

YP\_001055588.1 P. calidifontis\* SPGKLE... 73  
NP\_559088.1 P. aerophilum3\* SIAALAE... 73  
NP\_203396.1 CnNPV\* GAVN... 138  
NP\_025135.1 NsnNPV\* GIMK... 127  
NP\_148895.1 CpGranulo\* T... 134  
NP\_835679.1 phase\_RM378\* NP... 50  
NP\_048473.2 A.pernix1\* NP... 42  
NP\_342896.1 S. solifastarius2\* NP... 43  
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NP\_597442.1 E.cuniculica\* CA... 80  
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XP\_640277.1 D.dicoideuma\* NP... 44  
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XP\_001683479.1 L.majoz2\* GSO... 79  
XP\_847160.1 T.bruceiZ GSO... 79  
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AAQ0902.1 H.sapiensZ\* GSO... 79  
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XP\_001017761.1 T.thermophilaZ2 GSO... 79  
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NP\_612241.1 Isknv NP... 43  
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NP\_146963.1 A.pernix1 YP... 43  
NP\_342079.1 S.solfataricus1 YP... 52  
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YP\_001097770.1 M.maripaludis\* GGO... 43  
NP\_577941.1 P.furiosus GGO... 43  
P56689\_T.gorgonarius\* GGO... 43  
NP\_02949.1 F1V1 GGO... 43  
NP\_075578.1 EsV93\* GGO... 45  
YP\_293784.1 EHV86\* GGO... 44  
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NP\_615844.1 M.macthorans\* GGO... 43  
YP\_843812.1 M.thermophila\* GGO... 82  
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XP\_654477.1 E.histolyticaD YP... 44  
XP\_638283.1 D.discoideumD YP... 44  
AAA58439.1 H.sapiensD YP... 44  
XP\_00168347.1 T.bruceiD YP... 44  
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ruler 1.....10.....20.....30.....40.....50.....60.....70.....80.....90.....100.....110.....120.....130.....140.....150.....160.....170.....180.....190.....200



YP\_001055588.1 P.calidifontis\* .....SDGKLV.....ITG GSRV.....CDE  
 NP\_559083.1 P.aerophilum\* .....SNGI.....IAG GCRV.....DDE  
 NP\_203396.1 CnNPV\* .....SNG DGLA.....PPE  
 YP\_025135.1 MNPV\* .....ENG DWRL.....IHO  
 NP\_148895.1 CpGranulo\* .....ANK KILQ.....NON  
 NP\_835679.1 phage\_P-5M2\* .....YGCRRVENVKIPVQDEEESGPIPIIDSGNPSRDEPLVENSBEKQKSNITLVNPSGICW.....YKE  
 NP\_148473.2 A.pernix1\* .....CGTIDF.....AEC GGRV.....CDE  
 NP\_342896.1 S.solfataricus2\* .....DDEKSEHS.....CDE  
 NP\_393928.1 T.acidophilum2 .....GRIS.....  
 NP\_042783.1 AFSV\* .....IDEAKSLMAGESELV.....SPTANNLVEGV.....VHN  
 YP\_195168.1 phage\_SPM2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_214414.1 phage\_P-5M2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_214707.1 phage\_P-5M4\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_717843.1 phage\_syn9 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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 NP\_049662.1 T4\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_899330.1 phage\_KVP40 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_064832.1 AnEPV .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_048107.1 MeEPV\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_955144.1 Canarypox\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_043990.1 MCV .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_042094.1 Variola .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_073424.1 Yaba .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_951748.1 H.marismortui .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_570196.1 Swinepox .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001347646.1 P.falci-parumZ .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_803224.1 TnAscov\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_762356.1 SFAscov .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 CA54471.1 H.vascov\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_542554.1 Halovirus\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_751308.1 s.frigidimarina\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_856637.1 A.hydrophila .