

Data S1: Related to Figure 4. Protein sequences used for phylogenetic analysis. Protein sequences can be retrieved from EupathDB (<https://eupathdb.org/eupathdb/>) and NCBI (<https://www.ncbi.nlm.nih.gov/>) database.

>sp|G5EGE9|DPY26_CAEL Condensin complex subunit dpy-26 (Kleisin Iy) OS=Caenorhabditis elegans OX=6239 GN=dpy-26 PE=1 SV=1

MDVPSSSNVTGRRKRQVLDDDEDDGFRSTPLRKVRGTTKIRPADVVPETIMTKIGAHIDDIVNKKKVG
ELNCFEYKSPLEIHTIEDMIKAKASIQEMAVVLEGAQCIIGYRVDRLHHDVVRQIDSALSSGTVMRDSNG
EEIHLTLESRKAKKKMAVVDGMNGMLDFLNNMDDALTTTELDADNDKNWKEDEENIAGEPRIDFKAN
SKDVDAFLQRDIFPEKLIYALSIRATDLRADLLSDVSNYISADDTAHLKLDANIDWLRANPTFQKATKG
SVCNSSNSFHSLNYYGIHSPDGRTLMLHNRIADKNADDRFFTSVSVSLVKNTRALLTNSLDKKPRIL
DNYLMLEVKDRPVIGRYKIMSKDVKKSTLPLAESSREKDLANLTF AEMNHRPSNLDMTVAGASDMSM
LPGNQGLPLAQGENDETIALDRLTPPLQSSVSQKASDEYVLPPEANDLDEHLIGKLPNEMDQTL
ANMFDKKLEVFNTSDTLESK/VKNGIRAEWGEDDEAIMKNDTKHPRQAGIEGWIKATDAWTNYDV
VKMNVNREARSQLDENAIDEQESYRNMVPEIGKNLFLVKSDDYMNNYPGDRPADFTVNDEVSDVMK
MWSGEDSTAEDDVPLEQIQQEIREQVQQQDVMPIEEMDYDAGGAAFDVFDDRLAAPVEVEEM
EGDNNRNDGRVADILFNEQMDETEVEERNEQDVQRELEDIALAADEVAELMTSAPPPQLVGP
SAEM REEIQNIGKNDNAHWVPPVVGDERQAAVTAQRKRREKKAKSRKATVEDFVHYFRDIPDDEIEREITA
AKCSKIADEKSTFLSEQQLYLPTLGIENKPHVAFEMGLLGNMFFKSYGKIRLERVKNQKAEQDLFI
DEARGNKDSDCLNWLLSFGFRMENPEPITGSDSDENLRTAVEQPFDDDFANDYYDEDRYDPN
YE QQLAAQMGPDQMQRKLALTASHINQMFPNIHRSKRYGGEYGDSDDEFDDSFDRQSIQAKNLDA
AKHK KCLAEILKTDLSMPSIQYVLEQLTSNQTLMNNTTIRAADDRNETGRPATPTMEADKTLTSV
FDYRS PNKSNHDVNETMKALTEMPDYQAADERPNNQPTTSTYGTANTENRKVHNGCHTLLSL
LMSPSRM GETVRPSSIVSFLHIANENNLQIVQDRSKRSWMSDFIVLNSSESLPRGLKMGRIEDQ
DEFWKRTQDP DAIEGTASDANNVFSNLMRRPKAVPVRKGRGAGGQPTTSDLGAIVVEEEMEE

>sp|Q15003|CND2_HUMAN Condensin complex subunit 2 ((Kleisin Iy)) OS=Homo sapiens OX=9606 GN=NCAPH PE=1 SV=3

