

>Parachlamydia\_acanthamoebae\_Sod1\_1mito

MTLQYKLPDLPYDLGDLEPVISKEIMSLHYNKHHATYVANLNKALEQYAEAEAKNDLPALITLQSAINFNNGGGHINH  
SIFWTNLAPQKSGGGAPPEGAIAEAIQKQFGSLEKFIETMNTKTAAIQSGSGWGLGYCKNKKQLEIVTCSNQDPL  
AAKGLVPLLIGIDVWEHAYYLQYKNVRADYLKAIWNIVNWKNVEERFTKAKAE

>Encephalitozoon\_cuniculi\_Sod1\_2

MVRNVVPMFEFKLPELDYPYDALEPIIDEETMRTHHSKHHQAYINSLEKTLRSNSIKGKSLYYYVTKGRGIRGVKSSAR  
RDLLNFSGGHYNHSLFWKMMCPPGTSGPMSPRLLEYIERSFGSQEKMVKEFSNAAVSLFGSGWVWLCYRQSEGI  
LVIRKTYNQDAICMKTSSVPIGLDVWEHAYYLKYKNVRSEYVANWVKVNVWGLVSRLEFEEIALENKKLCVMSD  
GSIKFD

>Clostridioides\_difficile\_Sod1\_2

MFTPENNKFKVKPLPYAYDALEPYIDKETMKLHHDKHYQAYVDKLNAALEKYPELYNYSLCELLQNLDSLPKDIATT  
VRNNAGGAYNHKFFFDIMTPEKTIPSESLKEAIDRDFGSFEKFKQEFQKSALDVFSGSGWAWLVATKDGKLSIMTTP  
NQDSPVSKNLTPIIGLDVWEHAYYLKYQNRREYIDNWFNVVNWNGALENYKNLKSQD

>id\_\_2138839\_CPR\_Parcubacteria\_Wolfebacteria

MKHELPLPYAYNALEPFIDAKTLEIHHTKHHQSYVDKLNAALEKYPDLQDKTVEELIKSLNELPEEIRTTVRNNAGG  
HFSHTLYWNIMNPATQEYIPEELGNALVETFGSIIAFKEQFSKAAANIFGSGWVWLAADANKKLVSTTGHNDPL  
MTGDAPLMVIDIWEHAYYLHYQNRREYIENWWNVLDWKAVEERYNALG

>id\_\_6517900\_Wolfebacteria

MYTLPQLKYSYDALEPHIDAKTMEIHHTKHHQAYIDKLNAALEKHPEVDTGNLEGMLENIHTIPEDIHTAVQNNGG  
GHANHSFFWTSMSPHRKEPEGLKTALEEFSGMDDFKKFEKATGRFGSGWAWLTMDAEKNLRVHSTPNQ  
DSPLMEKRIPIIGLDVWEHAYYLKYQNRADYVNAWWQVLDWAAAENYELGGTK

>Thermus\_thermophilus\_Sod1\_4

MPYPFKLPDLGYPYEALEPHIDAKTMEIHHQKHHGAYVTNLNAALEKYPYLHGVEVEVLLRHLAALPQDIQTAVRN  
NGGGHLNHSFLWRLLTPGGAKEPVGELKKAIDEQFGGFQALKEKLTQAAMGRFGSGWAWLVKDPFGKLVHSTPNQ  
NQDNPVMEGFTPIVGIDVWEHAYYLKYQNRADYVNAWWQVLDWAAAENYELGGTK

>Pseudomonas\_aeruginosa\_Sod1\_4

MPHALPPLPYAYDALEPHIDALTMEIHHKHHQTYVNNLNAALEGTPYAEQPVESLLRQLAGLPEKLRTPVVNNGG  
GHANHSFLWTVMSPPQGGGRPDGDLGRAIDEQLGGFEAFKDAFTKAALTRFGSGWAWLSVTPQGSLLVESSGNQ  
DSPLMNGNTPILGLDVWEHAYYLKYQNRREYIYAFYNVIDWREVARRYAQA

>Caulobacter\_vibrioides\_Sod1\_7

MLAPLPVYVEALSPVIDTETMRIHHGRHHQAYVNALNGAVAVTPALQGKSLDAVLSEVSRHPPVVRNNAGGHYN  
HTLFWSLMAPSGAGGAPSSKLLAQIDKDFGSLDAFKKAFETAGLQRFSGSGWAWLIWSEGKLRVSTPNQDNPLM  
DDAPVKGAPILANDVWEHAYYLKHQNNRGAYLGGWWQVNVNWKANALFDAAR

>Rozella\_allomyces\_Sod1\_7

MASIFTLPELPYDYTVLEPFIDSQTMHLHMKMHHNAYVTKLNDKPKGTDDIIAQRSAKASPVVRNNGGGHYNH  
SLFWTWMAKPGSSNPHTGALKAKIDESFGSLDEMCKKFNAAATRFSGSGWAWLVGKSDGKLAITSTANQDNPL  
MTGLSETEMIPILGLDVWEHAYYLKYQNRREYIAQWVNVNWDNVVHYDEYASKGQAVPINARKP

**>Acanthamoeba\_castellanii**

MLNDPPYLKGLTPAISANTLNFHFNGHHKAYLNKTNDLIKGTPLENKSLEDVILVAKTTNNAALFNNSAQLWNHS  
FYWDCMAPVGETGEISAELEQLIKESFGSVAEFKNKFTDSAVANFGSGWTLVNINGKLEIQNTSNAESPVTLRVK  
PLLTLDVWEHAYYLDHQNRPEYINKWWDVVNWNFVNKQLKQ

