Figure S1

Obg_Mt MPRFVDRVVIHTRAGSGGNGCASVHREKFKPLGGPDGGNGGRGGSIVFVVDPQVHTLLDFHFRPHLTAASGKHGMGNNRDGAAGADLEVKVPEGTVVLDE-NGRLLADLVGAGTRFEAAA
Obg_Sc MTTFVDRVELHVAAGNGGHGCASVHREKFKPLGGPDGGNGGRGGDVILTVDQSVTTLLDYHHSPHRKATNGKPGEGGNRSGKDGQDLVLPVPDGTVVLDG-AGNVLADLVGHGTSYVAAQ
Obg_Dr -MAFRDVLNIEVAAGNGGDGSMSFHRAKYMEKGGPDGGHGGRGGSIILRAIEGVESLERLVGRRKFKAENGRYGEGRLRQGADGQDTYIDVPVGTTAFDEDSGKVIADLVNVGQEKVIAK
Obg_Tt --MFQDVLVITVAAGRGGDGAVSFRREKFVPKGGPDGGDGGRGGSVYLRARGSVDSLSRLS-KRTYKAEDGEHGRGSQQHGRGGEDLVIEVPRGTRVFDADTGELLADLTEEGQTVLVAR
Obg_Bs --MFVDQVKVYVKGGDGGNGMVAFRREKYVPKGGPAGGDGGKGGDVVFEVDEGLRTLMDFRYKKHFKAIRGEHGMSKNQHGRNADDMVIKVPPGTVVTDDDTKQVIADLTEHGQRAVIAR
Obg_Cc -MKFLDQCKIYIRSGNGGGGSVSFRREKYIEYGGPDGGDGGRGGDVWIEAVEGLNTLIDYRYQQHFKAGTGVHGMGRARHGAAGEDVVLKVPVGTEVLEEDKETLIADLDHAGMRLLLAK
Obg_Ng -MKFIDEAKIEVAAGKGGNGATSFRREKFVPRGGPDGGDGGKGGSVWAEADENTNTLVEYRFVKRYQAKNGEKGHGSDRYGAGADDIVLKMPVGTLIRDLDTDEIVADLTYHGQRVCLAK
Obg_Nm -MKFIDEAKIEVAAGKGGNGATSFRREKFVPRGGPDGGDGGKGGSVWAEADENTNTLVEYRFVKRYQAKNGEKGHGSDRYGAGADDIVLKMPVGTLIRDLDTGETVADLTYHGQRVCLAK
ObgE_Ec -MKFVDEASILVVAGDGGNGCVSFRREKYIPKGGPDGGDGGDGGDVWMEADENLNTLIDYRFEKSFRAERGQNGASRDCTGKRGKDVTIKVPVGTRVIDQGTGETMGDMTKHGQRLLVAK
Obg_Vc -MKFVDEAVIKVQAGDGGNGVVSFWREKFVTNGGPDGGDGGDGGDVYMVADENLNTLIDYRFQRFYEAERGKNGGGGNCTGKSGKDKELRVPVGTRAVDIHTNEIIGEVAEHGKKVMIAK
G1
G2
G3
Obg_Mt GGRGGLGNAALASRVRKAPGFALLGEKGQSRDLTLELKTVADVGLVGFPSAGKSSLVSAISAAKPKIADYPFTTLVPNLGVVSA-------GEHAFTVADVPGLIPGASRGRGLGLDFLR
Obg_Sc GGRGGLGNAALASARRKAPGFALLGEPGDLQDIHLELKTVADVALVGYPSAGKSSLISVLSAAKPKIADYPFTTLVPNLGVVTA-------GETVYTVADVPGLIPGASQGKGLGLEFLR
Obg_Dr GGLGGRGNSTFTSSTRQAPRFAELGTPGQKRRVRLELRLIADVGLVGYPNAGKSSLLAALSRANPAIADYPFTTLSPILGVVQREDEQGVSLDERFTMADIPGIIEGASEGKGLGLEFLR
Obg_Tt GGAGGRGNMHFVSPTRQAPRFAEAGEEGEKRRLRLELMLIADVGLVGYPNAGKSSLLAAMTRAHPKIAPYPFTTLSPNLGVVEV------SEEERFTLADIPGIIEGASEGKGLGLEFLR
Obg_Bs GGRGGRGNSRFATPANPAPQLSENGEPGKERYIVLELKVLADVGLVGFPSVGKSTLLSVVSSAKPKIADYHFTTLVPNLGMVET------DDGRSFVMADLPGLIEGAHQGVGLGHQFLR
Obg_Cc GGNGGWGNLHFKGPVNQAPKYANPGQEGEERWIWLRLKLIADVGLVGLPNAGKSTFLAAASAAKPKIADYPFTTLTPNLGVVDL------SSSERFVLADIPGLIEGASEGAGLGTRFLG
Obg_Ng GGKGGLGNIHFKSSVNRAPKQSTPGEEGETRSLQLELKVLADVGLLGMPNAGKSTLITAVSAARPKIANYPFTTLHPNLGVVRI------DENHSFVMADIPGLIEGAAEGAGLGHRFLK
Obg_Nm GGKGGLGNIHFKSSVNRAPKQSTPGEEGEARSLQLELKVLADVGLLGMPNAGKSTLITAVSAARPKIANYPFTTLHPNLGVVRI------DENHSFVMADIPGLIEGAAEGAGLGHRFLK
ObgE_Ec GGWHGLGNTRFKSSVNRTPRQKTNGTPGDKRELLLELMLLADVGMLGMPNAGKSTFIRAVSAAKPKVADYPFTTLVPSLGVVRM------DNEKSFVVADIPGLIEGAAEGAGLGIRFLK
Obg_Vc GGWHGLGNARFKSSVNRSPRQKTLGTKGELRDIRLELLLLADVGMLGMPNAGKSTFIRAVSAAKPKVADYPFTTLVPSLGVVSV------LPEKSFVVADIPGLIEGAAEGAGLGIRFLK
