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                          :      *  :::  *     *  **  *    **:** : :          : ::
P22219|VPS15_YEAST  RLQIIENSPRHGAVSSICIDEECCVLILGTTRGIIDIWDIRFNVLIRSWSFGDHAPITHVEVCQFY----  244
A1DNG9|A1DNG9_NEOFI PIYSLQNPVHHGTPTTFCCDRKHNWLLVGTTHGVLDLWDLRFRVRLKAWGLPGSGAILRLQVHPTK---G  259
Q8NJL6|Q8NJL6_ASPFU PIYSLQNPVHHGIPTTFCCDRKHNWLLVGTTHGVLDLWDLRFRVRLKAWGLPGSGAILRLQVHPTK---G  259
A1CU03|A1CU03_ASPCL PVYSLQNPVHHGTPTTLCCDRRHNWLLVGTTHGVLDLWDLRFRVRLKAWGLPGSGAIHRLQVHPTK---G  259
Q0CMN6|Q0CMN6_ASPTN PMYTLQNPVHHGTPTTFCCDRKHNWLLIGTTHGLLDLWDLRFRVRLKAWGLPGASNIHRLQVHPTK---G  259
A7KAP0|A7KAP0_PENCH PIYTLENPVHHGTLTTFCCDRRHHWLLVGTTHGILDLWDLRFRVRLKAWGLPGWGAINRIQLHPVK---A  260
Q1EB23|Q1EB23_COCIM EVFILRNPVHYGMPTTFCVDRKRNWLLIGTMHGILNLWDLRFCVLVKSWGLPGGTPINRLLIHPLK---G  258
A7S9N0|A7S9N0_NEMVE MAWKLANNPAHGLITSFVVDPCHCWLAVGTSTGNLVCWDLRFQLPITSLSHPRGARIRRLATHPTE----  221
Q29CG0|Q29CG0_DROPS SAWRLQNELRHGVITTICADPTGSWLATGTSGGKHICWDLRFRLPIAEIKHPADSWIRKVACHPTE----  220
Q9VHH2|Q9VHH2_DROME SAWRLQNELRHGVITTICADPTGSWLATGTSGGKHICWDLRFRLPIAEIKHPADSWIRKVACHPTE----  220
Q7PRZ4|Q7PRZ4_ANOGA YAWRLQSDLRSGVITTFCIDPSSSWLTVGTSSGRHVCWDLRFQLPIAEIKHPHDARIRRVSHHPTE----  247
Q17GU5|Q17GU5_AEDAE YAWRLESDLRKGVITTFCVDPTSSWLTVGTSSGRHICWDLRFRLPIAEIRHPHDSRIRRVSHHPTE----  241
A9JTK7|A9JTK7_XENTR NAWTLKHDLRLGLITSFAVDIHQCWLCIGTSSGTMACWDMRFQLPISSHTHPARARIRRLLMHPLSMHTM  250
Q99570|PI3R4_HUMAN  NAWTLKHDLKSGLITSFAVDIHQCWLCIGTSSGTMACWDMRFQLPISSHCHPSRARIRRLSMHPLY----  246
A6QLW1|A6QLW1_BOVIN NAWTLRHDLKAGLITSFAVDIHQCWLCIGTSSGTMACWDMRFQLPISSHCHPSRARVRRLSMHPLY----  246
P0C0R5|PI3R4_RAT    NAWTLKHDLKSGLITSFAVDIHQCWLCIGTSSGAMACWDMRFQLPISSHCHPSRARIRRLSMHPLY----  246
Q8VD65|PI3R4_MOUSE  NAWTLKHDLKSGLITSFAVDIHQCWLCIGTSSGAMACWDMRFQLPISSHCHPSRARIRRLSMHPLY----  246
                    .......220.......230.......240.......250.......260.......270.......280
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                             .   . : :*:: .   :
P22219|VPS15_YEAST  -GKNSVIVVGGSSKTFLTIWNFVKGHCQYAF-------------------------------------  274
A1DNG9|A1DNG9_NEOFI RGRWVCVSSSGSRGNEITVWDIEKVRCREVY------HADSPGSNAVANGGPAVSPVDSAKAKSAFASAR  323
Q8NJL6|Q8NJL6_ASPFU RGRWVCVSSSGSRGNEITVWDIEKIRCREVY------HADSPGSNTVANGGSAASPVDNAKAKSAFVNTR  323
A1CU03|A1CU03_ASPCL RGRWVCASSSGSHGNEITVWDIEKVRCREVY-----QADSPGASAVLPNGGHGGSPADHTPAKKTYPSSR  324