**>Synechocystis\_sp\_PCC\_6803\_Sod2\_2**

MAYALPNLPDYTALEPCISKSTLEFHHDKHHAAAYVNNFNNAVAGTDLDNQSIEDVIKAVAGDASKAGIFNNAQ  
AWNHSFYWNCMKPGGGGQPSGALADKINADFGSDFAFVEAFKQAGATQFGSGWAWLVLDNGTLKVTKTGNA  
ENPMTAGQTPLLTMDVWEHAYYLDYQNRPPDYIADFLGKLVNWDVFAANLAAA

**>Chlamydomonas\_reinhardtii\_Sod2\_3**

MLELKSPPYALDALEPHMSKQTLEFHGWGKHHRAYVDNMNKQVAGTPLDGKSLEEIVLASWNNQPTPVFNAA  
QVWNHTFFWESMKPNGGAPTALAEAITRDFGSLDKFKEEFKQAGMTQFGSGWAWLNADKTGKLSISKSPN  
AVNPVVEGKTPILTVDVWEHAYYIDVQNRPPDYITTFMEKLINWDAVAQRYAAATK

**>Agrobacterium\_tumefaciens\_Sod2\_4**

MAFELPELPYDYDALAPYMSRETLEFHHDKHHKAYVDNGNKLAAEAGLSDLSLEEIVKKSFGTNAGLFNNAQHY  
NHVHFWKWLKKGKGGNKLPGKLEQAFASDLGGYDKFKADFAAGTTQFGSGWAWVSVKNGKLEISKTPNGENP  
LVHGAEPILGVDVWEHSYYIDYRNLRPKYLEAFVDNLINWDYVLEREAAA

**>Agrobacterium\_tumefaciens\_2\_Sod2\_4**

MAFQLPDLPYAHDALAPSGMSEETLKFHHDLHHKAYVDNLNKAITGTEWEKSSLEDIVRGTYEKGAVAQSGIFNN  
ASQHWNNHLFWEIMGPQKHTIPGPLEDALTQSFSGVALFKQNFALAGASQFGSGWAWLVVDTDGALKITRTEN  
GVNPLCFGQNALLGCDVWEHSYYIDFRNKRPAIENFLDNLVNWQAVAARL

**>Cryptosporidium\_parvum\_Sod2\_5**

**M**PPLPYDKKALEPVISPETLDYHYGKHHAGYVTKLNSLIKSTEFENETDLMKVIMKSSGPIYNNASQIWNHTFYWSC  
LRSPSETNKPSTKVKSLIEESFGSFESFKESFTANATGHFGSGWIWVVIDPINNQKLVKIVQTHDGDNPEKLGKPV  
TCDVWEHAYYIDYRNNRGSYVDQFFSIINWDFVESNLS

**>Bacteroides\_fragilis\_Sod2\_6**

**M**YEMPKLPYANNALEPVISQQTIDYHYGKHLQTYVNNLNSLVPGTEYEGKTVEAIVASAPDGAIFNNAQVNLHTL  
YFLQFAPKPAKNEPAGKLGAEAIKRDGFSFENFKEFNAASVGLFGSGWAWLSVDKDGKLGKLVKIVQTHDGDNPEKLGKPV  
PLLGFDVWEHAYYLDYQNRADHVNKLWEIIDWDVVEKRL

**>Anaplasma\_marginale**

MFELPSLPYSSLEPYISDKLLDRHYNGHHKTYVDVLNKLKLVAGTEFDGMNNSDLEGIIVKTHGSSATRGIFNNAQIW  
NHDFYWRSMKKDGGGNPPAKLAKMLKESFGGVQEFADAFASGTGHFGSGWAWLLYDRGSNKLQVVSTPNA  
DSPLLTSGYYPPLTMDVWEHAYYLDYLNVRKKYVDVFLLEHLINWDFALQRLETAGV

**>Saccharolobus\_solfataricus\_Sod3\_1**

MTLQIQFKKYELPPLPYKIDALEPYISKDIIDVHYNGHHKGYVNGANSLLERLEKVVKGDLQTGGYDIQGIIRGLTFNI  
NGHKLHALYWENMAPSGKGGGKPGGALADLINKQYGSFDRFKQVFTETANSLPGTGWAVLYYDTESGNLQIMT  
FENHFQNHIAEIPILILDEFEHAYYLQYKNKRADYVNAWWNVVNWDAAEKKLQKYLTK

>Aeropyrum\_pernix\_species\_Sod3\_1

MVSFKRYELPPLPYNYNALEPYIIEIMKLHHQKHNTYVKGANAALAEKIEKHLKGEIQIDVRAVMRDFSNYAGHI  
MHTIFWPNMAPPKGGGTPGGRVADLIEKQFGGFEEKALFSAAAKTVEGVGWVLAFLDPLTEELRILQVEKHN  
VLMTAGLVPIVLDVWEHAYYLQYKNDRGSYVENWWNVVNWDDVEKRLEQALNNAKPLYLLPQ

>Haloferax\_mediterranei\_Sod3\_2

MSDYELDPLPYEYDALEPHISEQVLTWHHDTHHQGYVNGWNAAEETLEANREAGEFDSSAGAIRNVTHNGCGHI  
LHDLFWQNMSPGGDEPTGALADRIAEDFGSYEAWKGEFEAAAGAAGGWALLVYDSFSNQLRNVVVDKHDQG  
ALWGSHPILALDVWEHSYHYDYGPARGDFISAFFEVDWDVPAARYEQALERFE

>Haloferax\_mediterranei\_2\_Sod3\_2

MSELSEALPPLPYDYDALEPHIDEQILAWHHDTHHQGYVNGLNAAEETLRENRSSGDMDGSAAMRSVSHNGC  
GHYHLHLFWRCMTPNGGGGEPTGDLRDRIESDFGSYEGWEAEFREAAASWPAGGWALLVYDPVTKQLRNLAVQK  
HNDGALWSAHPILALDVWEHSYFYQYGPDRGGFVDAFFEVIDWDTIASEFEKTTSHHEH