MGPPGPALPATMNNSSSETRGHPHSASSPSEVFPMPLPRKAPLNIPGTPVLEDFPQNDDEKERLQ
RRRSRVFDLQFSTDSPRLLASPSSRSIDISATIPKFTNTQITEHYSTCIKLSTENKITTNAFGLHLIDFM
SEILKQKDTEPTNFKVAAGTLDASTKIYAVRVDAVHADVYRVLGGGLGKDAPSLEEVEGHVADGSATE
MGTTKKAVKPKKKHLHRTIEQNINNLNVSEADRKCEIDPMFQKTAASFDECSTAGVFLSTLHCQDYRS
ELLFPSDVQTLSTGEPELPELGCVEMTDLKAPLQCAEDRQICPSLAGFQFTQWDSETHNESVSAL
VDKFKKNDQVFDINAEVDESDCGDFPDGSLGDDFDANDEPDHTAVGDHEEFRSWKEPCQVQSCQE
EMISLGDGDIRTMCPLLSMKPGEYSYFSPRTMSMWAGPDHWRFRPRRKQDAPSQSENKKKSTKKD
FEIDFEDDIDFDVYFRKTKAATILTKSTLENQNWRAATLPTDFNYNVDTLVQLHLKPGTRLLKMAQGH
R VETEHEEIEDYDYNPNPNTSNFCPGLQAADSDDLDLDFVGPVGNLSPYPCHPPKTAQQNGD
TPEAQLDITTYGESNLVAEPQKVNKIEIHAKTAKKMDMKLQSMWSLLTALSGKEADAEANHRE
AGKEAALAEVADEKMLSGLTKDLQRSLPPVMAQNLISPLAFACLLHLANEKNLKLKLEGTEDLSDVLRQ
GD

>sp|Q9Y7R3|CND2_SCHPO Condensin complex subunit 2 ((Kleisin Iy)) OS=Schizosaccharomyces pombe (strain 972 / ATCC 24843) OX=284812 GN=cnd2 PE=1 SV=1

MKRASLGGHAPVSLPSLNDDALEKKRAKENSARKQRELRRSSALHSITPRRESLNNSSPFNSSHQVPV
LSNFEEWIKLATDNKINSTNTWNFALIDYFHDMSLLRDGEDINFQKASCTLDGCVKIYTSRIDS
VATET GKLLSGLANDSKVLQQTEEGEDAENDDLDLQKKKERKRAQRSVKTLVKDFESIRAKKFELECS
FDPL FKKMCADFEDGAKGLLMNHLCDVQHGRIVFDSSDVIKDLNKDVEAESQEA
VVAAPIESHDTEMT NVHDNISRETLNGIYKCYFTDIDQLTICPSLQGFEDSKGNLDV
SLLKSLSDVNMITTTSLVDNTMEKT DADAASLSSDSGEEGHIVHALEMAYDEENPYVDV
VPKAMDESENPFGVDTEVNMADGSTMNE NYSIISTAAANGVYEFDKSMKKNWAGPEHW
RIQALRKNINASTVFNSNTAESSDNVSRSLSTE RKKRRELDNAIDFLQEVDVEALFTPAT
SSLKLPKSHWKRHNRCLLPDDYQYDSKRLQLFLKPKMSVL PNADGEGQLQLNKALD
DENDLDGIQPHGFSDGSDNVDEGIPPYGFSDSDSPKQTPLTTPSSSGF GDNLLTARLAK
PDMNLYAKRAKKVDVRLKEKLWKCLDLENTIKENSINSHIEGSEMESEETNMPVK
SFFSTVNQLEETYEKELKDISTSFAGICVLHLANEHNLELTSNEDFSDVFIRPGPNLTTLE
AENDV

>sp|P38170|CND2_YEAST Condensin complex subunit 2 (Kleisin Iy) OS=Saccharomyces cerevisiae (strain ATCC 204508 / S288c) OX=559292 GN=BRN1 PE=1 SV=3

MTTQLRYENNDDEERVEYNLFTNRSTMMANFEEWIKMATDNKINSRNSWNFALIDYFYDLVDLKDGE
NNINFQKASATLDGCIKIYSSRVDSVTTETGKLLSGLAQRKTNGASNGDDSNNGGNGEGLGGDSDEAN
IEIDPLTGMPISNDPDVNNTRRRVYNRVLETTLVEFETIKMKELDQELIIDPLFKKALVDFDEGGAKSLLL
NTLNIDNTARVIFDASIKDTQNVGQKLRKEEELIERDSLVDENEPSQSLISTRNDSTVNDVISAP
SMEDEILSLGMDFIKFDQIAVCEISGSIEQLRNVVEDINQAKDFIENVNRRFDNFLTEEELQAAVDPNAE
DDSDGDFMGMQQELCYPDENHDNTSHDEQDDDNVNSTTGSIFEKDL MAYFDENLNRNWRGREHW
KVRNFKKANLVNKESDLEETRRTTIGDTTDKNTTDDKSMDTKKKHKQKQVLEIDFFKTDDSFEDKVFA
SKGRTKIDMPIKNRKNDTHYLLPDDFHSTDRITRLFIPGQKMSLFSHRKHTRGDVSSGLFEKSTVS
ANHSNNDIPTIADEHFWADNYERKEQEEKEKEQSKEVGDVVGALDNPFEEDMDGVDFNQAFEGT
DDNEEASVKLDLQDDEDHFKPIRENKVYTSRVSKKVDVRRLLKKNVWRSINNLIQEHDSRKNREQSSN
DSEHTEDESTKELKFSDIIGISKMYSDDTLKDISTSFCFICLLHLANEHGLQITHTENYNLIVNYEDL
ATTQAAS

