC56 DPR IKPVVPEDAPPALPRTQSLIDSTEVP SYRSALANVKFDDAS PWPQPSALRSKAFAD

35000HP EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
NZS1 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
NZS2 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
NZS3 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
NZS4 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
NZV1 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV

82-029362 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
6644 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
HD183 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
HMC46 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV
HMC56 EPSSETPKSRGKRGISEESLSSTVQPRSRKISEEDSSFERLPLRIIDNGSDYAEILPRNV

35000HP KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
NZS1 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
NZS2 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
NZS3 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
NZS4 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
NZV1 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
82-029362 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
6644 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
HD183 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
HMC46 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI
HMC56 KQTNEPATQAIRAPKALDNNDVIAERPSFKLRQLDDDDVESVNGIYSSIKPKALIEEGTPI

35000HP TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
NZS1 TRQVKTVQEETPVTNLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
NZS2 TRQVKTVQEETPVTNLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
NZS3 TRQVKTVQEETPVTNLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
NZS4 TRQVKTVQEETPVTNLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
NZV1 TRQVKTVQEETPVTNLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
82-029362 TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
6644 TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
HD183 TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
HMC46 TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV
HMC56 TRQVKTVQEETPVTDLVKNKRELVKEDRSLLDKVQDTFQPLKVRSKINDVRSSVEEYGGEV

35000HP TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
NZS1 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
NZS2 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
NZS3 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
NZS4 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
NZV1 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
82-029362 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
6644 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
HD183 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
HMC46 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN
HMC56 TFKYAQSKGEVYNEIVKHAETQNGVCEATCSHWIAKKVNDENIWTDLYKDGQKGRKGGLN

35000HP KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
NZS1 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
NZS2 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
NZS3 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
NZS4 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
NZV1 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
82-029362 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
6644 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
HD183 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
HMC46 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND
HMC56 KDAIESIEKLQTEFINAGTATQQFKLTNTWLEEQGVVPKQKYFGKLSRADEVAGTVSKND

35000HP VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
NZS1 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
NZS2 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
NZS3 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
NZS4 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
NZV1 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
82-029362 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
6644 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
HD183 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
HMC46 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE
HMC56 VSALVKAILDTGNESSAVKKISINLEGGSHTVSASIEGQKVVFFDPNFGIITFKDKKSFE

35000HP KWMKNAFWKKSgyAGKdTKRfNVVNYHkNSKRNkVIdVnQNHlQQLAGSEGFSPSLPT

NZS1 KWMKNAFWKKS...
NZS2 KWMKNAFWKKS...
NZS3 KWMKNAFWKKS...
NZS4 KWMKNAFWKKS...
NZV1 KWMKNAFWKKS...
82-029362 KWMKNAFWKKS...
6644 KWMKNAFWKKS...
HD183 KWMKNAFWKKS...
HMC46 KWMKNAFWKKS...
HMC56 KWMKNAFWKKS...

35000HP RPQLANAAGIKSNEMSS...
NZS1 RPQLANAAGIKSNEMSS...
NZS2 RPQLANAAGIKSNEMSS...
NZS3 RPQLANAAGIKSNEMSS...
NZS4 RPQLANAAGIKSNEMSS...
NZV1 RPQLANAAGIKSNEMSS...
82-029362 RPQLANAAGIKSNEMSS...
6644 RPQLANAAGIKSNEMSS...
HD183 RPQLANAAGIKSNEMSS...
HMC46 RPQLANAAGIKSNEMSS...
HMC56 RPQLANAAGIKSNEMSS...

35000HP KIVTRRDAEAGEIRVNMDNI...
NZS1 KIVTRRDAEAGEIRVNMDNI...
NZS2 KIVTRRDAEAGEIRVNMDNI...
NZS3 KIVTRRDAEAGEIRVNMDNI...
NZS4 KIVTRRDAEAGEIRVNMDNI...
NZV1 KIVTRRDAEAGEIRVNMDNI...
82-029362 KIVTRRDAEAGEIRVNMDNI...
6644 KIVTRRDAEAGEIRVNMDNI...
HD183 KIVTRRDAEAGEIRVNMDNI...
HMC46 KIVTRRDAEAGEIRVNMDNI...
HMC56 KIVTRRDAEAGEIRVNMDNI...

35000HP ANPFSSADLQSYIQAQQSKL...
NZS1 ANPFSSADLQSYIQAQQSKL...
NZS2 ANPFSSADLQSYIQAQQSKL...
NZS3 ANPFSSADLQSYIQAQQSKL...
NZS4 ANPFSSADLQSYIQAQQSKL...
NZV1 ANPFSSADLQSYIQAQQSKL...
82-029362 ANPFSSADLQSYIQAQQSKL...
6644 ANPFSSADLQSYIQAQQSKL...
HD183 ANPFSSADLQSYIQAQQSKL...
HMC46 ANPFSSADLQSYIQAQQSKL...
HMC56 ANPFSSADLQSYIQAQQSKL...

35000HP YATVNKGAKHGAEQQPGSFY...
NZS1 YATVNKGAKHGAEQQPGSFY...
NZS2 YATVNKGAKHGAEQQPGSFY...
NZS3 YATVNKGAKHGAEQQPGSFY...
NZS4 YATVNKGAKHGAEQQPGSFY...
NZV1 YATVNKGAKHGAEQQPGSFY...
82-029362 YATVNKGAKHGAEQQPGSFY...
6644 YATVNKGAKHGAEQQPGSFY...
HD183 YATVNKGAKHGAEQQPGSFY...
HMC46 YATVNKGAKHGAEQQPGSFY...
HMC56 YATVNKGAKHGAEQQPGSFY...

35000HP KIRGQQVEVDDPSSLYAKVNRNRRL...
NZS1 KIRGQQVEVDDPSSLYAKVNRNRRL...
NZS2 KIRGQQVEVDDPSSLYAKVNRNRRL...
NZS3 KIRGQQVEVDDPSSLYAKVNRNRRL...
NZS4 KIRGQQVEVDDPSSLYAKVNRNRRL...
NZV1 KIRGQQVEVDDPSSLYAKVNRNRRL...
82-029362 KIRGQQVEVDDPSSLYAKVNRNRRL...
6644 KIRGQQVEVDDPSSLYAKVNRNRRL...
HD183 KIRGQQVEVDDPSSLYAKVNRNRRL...