>Akkermansia\_muciniphila\_Sod3\_3

MTKQQAPSTIGYADGKYVLPPLPYAYDALEPMLDEKTVRIHHDKHHAAAYVAGANAAAELKREIADGKLDASATTN  
WVRNLSFNASGHVLTHTIYWTNMTDPKKEPQGPLVDAIKEKFGSLEAMMKEFKAASQGVESGSWGILGVDPIK  
TLVICGAEKHQNLPIGLVPILVCDVWEHAYYLKHQNLRADYIEDFCRLINWDDVERRYQEAMAS

>Mycobacterium\_abscessus\_Sod3\_4

MAEYTLPLDYDYGALEPHISGQINELHHSKHHATYVKGVNDAVAKLEEAREKGDHAAIFLNEKNLAFHLGGHVN  
HSIWWWKNLSPNGGDKPTGDAAAIDDQFGSDFKFAQFTAAANGLQGSWAVLGYDSLQKLLTFQLYDQQAN  
VPLGIIPLLQVDMWEHAFYLQYKNVKADYVKAFFWNVNWADVQDRYTAATTKTSGLIFG

>Haladaptatus\_paucihalophilus\_Sod3\_other

MATYELPDLPYSYDALEPSIDAHIMELHHDKHHQGYVNGANAALDKLEEMRENDEWGDVKGVERNLAFLNLSGH  
VNHSVFWENMSPDGGGEPGGDLADALDEQFGSFEFKTHFSEAAKGVESGSWGMMLLDHVDIPIVSMANH  
QNSPQGTTPLLVLDVWEHAYYLQYENNRGEYVDNFWDVNVWDDVEERYDEASGM

>Beijerinckia\_indica\_Sod4\_1

MKYEMKPLPFDQRIKGLSEKILVSHYENNYGGAVKRLNAITEQLANLDWDKAPTFVINGLKRRELIATNSMILHEA  
YFGGLGEPNQPGTALAAAIERDFGGVDRWRSEFVAMGKAEGGGSGWVILTYQARDNRLVNAWAADHTTTLAG  
GVPILVLDVMEHAYHLDFGAKAGDYVTTIMNTTNWSNADKIYEQHHKN

>Clostridium\_botulinum\_Sod4\_2

MIVAKKYPFDNVKGISLQKLEHYKLYDGYVNMINKIWSIPNNSKDFKDSNATFSKLRICKLGEYALDGVKLELYF  
QNMTSGHIPINGPILDKILEDVNSVENFTELFKGTGKSMRGWVVLGIDPLDKLHIFGSDSHDNGAIWLAYPLLVM  
DVYEHAYFMDFGTDKGGKYMDFLQNVNWNLNNRNLGMYTTLNALKHNILLNNKMKHRNMFY

>CPR\_ParcubacteriaOD1\_GWA2\_OD1\_47\_64\_Sod4\_3

MKRFEEQKFTIPKLGISEKNIEEHLKLYAGYVKHANLILEKIAELKSNPEKNAYALGEINRRFGFEFNGMRNHEVYFR  
SLEGGVKPLLQDGA FVKA VA EHWGSLDAWIAEFKAIALTRGIGWAML YDPVSKQLLN AWVDEQHFQQLANSTL  
ILGLDMWEHAYVADYHPSGKKQYIEDFFSNLNWGVVEKNFTDAMQR

>Nomurabacteria\_bacterium\_RIFCSPHIGHO2\_02\_FULL\_42\_19\_Sod4\_3

MKKFEEMKFNIPELKGISKKNIDEHLKLYAGYVKANLITDKIGEY MADPEKNMFVLGELQRRFSFEFNGIRNHEYF  
FASLEGGAKPLSANSKLTAIENQTPSFD AWLV SFKLLAMTRGVGWAVLAWDHDTEQFLHIWVDEQHLGQLNG  
ACWIL AIDMWEHAFVYDYPTSEKKKYIEA

FFENLNWEVAEEYFTELQH

>Acidithiobacillus\_ferrivorans\_Sod4\_4

MSEYSVREELKPSGLDGISDAQINDHWGLYAGYV NQSNALRKELAE MRAAGKTGSLTYADRRRRFGFEYNGMVL  
HEYYFAQLKPGSSIDQAPGFKA AVTEQFGSTEAWHEDLMSAAKSR SVGW AISYYDGTGQINNHFVQLHEDGNV  
GGFVPLVIVDVFEHAYMVDWKALGRADYLA AIHKNMN WGVVEARFQA AKSGQIFKRF

>Parachlamydia\_acanthamoebae\_Sod4\_5

MGDETASSTKKEV RFDHLLGKVKGLNDDLLKMHFKLYQGYV NNTNTLLQKIGELDQTGKSQSPEFAGFKHMLG  
WEFDGM LLEHYFENLGGQTHQLKQDDPLFLK MVQDFGGYDQWK SDFQATGAIRGIGWVITYVDPKQGR LVN  
TWINEHDVGHLSGGKPLLVM DVFEHAYITQFGLDRAKYIQVFFDNIDWNAV SQR YKKT L

>Arabidopsis\_thaliana\_FSD2

MSGVITAGFELKPPYP L DALEPHMSRETLDYHWGKH HKTYVENLNKQILGTDLDALSLEEVVLLSYNKG NMLPAF  
NNAQA WNH EFFFWESI QPGGGGKPTGELLRIERDFGSFEFLERF KSAASNFGSGWTW LAYKANRLD VANAV  
NPLPKEEDK KLVIVKTPNAV NPLVWDYSP LLTIDTWEHAYYLD FENRRAEYINTFMEKLVSWETVSTRLES AIARAV  
QREQEGTETE DEENPDDEVPEVYLDSDIDVSEVD