>sp|Q8C156|CND2_MOUSE Condensin complex subunit 2 (Kleisin I γ) OS=Mus musculus OX=10090
GN=Ncaph PE=1 SV=1

MRIPRSETMNSSFLKARGQQDVLSSPLERVPPASRPGKAPLGTPTVLEDFPQNDDEKERMQRRR
SRVFDLQFSTDSIHLASPNRNIDVSTTISKFTNTQITEHYSTCIKLSSENKITTKN AFLHLIDFMSEILKQ
KDAEPTNFKVAAGTLDASTKIYAVRVD AVHADVYRVLVGGLGKDTTPPQGEESHSGDGTLETERTKKP
AKPKKKQSKTIEQNLSNINVSEADGKCAVDPMFQKTAASFDECESTTG VFLSTLHCQDYRSELLFPSPD
MQTLSSGEPELELPDLGFVDMTDLEASLQQCVEDRPLCPSLAGFQFTKWDSETHNESVSALVDKFKK
NDQVFDINAEAEDEEDVPDGPLVEDFVDNDEPDL SAAGDHEEFRSWKELCQVQSNQEEVISLEDR
DIQVMCSFLSMKPGEYSYFSPRTMKMWAGPDHWRFRPRPKQDATSCTEHKKKS AKKDFEINFDDDI
DFDAYFQKTKAATILTKSTLENQNWKATTLPTDFHYETDNLIQLHLKPGKRSLKMDQDQKAKTEHYEE
IEDYDYNPNPNDTSNYCPGLQAADSDYEEADDL FADPVGTLDES DPKTTQENGHISPENQGV DITTY
QELNLVAEPQKVNKIEIHYAKTAKKMDMKLQKSMW SLLTKFSRKEADTEANHTESGQEGAPEEVAD
EKKLSGLTKDLQTRLPLPLMAQNLSIPLAFACLLHLANEKNL KLEGTEDLSDVLVMQGD

>tr|P91663|P91663_DROME Condensin complex subunit 2 (Kleisin I γ) OS=Drosophila melanogaster
OX=7227 GN=barr PE=2 SV=1

MTLPRLETPLRRSAVGSYQEGVSRMLTPFNDDAEERREARRRRTLLQQHRSSTLESIEDNETIKNCL
ELYNGNKVSKDNAWNLMMLIDSLANLLDHHHKRMSNFKMAGSSLEASSKVYGLRVD SIYLDAMRISAG
LSARTLTDKQINAAEDDDGPQGEQATGEGQDSAQQA AKEAAPKPKRQKKPISTVTKNRETLNSRLDT
APLQDPVFGKLNSTCGASINASNRLMHNILPSFDELRLRTTYNFWNSEESTE EVQDHTLNAEMEQ
WPATSLMSTNLMRKLLPHAERSNLRPLHTGYIITSAPNPKSANEKAAEVVQDEDHDEGLDNADDVCV
NKISMAFDINAECEPMPDL DGGPPPLVLEVDSNELEELTAE EQMVINNCRRLRKQTEFIEDLRPVDGNS
KLEYSYRPM DQISQFWAGPSHWKFKRTRPRSTFSQTNGQVDTQPIRTQRAKKS AHLNANRRAKALD
YGNVTENFFQQLD TTIRQRKANFQKKWDP RKLILPTKFELDPDLFFKYESAPS IKLSKRAGEPDSDEG
GDLGIDMDADMHHDDNDQELFNNEHFTDAVPANVSVIAAIAAEQAAEASMMNVSAGEIGLTQMNAT
CNNTVFEIGTEFEGAPSQVAKVIVPFAKRAKVIDMKNLKKSCNSLIQKQLLNAVPEETIPSHPKKKG EY
YSKGFASFQQVYQKLPDLLTTKMSDSLSPSVAFYAVLHLANDLKLRLIPQEDLEDFQIRQVLD

>sp|Q564K3|CND2_ARATH Condensin complex subunit 2 (Kleisin I γ) OS=Arabidopsis thaliana
OX=3702 GN=CAPH PE=1 SV=1

