

AoLcpA 1 MDSLSH-----
 AoLcpB 1 MTQSL-----
 AoLcpC 1 MIA-----
 AoLcpD 1 VTFDDSLPPSITPGSGGRRPQRQRPIDAVNQSRERGEASGGEAVAQPTDVAGGSPRRPSSPTARRPQRHSVGLGRNDS
 BsTagT 1 MEERSQ-----
 SpnCspA2 1 MGLINR-----LNAT-----SNYSEYLSVA-----

AoLcpA 7 -----DHSAAESEAASEASD--ATGDPTDTS SPLPQR-----RR-
 AoLcpB 7 -----PEPSSIEKGD-EEAASSGADTTS-----
 AoLcpC 4 -----PVPQF-----SKP
 AoLcpD 81 DRPASASQASVREGQPPSVQPRRSSASQSGSHARASSAIPLPEPDAGVGN GASEPERTQAMPARRGTYPVGSSAPRE-
 BsTagT 7 -----
 SpnCspA2 22 -----VLAISEIENVTLT-SVTPPTGTDNE-----

AoLcpA 39 QCRG-CTG----V---KRWRRRKIV-VGLST--AVTTALAL--GADVAV--L-----AHPAR--VDI
 AoLcpB 31 -ARG-AGS----VL---RRPGRW-R--ALLSV--LADPVLTLATG-LALWVRHS-----TASGHEF--ADP
 AoLcpC 12 HARH-SS-----KELGRRRLARR-VGLSI--LAYTFVVS--AGFAW--HN-----IQSITWFNIDS
 AoLcpD 160 PAAG-CPSLRPERRRRPPRSRPRWRR--VGVV--VVIVVALALI-LARIAWLWND-----VSSQHRV--DA
 BsTagT 7 -RK-----K---KRKLKWKVAGLMA--FLVIAAGSV--GAYAVKLN--NASAEHV--SL
 SpnCspA2 47 NIOKLLADIK-----SSQNTDLT-VNQS SSVLAA YKSLIA--GETKAVLNSVFENIIELEYPDYASLKKI--YT

AoLcpA 87 A-----M----PTT SPTA EEWLILGTD SRAIVPGDQNR YGTQ-EVGSRADVIAL--VRSQEGVTIINPRDLTIN
 AoLcpB 85 FAGIPARAPQOKVAAEPEAVNLLVLGTD SRTSASPD-----SQWKEGAQRIDALMIVQVSGDRKTVSVMSIPRDSWVE
 AoLcpC 62 LLESEDRPGTKPPDYEGRVNNLLILGTD SRAVGSNNVD-GSQGD-EVSVARS DIALVHLSADKRKVDASIPRDLVD
 AoLcpD 221 LSGA-----ADTPEWTLVIGSDAR GAVQ-----D-ETEGARADS VMLH-KADNGQTS LITSIPRDIYVD
 BsTagT 55 ARGEQSVKRIKEFDPE-KDSFSVLLILGIDAREKNG-----E-TVQARSDANLAVTFNRKEKTAKMLSIPRDAYVN
 SpnCspA2 113 ---KGFTKKVEAPKLSKNQSFNIYVSGIDTYPI-----SSVSRSDVNLITVNRDITKLLTITPRDAYVP

AoLcpA 155 SKGME--L-----DRATT-----YVGPQNTVNACTGLGIPTHLVTIDMAQFATIDSLGG
 AoLcpB 159 IPCHG--Q-----GKLNAAYS-----YGGPSLTHHTVENLIGIHDHFAVANFESFVALTDEIGG
 AoLcpC 140 IPECT--TLDGGKTEASEDAPFNSAKGAGSSSDKKAVASAACTLKTVEETLNVRIIDDFVVDFTGLSKVVDSLGG
 AoLcpD 280 IPEYG--E-----NKLNAAYS-----FGGKLLVOTVEKLGLETDHVVEYVGTGVSQVVDVAVGG
 BsTagT 124 IPCHG--Y-----DKFTHAHA-----YGGVDLTVKTVVEELDIPVDYVVESNFTAFEDVWNLNG
 SpnCspA2 177 IADGGNNQK-----DKLTHAG-----IYGVDSSTHTENLYGVDTNYYVRIINFTSFLKMDLILGG

AoLcpA 207 LEVDVPEPV----RFA-YTG--NLSSA-CRHLSCIDALALVRSRPEILRDGRWVTMSQADG-AQRRSSTAIWMOA
 AoLcpB 212 VRNFKTP-----QT-LACK--EL-GA-CAQVLDGQALAYTRERS-----LPNG-DFDRVKRQQTWMRS
 AoLcpC 217 VHVQVDEA----DFSEYTFG--KL-AE-CQKLDGENALQYARVRG-----VSDGSDLSRIITROQNMRA
 AoLcpD 333 VNVCLDYDV----ADE-DSGLVWNT-SQGTQOTVDGTKALAYSRRRAS-----DPNG-DVGRGQRRAVTSA
 BsTagT 177 VVTVVKSFKVIQKDKTKGKVV--VL-QK-GTHTLDGEEALAYVRTRFA-----DS-DLIRGQRQMEVLSA
 SpnCspA2 232 VDWHNDQEF----SAL-HGKF--HF-PV-GNVLLDSEALGFVRRBYS-----LADG-DRDRGRNQKVLVA

AoLcpA 277 VLSAIGQKA--SNPVS-LHQLAHTVAGNITLDSGTGLSDAALERSASARRAGATT---IIDLPTGPR---DES-II-I-V
 AoLcpB 267 IVSRVLENGTMSPTIA-LYSFLKTSRTYAVDESFTLNQQLALETRH--HSNDFA---FMTPTAGTGTSTDGGSI-V
 AoLcpC 276 MASKALSSLLTQSGF-LTSTLETTTTSERIGQ---IGNLSGLAYSIOG-VGIDKIN---FVTMPNEPA---ADP-NQ-W
 AoLcpD 393 VVSKAAAPSTAFSFR-QDALVLAGINALVDRSACTMSLAQVLAPEAS-ASGSGITGAPITDEAYSP---EDANIGET
 BsTagT 238 IIDKSKLSSTPAYDDIVDTMGONLKMNSLKDAILFPFI---TSLMS-VE-----SIQLTGYDY---EPAG-Y-Y
 SpnCspA2 289 IIQKLTSTEALKNYSTIINSLQDSIQTNVPLTMINLVLAQLESGGNYK-VNSQDKGTGRMDLPSYAM---PDSNLY-V

AoLcpA 346 SPNQE-ER-DL-----ARYGYSKTC---REAG-
 AoLcpB 341 TLDADADT-PLNFAFEDRVSTY-----LTEHEDAV
 AoLcpC 343 VPSEG-AK-KV-KALEEDKPVPSDTSAPASSDSSATINDSSSQSTDESAETS DPSQATPTPAPTQAPNASTPQQQEA-K
 AoLcpD 468 VLQDTIAPNFKSLRGG-----
 BsTagT 302 FKLNQKLEQVKKELQNDLGV-----
 SpnCspA2 364 MEIDDSL-AVVKAAIQDV-----MEG-----

AoLcpA 370 -----A
 AoLcpB 371 ELLPATV--N
 AoLcpC 421 PTFACP--A
 AoLcpD 486 KLTAAAFNQS
 BsTagT -----
 SpnCspA2 385 RKLAAALE--

Figure S1: Siegel, Amer et al.