HMC46 KIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYAD
HMC56 KIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYAD

35000HP LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
NZS1 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
NZS2 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
NZS3 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
NZS4 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
NZV1 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
82-029362 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
6644 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
HD183 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
HMC46 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP
HMC56 LRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWSRLKHLFSRESGKKAQVEGP

35000HP EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
NZS1 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
NZS2 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
NZS3 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
NZS4 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
NZV1 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
82-029362 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
6644 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
HD183 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
HMC46 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL
HMC56 EIKHLGGVVDDKDAFYFPLDKIVTRRDAEGEIRVNMDNICKAFNPRDKHYNSQEARSLRSL

35000HP YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
NZS1 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
NZS2 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
NZS3 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
NZS4 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
NZV1 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
82-029362 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
6644 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
HD183 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
HMC46 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG
HMC56 YNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQOSKLPPELGRQARRALPELPTAANKG

35000HP RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
NZS1 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
NZS2 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
NZS3 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
NZS4 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
NZV1 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
82-029362 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
6644 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
HD183 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
HMC46 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL
HMC56 RGSRVEEQNIIVTRPRVEDVYATVKNKGAHGAEQQPGSFYTKKLVQVSHVPNTEPVYADL

35000HP HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
NZS1 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
NZS2 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
NZS3 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
NZS4 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
NZV1 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
82-029362 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
6644 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
HD183 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
HMC46 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS
HMC56 HFNRNNGRVVRQTEPEVIYKIRGQQVEVDDPSSLYAKVNRNRRLDNVEGFYPPEQLRTRS

35000HP DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWS
NZS1 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWS
NZS2 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWS
NZS3 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGEESESTWS

NZS4 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
NZV1 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
82-029362 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
6644 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
HD183 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
HMC46 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS
HMC56 DKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGNAAGFRKAKVKGESESTWS

35000HP RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
NZS1 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
NZS2 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
NZS3 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
NZS4 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
NZV1 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
82-029362 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
6644 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
HD183 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
HMC46 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA
HMC56 RLKHLFSRESGKKAQVEGPEIKHLGGVVDKDAFYFPLDKIVTRRDAEGEIRVNMDNIKKA

35000HP FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
NZS1 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
NZS2 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
NZS3 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
NZS4 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
NZV1 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
82-029362 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
6644 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
HD183 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
HMC46 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE
HMC56 FNPRDKHYNSQEARSLRSLYNQDPSMSGTRFI IENQVIANPFSSADLQSYIQAQQSKLPE

35000HP LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
NZS1 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
NZS2 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
NZS3 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
NZS4 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
NZV1 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
82-029362 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
6644 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
HD183 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
HMC46 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK
HMC56 LGRQARRALPELPTAANKGRGSRVVEEQNIVTRPRVEDVYATVNGAKHGAEQQPGSFYTK

35000HP KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
NZS1 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
NZS2 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
NZS3 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
NZS4 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
NZV1 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
82-029362 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
6644 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
HD183 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
HMC46 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN
HMC56 KLVDQVSHVPNTEPVYADLHFNRNRRVVRQTEPEVIYEKIRGQQVEVDDPSSLYAKVNRN

35000HP RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
NZS1 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
NZS2 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
NZS3 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
NZS4 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
NZV1 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
82-029362 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
6644 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
HD183 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
HMC46 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN
HMC56 RRLDNVEGFYPPEQLRTRSDKLAEQVSRVPTTEPVYADLRFKSAEDDYAPALPARPELGN

35000HP AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
NZS1 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
NZS2 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
NZS3 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
NZS4 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
NZV1 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
82-029362 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
6644 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
HD183 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
HMC46 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP
HMC56 AAGFRKAKVKGESESTWSRLKHLFSRESGKTKVEEVENEYKSQTNGENSLEIKTIEHIP

35000HP TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
NZS1 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
NZS2 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
NZS3 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
NZS4 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
NZV1 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
82-029362 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
6644 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
HD183 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
HMC46 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF
HMC56 TRLKNLESPREAQSDLGENALIYGLQRGRQALISKANAADKEGKNAILADSYIGKLNLF

35000HP EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
NZS1 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
NZS2 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
NZS3 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
NZS4 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
NZV1 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
82-029362 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
6644 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
HD183 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
HMC46 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL
HMC56 EFGELTKFAKQVKDGKQVTEQDIQNIASFNDETAKLARRSEPKNRINDANVDDNQRI IREL

35000HP INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
NZS1 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
NZS2 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
NZS3 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
NZS4 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
NZV1 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
82-029362 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
6644 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
HD183 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
HMC46 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK
HMC56 INNEAAVDALKR IATLSDQEKAMHSTLRANEKFDMDLEESPNYTTAENKSI RYKDTQK

35000HP ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
NZS1 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
NZS2 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
NZS3 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
NZS4 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
NZV1 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
82-029362 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
6644 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
HD183 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
HMC46 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN
HMC56 ALNDARMDFFTEKTKFIAKETLERGGQLYFALDGLVTNSPGFRADTQINMDKLDVFNPN

35000HP HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
NZS1 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
NZS2 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
NZS3 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
NZS4 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
NZV1 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE
82-029362 HEHYDSVTSRELRLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARE

6644 HEHYDSVTSRELRYLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARQE
HD183 HEHYDSVTSRELRYLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARQE
HMC46 HEHYDSVTSRELRYLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARQE
HMC56 HEHYDSVTSRELRYLYENYKDNPNLKF TLKDHVIANPLKTLKTSISESDLKSSPRRARQE

35000HP GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
NZS1 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
NZS2 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
NZS3 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
NZS4 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
NZV1 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
82-029362 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
6644 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
HD183 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
HMC46 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT
HMC56 GPSSLQVRNLF DKSSSNKRSEKDTAQT SVGYRNTNIDI INDKTKGVNHIVENGVEVALT

35000HP NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
NZS1 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
NZS2 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
NZS3 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
NZS4 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
NZV1 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
82-029362 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
6644 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
HD183 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
HMC46 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE
HMC56 NTDYKPLKLPNVEAAFQTKLKAENIDPHIEAVKKEIIASSANSIPKEHLLKALIEVTE

35000HP GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
NZS1 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
NZS2 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
NZS3 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
NZS4 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
NZV1 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
82-029362 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
6644 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
HD183 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
HMC46 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA
HMC56 GKTDEDINVYQKLFNTRQNI SNEVAPTYSLRNLGDKDGKQILRSVAE IYKNLPLSDTYQA

35000HP VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
NZS1 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
NZS2 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
NZS3 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
NZS4 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
NZV1 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
82-029362 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
6644 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
HD183 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
HMC46 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP
HMC56 VRNYVNNRLIEKLSSNRLLLEHLANSKISGNEYAIK YIFD TVSRAKQEIFEQELNTE LAP

35000HP VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
NZS1 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
NZS2 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
NZS3 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
NZS4 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
NZV1 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
82-029362 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
6644 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
HD183 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
HMC46 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ
HMC56 VSLDIMRRKAANILSSEHGSYKDG TLSIYDKPVKSAFHSRLKNNGEV LNTIVHELTHHEQ

35000HP DALAKIIDNKGYDAKLF DKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKKEYHE
NZS1 DALAKIIDNKGYDAKLF DKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKKEYHE

NZS2 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
NZS3 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
NZS4 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
NZV1 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
82-029362 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
6644 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
HD183 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
HMC46 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE
HMC56 DALAKIIDNKGYDAKLFDKNNILYITGGLGYPKQALERDAFLSGDSVSEAFMKKAKEYHE

35000HP RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
NZS1 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
NZS2 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
NZS3 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
NZS4 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
NZV1 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
82-029362 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
6644 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
HD183 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
HMC46 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*
HMC56 RTKQERKDAKKDEARIAKLYKQWEQEEANKKSASLNGSSQSLDRSEVEFNRVSHKSVR*

Note: Due to difficulty in sorting the reads of *lspA1* and *lspA2* genes of class II strains, *LspA2* sequences of class II strains were excluded from this analysis.