MDESLTPNPKQKPASTTTTRIQAPTS PFFLGSNDDRLEREQARAARAAASRRRSVIFARGSQPETESD
PCFDKQQILELFQNCIKLAS ENKINQKNTWELNLIDHLCEIIV EDENNTETNFQKASCTLEAGVKIYSM
RVDSVHSEAYKVLGGITRAGHDDGGDHEDAAGAVENATNQKKQPEKKISPLSTLEPSFDALNVKKFD
VAFVAVDPLYHQ TSAQFDEGGAKG LLLNNGVYGGCQVLFDSQEIPGKLVSSANKHDKSETIDLSFVK
ECVEQMVLNMRKKDEIVPSLRAIINQFDEENQRPSDTFSCGQQTTE SFDISHGNDASYADDDEGYEN
FGTSFDYEGQSGDV DENFGPNEAEPIYSNFHEEVEPASLQDMDSDDRLENVDDYLFLSLGISSKQNS
WAGPDHWKYRKTGKPDVQ PASEIKSSPPAKKTRKKKQAEPELDFAKALEEEMPDI FAPPKNPKTLLL
PASRTPCQTKLPEDCHYQ PENLIKLFLLPNVMCLGRRRRKNSGETSRQQPDDYEHGESWGN DNVY
DDDDGPFDDNENDQSDAEDTNTLISQPRQVNKIDVQYDKASKQVDVQVLKETLWECLQESHQPPIQ
DEEHQQEPPESRSFKVLLASFPDDCQAAERTQDISPHLCFICLLHLANEHNLSLIGSQNLDDLTIH LA

>sp|Q8BSP2|CNDH2_MOUSE Condensin-2 complex subunit H2 (Kleisin I β) OS=Mus musculus
OX=10090 GN=Ncaph2 PE=1 SV=1

MEDVEVRFHALLQPIRDLTKNWEVDVAAQLGEYLEELDQICISFDEGKTTMNFIEAALLIQGSACVYSK
KVEYLVSQALDFISGKRRRAKQLSLVQEDGSKKTVNSETPCETENEFLSLDDFPDSRANVDLKN
QASSELLIIPMLALVAPDEVEKNSSPLYSCQGDILASRKDFRMNTCMPNPRGCFMLDPVGMCPVE
PVPVPEYPMSRSQKDPEDAEEQPMEVSRNGSPVVPDISQEPDGPALSGGEEDAEDGAEPLEVAL
EPAEPRTSQSAILPRRYMLRERQGAPEPASRLQETPDPWQSLDPFDSLESKVFQKGPYSVPPGV
EEAPGQKRKRKGATKLQDFHKWYLDAYAEHPDGRRARRKGPTEFADMEVLYWKHVKEQLETLQKLR
RRKINERWLPGAKQDLWPTEEDRLEESLEDLGVADDFLEPEEYVEEPAGVMPEEAADLDAEAMPES
LRYEELVRRNVELFIATSQKFIQETELSQRIRDWEDTIQPLLQEQEQHVFPDIHIYGDQLASRFPQLNE
WCPFSELVAGQPAFEVCRSMLASLQLANDYTVETQQPGLEAAVDTMSLRLLTHQRAHTRFQTYAAP
SMAQP

>sp|Q6IBW4|CNDH2_HUMAN Condensin-2 complex subunit H2 (Kleisin II β) OS=Homo sapiens
OX=9606 GN=NCAPH2 PE=1 SV=1

MEDVEARFAHLLQPIRDLTKNWEVDVAAQLGEYLEELDQICISFDEGKTTMNFIEAALLIQGSACVYSK
KVEYLVSQALDFISGKRRRAKQLSSVQEDRANGVASSGVPQEAENEFLSLDDFPDSRTNVDLKN
QTPSEVLIIPMLALVAPDEMEKNNNPLYSRQGEVLASRKDFRMNTCVPHPRGAFMLEPEGMSPME
PAGVSPMPGTQKDTGRTEEQPMEVSVCRSPVPALGFSQEPGPSPEGPMPLGGGEDEDAEEAVELP
EASAPKAALPKESRSPQQAALPRRYMLREREGAPEPASCVKETPDPWQSLDPFDSLESKPFKKG
RPYSVPPCVVEALGQKRKRKGAALKQDFHQWYLAAYADHADSRLRRKGPSFADMEVLYWTHVKE
QLETLRKLQRREVAEQWLRPAEEDHLEDLGAADDFLEPEEYMEPEGADPREAADLDAVPMSL
SYEELVRRNVELFIATSQKQFVQETELSQRIRDWEDTVQPLLQEQEQHVFPDIHTYGDQLVSRFPQLNE
WCPFAELVAGQPAFEVCRSMLASLQLANDYTVETQQPGLEMAVDTMSLRLLTHQRAHKRFQTYAA
PSMAQP