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 ZP\_00923866.1 E.coli\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_502623.1 M.hungatei .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_136425.1 H.marismortui .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_279569.1 Halobact\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_684489.1 UnArch1\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_394366.1 T.acidophilum\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 AAZ32459.1 AlivP051 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001306813.1 T.vagina1s2\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_597442.1 E.cunicul1A .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_657373.1 E.histolyticaA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 CM1176C C.merolaeA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001013747.2 T.thermophilaA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 AAK14825.1 P.falci-parumA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_847318.1 T.brucella .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_640277.1 D.dicoideuma .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_058633.2 H.sapiensA\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_763220.1 T.parvaA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_626972.1 C.parvumA .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_00130643.1 T.vagina1s2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_656768.1 E.histolyticaZ .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001683479.1 L.major2\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_847160.1 T.bruceiZ .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 CMR103C C.merolaeZ .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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 AMG0402.1 H.sapiensA\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001011832.1 T.thermophilaZ1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001017761.1 T.thermophilaZ2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_149500.1 IiV\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_612241.1 IiKv .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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 YP\_687101.1 UnArch2\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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 NP\_146563.1 A.pernix1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_342079.1 S.solfataricus1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_142676.1 Mimivirus\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 ABU2317.1 PoV1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 ABU2318.1 PpV1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 ABU23716.1 CeV1\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_039988.1 Hherpes5 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 BAE19749.1 Hherpes1\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_401712.1 Hherpes4 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_069333.1 A.fulgidus\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_378066.1 s.tokaodai11\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_148383.2 A.pernix2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_559770.1 P.aerophilum2\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_614322.1 M.kandleri\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_001097770.1 M.maripaludis\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_577941.1 P.furiosus .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 P56689 T.gorgonarius .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 AAR26842.1 F1V1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_077578.1 EsV93\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_293784.1 EhV86\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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 BAA35142.1 CVK2 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_048532.1 PBCV1\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 NP\_615844.1 M.acetivorans\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 YP\_843812.1 M.thermophila\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 BAE06251.1 HaV1 .