>Arabidopsis\_thaliana\_FSD3

MAYYGLKTPPYPLDALEPYMSRRTLEVHWGKHHRGYVDNLNKQLGKDDRLYGYTMEELIKATYNNGNPLPEFNN  
AAQVYNHDFWESMQPGGGDTPQKGVLEQIDKDFGSFTNFREKFTNAALTQFGSGWVWLVLKREERRLEVVK T  
SNAINPLVWDDIPIICVDVWEHSYLDYKNDRAKYINTFLNHLVSWNAAMSRMARA EAFVNLGEPNIP IA

>id\_\_1331380\_\_id\_Bacteroidales\_Anaerophaga\_thermohalophila\_SodFM1

MAFELPKLDYAYDALEPYIDARTMEIHHTKHHGGYTSKLNAAIEGTDLEGKSIEELLSNVSKHSTAVRNNGGGYNH  
NLFWKVMAPDAGGKPEGELLA AIEKDFGSFDQFKETFNNA AATRFSGWAWLVKQNGKLVVGSTANQDNPL  
MDVSELKGT PILGLDVWEHAYYLYQNK RPEYIDAFWNVVNWDEVAKRFKTA

>id\_\_1332240\_\_id\_Bacteroidales\_Anaerophaga\_thermohalophila\_SodFM1

MGSVEKHKFPQLGYAYNALEPYIDAQTMELHYDKHHRGYGKFM AAIKGTDMETIPMHHIFANISQHSESVRNN  
GGGYNHRLFWDNMSPDGGDPSARLS DALVKNFGSDFEFKKEFGNA AKSHFGSGWAWLYLDADKNLKITSTPN  
QDNPLMDVSDERGIPLLLDVWEHAYYLYQNKRGDYVDNFWNVVNWKT VNKRWEMA IKGEWKG

>id\_\_1381234\_\_id\_Bacteroidales\_Draconibacterium\_orientale\_SodFM1

MFEHGTPELAYAYDALEPYIDAETMELHYSKHHKGYFTKFM AAKGTDLLNTPMENIFAGISKQPEGVRNNGGG  
YNNHALFWENMTPQQGEIPADL KAAIEKDFGSIDAFKTEFATAAKTRFGSGWAWLLVDEDGALKVSSTPNQDNPL  
MDVAEVKGTPLLALDVWEHAYYLYQNKRGDYINNFVNVVNWVNVHRYTKATV

>id\_\_6177602\_\_id\_Bacteroidetes\_RBG\_13\_43\_22\_SodFM1

MKKIDTKEFPALPYGYDALEPYIDARTMEIHDKHHRAYFNNFVNAIKGTAYENTAVEEIFAEVSKAGDAVRNNGG  
GYYNHVIFWQNLGKNSSGSPAELAAAITKAFGSFDKFRETFSSNAAKTRFGSGWAWLYLTTDKNLAVGSTPNQDNP  
LMDISPIKGIPLLTIDVWEHAYYLKYQNRPEYVEAFWNVVNWVNVNERYKEALLCI

>Bacteroides\_plebeius\_SodFM2

MKHLLPELPYQLEALAPKMSKETLEYHYGKHLQTYIDNLNKLIVGTPYEKTLEQILLEAEGPMFNNAQTWNHTFF  
FDTLTPQQPEMPQPLADALTRDFGSVETFEKFTQAATTLFGSGWTWLVSDKDGHLISVSESNAAGNPLKKGLKPLL  
VIDVWEHAYYIDYRNRRAAFIEAFWTLVDWQVAARL

>id\_\_1344805\_\_id\_Bacteroidales\_Copro bacter\_fastidiosus\_\_SodFM2

MKYELPKLPYEYDALEPAISKKTIEFHGKHEQTYINNLNLT KDTPYEDTPIETIIKEADGALFNNASQAWNHIFF  
SFTPHKSEGPKGALAKAIDEKWSGFDKFAFVDAGVAQFGSGWVWLKDKDKGLDIIKEGNAGNPMTKGYTPL  
LTFDVEHAYYLDYQNRADHLNGLWDIIDWKVVEERY

>id\_\_1346016\_\_id\_Bacteroidales\_Copro bacter\_fastidiosus\_SodFM2

**M**REIVLPLPYAENELEPYISAQTVMLHYGKHLKGYIDNVNRLIKEISNLEKGDLETIVKQSEGLYNNAQAQWNHIF  
YFDAFSPAHLPSGNLEKQINKQWGNFENFKTAFTNTANNLFGSGWVWLKKNKNGTLDIIGESNAGNVKGNK  
KPLLGVDIWEHAYYLDYQNRRAEHIDGLWNIIDWSIVDRRYNE

>id\_\_1386648\_\_id\_Bacteroidales\_Rikenella\_microfus us\_SodFM2

MKFELPALPYPVNALEPTMSARTIEFHGKHEAAYINNLNGLIEGTPLENDTLEEIVRKSDGPIYNNAQAQWNHIF  
FFQLAPNGKKEPGGALAEADRHFSGFAAFKEAFKAGATLFGSGWAWLSVKPDGQLEITQGPNAHNPLKNGAV  
PLLTADVWEHAYYLDYQNRPPDFLSALWNLVDWKVIEKRYEDTL

>id\_\_1388093\_\_id\_Bacteroidales\_Rikenella\_microfus us\_SodFM2

**M**VRKHEMTPLPYALDALAPAMSEETLEYHYGKHYKAYIDNLNALLPGSPYAALSLEEIVTKAPDGPIFNNAQALN  
HRLFFLGMSPAPQSRPDGALAQIDKAFGSFEQFQAQFAKAAAGLFGSGWAWLAADKAGNLSITTEPNAGNPLR  
YGLTPLGLDVWEHAYYLDYRNRRTDYIANYWDLVDWKIIGERYDRR

>id\_\_4250584\_\_id\_Alphaproteobacteria\_Rhizobiales\_Methylocapsa\_acidiphila\_\_SodFM2