14) LuxS (HD0370)

35000HP MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
NZS1 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
NZS2 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
NZS3 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
NZS4 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
NZV1 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
82-029362 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
6644 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
HMC46 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
HMC56 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
33921 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
CIP542 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
DMC64 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY
DMC111 MPLLDSFKVDHTRMNAVAVRVAKTITTPKGD LITVFDLRFRCRNMEIMSSKGIHTLEHLY

35000HP AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
NZS1 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
NZS2 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
NZS3 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
NZS4 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
NZV1 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
82-029362 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVTNAWKNAMHDILTKVSDVTQ
6644 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVTNAWKNAMHDILTKVSDVTQ
HMC46 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVTNAWKNAMHDILTKVSDVTQ
HMC56 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVTNAWKNAMHDILTKVSDVTQ
33921 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
CIP542 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
DMC64 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
DMC111 AGFMRDHLNSDKVEIIDISPMGCRTGFYMSLIGEPSAQAVANAWKNAMHDILTKVSDVTQ
*****;*****

35000HP IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
NZS1 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
NZS2 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
NZS3 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
NZS4 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
NZV1 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
82-029362 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
6644 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
HMC46 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
HMC56 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*
33921 IPELNIYQCGTFSEHSLEDAHQIARDVLAKGISVNLNEDLTLDEEWLNR*

CIP542 IPPELNIIYQCGTFSEHSLEDAHQIARDVLAKGISINLNEDLTLDEEWLNR*
DMC64 IPPELNIIYQCGTFSEHSLEDAHQIARDVLAKGISINLNEDLTLDEEWLNR*
DMC111 IPPELNIIYQCGTFSEHSLEDAHQIARDVLAKGISINLNEDLTLDEEWLNR*
*****:*****

15) NcaA (HD1920)

33921 MKKIIITILCLACGFSNFGHAIVTPGGIPPKEYFLYPKGTNVLSKLOTPNDNQLEQINL
CIP542 MKKIIITILCLACGFSNFGHAIVTPGGIPPKEYFLYPKGTNVLSKLOTPNDNQLEQINL
DMC64 MKKIIITILCLACGFSNFGHAIVTPGGIPPKEYFLYPKGTNVLSKLOTPNDNQLEQINL
DMC111 MKKIIITILCLACGFSNFGHAIVTPGGIPPKEYFLYPKGTNVLSKLOTPNDNQLEQINL
35000HP MKKIIIVSCLMSGVLFNGYSITTES--IPTCSSFL-----SKLLSTAKSDTLSKVKL
82-0369 MKKIIIVSCLMSGVLFNGYSITTES--IPTCSSFL-----SKLLSTAKSDTLSKVKL
6644 MKKIIIVSCLMSGVLFNGYSITTES--IPTCSSFL-----SKLLSTAKSDTLSKVKL
HMC46 MKKIIIVSCLMSGVLFNGYSITTES--IPTCSSFL-----SKLLSTAKSDTLSKVKL
HMC56 MKKIIIVSCLMSGVLFNGYSITTES--IPTCSSFL-----SKLLSTAKSDTLSKVKL
***** : ** .* .***:.*. * .* .* ** ** :* :. : *.:**

33921 SDCKLDF-----PWSP-----LNTFADYPENRRIETLLDLWRVVRWNRGYL
CIP542 SDCKLDF-----PWSP-----LNTFADYPENRRIETLLDLWRVVRWNRGYL
DMC64 SDCKLDF-----PWSP-----LNTFADYPENRRIETLLDLWRVVRWNRGYL
DMC111 SDCKLDF-----PWSP-----LNTFADYPENRRIETLLDLWRVVRWNRGYL
35000HP ENCTFEFKNNDKDKFPVEFRNNQEEKSFYRHLKERDNYAGISNLYDMWKWVRFNRGFL
82-0369 ENCTFEFKNNDKDKFPVEFRNNQEEKSFYRHLKERDNYAGISNLYDMWKWVRFNRGFL
6644 ENCTFEFKNNDKDKFPVEFRNNQEEKSFYRHLKERDNYAGISNLYDMWKWVRFNRGFL
HMC46 ENCTFEFKNNDKDKFPVEFRNNQEEKSFYRHLKERDNYAGISNLYDMWKWVRFNRGFL
HMC56 ENCTFEFKNNDKDKFPVEFRNNQEEKSFYRHLKERDNYAGISNLYDMWKWVRFNRGFL
.:*.: : * . : : : *..* *:* : **:*:**

33921 QEHNANLYDLYQRMNALESLSG-----LGNSESIAEFTTKTIYPLIG-----
CIP542 QEHNANLYDLYQRMNALESLSG-----LGNSESIAEFTTKTIYPLIG-----
DMC64 QEHNANLYDLYQRMNALESLSG-----LGNSESIAEFTTKTIYPLIG-----
DMC111 QEHNANLYDLYQRMNALESLSG-----LGNSESIAEFTTKTIYPLIG-----
35000HP EQQNEKLFHVYDKLNEVGINPESLDSMSYLNLRKINENMNALTESINPSVEAIKYLDPDF
82-0369 EQQNEKLFHVYDKLNEVGINPESLDSMSYLNLRKINENMNALTESINPSVEAIKYLDPDF
6644 EQQNEKLFHVYDKLNEVGINPESLDSMSYLNLRKINENMNALTESINPSVEAIKYLDPDF
HMC46 EQQNEKLFHVYDKLNEVGINPESLDSMSYLNLRKINENMNALTESINPSVEAIKYLDPDF
HMC56 EQQNEKLFHVYDKLNEVGINPESLDSMSYLNLRKINENMNALTESINPSVEAIKYLDPDF
::* :*.:*:*:* : *.: :*: * *

33921 -----GEILKQVNQKVHELKRETYMNTANTAAM
CIP542 -----GEILKQVNQKVHELKRETYMNTANTAAM
DMC64 -----GEILKQVNQKVHELKRETYMNTANTAAM
DMC111 -----GEILKQVNQKVHELKRETYMNTANTAAM
35000HP EKYVAAAYEKLAKEGDSLSDFKKASGRGATTANIQQIDQRIHQFRKEMHMNTANTAAM
82-0369 EKYVAAAYEKLAKEGDSLSDFKKASGRGATTANIQQIDQRIHQFRKEMHMNTANTAAM
6644 EKYVAAAYEKLAKEGDSLSDFKKASGRGATTANIQQIDQRIHQFRKEMHMNTANTAAM
HMC46 EKYVAAAYEKLAKEGDSLSDFKKASGRGATTANIQQIDQRIHQFRKEMHMNTANTAAM
HMC56 EKYVAAAYEKLAKEGDSLSDFKKASGRGATTANIQQIDQRIHQFRKEMHMNTANTAAM
. : * : : : * : * * : * * * * *

33921 SSLNFGNSQGISFGAAIGGHKGQHSALALGTAYTDYQTQVNVKIALPVRQPKPSNITYGIG
CIP542 SSLNFGNSQGISFGAAIGGHKGQHSALALGTAYTDYQTQVNVKIALPVRQPKPSNITYGIG
DMC64 SSLNFGNSQGISFGAAIGGHKGQHSALALGTAYTDYQTQVNVKIALPVRQPKPSNITYGIG
DMC111 SSLNFGNSQGISFGAAIGGHKGQHSALALGTAYTDYQTQVNVKIALPVRQPKPSNITYGIG
35000HP SSLNFGNGYGVSVGAAIGGHKGQYSLALGTAYTDYQTQVNVKIALPVKQPKPSNITYGVG
82-0369 SSLNFGNGYGVSVGAAIGGHKGQYSLALGTAYTDYQTQVNVKIALPVKQPKPSNITYGVG
6644 SSLNFGNGYGVSVGAAIGGHKGQYSLALGTAYTDYQTQVNVKIALPVKQPKPSNITYGVG
HMC46 SSLNFGNGYGVSVGAAIGGHKGQYSLALGTAYTDYQTQVNVKIALPVKQPKPSNITYGVG
HMC56 SSLNFGNGYGVSVGAAIGGHKGQYSLALGTAYTDYQTQVNVKIALPVKQPKPSNITYGVG
***** . * : * . * * * * * : *

33921 FVYNFQ*
CIP542 FVYNFQ*
DMC64 FVYNFQ*
DMC111 FVYNFQ*
35000HP FVYNFQ*
82-0369 FVYNFQ*
6644 FVYNFQ*
HMC46 FVYNFQ*
HMC56 FVYNFQ*

Note: The NcaA sequence of NZS1, NZS2, NZS3, NZS4, and NZV1 were identical to that of 35000HP.