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001707891.1 G.lambiad .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_955596.1 E.cuniculid .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001326973.1 T.vagina1s1\* .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001032353.1 T.thermophilaD .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_654477.1 E.histolyticad .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_638283.1 D.discoideumd .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 AAA58439.1 H.sapiensD .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
 XP\_001685930.1 L.ma1s1D .....SPTANNLVEGV.....SPTANNLVEGV.....VHN  
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YP\_001055588.1 P\_caldifontis\*  
 NP\_559083.1 P\_aerophilum3\*  
 NP\_203396.1 CnNPV\*  
 YP\_025135.1 NsnNPV\*  
 NP\_148895.1 CpGranulo\*  
 NP\_835679.1 phase\_RSM2\*  
 NP\_148473.2 A\_pernici\*  
 NP\_342896.1 S\_solfataricus2\*  
 NP\_393928.1 T\_acidophilum2\*  
 NP\_042783.1 AFSV\*  
 YP\_195168.1 phase\_SPM2\*  
 YP\_214414.1 phase\_P-SM2\*  
 YP\_214707.1 phase\_P-SM4\*  
 YP\_717843.1 phase\_Syn1\*  
 NP\_943895.1 phase\_Aeh9\*  
 NP\_049662.1 T4\*  
 NP\_899330.1 phase\_KVP40\*  
 NP\_064832.1 AnEPV\*  
 NP\_048107.1 MeEPV\*  
 NP\_955144.1 Canarypox\*  
 NP\_043990.1 MCV\*  
 NP\_042094.1 Variola\*  
 NP\_073424.1 Yaba\*  
 NP\_136425.1 H\_mariemortu\*  
 NP\_570196.1 Swinepox\*  
 XP\_001347646.1 P\_falciaparumZ\*  
 YP\_803224.1 TnAscov\*  
 YP\_762356.1 SAscov\*  
 NP\_542554.1 Halovirus\*  
 YP\_751308.1 S\_frigidimarina\*  
 YP\_856637.1 A\_hydrophila\*  
 ZP\_00923866.1 E.coli\*  
 YP\_502623.1 M\_hungatei\*  
 YP\_136425.1 H\_mariemortu\*  
 NP\_279569.1 Halobact\*  
 YP\_684489.1 UnArch1\*  
 NP\_394366.1 T\_acidophilum1\*  
 AAC32459.1 AlivP0S1\*  
 XP\_001306652.1 T\_vaginilis2\*  
 NP\_597442.1 E\_cuniculicia\*  
 XP\_657373.1 E\_histolyticaA\*  
 CM1176C C\_merolaeA\*  
 XP\_001013747.2 T\_thermophilaA\*  
 AAK14825.1 P\_faciaparumA\*  
 XP\_847318.1 T\_bruceia\*  
 XP\_640277.1 D\_dicoideuma\*  
 NP\_058633.2 H\_sapiensA\*  
 XP\_763220.1 T\_parvaa\*  
 XP\_626972.1 C\_parvumA\*  
 XP\_00130643.1 T\_vaginilis2\*  
 XP\_656768.1 E\_histolyticaZ\*  
 XP\_001683479.1 L\_major2\*  
 XP\_847160.1 T\_bruceiz\*  
 CMR103C C\_merolaeZ\*  
 XP\_64553.1 D\_discoideumZ\*  
 AAC90922.1 H\_sapiensZ\*  
 XP\_00101832.1 T\_thermophilaZ1\*  
 XP\_001017761.1 T\_thermophilaZ2\*  
 NP\_149500.1 Iiiv\*  
 NP\_612241.1 Iisknv\*  
 YP\_003031.1 FiAvi\*  
 YP\_073706.1 Idv\*  
 YP\_687101.1 UnArch2\*  
 AAC62689.1 C\_cenarchaeum\*  
 NP\_559825.1 P\_aerophilum1\*  
 NP\_148383.2 A\_pernici\*  
 NP\_559770.1 P\_aerophilum2\*  
 NP\_614322.1 M\_kandleri\*  
 YP\_001097770.1 M\_maripaludis\*  
 P56689 T\_gorgonarius\*  
 NP\_048941.1 FiAvi\*  
 NP\_077578.1 EsV93\*  
 YP\_293784.1 Ehv86\*  
 P30320 CVN2A\*  
 BAA35142.1 CVK2\*  
 NP\_048532.1 PBCV1\*  
 NP\_615844.1 M\_acetivorans\*  
 YP\_843812.1 M\_thermophila\*  
 BAR06251.1 Hav1\*  
 XP\_001707891.1 G\_lambiad\*  
 XP\_955596.1 E\_cuniculid\*  
 XP\_001325973.1 T\_vaginilis4\*  
 XP\_001032353.1 T\_thermophilad\*  
 XP\_654477.1 E\_histolyticad\*  
 XP\_638283.1 D\_dicoideumd\*  
 AA554839.1 H\_sapiensD\*  
 XP\_001683479.1 L\_majorD\*  
 XP\_951513.1 T\_bruceid\*  
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YP\_001055588.1\_P\_caldiffontis\*  
 NP\_559083.1\_P\_aerophilum3\*  
 NP\_203396.1\_CnNPV\*  
 YP\_025135.1\_MnNPV\*  
 NP\_148895.1\_CpGranulov\*  
 NP\_835679.1\_phase\_RM378\*  
 NP\_148473.2\_A\_perisul\*  
 NP\_342896.1\_S\_solfataricus2\*  
 NP\_393928.1\_T\_acidophilum2  
 NP\_042783.1\_AFSV\*  
