

5 15 25 35 45 55 65

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1 -----hhhhhhhhhhssssssstssssssllll-----lsssssssssl sectr
1 -----MVKLAFFPELRLLTPSQFTFVFQ-QPQ RAGTPTITLGRNLNSL-----GHPRI GLT VAK Escherichia_coli
1 -----MVKLAFFPELRLLTPSHFTFVFQ-QPQ RAGTPTITLGRNLNEL-----GHPRI GLT VAK Yersinia_pestis
1 -----MVKLNFSRELRLLTPTIQFKNVFE-QPFRASTPEITLARKNNL-----EHPRL GLT VAK Haemophilus_influenzae
1 -----MSTYAFNRRELRLLTPEHYQKVFQ-QAHSAGSPHLTIARANNL-----SHPRL GLA VPK Vibrio_cholerae
1 -----MLNYFFKQLRLSDSTSFQDFVNGSVKKNLLEISILGRFNLL-----GHPRL GLS LPR Buchnera_sp
1 -----MVSDFDRDKRLLTARQFSAVFDSPGTGKVPGHVLLLARENGL-----DHPRL GLV I GK Pseudomonas_aeruginos;
1 -----MDYRFGQRRLKTDDESSVFAPFRNRSRDLQVSRNNGNL-----DHPRI GLV V GK N_meningA
1 -----MKKTYRVKREKDFQAFKDGKSTANRKFVYIHLNRGQ-----DHPRV GIS V GK Streptococcus_pyogenes
1 -----MKNFRVKREKDFKALFKEGTSFANRKFVYQLENQK-----NRFVRV GLS V GK Strep._pneumoniae
1 -----MKKNRRLKKNEDFQKVFKHGTSVANRQFVLYTLDQFEN-----DEL RV GLS V SK Bacillus_subtilis
1 -----MLLEKAYRIKKNADFQRIYKKGHSVANRQFVVYTCNNKEI-----DHPRL GIS V SK Staphylococcus_aureus
1 -----MKNKRVIKKNFEFQETINYYKTKNFQCVIYYKDNNEE-----SYLKY GIS V SK Mycoplasma_capricolum
1 -----MLPANRMTRSTEFDA TVKHGTRMAQDIIVHLLRSGE-----PDDE SAGP RV GLV V GK Mycobacterium_avium
1 -----MLRARNMRRSADFE TVKHGMRTVRS DMVYVWRRGS-----GGGPRV GLI I AK Mycobact._tuberculosis
1 -----MLPTENRRLRRRDFATAVRRGRRRGRPLLVVHLRSGATDPHAPGESAPPTRA GFV V SK Streptomyces_bikiniensis
1 -----MLPRDRRVRTPAEERHLGRTGRAGRRTVVSVATDPDQTRSTSPSAPPRRAGFV V SK Micrococcus_luteus
1 -----MTE SFTRRERLRLRD FLLIFKEGKSLQNEFVIVLFRKNGLD-----YSRL GI V V GK Thermotoga_maritima
1 -----MEKGFVSGWRIRTTAEFRRIYAAQRRIIGRYLLYYRENEIK-----HSRL GVV ASK Coxiella_burnetii
1 MCLHLGTLNSCKRFPFSARICLRS EYVAFEQRRYSSVLLRLLHLLPTSGP-----VRL GLV V SR Xylella_fastidiosa
1 -----MAEAPH TLKFERLRKRPFLLAAKAPALSRGAVFIQMRQRTDDD-----PTVRV GPTATK Caulobacter_crescentus
1 -----MSRLTLPKNARLLKRRQFVYVQRNGRCRADQVTLRVVPSRHS-----NTRRV GI T V SK Chlamydia_trachomatis
1 -----MGLPKTLRLKHWQDFQTVYQQGKRHRHSNLMRVLGDRA-----DHSRFGI T V SK Synechocystis_sp.
1 -----MANFISLKKKEDILDITIKKQKIHNSQIVVYFRKTNLK-----NVR LAI S I SK Ureaplasma_urealyticum
1 -----MSAKTKHHLDRKVF AALLRSKRFFSTFLMAYFMPNRVR-----TWRAAVS I SK Mycoplasma_pneumoniae
1 -----MRGEREFKRVRAHGAAVRDPFLTLRLTDYRPRYG--ERWHPRAI I GLV V SK Deinococcus_radiodurans
1 -----MKLCITSLKNOKEFELINKLGEKPYERYFILVIAKKLPKIFLES--KYNTFLGIK V SR Rickettsia_prowazekii
1 -----MRKRNISLKS KIEIQKIFKEGKLI RFSNLLNLMFYKSNH-----LVYSR I LV TFSK Borrelia_burgdorferi