16) PAL (HD1772)

5000HP MKKIAKVLMIAAPAFVLTACSSSSGKTDANANMNGDAMAVNQFGGMTTEDLQTRYNTVYF
33921 MKKIAKVLMIAAPAFVLTACSSSSGKTDANANMNGDAMAVNQFGGMTSEDLQTRYNTVYF
CIP542 MKKIAKVLMIAAPAFVLTACSSSSGKTDANANMNGDAMAVNQFGGMTSEDLQTRYNTVYF
DMC64 MKKIAKVLMIAAPAFVLTACSSSSGKTDANANMNGDAMAVNQFGGMTSEDLQTRYNTVYF
DMC111 MKKIAKVLMIAAPAFVLTACSSSSGKTDANANMNGDAMAVNQFGGMTSEDLQTRYNTVYF
*****:*****

35000HP NFDSYAVEGEYRQLLDAHAAYLTSSNSKVTVTGHADERGTPEYNIALGQRRADAVKNYLA
33921 NFDSYAVEGEYRQLLDAHAAYLTSSNSKVTVTGHADERGTPEYNIALGQRRADAVKNYLA
CIP542 NFDSYAVEGEYRQLLDAHAAYLTSSNSKVTVTGHADERGTPEYNIALGQRRADAVKNYLA
DMC64 NFDSYAVEGEYRQLLDAHAAYLTSSNSKVTVTGHADERGTPEYNIALGQRRADAVKNYLA
DMC111 NFDSYAVEGEYRQLLDAHAAYLTSSNSKVTVTGHADERGTPEYNIALGQRRADAVKNYLA

35000HP TKGVSQVSTVSYGEEKPSVLGHTTEADYAKNRRRAVLEY*
33921 TKGVSQVSTVSYGEEKPSVLGHTTEADYAKNRRRAVLEY*
CIP542 TKGVSQVSTVSYGEEKPSVLGHTTEADYAKNRRRAVLEY*
DMC64 TKGVSQVSTVSYGEEKPSVLGHTTEADYAKNRRRAVLEY*
DMC111 TKGVSQVSTVSYGEEKPSVLGHTTEADYAKNRRRAVLEY*

Note: The PAL sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

17) RelA (HD1185)

33921 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
CIP542 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
DMC64 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
DMC111 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
NZV1 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
35000HP MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
NZS1 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
NZS2 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
NZS3 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
NZS4 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
82-029362 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
6644 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
HMC46 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV
HMC56 MVAIRRSHELDPSTFELASWSASLQMSPIITFEELQIAWRYIHEKLDTDSYHLMWDGVEMV

33921 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
CIP542 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
DMC64 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
DMC111 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
NZV1 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
35000HP ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
NZS1 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
NZS2 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
NZS3 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
NZS4 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
82-029362 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
6644 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
HMC46 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS
HMC56 ELLHGLNMDDDSLVAALLFPLVKNNIVDLAQVKEEFSNQVKNLVKGV IEMDNIRQLNANS

33921 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
CIP542 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
DMC64 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
DMC111 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
NZV1 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
35000HP RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
NZS1 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA

NZS2 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
NZS3 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
NZS4 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
82-029362 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
6644 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
HMC46 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA
HMC56 RSDFQIDNIRRMLLAMVDDFRCVVIKLAERIAYLREIHRYTEEDLVLAAKECSHIYAPLA

33921 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
CIP542 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
DMC64 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
DMC111 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
NZV1 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
35000HP NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
NZS1 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
NZS2 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
NZS3 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
NZS4 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
82-029362 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
6644 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
HMC46 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT
HMC56 NRLGIGQLKWELEDYCFRVLHPQSYRR IATQLGERRLERENY IANFVSQLTASLTTEEVDT

33921 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
CIP542 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
DMC64 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
DMC111 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
NZV1 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
35000HP LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
NZS1 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
NZS2 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
NZS3 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
NZS4 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
82-029362 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
6644 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
HMC46 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH
HMC56 LEVYGRPKHIYSIWKKMQKKNVQFEQLFDIRAVRVIVPNVQDCYSVLGI IHTQYKHLPEH

33921 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
CIP542 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
DMC64 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
DMC111 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
NZV1 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
35000HP FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
NZS1 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
NZS2 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
NZS3 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
NZS4 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
82-029362 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
6644 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
HMC46 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS
HMC56 FDDYIAHPKPNYQSIHTVVVLGEGEQP IEVQIRTRKMHDEAELGIAAHWKYKEGQTVSRS

33921 GYEEKI IWLKLLAWQNDLAASDDMMAEMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
CIP542 GYEEKI IWLKLLAWQNDLAASDDMMAEMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
DMC64 GYEEKI IWLKLLAWQNDLAASDDMMAEMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
DMC111 GYEEKI IWLKLLAWQNDLAASDDMMAEMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
NZV1 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
35000HP GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
NZS1 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
NZS2 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
NZS3 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
NZS4 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
82-029362 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
6644 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
HMC46 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA
HMC56 GYEEKI IWLKLLAWQNDLAVSDDMMADMRSQIFDDRIVVFTPRGEVIDLPKNSTPLDFA

33921 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
CIP542 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
DMC64 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
DMC111 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
NZV1 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
35000HP YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
NZS1 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
NZS2 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
NZS3 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
NZS4 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
82-029362 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
6644 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
HMC46 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA
HMC56 YAVHSEIGHRCIGAKIADRIVPFTYVLQMGDQVEIITQKTPNPSRDWLSPOAGFVNTSKA

33921 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
CIP542 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
DMC64 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
DMC111 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
NZV1 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
35000HP RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
NZS1 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
NZS2 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
NZS3 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
NZS4 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
82-029362 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
6644 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
HMC46 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG
HMC56 RAKIIAWFKKLDREKNIPIGKEALEAEISRLGLSHKQIEQYALPRYNLQFDDLYAAIGG

33921 GDIRLNQLSHYLQSKLMKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDSVGNLMHN
CIP542 GDIRLNQLSHYLQSKLMKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDSVGNLMHN
DMC64 GDIRLNQLSHYLQSKLMKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDSVGNLMHN
DMC111 GDIRLNQLSHYLQSKLMKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDSVGNLMHN
NZV1 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
35000HP GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
NZS1 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
NZS2 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
NZS3 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
NZS4 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
82-029362 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
6644 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
HMC46 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN
HMC56 GDIRLNQLSHYLQSKLIKPTAEQEDEAVLKHVNKNAYNAQQQKGNQI I IDGVGNLMHN