>sp|Q9LUR0|CNDH2_ARATH Condensin-2 complex subunit H2 (Kleisin II β) OS=Arabidopsis thaliana
OX=3702 GN=CAPH2 PE=2 SV=1

MTSHGGGEVRGERIHTVQPERDLVANWEVDLSEKLEEYLLKICSGEITGNEEDGQIPVNFAEAALLQ
GSVQVYSKVEYLNLVLRLEFLSKQRDQEQSKGTSNENEASSSRQVDEEENDLFWNVDDIPVDT
KNRLDSSVGGDTCPSQFVKPPANLVVLEGDCLDTSGDGGELESYLLATTHLYRDFILLDPCDAVAVN
EFLGDNYGGKGRNSAHRGSSVRKSFHSSVGRSGGSARKSSVGKNQGTNVHLSPICGNPNDQNC
DQGSQPPVFEDNDHGFDMNEYGGAMDFSDTDAEDDPWKPLNPYEPGKLVKPFKVKILKIG
WSITKDHMTSMFPLARPNGPISSELIEIWKMHGCASKDEQASQDIPYYEKLREMLVNGGNQPCGANG
NYNDNDKDNHDEANNGDFHDFGEHDGDDAEHPFMDVDLNMNDGGAAEFHNYDGFENGESNCQ
ESLEDLCRSHLDALLANIAKSEKQTDLAARVSTWKQKIEQNLEEQELHPPFDIQEYGDRIINKLTVES
GNVETFTDLMKDQEKHEVARAFSALLQLVNNGDLDLEKPGNSTNEPMCYTAVKPFVSRLLKVHNRK
NEKRGIHLPQKRAKSPITKGSHESPPPKRRNTCSVSSQTRKVSLSKISKINGVGVRCPTNSKKRRKGR
SDDVTEVTEVASIEKSLGKL

>sp|P34341|KLE2_CAEL Condensin-2 complex subunit kle-2 (Kleisin II β) OS=Caenorhabditis
elegans OX=6239 GN=kle-2 PE=1 SV=2

MTRNAPPGQESTDLAWLVTPAKDLVENFSIDVLKALAGYLEVIRQESDNDQVDAATTYRLFDFQR
ACRIIQGSCAVYGRKVDHVYELTISVVDLVENKQDDGNTGSRRGAGRRKNFNLGSTNYDLADIDSL
KQEALANFEKTVKEEKSIDAVRMVENAEVIESQYERKSLVAKPTQFMFLNYGQLNRTDEQILNAK
SRPDVIGKVKDFEIKKSKVKHDQQILYSHDCYRGNLDQFTLPGARWMPDNKELANFGVADLEVELD
LEQEHEKISAYGPFKDPLSGREVPPPRWFIEQEAQRQNEIQSRATSRITIAAKTLRDSQGFSGSQP
TRLSQPFVERHRQSNHLNDFLSFVEGRVKNRNPSTHLTTGLVDMFVDNFGSVMQNDEPNTSRRPDE
NYAPMDFDDDFGGGDDDDDDYIRNLSRRDEKRAPAPWDELDKNHIIWYTGDENLPVSKPVKKITK
FQPKPAEMLARKQRREEKINKSRDEFMETHDYLDYYYWRSARINPIKDWKIESLRTAILAEKKRR
IKEKTAKIREARIQNMQRKRTARVIPVEQFEPVTEDIPTSNRRTLGAEYDDVDEDLAAEVELSMFGG
GFDDDEEDVRPRGERPPMAPNNLEFDALQTFDIPPAEYVPLRFEDIDDAELNSVINLPGNLLIDKALP
LLKKFAENRTDREQMAYEMAKAYEDVDVAVSTLQEHVDKWHSRMEPILEEGETRKEYDVHAVGRAV
IGQYDIEGGTKRLLDLVMDRPWYEISRYFLSCLFMCNVGNVMVSEDMELPLEERINSMKITLLKRDH
CEMFKEAGALDA

>tr|Q8INL2|Q8INL2_DROME Chromosome associated protein H2, isoform E (Kleisin II β)
OS=Drosophila melanogaster OX=7227 GN=Cap-H2 PE=4 SV=2