Q0CMN6|Q0CMN6_ASPTN RGRWVCVSSSGSHGNEITVWDIEKVRCREVY-----------QADSPQLGNSDANGDTAKARQPYMSPRD  318
A7KAP0|A7KAP0_PENCH RGRWVCVSSSGSHGNEITVWDIEKFRCREVY-------RATPLGVGTNGPNGTHHPSRTPHAYPTPVVPS  323
Q1EB23|Q1EB23_COCIM RGRWVCVTGGGKSGSEVMVWDIDKMQCREVYRTAVISSASDDNGKPAAAAAQTHRNIHFTPDTTWKAYDP  328
A7S9N0|A7S9N0_NEMVE -QSWVVSAVEG--NNEVSIWDLETGARRQT-------------------------------------  248
Q29CG0|Q29CG0_DROPS ---PSYLISASQSNNEVSVWNIETGQRQTV-------------------------------------  247
Q9VHH2|Q9VHH2_DROME ---PSYLISASQSNNEVSVWNIETGQRQTV-------------------------------------  247
Q7PRZ4|Q7PRZ4_ANOGA ---SSWLVSASQGNSEVYVWNIETGHRQQAY-------------------------------------  275
Q17GU5|Q17GU5_AEDAE ---PSWLVSASQGNNEVYVWNIETGHRQQAF-------------------------------------  269
A9JTK7|A9JTK7_XENTR YQSWVIAAVQG--NNEVSMWDMETGDRR--------------------------------------  276
Q99570|PI3R4_HUMAN  -QSWVIAAVQG--NNEVSMWDMETGDRR--------------------------------------  271
A6QLW1|A6QLW1_BOVIN -QSWVIAAVQG--NNEVSMWDMETGDRR--------------------------------------  271
P0C0R5|PI3R4_RAT    -QSWVIAAVQG--NNEVSMWDMETGDRR--------------------------------------  271
Q8VD65|PI3R4_MOUSE  -QSWVIAAVQG--NNEVSMWDMETGDRR--------------------------------------  271
                    .......290.......300.......310.......320.......330.......340.......350
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                                                                                    :::
P22219|VPS15_YEAST  ---------------------INSDEQPSMEHFLPIEKGLEELNFCGIRSLNALSTISVSNDKILLTDE  322
A1DNG9|A1DNG9_NEOFI DYEAWHVESDRPEGMLSRFGTEGPLSGAIESSGPSAASTPAGICAFAVGYDSPEDGKDNSTRCGFIVSAG  393
Q8NJL6|Q8NJL6_ASPFU DYEAWHIESDRPEGMLSRFGTEGQLSGAIESSGPSAASTPAGICAFAVGYDSPEDGKDNSTRCGFIVSGG  393
A1CU03|A1CU03_ASPCL DYEAWLVESDRPEGMLSRFGTEGPLSGAIESSGPSPSSAPAGICAFAVGYDSPEDGKDNSTRCGFIVSAG  394
Q0CMN6|Q0CMN6_ASPTN YEAWHVEGDRPEGMLSRFATGAPASGAVEQASGPSSSAMPARICAFTVGFDAPDDGKDNSTRCGFIVSGG  388
A7KAP0|A7KAP0_PENCH DYEAWRVDSDRPEGMLSRFATNGPEPGTPSSN--NPAGDRLGIWAFAVGLNAPGEDKDSNTKCGYIISAG  391
Q1EB23|Q1EB23_COCIM WRVDDEKPESLLSRFAMASSPDSSSKSVTNDRNGIRAIAVGLDVPDPSAPTGNQTDNNFSSKCGFLISGG  398
A7S9N0|A7S9N0_NEMVE ------------------------------LWASNTPPLSQTKVSPHAVHALYSSPGDAT------PFILTAG  285
Q29CG0|Q29CG0_DROPS ------------------------------LWASPAPVLTNTSLNDPATTCGILSGVVDG-----APFILTGS  285
Q9VHH2|Q9VHH2_DROME ------------------------------LWASPVAALSSASPSDPATTCGILSGVVDGS-----PFILTGS  285