**M**KLSAAYPPLPYADDALAPVISSETIGYHYGKHHKGYDDAVLKAVAGTEWADASLEEIVRKTAGDPIRAALFNPAQ  
QLWNHNFYWASMRPNGGGKPTGPAAGLIEASFGGYDGRFERKESGAATKFFGSGWIWLVDGDKAAIVATSNA  
DTPIAHGGKPLLTLDVWEHSYIDWRNRRADYANAWLDKLVNWDVFNQKLA

>id\_\_4251812\_\_id\_Alphaproteobacteria\_Rhizobiales\_Methylocapsa\_acidiphila\_SodFM2

MSFTLPELPYGYESLQPYLSKETLEYHHDKHHATYVTNANNLLKDSGLEKGSLEEIVKDSYGKNVPLFNNAQAQYHNH  
SEYWKSIKPNGGGAIPGALEKALIDSFSGVAKAKEDLVQAGVTQFGSGWAWLAVKDGKISVSKTGNADNPLTQGA  
TPILTVDVWEHTYYIDYRNRDPDYLKAFVDNLVNWWEYVAERYEAAIK

>id\_\_4398461\_\_id\_Alphaproteobacteria\_Rhizobiales\_Liberibacter\_americanus\_SodFM2

MNFKLPNLPYGYDDLSPYMSRETLEYHHDVHHKSYAENTSKLASDADMSDLSEIEIILKSYGNSVSLFNNAQAQYHNH  
NLLWLCMKKNGGGEKLPQALSNDNFVSYEKFSDFIEAASKQFGSGWGWLSVKNDKLEISKQNAENPLING  
AIPILCVDIWEHAYYLDYRNRKRGNYLECFVSNLWVLYERYQEALSSQKAST

>id\_\_4440688\_\_id\_Alphaproteobacteria\_Rhizobiales\_Starkeya\_novella\_SodFM2

MAAPFQQPPLPYDQNALAPTISARTVGLHYGKHHKGYFDKLNLTAGKPYAELDLEEVIVRAKEQGDTAIFNNAG  
QAWNHNFFYWQQFAGGPAEAPAALVQAAERDFGGMDGLKKKMVETGDGVFGTGWVWLVEDNGLALLGLQ  
DAGNPIAEKKRPLLIDVWEHAYYLDWENRRTAHIQAVLDERVNWGFVGDQLAS

>id\_\_4666952\_\_id\_Alphaproteobacteria\_Azospirillum\_amazonense\_SodFM2

MAFELAPLPYAKDALQPYMSSETLDFHGHGKHHNAYVTKLNELIAGTAFEGQSLEDIVKATAGKAESQAIFNNAGQ  
HWNHTFFWNSLTPKASAIPELEKRIISDFGSVEAFKAFVDAGIGQFGSGWAWLVEDTKEGKLIKITSANADTPL  
AHGLKPLITADVWEHAYYIDYRNRPPDFLKAFFVDTLANWEFAAQNGLG

>id\_\_4726197\_\_id\_Alphaproteobacteria\_Tistrella\_mobilis\_SodFM2

MAFELPALPYDKTALPHISAQTFFHGHGKHHNTYVVNLNKLVEGTDLADASLEDIIVKSRGDAKAGVFNNAQV  
WNHTFFWNSMKPNGGGAPSGDLAKRIDADFGGLDKFKEAFKNAATTQFGSGWAWLVVKDGKLEVVKTGNAET  
PVGATGATPLLTIDVWEHAYYLDYQNRPPDFVQSFLDNLVNWDFAAENLAKA

>id\_\_4728720\_\_id\_Alphaproteobacteria\_Tistrella\_mobilis\_\_SodFM2

MAFELPSLPYSTTALAARGMSQETLELHGHGKHHQAYVTALNGFVAKDESLOGKSLEEIIHLSAGRADMAPVFNNA  
GQHWNHIIFFWQSLAPAGGRMPDRLGAKITEDFGSLDAFKEAFRAAAISQFGSGWAWLVVKPDGRLGVSKSPNAA  
NPLSAADGRTLLGLDVWEHSYYLDFRNRPPDYVTNFDNLANYDFAEAELLA#

>Streptomyces\_coelicolor\_SodFM3

MALYTLPELPYDYSALAPVISPEIIEHHDKHHAAAYVKGANDTLEQLAEAREKESWGSINGLEKLNLAFLHLSGHILHSY  
WQNMTGPKDGGGEPLAQDGVGDLADAITESFGSDFAGFKAQLTKAAATTQGGSGWGVLAYEPLSGRLIVEQVYDH  
QGNVGGQATPILVFDWEHAFYLYQKNQKVFIEAMWAVVNWQDVAKRHAAAKERGDSLLKLP

>id\_\_352295\_\_id\_Euryarchaeota\_Methanosarcina\_barkeri\_SodFM3

MAKELYKLPLKFGYGDLPYISEEQKLHHDKHHQAYVTNANAAIEMMDKARKEGTDYKATAKAFSFLAGH  
VLHDYFWWEMTPASNSSKEPVGELSEVIKEDFGSDFRFKKEFSQVASSVEGSGWAVLTYCKDTERLMIMQIEKHN  
VNLVPDYPIIMDLDTWEHAYYIDYRNDRAKFIEAFWNIVDWEIDKYFRKMRK

>id\_\_902033\_\_id\_Actinobacteria\_Nesterenkonia\_alba\_SodFM3

MAEYTLPELDYDYGALPHISGRIMELHHSKHHATYVKGLNTALEQLAEAREKGDYSTTPKLLKDLQFNLGGHINHS  
IFWKNLSPEGQERPEGELAAAIDEYFGSDFNFQAQFTQAALTIQGGSWAILAYEPIGGSLVIEQFYDQQNGVPVAT  
TPLMLDMWEHAFYLDYVNVKPDYVKAFFWNIVNWADVAARLESAGAGKLVTP