MERILPEEAEAYLSEAREQILEIAKNRPGTQVAKCIRAYDEQQDLASLVVLEELSKNTDYSTDRLISL
GYIEELLRHCLGRNDVSRSAIVAAGSALQYCGKIYGRVEYLCQVVEHQIEALLTSELQKETPSGS
AAPEKNERRPEETRKRHPKCLTNKEVDPYLLTLEPKRFKTMSSDKRFNAAGFVKCTRNRTEIYLYQD
HTPPNLWKHAPIVDPHPYDQDEKKQYKMFYHVEHRYNTLLPDIPFERLNLIKEYVHTNQVNTTEIL
NEHMTTKEYLDEYIALENQMLAARYGAIVTRRRRLVDSARFMDNLEGLAKKMCMDKNLPMPTNE
TVLIDQSLVDENSRSLTTAESTMGISQAENSTLKSSEVEATLSVSHIENSLSDSQEENPPLSSTLAINES
SVLDSTRVDPIKDLTLEDELLIDSGISMEELSDIQMHTAGQSFDDGCVVLSLEDQRQLSPMLQMVSP
SMEAKTLNIIEMDADLIMNVPREVSYPILLNVMGLPIKRLRRKCFKLPPEFDLFRQARLPIKREGQKKS
PTTPRTLQIGREAPQNEREPGSPCSLEFDEDLNFLGFRQRRTFDSGFDIEEPRVSSCVSTIGEVKT
ELEDEIEANTNLTASASDALNENVNDTKESGLGDSLAQELNASTEPNAENNTANSSQLEVTATESS
GTLGLETVDLGMESALVSSVLDLSTEPSAMDSNIINVTQPDNSDLEISTVQDQDQTLHDEADANDLS
AETPNPIADSAVDDCSLIRDWHRRLAPALEAAHERQNFNIKDLGTEILDICKAGNRTATLADVMADKDP
SIMCRYMLASLVLTNHGNVSLDFENRDKSKPIDMSQFRMHLKSMKRMEINPEDDVGNINAAQSKSTP
RSKQLNDSAHKPRSTTTASAPTKRKSANSLSEVFAKTVRLIQPIPKMWPTPSDADSGISSMGSSLAS
TARLK

>PF3D7_1304000 | Plasmodium falciparum 3D7 | condensin complex subunit 2, putative (Kleisin Iy) |
protein | length=1024

MKKLGVNNAGENKGNISQNKDGTNKKTIEVNKNMRRLTFLNNESENDSIEGNKKNKYDKNKVKEINDVF
KNCMVALSHNKICTRNAFDIHHIEHLEDLNLNDEEIPPEELNDEMIENGEFNLSFTRASKAIEGATKVYGY
RVEAIYDQTYNFLTNNMLAKQFELDNMMDNKNITDPLNKRMRKRKLTLYLQESSTLAKSSDITVDSL
SLSNISVDTFFLKLNSTYDHSQYKYLPLNLDLSIQFDGDDIDVCEYKRRKTLDDIGKDGKVKDE
DGIHIMKNKNDNCDTYDKIICNNNDINKVDEKKNNDVDICENRNKKNESCNIYVDTFNVNEHKEFFDI
YKKKFLNADILKEILYGGPDDFNSLHICPELDYFKEELKHKHLKRTDSKDTDDVDKEDGDGGLYND
DIGNTDKNNIIFYDENLGCNMSNNMLMESIYNSDALNTDRKNIFPENLGMSCGNLNEEKNNNMNS
SNNLNNCNYDNNDLYLGDYRMDLNIENVMQESLGFNDLNYSCDKNMNFSNNNGMLLQQSINMM
DGMNPELIKSENKELDLGNTQINNEHYLLKNNYDIHKRHSIIEVPDDDTLWNRVMTFENRINAIDIN
NELNYHYMPNKLMMMGNFRNLIDINKNVTNNNNNKSTILQNIIMQKMKYAFDVTSIDFENLYTEN
NNIELSTYDLWKKEKKKYVSNALFCIDQTSYIFDTRENCVNCVNTVTDKVMKFSKFCVYPDFLHACNK
NRNKHNNNNINKNHNMVILNEVNNNDNLNDIDPINQDDFNNDNFDMENMDDMNDGHLHEGLNEAI
DKYYNMDFDNIWANNNDNKNNDNINNNNNLNSTYNNMNSHNNNNNNNNNNLSLFKKHNSFFNTALF
QFNHSNTFGNVPFENVSKFVDVAKIKKILCDIVKPNEEQKSNTNDSLCEYQTEKDNQIVTYTAEKTTTF
EEIVKETTAKLNESEASSTSIHMLFVCLLYTCNDQELLLEKIPNQNNFYVRYGLPVECHVNHDDIPMLK
N