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75 85 95 105 115 125 135

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71 l-llllhhhhhhhhhhhhhhhhhhhhllll-l-ss-sssssssl11l-llllhhhhhhhh-----hhhhhhhh sectr
71 KNVRS AHERNRIKRLTRESFRLRQHEL-----PAMDFV VVAKKGV-ADLDNRALSEA-----LEK LWRRHCR Escherichia_coli
71 KHVKRAHERNRIKRLTRESFRLHQHAL-----PSMDFV VLVKKGV-ADLDNRALTEA-----LEK LWRRHCR Yersinia_pestis
71 KHLKRAHERNRIKRLVRESFRLSQHRL-----PAYDFV FVAKNGI-GKLDNNTFAQI-----LEK LQRHHR Haemophilus_influenzae
71 KQIKTAVGNRRPKRICRESFRLHQNL-----ANKDFV VVIAKKS A-QDLSNEBELFNL-----LGK LWRQLSR Vibrio_cholerae
71 KNIKHAHNRLIKRLVRETFRLQYKLE-----LSMDFV VVIAKKN I-LFLNNTRIIDM-----LNS LWSNYRR Buchnera_sp
71 KNVKLAVQNRRLIKRLIRESFRLHNQETL-----AGWDI VVIAKKG L-GELENPELHQQ-----FGK LWRKLLR Pseudomonas_aeruginos;
71 KTAKFANERNYMKRVRIDWFLRNKRL-----PPQDFV VRVRRKF-DRATAKQARA E-----LAQLMFGNPA N_meningA
71 KIGNAVTRNNAVKRIRHVIM-ALGHQ-L-KSEDFV VVIAKKG V-HSLEYQELQQN-----LHHV LKLAQL Streptococcus_pyogenes
71 KIGNAVTRNQIKRIRHIIQNAKGS L-V-EDVDFV VVIAKKG V-ETLGYAEMERN-----LHV LKLSKI Strep._pneumoniae
71 KIGNAVMNRRIKRLIRQAPLEEKERL-K-EK-DYIIIIARKPA-SQLTYEETKKS-----LQHLFRKSSL Bacillus_subtilis
71 KIGNAVLRNRIKRIARENFKVHKS H I-L-AK-DIIVIIARQPA-KDM TTLQIQNS-----LEHV LKIAKV Staphylococcus_aureus
71 KIGNAVIRNKRQIRMLKQNI SEIGT--VSKDI IILVRKSV-LELKYATLSKL-----LIK LIKBEIK Mycoplasma_capricolum
71 A-VGTAVQRHVRARLRHLHVARPLLGELOP-----SDRIV IIRALPGS-RTVSSARLAQE-----LQRCLRRMP Mycobacterium_avium
71 S-VGS AVEHVRARLRHLHVASIVKLEHP-----SDHV IIRALPSS-RHVSSARLEQQ-----LRCGLRRAVE Mycobact._tuberculosis
71 A-VGGAVVRNQVRRLRHLVCDRLSALPP-----GSLV VVRALPGA-GDA DHAQLARD-----LDAALQRLLG Streptomyces_bikiniensis
71 A-VGNAVTRNRVRRRLRAVVAEQMRLPPLRDLFVVLVQVRALPAA-AEADYALLRRETVGALGKALKPHLP Micrococcus_luteus
71 K-FGKATRNRKLRVREIPRNRKGVIPK---GFDI VVIRPKKLS EEPERVDFTVTR-----EKLNL LKLR Thermotoga_maritima
71 RNVRKAVWRNRRIKRLIRESFRLKDL-----PAFDI VVIAKASS-VEADNKELEYEC-----INKLFTQLEK Coxiella_burnetii
71 RVDI RAVNRRIKRALREVMRQIAYKLVF-----GDY VVVVRQTA-KDVSNAELSA-----LSSLRRRIGA Xylella_fastidiosa
71 K-IGGAVEERNRAKRLREARLVLPLHAR--PSHDYV FIAARGGT-GTREWARLLDDVKTALIS LAADLDR Caulobacter_crescentus
71 K-FGKAHORNRPKRIVREAFRHRVRLNPG---CQVVISPRGNS--QDFPLKLESEL-----LQRIPEALPL Chlamydia_trachomatis
71 KVS KATVNRRLKRI RAVINHFQPIK---GFDV IIVLPQG-IGCNYERFLRE-----LEQLFSQAGI Synechocystis_sp.
71 KFKPLATQRNRI RLIKAWPIAADIPKIS---YDI VVIVKPSF-IDGSPVLCNEN-----LK IILQRIIN Ureaplasma_urealyticum
71 TKYKLAVERNLIRRQVKAIMREQFCNLN---AVDVLVIINQGF-LELTFKEKQTI---FLNL CQKLE Mycoplasma_pneumoniae
71 KTLKHAVKRRNRARRVREALRTPPELPGGLPACRAILMLNPGVLTVPFPELQAALQA LQRGAGATKR Deinococcus_radiodurans
71 KLNKAVVRNRIKRI RHLR IIVNDSNFKAKFAI III PKKGF-EEINFSHLQYE---LSK IILRNIY Rickettsia_prowazekii
71 G-FRGSVKRNRIRRLPK EAPRKRLELELG--IALDIIFVVS YGK-LTLTYFSIESL-----MKGLVLR CER Borrelia_burgdorferi