33921 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
CIP542 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
DMC64 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
DMC111 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
NZV1 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
35000HP LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
NZS1 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
NZS2 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
NZS3 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
NZS4 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
82-029362 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
6644 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
HMC46 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR
HMC56 LARCCQPIPGDDIVGYITQGRGISIHCANCEQLFELRSANPERIVSAQWDSHFKAGFSLR

33921 IRIIANECNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEM-----
CIP542 IRIIANECNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEM-----
DMC64 IRIIANECNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEM-----
DMC111 IRIIANECNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEM-----
NZV1 IRIIANERNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEMLAKIILTR
35000HP IRIIANERNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEML-----
NZS1 IRIIANERNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEML-----
NZS2 IRIIANERNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEML-----
NZS3 IRIIANERNGLLRDVSAMANEKVNVLTVASRQDIKRGLTVMDIELEMSNVEML-----

NZS4 IRI IANERNGLLRDVS AVMANEKVNVLT VASRQDIKRGLTVMDIELEMSNVEML-----
82-029362 IRI IANERNGLLRDVS AVMANEKVNVLT VASRQDIKRGLTVMDIELEMSNVEML-----
6644 IRI IANERNGLLRDVS AVMANEKVNVLT VASRQDIKRGLTVMDIELEMSNVEML-----
HMC46 IRI IANERNGLLRDVS AVMANEKVNVLT VASRQDIKRGLTVMDIELEMSNVEML-----
HMC56 IRI IANERNGLLRDVS AVMANEKVNVLT VASRQDIKRGLTVMDIELEMSNVEML-----

33921 -----LAKILTRISQLESVIEAKRLAN*
CIP542 -----LAKILTRISQLESVIEAKRLAN*
DMC64 -----LAKILTRISQLESVIEAKRLAN*
DMC111 -----LAKILTRISQLESVIEAKRLAN*
NZV1 VMDIELEMSNVEMLAKILTRISQLESVIEAKRLAN*
35000HP -----AKILTRISQLESVIEAKRLAN*
NZS1 -----AKILTRISQLESVIEAKRLAN*
NZS2 -----AKILTRISQLESVIEAKRLAN*
NZS3 -----AKILTRISQLESVIEAKRLAN*
NZS4 -----AKILTRISQLESVIEAKRLAN*
82-029362 -----AKILTRISQLESVIEAKRLAN*
6644 -----AKILTRISQLESVIEAKRLAN*
HMC46 -----AKILTRISQLESVIEAKRLAN*
HMC56 -----AKILTRISQLESVIEAKRLAN*

18) SapA (HD1230)

35000HP MKILALSILKFS PFFAVFCWISTAYSAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
82-029362 MKILALSILKFS PFFAVFCWISTAYSAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
6644 MKILALSILKFS PFFAVFCWISTAYSAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
HMC46 MKILALSILKFS PFFAVFCWISTAYSAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
HMC56 MKILALSILKFS PFFAVFCWISTAYSAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
33921 MKILALSILKFS PFFAVFCWISTAYAAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
CIP542 MKILALSILKFS PFFAVFCWISTAYAAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
DMC64 MKILALSILKFS PFFAVFCWISTAYAAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN
DMC111 MKILALSILKFS PFFAVFCWISTAYAAPRVPKELSADSLIYCTSI SGLSFNPKADVGTN

35000HP MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
82-029362 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
6644 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
HMC46 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
HMC56 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
33921 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
CIP542 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
DMC64 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL
DMC111 MNVVTEQIYDKLFEIDRHTHRVIPSLAETFSVSDDGKEITLNLRRQVAFHKTPWFTPTRL

35000HP FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
82-029362 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
6644 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
HMC46 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
HMC56 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
33921 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
CIP542 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
DMC64 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK
DMC111 FNAEDVVFSLNRMIGNVEELPALDFNEDSKEQFQQNQRYAYHFKANLAHYPYFESVALKK

35000HP KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
82-029362 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
6644 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
HMC46 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
HMC56 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
33921 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
CIP542 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
DMC64 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
DMC111 KIAKISAPNEYTVKIHVLVAPDNSVLAHLASQYAVILSKEYALLNADENLAQLDLLPVGT
** *****

35000HP GYVQLSDYIQNEYVRLKPNPVYWGKAKINNVVDFSSNSTGRMAKYLNOECDIVAQPEP
82-029362 GYVQLSDYIQNEYVRLKPNPVYWGKAKINNVVDFSSNSTGRMAKYLNOECDIVAQPEP

6644 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
HMC46 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
HMC56 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
33921 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
CIP542 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
DMC64 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP
DMC111 GVVQLSDYIQNEYVRLKPNPVYWGEEKAKINNVVDFSSNSTGRMAKYLNQECDIVAQPEP

35000HP SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
82-029362 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
6644 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
HMC46 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
HMC56 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
33921 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
CIP542 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
DMC64 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV
DMC111 SQRRVISSYEIVESPGANLAFNAFNMQKEKMDIAFRRQIAQAINRERLVKALFYGSAEV

35000HP ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
82-029362 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
6644 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
HMC46 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
HMC56 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
33921 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
CIP542 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
DMC64 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND
DMC111 ADNVLPSALFAQKNPAAYPYKAPQPRAKNAKLDRLIFWVLDESRYNLHPLKMAEMIRND

35000HP LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
82-029362 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
6644 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
HMC46 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
HMC56 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
33921 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
CIP542 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
DMC64 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT
DMC111 LKKINIDVIRPVSRAKVVQLAAAGKADYDLILTGWLANNLDPNAFLSPILSRTQNKVT

35000HP NLANWCHQQFDEWLEIAKANQVPYVRNMIYKQTQALLEEQLPILPLLHAQRSLFVNQKIK
82-029362 NLANWCHQQFDEWLEIAKANQVPYVRNMIYKQTQALLEEQLPILPLLHAQRSLFVNQKIK
6644 NLANWCHQQFDEWLEIAKANQVPYVRNMIYKQTQALLEEQLPILPLLHAQRSLFVNQKIK
HMC46 NLANWCHQQFDEWLEIAKANQVPYVRNMIYKQTQALLEEQLPILPLLHAQRSLFVNQKIK
HMC56 NLANWCHQQFDEWLEIAKANQVPYVRNMIYKQTQALLEEQLPILPLLHAQRSLFVNQKIK
33921 NLANWCHQQFDEWLEIAKANQVPYVRNMIDKQTQALLEEQLPILPLLHAQRSLFVNQKIK
CIP542 NLANWCHQQFDEWLEIAKANQVPYVRNMIDKQTQALLEEQLPILPLLHAQRSLFVNQKIK
DMC64 NLANWCHQQFDEWLEIAKANQVPYVRNMIDKQTQALLEEQLPILPLLHAQRSLFVNQKIK
DMC111 NLANWCHQQFDEWLEIAKANQVPYVRNMIDKQTQALLEEQLPILPLLHAQRSLFVNQKIK

35000HP NAHIEPFGQVRLSELTLHQE*
82-029362 NAHIEPFGQVRLSELTLHQE*
6644 NAHIEPFGQVRLSELTLHQE*
HMC46 NAHIEPFGQVRLSELTLHQE*
HMC56 NAHIEPFGQVRLSELTLHQE*
33921 NAHIEPFGQVRLSELTLHQE*
CIP542 NAHIEPFGQVRLSELTLHQE*
DMC64 NAHIEPFGQVRLSELTLHQE*
DMC111 NAHIEPFGQVRLSELTLHQE*

Note: The SapA sequence of NZS1, NZS2, NZS3, NZS4, and NZV1 were identical to that of 35000HP.