 YP\_195168.1\_phase\_SFM2  
 YP\_214414.1\_phase\_P-SM2  
 YP\_214707.1\_phase\_P-SM4\*  
 YP\_717843.1\_phase\_syn9  
 NP\_943895.1\_phase\_Aehl  
 NP\_049662.1\_T4\*  
 NP\_899330.1\_phase\_KVP40  
 NP\_064832.1\_AneEPV  
 NP\_048107.1\_MeEPV\*  
 NP\_955144.1\_Canarypox\*  
 NP\_043990.1\_MCV  
 NP\_042094.1\_Variola  
 NP\_073424.1\_Yaba  
 NP\_951748.1\_H\_marismortui  
 NP\_570196.1\_Swinepox  
 XP\_001347646.1\_P\_falciparumZ  
 YP\_803224.1\_TnAscov\*  
 YP\_762356.1\_SAscov  
 CAG54471.1\_RvAscov\*  
 NP\_542554.1\_E\_halyovirus\*  
 YP\_751308.1\_S\_frigidimarina\*  
 YP\_856637.1\_A\_hydrophila  
 ZP\_00923866.1\_E\_coli\*  
 YP\_502623.1\_M\_hungatei  
 YP\_136425.1\_H\_marismortui  
 NP\_279569.1\_Halobact\*  
 YP\_684489.1\_UnArch1\*  
 NP\_394366.1\_T\_acidophilum1\*  
 AAZ32459.1\_AlvP0S1  
 XP\_001306852.1\_C\_merolaeZ  
 NP\_597442.1\_E\_cuniculicia  
 XP\_657373.1\_E\_histolyticAA  
 CM1176C\_C\_merolaeA  
 XP\_001013747.2\_T\_thermophilaA  
 AAK14825.1\_P\_faciparumA  
 XP\_947318.1\_T\_brucella  
 XP\_640277.1\_D\_dicoideuma  
 NP\_058633.2\_H\_sapiensA  
 XP\_763220.1\_T\_parvaa  
 XP\_626972.1\_C\_paryvumA  
 XP\_00130643.1\_T\_vaginilisZ  
 XP\_656768.1\_E\_histolyticAZ  
 XP\_001683479.1\_L\_majorZ\*  
 XP\_847160.1\_T\_brucellZ  
 CMR103C\_C\_merolaeZ  
 XP\_64553.1\_D\_discoideumZ  
 AM90402.1\_S\_aerophilumZ\*  
 XP\_00101832.1\_T\_thermophilaZ1  
 XP\_001017761.1\_T\_thermophilaZ2  
 NP\_149500.1\_Iivv\*  
 NP\_612241.1\_Iiknv  
 YP\_00381.1\_FiV\*  
 YP\_073706.1\_ldv\*  
 YP\_687101.1\_UnArch2\*  
 AAC62689.1\_C\_cenarchaeum\*  
 NP\_559825.1\_P\_aerophilum1\*  
 NP\_146963.1\_A\_pernix1  
 NP\_342079.1\_S\_solfataricus1  
 YP\_142676.1\_Minivirus\*  
 ABU2317.1\_Pov1\*  
 ABU2318.1\_Ppv1  
 NP\_039988.1\_Hherpes1\*  
 BAEP19749.1\_Hherpes1\*  
 YP\_401712.1\_Hherpes4  
 NP\_069333.1\_A\_fulgidus\*  
 NP\_378066.1\_S\_tokoadaii1\*  
 NP\_148383.2\_D\_perisul\*  
 NP\_559770.1\_P\_aerophilum2\*  
 NP\_614322.1\_M\_kandleri\*  
 YP\_001097770.1\_M\_maripaludis\*  
 NP\_577941.1\_P\_furiosus  
 P56689\_T\_gorgonarius\*  
 NP\_842684.1\_H1N1v\*  
 NP\_075578.1\_Esv93\*  
 YP\_293784.1\_Ehv86\*  
 P30320\_CVNY2A\*  
 BAA35142.1\_CVK2  
 NP\_048532.1\_PBCV1\*  
 NP\_615844.1\_A\_moraxellorans\*  
 YP\_843812.1\_M\_thermophila\*  
 BAR06251.1\_Hav1\*  
 XP\_001707891.1\_G\_lambdiad  
 XP\_955596.1\_E\_cuniculid  
 XP\_001326973.1\_T\_vaginilisZ  
 XP\_001032353.1\_T\_thermophilid  
 XP\_654477.1\_E\_histolyticAD  
 XP\_638283.1\_D\_discoideumD  
 AA558439.1\_H\_sapiensSD  
 XP\_001685930.1\_H\_sapiensD  
 XP\_951533.1\_T\_brucellD  
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YP\_001055588.1\_P.calidfontinis\* --- ELPED --- LTRASATL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 350  
 NP\_559083.1\_P.aerophilum3\* --- FEQFI --- LTRASATL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 315  
 NP\_203396.1\_CnNPV\* --- SVDSS --- LSRTLSL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 413  
 YP\_025135.1\_NsnPV\* --- LITE --- VLDVLTLS --- SVCSK --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 382  
 NP\_148895.1\_CpGranulo\* --- WANCEE --- VNSQTLNE --- NNGGG --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 422  
 NP\_835679.1\_phase\_P-SSM2 --- VVSVVEE --- VMSKRENY --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 409  
 NP\_148473.2\_A.pernix1\* --- VEE --- LVEKSDPE --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 301  
 NP\_342896.1\_S.solfataricus2\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 251  
 NP\_393928.1\_T.acidophilum2 --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 286  
 NP\_042783.1\_AFSV\* --- VNMKQ --- VNSRKLIT --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 403  
 YP\_195168.1\_phase\_SPM2 --- VED --- LAFPRGNG --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 396  
 YP\_214414.1\_phase\_P-SSM2 --- VED --- LAFPRGNG --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 394  