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145 155 165 175 185

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141 LARGS----- Escherichia_coli
141 QAPAS----- Yersinia_pestis
141 LAQKS----- Haemophilus_influenzae
141 PSRG----- Vibrio_cholerae
141 ----- Buchnera_sp
141 NRPRTE SPADAPGVADGTHA----- Pseudomonas_aeruginos;
141 TGRKQA----- N_meningA
141 LEKGFSESEKH----- Streptococcus_pyogenes
141 YREGNGSEK ETKVD----- Strep._pneumoniae
141 YKSSSK----- Bacillus_subtilis
141 FNKKIK----- Staphylococcus_aureus
141 ----- Mycoplasma_capricolum
141 -AGSGR----- Mycobacterium_avium
141 LAGSDR----- Mycobact._tuberculosis
141 GGTR----- Streptomyces_bikiniensis
141 AASEHA----- Micrococcus_luteus
141 IEG----- Thermotoga_maritima
141 QSKRSSSV----- Coxiella_burnetii
141 LPLAPIDNAMLPPFERNC SRK----- Xylella_fastidiosa
141 GGTKVSRSSNGALHDAAPSSQPDPTVSG----- Caulobacter_crescentus
141 ASSSRC----- Chlamydia_trachomatis
141 IDHGHSRNHLL----- Synechocystis_sp.
141 FEKR----- Ureaplasma_urealyticum
141 LDAPPK----- Mycoplasma_pneumoniae
141 GGAKGKGGKGGGQVAGERAGNESGSGRVS AENVNPTSASPAPAEKS Deinococcus_radiodurans
141 ----- Rickettsia_prowazekii
141 GIGESK----- Borrelia_burgdorferi

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