19) SapB (HD1231)

35000HP MLFAFIRRLFLSLITLIIITLIGYNILLRDLNHFMDLYGIQAYFSYVMGLLHGDFGISY
33921 MLFAFIRRLFLSLITLIIITLIGYNILLRDLNHFMDLYGIQAYFSYVMGLLHGDFGISY
CIP542 MLFAFIRRLFLSLITLIIITLIGYNILLRDLNHFMDLYGIQAYFSYVMGLLHGDFGISY

DMC64 MLFAFIRRLFLSLITLIILTLIGYNILLRDLNHFMDLYGIQAYFSYVMGLLHGDFGISY
DMC111 MLFAFIRRLFLSLITLIILTLIGYNILLRDLNHFMDLYGIQAYFSYVMGLLHGDFGISY

35000HP SNGDPIANQILNVFPATISLCFAALFVSVIIGIPLGFVAASFRDNNVVGKLLAIVSAFSLA
33921 SNGDPIANQILNVFPATISLCFAALFVSVIIGIPLGFVAASFRDNNVVGKLLAIVSAFSLA
CIP542 SNGDPIANQILNVFPATISLCFAALFVSVIIGIPLGFVAASFRDNNVVGKLLAIVSAFSLA
DMC64 SNGDPIANQILNVFPATISLCFAALFVSVIIGIPLGFVAASFRDNNVVGKLLAIVSAFSLA
DMC111 SNGDPIANQILNVFPATISLCFAALFVSVIIGIPLGFVAASFRDNNVVGKLLAIVSAFSLA

35000HP IPVFWLAIMALYYAASNDWQIAAVGELHP IYEISLVTGFRLLDIFLADSPYKLMQSVL
33921 IPVFWLAIMALYYAASNDWQIAAVGELHP IYEISLVTGFRLLDIFLADSPYKLMQSVL
CIP542 IPVFWLAIMALYYAASNDWQIAAVGELHP IYEISLVTGFRLLDIFLADSPYKLMQSVL
DMC64 IPVFWLAIMALYYAASNDWQIAAVGELHP IYEISLVTGFRLLDIFLADSPYKLMQSVL
DMC111 IPVFWLAIMALYYAASNDWQIAAVGELHP IYEISLVTGFRLLDIFLADSPYKLMQSVL

35000HP HHLALPTLILALPATLEVIRFTRQRAEYVMKQNYIKVARTRGWSPYKIWLKHILRNTLPA
33921 HHLALPTLILALPATLEVIRFTRQRAEYVMKQNYIKVARTRGWSPYKIWLKHILRNTLPA
CIP542 HHLALPTLILALPATLEVIRFTRQRAEYVMKQNYIKVARTRGWSPYKIWLKHILRNTLPA
DMC64 HHLALPTLILALPATLEVIRFTRQRAEYVMKQNYIKVARTRGWSPYKIWLKHILRNTLPA
DMC111 HHLALPTLILALPATLEVIRFTRQRAEYVMKQNYIKVARTRGWSPYKIWLKHILRNTLPA

35000HP LIPMIARNLTLVFAFAMLVENIFSWGIGLWLINALAIQDYNASAGVVAIDLFLVGVDI
33921 LIPMIARNLTLVFAFAMLVENIFSWGIGLWLINALAIQDYNASAGVVAIDLFLVGVDI
CIP542 LIPMIARNLTLVFAFAMLVENIFSWGIGLWLINALAIQDYNASAGVVAIDLFLVGVDI
DMC64 LIPMIARNLTLVFAFAMLVENIFSWGIGLWLINALAIQDYNASAGVVAIDLFLVGVDI
DMC111 LIPMIARNLTLVFAFAMLVENIFSWGIGLWLINALAIQDYNASAGVVAIDLFLVGVDI

35000HP LVRLVTLLDPSQKDWYVK*
33921 LVRLVTLLDPSQKDWYVK*
CIP542 LVRLVTLLDPSQKDWYVK*
DMC64 LVRLVTLLDPSQKDWYVK*
DMC111 LVRLVTLLDPSQKDWYVK*

Note: The SapB sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

20) SapC (HD1232)

35000HP MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
NZS1 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
NZS2 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
NZS3 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
NZS4 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
NZV1 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
82-029362 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
6644 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
HD183 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
HMC46 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
HMC56 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
33921 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
CIP542 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
DMC64 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG
DMC111 MLNREEPEQFRQSDYAKQFWLELRQDKVALASLYFFLILLFLTFAGELIAPYQVNTQFVG

35000HP FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
NZS1 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
NZS2 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
NZS3 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
NZS4 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
NZV1 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
82-029362 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
6644 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
HD183 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
HMC46 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA
HMC56 FELLPPSWDDYGQISHFFGTDDLGRDIFSRILAGFYFTVGAALLISFAIAIIGGVIGVLA

33921 FELLPPSWG DYQ I S Y F F G T D D L G R D I F S R I L A G F Y Y T V G A A L L I S F A I A I I G G V I G V L A
CIP542 FELLPPSWG DYQ I S Y F F G T D D L G R D I F S R I L A G F Y Y T V G A A L L I S F A I A I I G G V I G V L A
DMC64 FELLPPSWG DYQ I S Y F F G T D D L G R D I F S R I L A G F Y Y T V G A A L L I S F A I A I I G G V I G V L A
DMC111 FELLPPSWG DYQ I S Y F F G T D D L G R D I F S R I L A G F Y Y T V G A A L L I S F A I A I I G G V I G V L A
***** : *****

35000HP GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
NZS1 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
NZS2 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
NZS3 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
NZS4 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
NZV1 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
82-029362 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
6644 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
HD183 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
HMC46 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
HMC56 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
33921 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
CIP542 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
DMC64 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT
DMC111 GTSRKAISFLGHLFD TFLFIPTLIIAII IATLMEASLINAMLAIFLAMPLPHFIHKIYQAT

35000HP EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
NZS1 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
NZS2 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
NZS3 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
NZS4 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
NZV1 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
82-029362 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
6644 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
HD183 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
HMC46 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
HMC56 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
33921 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
CIP542 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
DMC64 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA
DMC111 EQQLKREYVITLRLDGISRWQLIKEVVLNLTALAVKEMTHICIIAVLDINALSFIGLGA

35000HP QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
NZS1 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
NZS2 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
NZS3 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
NZS4 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
NZV1 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
82-029362 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
6644 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
HD183 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
HMC46 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
HMC56 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
33921 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
CIP542 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
DMC64 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*
DMC111 QSPMPEWGMKDSIELIYIAPWTVILPGIITILVILII SMLGNSISRVLKHY*

21) SpoT (HD1924)

35000HP LHLFEPLHSIIQTYLPTDKIEWIQRAFVVVARDAHEGQTRSSGPEYITHPVAVATIIAEMK
33921 LHLFEPLHSIIQTYLPTDKIEWIQRAFVVVARDAHEGQTRSSGPEYITHPVAVATIIAEMK
CIP542 LHLFEPLHSIIQTYLPTDKIEWIQRAFVVVARDAHEGQTRSSGPEYITHPVAVATIIAEMK
DMC64 LHLFEPLHSIIQTYLPTDKIEWIQRAFVVVARDAHEGQTRSSGPEYITHPVAVATIIAEMK
DMC111 LHLFEPLHSIIQTYLPTDKIEWIQRAFVVVARDAHEGQTRSSGPEYITHPVAVATIIAEMK