>id\_\_1015937\_\_id\_Actinobacteria\_Microlunatus\_phosphovorus\_SodFM3

MADYVLPDLPYDYSALAPHISGEIMELHHDKHHATYVKGLNTALEQLAEARENAYGSVGGLEKTLAFNLGGHIN  
HSVFWPNMSPDGGDKPTGDLAAALDEYFGSDFDKFRAHFENVANTIQGGSWMLVWDSLQRLNIVQLYDQQA  
NLPLGQIPIVLLDMWEHAFYLYQKNVKADYVKAFFWNIVNWADAQQRFAVAQAQSPGLIKP

>id\_\_1064242\_\_id\_Actinobacteria\_Kutzneria\_albida\_SodFM3

MAPYVLPDLDYDYGALPEAIIGEINELHHSKHHAAAYVKGANDTLEQIDEARDKGSFGSIVGLETTLAFHLAGHALHQ  
VWWKNLSPNGGDKPVGELASAVDEFFGSDFGLRAQLNAAASTIQGGSGWILAWEPVGKRLITQQLKDHHSNLSI  
ATTPLLAFDIWEHAYYLYQYRNLKADYINLWNVVNWEDVAARFEAARAGQNLQLGA

>id\_\_1407242\_\_id\_Bacteroidetes\_Cytophagia\_Echinicola\_vietnamensis\_SodFM3

MGNFIQKPLPYNKTFLEPHMDEETLHLHYEFHHGGAVKGANKDLESIKKHLQSGEMDQVDLWTRKLAYHFSSHLV  
HSIFWTNLTKKTQPKAELLKQIEKDFGSDHLKTYISKISKSVEGSGWGILGYQPYSRSLTLQCENHQKLTQWGV  
VPLLVIDVWEHAYYLKYKNRRAEFVDTVLEIINWDNVAERLITAKQLHG

>id\_\_2964378\_\_id\_Bacillales\_Desmospora\_activa\_SodFM3

MKGHTLPLPYDALEPYIDTKMHLHHDEHHKSYVDGLNKAEKMMAKARQTGDFDLIKHWEREASFNGAGH  
YLHTLFWAIMSPNGGGKPTGKLAQQIQQDFGSLDAFKKHFSAAANKVEGGGWALLIWSRSHRLEILQAEKHNNL  
SQQDQVPLLALDVWEHAYYLKYPNKRKEYIKAWWHVNVNPAVDQRFREARHLLWKPS

>id\_\_3435421\_\_id\_Clostridiales\_Desulfitobacterium\_dichloroeliminans\_SodFM3

MSHQLPELPYAYNALEPVYDEATVRLHHDAAHKTIVDGLNNAEAKLAEAREKGFSLVKHWERELAFHGSGLLH  
TLFWMNMSPQGGRTPSDALAARINQDFNSFEFGKNQFSAAAVAVEGSGWAVLVWNPEFQKLEILQAEKHQNL  
QWGVAPLLTVDVWEHAYYLKYQNKRAAWVEAWWSLVNWTVDVEERFAKVR

>PDB\_\_1ids\_Mycobacterium\_tuberculosis\_Mycobacterium\_tuberculosis\_SodFM3

MAEYTLPLDWDYGALEPHISGQINELHHSKHATYVKGANDAVAKLEEARAKEDHSAILNEKNLAFNLAGHVN  
HTIWWKNLSPNGGDKPTGELAAAIADAFGSDKFRQAQFHAATTVQGGSWAALGWDTLGNKLLIFQVYDHQTN  
FPLGIVPLLLLDVWEHAFYLYQKNVKVDFAKAFWNVNWDVQSRVAAATS

>id\_\_382166\_\_id\_Euryarchaeota\_Thermoplasma\_acidophilum\_SodFM4

MAETWEIKEKLPKRGLEGISDVQIDNHFDVHYKGYVKNLNEIWSRLPDVDRSKANQNYSEFRALKLEETFNYGGSL  
LHELYFEGLTPKHSEVPKEFKDAVAKDFGSYEWLEDFKATGTAFRGWAILVFDLNYGKLRNIGSDAHNVGLIWN  
AILTMDVYEHAYYVDYAKRAPHYLDVFLKNVNWVLDRLNRAKKAYEAFKS

>id\_\_504963\_\_id\_Woearchaeota\_37\_12\_CG10\_big\_fil\_rev\_8\_21\_14\_0\_10\_SodFM4

MELTKKDLKYKELPGFLSEKQLFEHESLYAGYVKKNTIRSAKNVDRSAANATFSDIRELKEETFAVNGVKLHEGY  
FWNMIADGKEASGTIADWIAVDFGSVDAWKEDLLACALSARGWVVLDFDLTGKLNIVCDLHNQGGIWNVSA  
LLVLDVYEHAYYVDYATGRKKYVDGFLQHIDWDEVNNRIKTFDLAKFRK

>id\_\_541319\_\_id\_Nanoarchaeota\_Nanopusillus\_acidilobi\_SodFM4

MDFKKERPQLFEMKGISAKTIEEHLKIYEGYVKKFNEITQRLNNLTDEDYNAANVTYSLIRELKEVWTRAFGGMINH  
EIFYSHLGGEGGKPGSSLSQIDKDFGSFEKFKEMKATAMGARGWAWLLWSDDLNRLVISISDEQNTYMVQNS  
KLILALDVFEHAYYLDYGSNRKGYVDVFFDNIDWSVVEKRFEALKV

>id\_\_2140040\_\_id\_CPR\_Yanofskybacteria\_GWC2\_OD1\_41\_9\_SodFM4

MSKKEIKSLPFAADSLKGISQKTIIEHHGKLYAGYVKNKSNEIKDLQVHIESGKAEGNQAYSELRALKNNGEGFTNNGVY  
LHEDYFAILGGDGMPKGEIAGKLAEKYGSFENFKTYFSACGMAARGWTVLAWDMHEKDLRIFNCDAHNGGIW  
GAVPVIVLDIYEHAYYFIDAGSDRATYIRAFFDNLNWDKIEEFYQKAKKMEWE