 YP\_214707.1\_phase\_P-SSM2 --- VED --- LAFPRGNG --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 394  
 YP\_717843.1\_phase\_syn9 --- SLDPE --- LSPRGNCK --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 398  
 NP\_943895.1\_phase\_Aeh1 --- KDLAS --- VSSANNEX --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 480  
 NP\_049662.1\_T4\* --- QDD --- KVLAETKA --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 441  
 NP\_899330.1\_phase\_KVP40 --- AAFQOE --- VSVSSANN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 407  
 NP\_064832.1\_AneEPV --- QMDDND --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 404  
 NP\_048107.1\_MsEPV\* --- DNMVD --- LAVTKRSG --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 396  
 NP\_955144.1\_Canarypox\* --- NNNFE --- LTL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 402  
 NP\_043990.1\_MCV --- ARAQPEH --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 400  
 NP\_042094.1\_Variola --- SRSSPEL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 400  
 NP\_073424.1\_Yaba --- SRSSPEL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 401  
 NP\_951748.1\_Myxoma --- SRSSPEL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 588  
 NP\_570196.1\_Swinepox --- KRAPLDL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 517  
 XP\_001347646.1\_P.falciiparumZ --- KRAPLDL --- VLSRKHEN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 530  
 YP\_803224.1\_TnAscov\* --- SEVSKSGD --- GVLKPSMKN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 528  
 YP\_762356.1\_sAscov --- SEVSKSGD --- GVLKPSMKN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 401  
 GAG4471.1\_sAscov\* --- SEVSKSGD --- GVLKPSMKN --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 331  
 NP\_542554.1\_Halovirus\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 331  
 YP\_751308.1\_s.frigidimarina\* --- SDNE --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 329  
 YP\_856637.1\_A.hydrophila --- HDEE --- LVYRKR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 360  
 ZP\_00923866.1\_E.coli\* --- HDEE --- LVYRKR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 363  
 YP\_502623.1\_M.hungatei --- HDEE --- LVYRKR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 366  
 YP\_136425.1\_H.marismortui --- HDEE --- LVYRKR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 349  
 NP\_279569.1\_Halobact\* --- ADDDD --- GLPGGIGK --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 319  
 YP\_684489.1\_UnArch1\* --- VDLSE --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 314  
 NP\_394366.1\_T.acidophilum1\* --- PSDDDD --- LVISRTVVD --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 431  
 AAZ32459.1\_AlvP0S1 --- PSDDDD --- LVISRTVVD --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 383  
 XP\_001306852.1\_T.vaginalis2\* --- PSDDDD --- LVISRTVVD --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 342  
 NP\_597442.1\_E.cuniculila --- PSDDDD --- LVISRTVVD --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 440  
 XP\_657373.1\_E.histolyticaA --- VDLSE --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 445  
 CML176C\_C.merolaeA --- VDLSE --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 437  
 XP\_001013747.2\_T.thermophilaA --- QNVKNSN --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 375  
 AAK14825.1\_P.falciiparumA --- NDEDDLD --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 336  
 XP\_847318.1\_T.bruceila --- AVEX --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 399  
 XP\_640277.1\_D.dicoideuma --- AVEX --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 395  
 NP\_058633.2\_H.sapiensA\* --- VYSO --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 425  
 XP\_763220.1\_T.parvaA --- ELSK --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 469  
 XP\_626972.1\_C.parvumA --- SNSEPEL --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 391  