Q7PRZ4|Q7PRZ4_ANOGA -------------------------------WASASPPLSNSNASSHSVCALLPGVNDGN------PFLLTGG  311
Q17GU5|Q17GU5_AEDAE -------------------------------WASPNPPLTSPNASSPSVCALLPGVVDGN------GFILTGG  305
A9JTK7|A9JTK7_XENTR ----------------------------FTLWASNSPPLSEMQPSPHSVHGIYCSPADGN------PILLTAG  315
Q99570|PI3R4_HUMAN  ----------------------------FTLWASSAPPLSELQPSPHSVHGIYCSPADGN------PILLTAG  310
A6QLW1|A6QLW1_BOVIN ----------------------------FTLWASSAPPLSELQPSSHSVHGLYCSPADGN------PILLTAG  310
P0C0R5|PI3R4_RAT    ----------------------------LTLWASSAPPLSELQPSPHSVHGIYCSPADGN------PILLTAG  310
Q8VD65|PI3R4_MOUSE  ----------------------------LTLWASSAPPLSELQPSPHSVHGIYCSPADGN------PILLTAG  310
                    .......360.......370.......380.......390.......400.......410.......420
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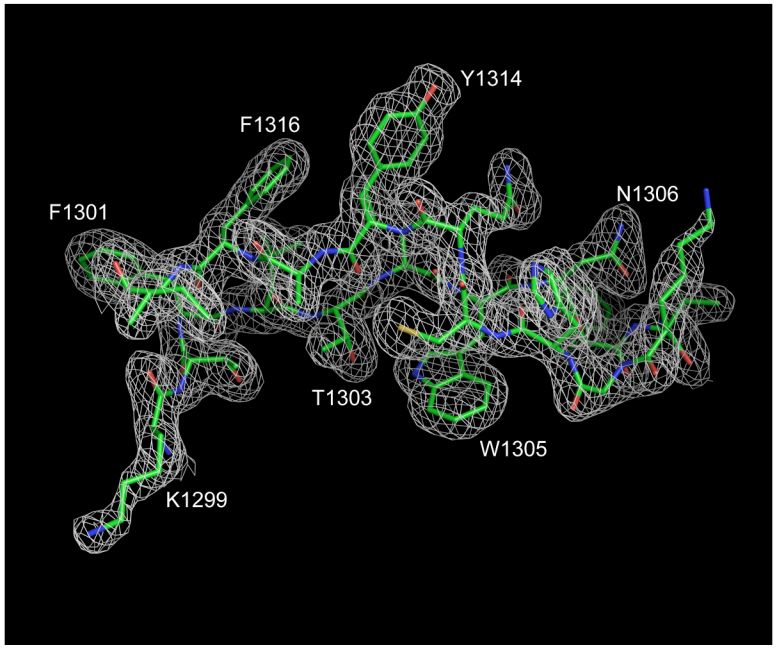
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                    :  :.    . .
P22219|VPS15_YEAST  ATSSIVMFSLNELSSSKAVISPSR----------------------------------------FSD   349
A1DNG9|A1DNG9_NEOFI CDRKIRFWDLARPELSTIVSGQDI----------VSEGGMSGKPRYELSQPLPNLLVTTEHIPGPPAASS   453
Q8NJL6|Q8NJL6_ASPFU CDRKIRFWDLARPELSTIVSGQDI----------VSEGGVSGKPRYELSQPLPNLLVTTEHIPGPPAASS   453
A1CU03|A1CU03_ASPCL CDRKIRFWDLARPELSAIVSGMEA---------VSEGGVAGKPRYELSQPGPNLMVTTEHIPSPPAASST   455
Q0CMN6|Q0CMN6_ASPTN TDRKIRFWDLARPELSSIVSGLDA----------VSDGVATGKPRYELSQPGPSLLVTTEHLPHPPA-SG   447
A7KAP0|A7KAP0_PENCH CDRKIRFWDLARPDLSSIVSGLDV----------VSDGSASGKPYYEQSQPGPSLLVTTEHLP---SSSS   448
Q1EB23|Q1EB23_COCIM SDRKIRFWDVSHPDASTIICSPDMISDGASLSAKPRYEITNPTPSLTITTEWLPSSGASTSAAGRAGPGS   468
A7S9N0|A7S9N0_NEMVE SDRRIRMWDLSYPEHSQMVAGAAT--------------------------DNLNSVVLQYKSRLIDGTE   328
Q29CG0|Q29CG0_DROPS SDQRIRYWDIASPKNSSL----------------------KVPAANDNLTDVAFNYSARLIDGSQVIEE   332
Q9VHH2|Q9VHH2_DROME SDQRIRYWDITNPKNSSL----------------------KVPAANDNLADVAFNYGARLIDGSQVIEEQ   333
Q7PRZ4|Q7PRZ4_ANOGA TDQRLRYWDPVNIENCALVVPSAR----------------DYAPLNVTGTAGNNANTPGGGSAGATPGG   364
Q17GU5|Q17GU5_AEDAE TDQRIRYWDSVNANNCSLVV----------------------PAPRDYLSTSNISYNAQLIDGTRVFQE   352
A9JTK7|A9JTK7_XENTR SDMKIRFWNLACPKRSYIIAGST--------------------------------NNLPPVSYFSKIIE   352
Q99570|PI3R4_HUMAN  SDMKIRFWDLAYPERSYVVAGSTS--------------------------------SPSVSYYRKIIE   346
A6QLW1|A6QLW1_BOVIN SDMKIRFWDLAYPERSYIVAG-------------------------------SAGSPSVSYYRKVIE   346