>id\_\_6522694\_\_id\_bacterium\_RIFCSPHIGO2\_01\_FULL\_39\_8b\_SodFM4

MKTLKSLKVNADILRGISRKTVIEHHGKLYAGYVKNKSNEISEKLGALRKSNGKVEGNQIYSELRLKLGGETFAVNGVYLH  
ENYFAILGGDGVPRGEVVRAIEEKWRSMDEFKSYFSACGMAARGWAILAWDMYEKRLMQYNCAQNHGGIW  
GAIIAMDVYEHYFIDTGSRAAYIKAFFDNLNWDKIEELYQKAKKYELD

>id\_\_6614056\_\_id\_Harrisonbacteria\_OD1\_40\_38CG10\_big\_fil\_rev\_8\_21\_14\_0\_10\_SodFM4

MYTPKKFDSLLGLEGFSDNALKTHFGLYEGYVTNTNKVQELLDKLRTEEKATPEYAEKRRFAWEWNGMRLHEIY  
FESLSKNPTPLDDSSSLGSQIKQDFGSFEEWQKDFATAAMRIGWAILYWDPIHKKLTNNWVNEHYVGHMSG  
IPLPCDVFEHAFMIDYGTKRADYIAAFLKAVDWKTISDRF

>id\_\_6731057\_\_id\_Peregrinibacteria\_43\_11\_CG\_4\_10\_14\_0\_2\_um\_filter\_SodFM4

MEHPIKDFSHLIGKLDGMSVNQIEAHLGLYAGYVKKLNEIETKLNADRALTNYSYGEYSELKRREAVAFNGAYLHQ  
YYFENLTAETTRSAELEGALVDSFGSIDAYLTDLKASATATPGWVVTTKSEVDGKLNHYMMFEHHIGFPVRQKIVL  
ALDCWEHAFMIDYGTKKTIDYLETFLRNVDWNVMMNERLK

>id\_\_3954149\_\_id\_Kazan\_RIFCSLOWO2\_01\_FULL\_KAZAN\_48\_13\_SodFM4

MYQAQNFHLLGLPGFSDDALSTHFALYQGYITNTNKLSDLLAAMRNEGKTATPEYAEKRRFGWFEFNGMRLHE  
HYFGAMAKAVTPLSSETPLYQQIVKDFGSFEVWQQDFVATAAIRGIGWAILYDPPQANRFLNVVWVNEHDLGHLG  
SLPLLLNLDVFEHAFMLDYGTKRVDYIAAFMKVVDWGTVANRFAGARLS

>Escherichia\_coli\_SodB

MSFELPALPYAKDALAPHISAETIEYHYGKHHQTYVTNLNLIKGTAFEGKSLEEIIRSSEGGVFNNAAQVWNHTFY  
WNCLAPNAGGEPTGKVAEIAASFGSFADFKAQFTDAAIKNFGSGWTLVKNSDGKLAIVSTSAGTPLTTDATP  
LLTVDVWEHAYYIDYRNARPGYLEHFWALVNWFEVAKNLAA

>Bacillus\_anthraxis\_SodA1

MAKHELPNLPYAYDALEPHFDKEMNIHHTKHHNTYITNLNAALEGHAELADKSVEELVANLNEVPEAIRTAVRNN  
GGGHANHTFFWTILSPNGGGQPVGELATAIEAKFGSFDFAKKEEFAKAGATRFSGGWAWLVVNNGELEVTSTPNQ  
DSPLTEGKTPVIGLDVWEHAYYLNQNRDPYIGAFWNVVDWNAAEKRYQEAQ\*

>Bacillus\_anthraxis\_SodA2

MSSFQLPKLSYDYDELEPYIDSNTLSIHHGKHHATYVNNLNAALENYSELHNKSLEELLCNLETLPKEIVTAVRNNGG  
GHYCHSLFWEVMSPRGGGEPNGDVAKVIDYFNTFDNLKDQLSKAAISRFGSGYGWLVLVDGEELSMSTPNQDT  
PLQEGKIPLLVIDVWEHAYYLYQNRRPEFVTNWWHTVNWDRVNEKYLQAIQSQKH\*

>Bacillus\_gaemokensis\_SodA2

MSSFHLPPELSYDYDELEPYIDGDTLALHHGKHHATYVKNLNAALEGHEELQSKPLEELLCNLTLPPEIVTAVRNNG  
GGHYCHSLFWEVMSPKGGGEPNGDVAKVIDYFNTFDNLKNQSKTAISRFGSGYGWLVLVDGEELSMSTPNQ  
DTPLEEGKIPLLVIDVWEHAYYLYQNRRPEFVTNWWNTVNWDQVNEKYLQAIQSQKH\*

>Bacillus\_paramycoides\_SodA2

MSSFQLPNLSYDYDELEPYIDGDTLAIHHGKHHATYVNNLNAAALGGYTELHNKSLEELLCNLTSPKEIATAVRNNG  
GGHYCHSLFWEVMSPKGGGDPNEDVAKVIDYFNTFDNLKDQLSKAAISRFGSGYGWLVLVDGEELAVMSTPNQD  
TPLQEGKIPLLVIDVWEHAYYLYQNRRPEFITNWWNTVNWDRVNEKYLQAIQSQKN\*

>Bacillus\_cytotoxicus\_SodA2

MSSFHLPKLSYDYDELEPYIDGDTLALHHGKHHATYVKNLNAALENYKELQNKPLEELLSHLNELPPDIMTAVRNNG  
GGHYCHSLFWEVMSPKGGGEPNGDVAKVIDYFNTFDNFKDQLSKAAISRFGSGYGWLVLVDGEQLSMSTPNQ  
DTPLEEGKIPLLVIDVWEHAYYLYQNRRPEFVTNWWNTVNWDRVNEKYLQAIQSQKR\*