 XP\_00130643.1\_T.vaginalis2\* --- GDD --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 400  
 XP\_656768.1\_E.histolyticaZ --- GDD --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 403  
 XP\_001683479.1\_L.major2\* --- ANFQ --- CTRFAVKL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 545  
 XP\_847160.1\_T.bruceilaZ --- CSFVD --- CTRFAVKL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 424  
 CML103C\_C.merolaeZ --- DPERD --- ALPPEEVL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 402  
 XP\_645553.1\_D.discoideumZ --- DPERD --- ALPPEEVL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 AAG09402.1\_H.sapiensZ\* --- DPERD --- ALPPEEVL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 XP\_001011832.1\_T.thermophilaZ1 --- SDND --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 424  
 XP\_0010117761.1\_T.thermophilaZ2 --- VNSK --- CLAKEVKG --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 402  
 NP\_149500.1\_Iivk\* --- EN --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 NP\_612241.1\_Iivk --- EN --- LTRKXR --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 YP\_003031.1\_FiAt\* --- FEED --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 424  
 YP\_073706.1\_ldv\* --- FEED --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 402  
 YP\_687101.1\_UnArch2\* --- VPEPE --- LAVRKLSE --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 AAC62689.1\_C.cenarchaeum\* --- ERGVPLAD --- LAVRKLSE --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 313  
 NP\_559825.1\_P.aerophilum1\* --- EKKITLDD --- GYKLVNLS --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 NP\_146963.1\_A.pernix1 --- EKKITLDD --- GYKLVNLS --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 317  
 NP\_342079.1\_S.solfataricus1 --- EKKITLDD --- GYKLVNLS --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 536  
 YP\_142676.1\_Mimivirus\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 435  
 ABU2317.1\_PoV1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 292  
 ABU2318.1\_PpV1 --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 432  
 ABU23716.1\_CeV1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 520  
 NP\_039988.1\_Hherpes1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 456  
 BAE19749.1\_Hherpes1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 409  
 YP\_401712.1\_Hherpes4 --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 307  
 NP\_069333.1\_A.fulgidus\* --- VSEEE --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 304  
 NP\_378066.1\_s.tokoadaii1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 314  
 NP\_148383.2\_A.pernix2\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 328  
 NP\_559770.1\_P.aerophilum2\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 321  
 NP\_614322.1\_M.kandleri\* --- VDEED --- LAVTSQTL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 315  
 YP\_001097770.1\_M.maripaludis\* --- VDEED --- LAVTSQTL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 315  
 NP\_577941.1\_P.furiosus --- VDEED --- LAVTSQTL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 315  
 P56689\_T.gorgonarius --- VDEED --- LAVTSQTL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 454  
 NP\_248264.1\_FiV1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 465  
 NP\_077578.1\_EhV93\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 345  
 YP\_293784.1\_EhV86\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 343  
 P30320\_CVNY2A\* --- DNEP --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 343  
 BAA35142.1\_CVK2 --- DNEP --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 360  
 NP\_048532.1\_PBCV1\* --- DNEP --- VYTKRITL --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 428  
 NP\_615844.1\_M.acetivorans\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 331  
 YP\_843812.1\_M.thermophila\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 520  