P0C0R5|PI3R4_RAT    SDMKIRFWDLVSPERSYVVAGST---------------------------------GSPSVSYYKKIIE   346
Q8VD65|PI3R4_MOUSE  SDMKIRFWDLVSPERSYVVAGST---------------------------------GSPSVSYYKKIIE   346
                    .......430.......440.......450.......460.......470.......480.......490
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                                                  * : * .:   .        :  . *:: :
P22219|VPS15_YEAST  VFIPTQVTANLTMLLRKMKRTSTHSVDDSLYHHDIINSISTCEVDE-TPLLVACDNSGLIGIFQ-----   412
A1DNG9|A1DNG9_NEOFI AGSKGSSKKGGGARLPRSTVISLQQQQLLKSHLDFIQDVAVLR-VPY-GMIISVDRAGMVFLSDSDESC   520
Q8NJL6|Q8NJL6_ASPFU AGSKGSSKKGGGARLPRSTVISLQQQQLLKSHLDFIQDVAVLR-VPY-GMIISVDRAGMVYVFQ-----   515
A1CU03|A1CU03_ASPCL GGKGSSSKKGGGGRLPRSTVISLQQQQLLKNHLDFIQDVAVLR-VPY-GMIVSVDRAGMVYVFR-----   517
Q0CMN6|Q0CMN6_ASPTN SGGKGGSKKGGSGRLPRSTVISLQQQQLLKSHLDFIQDVAVLR-VPY-GMVVSVDRAGMVYVFQ-----   509
A7KAP0|A7KAP0_PENCH TGSSRDTRKGASPRPPRSTVISLQQQMLLKSHLDIIQDVTVLR-VPY-GMVVSGDRAGMVYIFS-----   510
Q1EB23|Q1EB23_COCIM KKSGAGATGGGAGRPPRSTVISLQQQQLLKSHLDIILDIAVLE-VPY-GMTVSVDRGGMIYVFQ-----   530
A7S9N0|A7S9N0_NEMVE VFQEVYCKPRQSVLHEDMPRRGPAQPPV--GHHECINDIAFSK-SP-QNFILTAARDGVVKIWK-----   388
Q29CG0|Q29CG0_DROPS QVISMGTGDSQQLRTSTEENPRSGPDMPTASHRDAITDLLMCKDKG-QIYIASASRDGVIKLWK-----   395
Q9VHH2|Q9VHH2_DROME IISMASTGDSQQLRSSTEENPRSGPDMPTASHHDAITDLLMCKDKG-QIYIASASRNGVIKLWK-----   396
Q7PRZ4|Q7PRZ4_ANOGA PGSGAGGGSGERGGRQPDDDH-RVGPEMPAHGHNDVISDLLMCRSA-KQTFIASSSRDGVIKLWK-----   426
Q17GU5|Q17GU5_AEDAE IHCNSGGPPDRNSRGGSEDVARSGPEMPPPGHHDAISDMLMCRTS-KQTFVVSSSRDGVVKLWK-----   415
A9JTK7|A9JTK7_XENTR GTEVVQEIQNKHTMGPSDDTPRKGPESLPAGHHDIITDIVTFQ-TT-QGFIVTASRDGIVKVWK-----   414
Q99570|PI3R4_HUMAN  GTEVVQEIQNKQKVGPSDDTPRRGPESLPVGHHDIITDVATFQ-TT-QGFIVTASRDGIVKVWK-----   408
A6QLW1|A6QLW1_BOVIN GTEVVQEIQNKQKVGPSDDGPRRGPESLPVGHHDIITDVATFQ-TT-QGFIVTASRDGIVKVWK-----   408
P0C0R5|PI3R4_RAT    GTEVVQEIQNKQKVGPSDDTPRRGPESLPVGHHDIITDIATFQ-TT-QGFIVTASRDGIVKVWK-----   408
Q8VD65|PI3R4_MOUSE  GTEVVQEIQNKQKVGPSDDTPRRGPESLPVGHHDIITDIATFQ-TT-QGFIVTASRDGIVKVWK-----   408
                    .......500.......510.......520.......530.......540.......550.........
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Supporting Figure 1



SUPPORTING FIGURE AND TABLE LEGENDS

Table 1. Phasing and refinement statistics.

Figure 1. Representative electron density of Vps15 WD-like domain.