>PBANKA_1402500 | Plasmodium berghei ANKA | condensin complex subunit 2, putative (Kleisin Iy) |
protein | length=943

MKKLGVSNTNTNFTQIKGPDPIFKNPIEFNKNLRRLSFLNNDKEDLNKSEKNKVKEINDVFKNCMAAL
SHNKICTRNAFDIRIHDHLEDLVNLNDEEINEELNDELLETGDFNLSFTRASKAIEGATKVYGYRVEAIYD
QTYNFISNMNIAKKSETNDDVIDEKKHANEITNKKVKKRKLFFQESSTLAKPSDITIESVSVSNISVDTF
FLKLNITYDHSAGISYLLPNLTLNNDLSIQFDGDDIDTCEYKMKKMFEEKLGKQNIERRNEKNCGSNDEL
NDMLQKNESPVKVGVEYVTFNDNDKIMAREYKSKLYTNSDILREMFEGNEIEEFNNLNICPELDYFKEEI
KNLKLKRSKSDKILDEDDIDNYNDDDTGLDKFSKKNELNLDGNMMSMDNLLGDMDGNNDDGNNEHM
NDNANYGDNNKILESSFNNNLNFDDCNIDDLNIENVMQESMVFDMNMLNDSLNNNLNLSQNILSLHH
NSNILGSSIPPELMKSENKDFSLINSFTGNFNFSSQNMLFKNQDKGSPSKPKNMLSIIIPDDDTLWNR
QAISFENRLNAIDVNSKFNHYHYNPSKLMINGNFANLMSMAKVAFKNKQGPLNALTNNKLLKTSFDITYI
NFENLYIEVNDVELSAYDLWNKEKKKYISNSLFAIDQTSYIFETKDNINCINCNTVIDRIMKFAFSPFIESQ
NFNTDIKTNVILNEINNDYIGNDLQINNFERKQSENMFMDNMDDGQDYQMHEGLNDSIDKFYNMDF
EDIWQENKNDITKFGSKNDNTSIFQLHQSMGHTNSLGSVIAPDNLPKFVDVSKIKILFNIVKPDENE
ENVENGKSEENGKSEENGKSEENEENKNSDSSKQIVPYEGEKTTTTFSIINKTKTKLTESEVNGTSSI
HMLFVCLLYTCNDQELLLEKIENEEDFYVHYGLPVEFHQKDDTRMLKN

>PY01534 | Plasmodium yoelii yoelii 17XNL | CCAAT-box DNA binding protein subunit B (Kleisin Iy) |
protein | length=886

MKKLGVSNTKANANFTQIKGPDPIFKNPIEFNKNLRRLSFLNNDKEDLNKSEKNKVKEINDVFKNCMAA
LSHNKICTRNAFDIRIHDHLEDLVNLNDEEINEELNDELLETGDFNLSFTRASKAIEGATKVYGYRVEAIY
DQTYNFISNMNIAKKSDTNDVIDEKKHVNEITNKKMKRKLFFQESSTLAKPSDITIESVSVSNISVD
TFFLKLNITYDHSAGISYLLPNLTLNNDLSIQFDGDDIDTCEYKMKKMFEEKLGKQNIERRNEKNLGSNDE

LNDMLQKNESPVKVG EYVTFNDNDKIMAREYKSKLYTNSDILREMFCGNEIEEFNNLNICPELDYFKE
EIKNLKLRSDSKTLDDDEDIDNYNEDDDTGLDKFSKKNELNLNDENMSMDNLLGDMGNNNDCCNN
ENMNDNGNYGDNNKILESSFNNNLNFDDCNIDDLNIENVMQESMAFDNMNLNDSLNNNLNLSQLML
SLHHNSNILGGNIPLPELMKSENKDFSLINSFTGNFNFSSQNMLFKNQDKGSPSKPKHMLSIIPDDDTL
WNRQAISFESRLNAIDVNSKFNHYHYNPSKLMINGNFSNLMSMAKAAFKNKQGPLNALANKLKTSTF
DITDINFENLYIEVNDVELSVYDLWNKEKKKYISNSLFAIDQTSYIFETKDNINCVCNTVIDRIMKFA
RSPFIESQNFNTDIKTNVILNEINNDYIGNDLQINNFERRQTENMFMDNMDDGQDYQMHEGLNDSIDK
FYNMNFEDIWQENENKNDITKFGSKNDNTSIFQLHQSIGHANSLSVSVAPDNLPKFVDVSKIKKILFN
IVKPDENEENAENENEENKKNSDSSKQIVPYEGEKTTFKNIINKDANFVNRAHELYICILYIYFLT