35000HP LDHEAIMAALLHDVIEDTPYTEEELAAEFGSNVAKIVQGVSKLDKLFTRQEAQVENFR
33921 LDHEAIMAALLHDVIEDTPYTEEELAAEFGSNVAKIVQGVSKLDKLFTRQEAQVENFR
CIP542 LDHEAIMAALLHDVIEDTPYTEEELAAEFGSNVAKIVQGVSKLDKLFTRQEAQVENFR
DMC64 LDHEAIMAALLHDVIEDTPYTEEELAAEFGSNVAKIVQGVSKLDKLFTRQEAQVENFR
DMC111 LDHEAIMAALLHDVIEDTPYTEEELAAEFGSNVAKIVQGVSKLDKLFTRQEAQVENFR

```

*****
35000HP      KMILAMTKDIRVVLIKLADRTHNMRTLGLSLRPDKRRRIAKETLEIYSPIAHLRGIEHLKN
33921        KMILAMTKDIRVVLIKLADRTHNMRTLGLSLRPDKRRRIAKETLEIYSPLAHLRGIEHLKN
CIP542       KMILAMTKDIRVVLIKLADRTHNMRTLGLSLRPDKRRRIAKETLEIYSPLAHLRGIEHLKN
DMC64        KMILAMTKDIRVVLIKLADRTHNMRTLGLSLRPDKRRRIAKETLEIYSPLAHLRGIEHLKN
DMC111       KMILAMTKDIRVVLIKLADRTHNMRTLGLSLRPDKRRRIAKETLEIYSPLAHLRGIEHLKN
*****;*****

35000HP      ELENLCFQAMHPYRIRILRLAIDMARGTRQDLLSTISHEIQMRLDEMGIKGRVYGREKHL
33921        ELENLCFQAMHPYRIRILRLAIDMARGTRQDLLSTISHEIQMRLDEMGIKGRVYGREKHL
CIP542       ELENLCFQAMHPYRIRILRLAIDMARGTRQDLLSTISHEIQMRLDEMGIKGRVYGREKHL
DMC64        ELENLCFQAMHPYRIRILRLAIDMARGTRQDLLSTISHEIQMRLDEMGIKGRVYGREKHL
DMC111       ELENLCFQAMHPYRIRILRLAIDMARGTRQDLLSTISHEIQMRLDEMGIKGRVYGREKHL
*****

35000HP      YALYEKMRQRDQHFHSILDIYAFRIVVNSIDNCYRVLGQMHALYKPRPYQIRDYIAPVKS
33921        YALYEKMRQRDQHFHSILDIYAFRIVVNSIDNCYRVLGQMHALYKPRPYQIRDYIAPVKS
CIP542       YALYEKMRQRDQHFHSILDIYAFRIVVNSIDNCYRVLGQMHALYKPRPYQIRDYIAPVKS
DMC64        YALYEKMRQRDQHFHSILDIYAFRIVVNSIDNCYRVLGQMHALYKPRPYQIRDYIAPVKS
DMC111       YALYEKMRQRDQHFHSILDIYAFRIVVNSIDNCYRVLGQMHALYKPRPYQIRDYIAPVKS
*****

35000HP      NGYQSLHTSMIGHKMPIEVQIRTEDMDLMAELGVAHWRYSEDQTQTTSVQQAQQWLR
33921        NGYQSLHTSMIGHKMPIEVQIRTEDMDLMAELGVAHWRYSEDQTQTTSVQQAQQWLR
CIP542       NGYQSLHTSMIGHKMPIEVQIRTEDMDLMAELGVAHWRYSEDQTQTTSVQQAQQWLR
DMC64        NGYQSLHTSMIGHKMPIEVQIRTEDMDLMAELGVAHWRYSEDQTQTTSVQQAQQWLR
DMC111       NGYQSLHTSMIGHKMPIEVQIRTEDMDLMAELGVAHWRYSEDQTQTTSVQQAQQWLR
*****

35000HP      SIVELQQSAGNSDEFIENVKSDLFSDDIYVFTPKGRIVELPAKATAIDFAYAVHSDIGDC
33921        SIVELQQSAGNSDEFIENVKSDLFSDDIYVFTPKGRIVELPAKATAIDFAYAVHSDIGDC
CIP542       SIVELQQSAGNSDEFIENVKSDLFSDDIYVFTPKGRIVELPAKATAIDFAYAVHSDIGDC
DMC64        SIVELQQSAGNSDEFIENVKSDLFSDDIYVFTPKGRIVELPAKATAIDFAYAVHSDIGDC
DMC111       SIVELQQSAGNSDEFIENVKSDLFSDDIYVFTPKGRIVELPAKATAIDFAYAVHSDIGDC
*****

35000HP      CIGATVDRKPYPISQPLESGQTVEIITKAGKHPKRAWLNFVVTAKARSKIKAALKQFELI
33921        CIGATVDRKPYPISQPLESGQTVEIITKAGKHPKRAWLNFVVTAKARSKIKAALKQFELI
CIP542       CIGATVDRKPYPISQPLESGQTVEIITKAGKHPKRAWLNFVVTAKARSKIKAALKQFELI
DMC64        CIGATVDRKPYPISQPLESGQTVEIITKAGKHPKRAWLNFVVTAKARSKIKAALKQFELI
DMC111       CIGATVDRKPYPISQPLESGQTVEIITKAGKHPKRAWLNFVVTAKARSKIKAALKQFELI
*****

35000HP      AEKPEETEKVEQLDIELEIKDQIGVLANTNTIASMNSNIGMIESRPNDKGNVQVKIRIS
33921        AEKPEETEKVEQLDIELEIKDQIGVLANTNTIASMNSNIGMIESRPNDKGNVQVKMIRIS
CIP542       AEKPEETEKVEQLDIELEIKDQIGVLANTNTIASMNSNIGMIESRPNDKGNVQVKMIRIS
DMC64        AEKPEETEKVEQLDIELEIKDQIGVLANTNTIASMNSNIGMIESRPNDKGNVQVKMIRIS
DMC111       AEKPEETEKVEQLDIELEIKDQIGVLANTNTIASMNSNIGMIESRPNDKGNVQVKMIRIS
*****;*****

35000HP      VTDKTHLYVVIQKLIIRVGVIRVAKVSA*
33921        VTDKTHLYVVIQKLIIRVGVIRVAKVSA*
CIP542       VTDKTHLYVVIQKLIIRVGVIRVAKVSA*
DMC64        VTDKTHLYVVIQKLIIRVGVIRVAKVSA*
DMC111       VTDKTHLYVVIQKLIIRVGVIRVAKVSA*
*****

```

Note: The SpoT sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.