 BAE06251.1\_Hav1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 335  
 XP\_001707891.1\_G.lambliad --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 366  
 XP\_955596.1\_E.cuniculid --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 367  
 XP\_001326973.1\_T.vaginalis1\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 367  
 XP\_001032353.1\_T.thermophilad --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 366  
 XP\_654477.1\_E.histolyticad --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 366  
 XP\_638283.1\_D.discoideumD --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 341  
 AAS58439.1\_H.sapiensD\* --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 339  
 XP\_001685930.1\_L.mariseid --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 339  
 XP\_951513.1\_T.bruceid --- EYVTF --- EGGPPRALDAROF --- LLLAAHHA --- IANRNSG --- VETSPDEEDDA --- EN 339  
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YP\_001055588.1\_P.calidfontis\* ... NP\_559083.1\_P.aerophilum3\* ... NP\_203396.1\_CnNPV\* ... NP\_025135.1\_MnNPV\* ... NP\_148895.1\_CpGranulo\* ... NP\_835679.1\_phase\_RM378\* ... NP\_148473.2\_A.pernix1\* ... NP\_342896.1\_S.solfataricus2\* ... NP\_393928.1\_T.acidophilum2 ... NP\_042783.1\_AFSV\* ... YP\_195168.1\_phase\_SFM2 ... YP\_214414.1\_phase\_P-SM2 ... YP\_214707.1\_phase\_P-SM4\* ... YP\_717843.1\_phase\_syn9 ... NP\_943895.1\_phase\_Aeh1 ... NP\_049662.1\_T4\* ... NP\_899330.1\_phase\_KVP40 ... NP\_064832.1\_AnEPV ... NP\_048107.1\_MeFPV\* ... NP\_955144.1\_Canarypox\* ... NP\_043990.1\_MCV ... NP\_042094.1\_Variola ... NP\_073424.1\_Yaba ... NP\_051748.1\_Mycoma ... NP\_570196.1\_Swinepox ... XP\_001347646.1\_P.falciplarumZ ... YP\_803224.1\_TnAscov\* ... YP\_762356.1\_SAscov ... CA64471.1\_RvAscov\* ... NP\_542554.1\_Halovirus\* ... YP\_751308.1\_s.frigidimarina\* ... YP\_856637.1\_A.hydrophila ... ZP\_00923866.1\_E.coli\* ... YP\_502623.1\_M.hungatei ... YP\_136425.1\_H.marismortui ... NP\_279569.1\_Halobact\* ... YP\_684489.1\_UnArch1\* ... NP\_394366.1\_T.acidophilum1 ... AAZ32459.1\_AlvP0S1 ... XP\_001306652.1\_T.vaginalis2 ... NP\_597442.1\_E.cuniculicia ... XP\_657373.1\_E.histolyticaA ... CM1176C\_C.merolaeA ... XP\_001013747.2\_T.thermophilaA ... AAK14825.1\_P.faciplarumA ... XP\_847318.1\_T.bruceiA ... XP\_640277.1\_D.dicoideuma\* ... NP\_058633.2\_H.sapiensa\* ... XP\_763220.1\_T.parvaA ... XP\_626972.1\_C.parvumA ... XP\_00130643.1\_T.vaginalis2 ... YP\_656768.1\_E.histolyticaZ ... XP\_001683479.1\_L.major2\* ... XP\_847160.1\_T.bruceiZ ... CMR103C\_C.merolaeZ ... XP\_64553.1\_D.discoideumZ ... AAG094022.1\_H.sapiensaZ\* ... XP\_00101832.1\_T.thermophilaZ1 ... XP\_001017761.1\_T.thermophilaZ2 ... NP\_149500.1\_IIV6\* ... NP\_612241.1\_Isknv ... YP\_003818.1\_Aiv ... YP\_073706.1\_ldv\* ... YP\_687101.1\_UnArch2\* ... AAC62689.1\_C.cenarchaeum\* ... NP\_559825.1\_P.aerophilum1\* ... NP\_146963.1\_A.pernix1 ... NP\_342079.1\_S.solfataricus1 ... YP\_142676.1\_Minivirus\* ... ABU2317.1\_Pov1\* ... ABU2318.1\_Ppv1 ... NP\_039988.1\_Hherpes1\* ... BAE19749.1\_Hherpes1\* ... YP\_401712.1\_Hherpes4 ... NP\_069333.1\_A.fulgidas\* ... NP\_378066.1\_S.tokoadai11\* ... NP\_148383.2\_A.pernix2 ... NP\_559770.1\_P.aerophilum2\* ... NP\_614322.1\_M.kandleri\* ... YP\_001097770.1\_M.maripaludis\* ... NP\_577941.1\_P.furiosus ... P56689\_T.gorgonarius\* ... NP\_842842.1\_Fiv1\* ... NP\_077578.1\_Esv93\* ... YP\_293784.1\_Ehv86\* ... P30320\_CVNY2A\* ... BAA35142.1\_CVK2 ... NP\_048532.1\_PBCV1\* ... YP\_615844.1\_M.acetivorans\* ... YP\_843812.1\_M.thermophila\* ... BAR06251.1\_Hav1\* ... XP\_001707891.1\_G.lambliad ... XP\_955596.1\_E.cuniculid ... XP\_001326973.1\_T.vaginalis4\* ... XP\_001032353.1\_T.thermophilaD ... XP\_654477.1\_E.histolyticaD ... XP\_638283.1\_D.discoideumD ... AAA58439.1\_H.sapiensD\* ... XP\_001684930.1\_P.terreusD ... XP\_951513.1\_T.bruceiD ruler

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