Obg_Mt HIERCAVLVHVVDCATAEPGRDPISDIDALETELACYTPTLQGDAALGDLAARPRAVVLNKIDVPEARELAEFVRDDIAQRGW----------------PVFCVSTATRENLQPLIFGLS
Obg_Sc HVERCSVLVHVLDTATLESERDPLSDLDVIETELREY----------GGLDNRPRIVVLNKIDVPDGKDLAEMVRPDLEARGY----------------RVFEVSAVAHMGLRELSFALA
Obg_Dr HISRTRLLVYVLDVT-----RNPVEELQQLQAELRAYDPS---------LLDNVALVALNKVELVEPDLAQMVEDELA----EQG-------------LPVLQVSAKEGTGLNTLRETLF
Obg_Tt HIARTRVLLYVLDAA-----DEPLKTLETLRKEVGAYDPA---------LLRRPSLVALNKVDLLEEEAVKALADALA----REG-------------LAVLPVSALTGAGLPALKEALH
Obg_Bs HIERTRVIVHVIDMSGLEGR-DPYDDYLTINQELSEYNLR---------LTERPQIIVANKMDMPEAA---ENLEAFKEKLTDDY--------------PVFPISAVTREGLRELLFEVA
Obg_Cc HVERSATLIHLIDATQDDV----AGAYETIRGELEAYGDE---------LADKAEILALNKIDALDEETLAEKVAELEAVSGI----------------KPRLVSGVSGQGVTELLRAAY
Obg_Ng HLSRTGLLLHVVDLAPFDETVNPAEEALAIINELRKYDEE---------LYGKPRWLVLNKLDMLDEEEARARTAAFLEAVGWDYPEPDDRFQFDMETPRLFQISALTHQGTQELVHQIN
Obg_Nm HLSRTGLLLHVVDLAPFDETVNPAEEALAIINELRKYDEE---------LYGKPRWLVLNKLDMLDEEEAQTRTAAFLEAVGWDYPKPDDRFQFDMETPRLFQISALTHQGTQELVHQIN
ObgE_Ec HLERCRVLLHLIDIDPIDGT-DPVENARIIISELEKYSQD---------LATKPRWLVFNKIDLLDKVEAEEKAKAIAEALGWED----------------KYYLISAASGLGVKDLCWDVM
Obg_Vc HLERCRVLLHMIDIMPADQS-DPAHNALTIIDELEQYSEK---------LAKKPRWLVFNKVDLMSEEEADEIIQNIIDALAWEG----------------DYFKISAANRQGTKELCMKLA
G4
G5
Obg_Mt QMISDYNAARPVAVPRRPV------------IRPIPVDDSGFTVEPDGHGGFVVSGARPE-RWIDQTNFDNDEAVGYLADRLARLGVEEELLRLGARSGCAVTIGE----MTFDWEPQTP
Obg_Sc ELVATARAARPKEEATRIV------------IRPKAVDDAGFTVTREEDGLFRVRGEKPE-RWVRQTDFNNDEAVGYLSDRLNRLGVEDKLMKAGARNGDGVAIGPEDNAVVFDWEPSVT
Obg_Dr QLLPEFELW-AQSNALEVEPDT----VVDEALQIVFREDAPAKGEGAPERVWEVHGGGFEERIV-RFSRYLEDAAEYLGNLFKRQGLYNALRRAGAREGDTVEIGT----FRFEYFDDEE
Obg_Tt ALVRSTPPP-E-------MPKP----VPRKEVQA------GVEVVPVAEGVYEVRAPEVERYLA-RIKGDLMEAAGYLQEVFRRQGVEAALRAKGVRAGDLVRIGG----LEFEYIPEV-
Obg_Bs NQLENT-PEFPLYDEEELTQNRVMYTME--------NEEVPFNITRDPDGVFVLSGDS-LERLFKMTDFSRDESVKRFARQMRGMGVDEALRERGAKDGDIIRLLE----FEFEFID---
Obg_Cc KQVRIRRGDLEEEIDDD--E------------------DHVDETPGG----WTP----------
Obg_Ng QYLAEK-KRIEAEKAEA--E-KAAANV-----------EIIEQQPKTDTGVFKPE----------
Obg_Nm QYLTEK-KRIEAEKAEA--E-KAAANV-----------EIIEQQPKTDTGVFKPE----------
ObgE_Ec TFIIEN-PVVQAEEAKQ--PEKVEFMWDDYHRQQLE--EIAEEDDEDWDDDWDEDDEEGVEFIYKR----------
Obg_Vc EFMDTL-PR-EAEEKTE--AEKVDFTWDYNHKDGLAGREVITEDDDDWDD-WDDEEDDGH-VIYVR-----D----------
Obg_Mt AGEPVAMSGRGTDPRLDSNKRVGAAER--KAARSRRREHGDG----
Obg_Sc AGAEML-GRRGEDHRFEAPRPAAQRRRDRDAERDEAQQEFDGFEPF
Obg_Dr ----------
Obg_Tt ----------
Obg_Bs ----------
Obg_Cc ----------
Obg_Ng ----------
Obg_Nm ----------
ObgE_Ec ----------
Obg_Vc ----------