22) TadA (HD1304)

```

35000HP      MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
82-029362    MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
6644         MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
HD183        MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
HMC46        MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
HMC56        MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
33921        MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
CIP542       MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM
DMC64        MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM

```

DMC111 MLTKDQQVFFRNALLSNLNVDTLDEIENERSKLVTELQSLYRVANTNNIYITPYDATDM

35000HP AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
82-029362 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
6644 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
HD183 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
HMC46 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
HMC56 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
33921 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
CIP542 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
DMC64 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK
DMC111 AEIVADEIGGYGPIRELMEDDTVNDILVNGPDNIWIERAGVLEKTNKTFINNEQLTDIAK

35000HP RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
82-029362 RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
6644 RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
HD183 RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
HMC46 RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
HMC56 RLVARVGRRIDEGMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
33921 RLVARVGRRIDESMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
CIP542 RLVARVGRRIDESMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
DMC64 RLVARVGRRIDESMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF
DMC111 RLVARVGRRIDESMPLVDSRLPDGSRLNVVIQPIALDGTSSISIRKFSKSKKSLQELVNF

35000HP SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
82-029362 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
6644 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
HD183 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
HMC46 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
HMC56 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
33921 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
CIP542 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
DMC64 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ
DMC111 SMTLDMANFLIIAARSRVNIIVSGGTGSGKTTLLNALSSYISPTERVLTLEDTAELRLEQ

35000HP PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
82-029362 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
6644 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
HD183 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
HMC46 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
HMC56 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
33921 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
CIP542 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
DMC64 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS
DMC111 PHVVRLETRLAGVERTGEITMQDLVINALRMRPERIIVGECRGAEEAFQMLQAMNTGHDGS

35000HP MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
82-029362 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
6644 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
HD183 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
HMC46 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
HMC56 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
33921 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
CIP542 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
DMC64 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT
DMC111 MSTLHANTPRDATARLESVMMSNASLPLEAIRRNIA SAVNII IQASRLNDGSRKVMNIT

35000HP EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
82-029362 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
6644 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
HD183 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
HMC46 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
HMC56 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
33921 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
CIP542 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
DMC64 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN
DMC111 EVMG MENQIVLQDIFSF EASQHRDENNKIIGK FVNHG LLTRSAVYQNAQVFNLTGELQN

35000HP IFREHAQ*
82-029362 IFREHAQ*
6644 IFREHAQ*
HD183 IFREHAQ*
HMC46 IFREHAQ*
HMC56 IFREHAQ*
33921 IFREHAQ*
CIP542 IFREHAQ*
DMC64 IFREHAQ*
DMC111 IFREHAQ*

Note: The TadA sequence of NZS1, NZS2, NZS3, NZS4, and NZV1 were identical to that of 35000HP.

23) WecA (HD1844)

35000HP MRRLKKKFKSRYLYAILHCYIILSFRNNFLMWLTFIAVFIVSFASLILMRPVAEKIGLI
33921 MRRLKKKFKSRYLYAILHCYIILSFRNNFLMWLTFIAVFIVSFASLILMRPVAEKIGLI
CIP542 MRRLKKKFKSRYLYAILHCYIILSFRNNFLMWLTFIAVFIVSFASLILMRPVAEKIGLI
DMC64 MRRLKKKFKSRYLYAILHCYIILSFRNNFLMWLTFIAVFIVSFASLILMRPVAEKIGLI
DMC111 MRRLKKKFKSRYLYAILHCYIILSFRNNFLMWLTFIAVFIVSFASLILMRPVAEKIGLI

35000HP DKPNYRKRHQGLIPLIGGIALFLGNLTFYFIEWQDMRLPWLYLTAVTVLLVIGLDDRFD
33921 DKSNYRKRHQGLIPLIGGIALFLGNLTFYFIEWQDMRLPWLYLTAVTVLLVIGLDDRFD
CIP542 DKSNYRKRHQGLIPLIGGIALFLGNLTFYFIEWQDMRLPWLYLTAVTVLLVIGLDDRFD
DMC64 DKSNYRKRHQGLIPLIGGIALFLGNLTFYFIEWQDMRLPWLYLTAVTVLLVIGLDDRFD
DMC111 DKSNYRKRHQGLIPLIGGIALFLGNLTFYFIEWQDMRLPWLYLTAVTVLLVIGLDDRFD
** *****

35000HP VSPFLRIGLQAGLAGLMIYHGLSLES LGQVIAPFSIKLGLGTVF TILITIGVINAFNMV
33921 VSPFLRIGLQAGLAGLMIYHGLSLES LGQVIAPFSIKLGLGTVF TILITIGVINAFNMV
CIP542 VSPFLRIGLQAGLAGLMIYHGLSLES LGQVIAPFSIKLGLGTVF TILITIGVINAFNMV
DMC64 VSPFLRIGLQAGLAGLMIYHGLSLES LGQVIAPFSIKLGLGTVF TILITIGVINAFNMV
DMC111 VSPFLRIGLQAGLAGLMIYHGLSLES LGQVIAPFSIKLGLGTVF TILITIGVINAFNMV

35000HP DGIDGLLAGLSSASFAGIGVLMWLDEQYSLAYWCFALIVVLIPIYAMFNLSLLGAKWKVFM
33921 DGIDGLLAGLSSASFAGIGVLMWLDEQYSLAYWCFALIVVLIPIYAMFNLSLLGPKWKVFM
CIP542 DGIDGLLAGLSSASFAGIGVLMWLDEQYSLAYWCFALIVVLIPIYAMFNLSLLGPKWKVFM
DMC64 DGIDGLLAGLSSASFAGIGVLMWLDEQYSLAYWCFALIVVLIPIYAMFNLSLLGPKWKVFM
DMC111 DGIDGLLAGLSSASFAGIGVLMWLDEQYSLAYWCFALIVVLIPIYAMFNLSLLGPKWKVFM

35000HP GDSGSTLIGFTIIWILLLS TQGGHAI SPITGLWLI AVPLIDMVAVVLRRLKKGKSPFRP
33921 GDSGSTLIGFTIIWILLLS TQGGHAI SPITGLWLI AVPLIDMVAVVLRRLKKGKSPFRP
CIP542 GDSGSTLIGFTIIWILLLS TQGGHAI SPITGLWLI AVPLIDMVAVVLRRLKKGKSPFRP
DMC64 GDSGSTLIGFTIIWILLLS TQGGHAI SPITGLWLI AVPLIDMVAVVLRRLKKGKSPFRP
DMC111 GDSGSTLIGFTIIWILLLS TQGGHAI SPITGLWLI AVPLIDMVAVVLRRLKKGKSPFRP

35000HP DRLHLHLLMMRAGLTSRQALAVITLGATICSMIGVLGEYYWNQWAMTAGFIALFFIYAY
33921 DCLHLHLLMMRAGLTSRQALAVITLGATICSMIGVLGEYYWNQWAMTAGFIALFFIYAY
CIP542 DCLHLHLLMMRAGLTSRQALAVITLGATICSMIGVLGEYYWNQWAMTAGFIALFFIYAY
DMC64 DCLHLHLLMMRAGLTSRQALAVITLGATICSMIGVLGEYYWNQWAMTAGFIALFFIYAY
DMC111 DCLHLHLLMMRAGLTSRQALAVITLGATICSMIGVLGEYYWNQWAMTAGFIALFFIYAY
* *****

35000HP SITHAWRMTRFVRRMKRREKRKQHA*
33921 SITHAWRMTRFVRRMKRREKRKQHA*
CIP542 SITHAWRMTRFVRRMKRREKRKQHA*
DMC64 SITHAWRMTRFVRRMKRREKRKQHA*
DMC111 SITHAWRMTRFVRRMKRREKRKQHA*

Note: The WecA sequence of NZS1, NZS2, NZS3, NZS4, NZV1, 82-029362, 6644, HD183, HMC46, and HMC56 were identical to that of 35000HP.