>Bacillus\_subtilis\_SodA1



MAYELPELPYAYDALEPHIDKETMTIHHKHHNTYVTNLNKAVEGNTALANKSVEELVADLDSVPENIRTA VRNNG  
GGHANHKLFWTLLSPNGGGEPTGALAEIINSVFGSFDKFEQFAAAAAGRFGSGWAWLVVNNGKLEITSTPNQD  
SPLSEGKTPILGLDVWEHAYYLNQNRDPYISAFWNVVNWDEVARLYSEAK\*

>Homo\_sapiens\_Sod2

MKHSLPDLPYDYGALEPHINAQIMQLHHSKHHAAAYVNNLNVTEEKYQEALAKGDVTAQIALQPALKFNGGGHIN  
HSIFWTNLSPNGGGEPKGELLEAIKRDFGSFDKFEKLTAA SVGVQSGSGWGLGFNKERGHLQIAACPNDPLQ  
GTTGLIPLLGLDVWEHAYYLQYNVRPDYKAIWNVINWENVTERYMACCK\*

>Listeria\_monocytogenes

MTYELPKLPYTYDALEPNFDKETMEIHYTKHHNTYVTKLNEAVAGHP ELASKSVEELVANLDSVPEDIRGAVRNHG  
GGHANHTLFWLSILSPNGGGA PTGNLKA AIESEFGTFDEFKEFNAAAAARFGSGWAWLVVNDGKLEIVSTANQD  
SPLSDGKTPVLGLDVWEHAYY LKFQNRPEYIDTFWNVINWDEANKRFDAAK\*

>Neisseria\_gonorrhoeae

MEHKLPQLPYGPDALSPHLSKETLEFHYGKHHQTYITLNNQIKGTEFENLPLEEIVKSSGGVFNNAAQTWNHTF  
YWLGFTPKGQK PAGELAAAIDAKWGSFEKFQEA FNACAAGTFGSGWAWLVKTPVGGDLISTSNAATPLTTEN  
TPLLTCDVWEHAYYIDYRNSRPNYLKGFWEIVNWDEVAKRFAA\*

>Pseudomonas\_aeruginosa

MAVYTLPLDYDYGALEPHISGKIMELHHDKHHNTYVQGANTALEKLA EAREKGDFTINKLEKDLAFNLGGHINH  
SVFWKNMSPHGGGRPEGNELAAAID EFGSFDKQFEETAKGVQSGSGWMLVWDVMGQRLNMTMQLFDH  
QGNLPSTQIPVVQLDMWEHAYYLQYQNVKADYVTAWWNVVNWTD AEQRFVKARSITGLF\*

>Rubrobacter\_radiotolerans

MAYELPPLPYDYNALEPTIDEQTMHLHHEKHHNTYLTNLNAALEKHPDADPGDAEELMRNIDSV PDDIKTAVRN  
GGGYVNHNFQIMSPDGGGEPTGD LAQAINDAYGSF DAFKEEWGKVGAPGSVFGSGWVWLIANPDGSVTIE  
KTANQDSPLMEGKTPVLGLDVWEHAYY LKYQNRPEYIENWWNVVNWEEAERRYQEITR\*

>Staphylococcus\_aureus\_SodA

MAFELPKLPYAFDALEPHFDKETMEIHDRHHNTYVTKLNAAVEGTDLESKSIEEIVANLDSVPANIQTAVRNNGG  
GHLNHSLFWELLSPNSEEKGT VVEKIQWGSLEEFKKEFADKAAARFGSGWAWLVVNNGQLEIVTTPNQDNPLT  
EGKTPILGLDVWEHAYY LKYQNKRPDYIGAFWNVVNW EKVD ELYNATK\*

>Staphylococcus\_aureus\_SodM

MAFKLPNLPYAYDALEPYIDQRTMEFHHDKHHNTYVTKLNATVEGTELEHQSLADMIANLDKVPEAMRMSVRN  
GGGHFNHSLFWEILSPNSEEKGGVIDDIKAQWGTLDEFKNEFANKATTLFGSGWTWLVVNDGKLEIVTTPNQDN  
PLTEGKTPILLFDVWEHAYY LKYQNKRPDYMTAFWNIVNWKKVDELYQAAK\*

>Staphylococcus\_argenteus\_SodM

MAFKLPNLPYAYDALEPYIDQRTMEFHHDKHHNTYVTKLNATVEGTDLEHQSLADMIANLDKVPEAMRMSVRN  
NGGGHFNHSLFWEILSPNSEEKGGVIDDIKAQWGTLDEFKTEFANKATTLFGSGWTWLVVNNGKLEIVTTPNQD  
NPLTEGKTPILLFDVWEHAYY LKYQNKRPDYMSAFWNIVNW EKVD ELYQAAK\*

>Stenotrophomonas\_maltophilia

MPVELPALPYLSGSLQPHLSAQTLELHHGRHHRAYVDAVNAGILGTEWEDASLEEIVRQAQGKLFDAQAQAWNH  
GFYWQCLRPRGGGEPQGRLGELVKRQFGDVQRLREEFNRTALGLFGSGWVWLQHPGGQLGIQATR NAGTPLT  
GESTPLLCCDVWEHAYYTDYQND RARYLDAFWQMVNWEFAESQLR\*

>Streptococcus\_pyogenes

MAIILPELPYAYDALEPQFDAETMTLHHDKHHATYVANTNAALEKHPEIGENLEELLADVTKIPEDIRQALINNGGG  
HLNHALFWELLSPEKQDVTS DVAQAIDDAFGSFD AFKEQFTAATGRFGSGWAWLVVNKEGQLEITSTANQDTP I  
SEGKKPILALDVWEHAYYLN YRNV RPNYIKAFFEII NWKKVSELYQAAK\*