>PVX_122040 | Plasmodium vivax Sal-1 | hypothetical protein, conserved (Kleisin Iy) | protein | length=928

MKKLGVNTKAGANLTRIKENENLFKKPIEFNKNLRRSLFLNNKNNDANQKDHQDKCDKTKVKEINDVF
KNCMVALSHNKICTRNAFDIRIIDHLEDLVNLNDEEINEELNDEMLETGDFNLSFTRASKAIEGATKVVY
YRVEAIYDQTYNFLSNMNIQSEVNEELVEEKKNANEISNRKIKRKLFLQESSTLAKSSDITMDSV
TVSNISVDTFFLKLNSTYDHSSNSYLLPNLILNNDLSIQFDGIDACEYKRRKMEEEATEEGVDEDTA
ATQTSKGFPPMIRSSSSYDNDCCSDAMVKCYKKKLFLHSDVLRDILFVAGNEDFNSLNICPELDYFKA
EISKHKMKRSESKLEDEGEQGNDEDDDDDEEDDRRYAYNLNEEEHMSMHKGGDYGGERAKNNLAS
SVGGNLTMDNLLDDCDFHNASVGDGRMLNSSVNNNSMHFNKYIEDLNIEENVMQESLAFDNMNLND
SVGNLNYQSILSFQQGSNTMTGLPLPELMKSENKDFSLMNSLGGNFPLSTQNSLFFKNQGGSP
RKGLISTIPDEDTLWNRNVMTFENRLNAIDVNNKFNHYHYYVPSKLMAHGNFRNLMDIAKGTHKNKHM
VLQSVVQKKVKASFDVSLIDFENLYKEINDVELSTYDLWKKKYYVSNALFSIDQTSYIFETKDNINC
VNTVTDRIKMFSAKPMIAPGDYCGDLKLNVLNEVNSDFVTNDMGQIHYGEGRNMESTFPENMDEH
QDCHMQEGLNDAIDKFYNMDFDDIWDQNEHNSKQGSKNENASALQLRQRVSHGTTLGANMEN
VAKFVDVSKIKKILCDIVKPAKEATGSEGAQRNDQIVPYVEEKTTFKDIIATKSKMNPEEVNGTSIH
MLFVCLLYTCNDQELLEKIPNEDNFYVRYGLPVEYHVKPPDDMLLEN

>TGME49_288930 | Toxoplasma gondii ME49 | hypothetical protein (Kleisin Iy) | protein | length=1185

MVARATDGGDTGAPAGSETHPVVRLGFRPDGKRRLSVVSGPASLSTGDGAPSGESRRGVGGTTGA
SLAGHAPGALARQASSLNSASSSFSSFASSAFPASLPFSSSANRPGFARPTARAASGAGRALAGRL
LVRAFFDDMKTVSMQRINQKNAFQVDLIDRLALVVHQQLVKTDNAVLTGTDGQAPALLDGASSPDL
SSTSELSRTGRGEEGEEGIFTHVSSAVEGATRVYGYRVEAVYDQTYHVLNLMSSSRQGGGEDAG
DGDAAAHPTRRGRHHQQLALFKKGGASTLAPASEITESQIEKDCVDPYFLKISGMFDQAGAKGLLLA
NLEVDTSLRMKLDGECRAFPTGVLNRNGREKNAAREETEANHAPEETAEVAEPSVDCAFRLDLLAG
ETPASVLALDICEKPIGHFRELLQSLRRGRDVKAGDALSEAEETNELDVDDDMLDVMQGTTLGDS
GFQQATQEDEELLKIGESYMDDEAASGGLREVLEAQEAESREVTQDDELFGDGVDFFCDGHVGDAD
DDRDGSWDRPRGEIRERDAEGERILYEVAADESSASSCTHPKSYSFDRLPVAFSQMLGVPAGGHGA
QLAAKRAFLVPTAAGSQGGGDPGREGTRRRRGSGETSSSGCVDFPPLSAKGSAAAVGRPSAPS
ARLTVKERQLRQEQFREMLDPFRVDMNSLDTKSGGLPLGSKFQCYVVPKQENVTVASDFTSSPFL
HSPHLLVSLAMVPSKEIRLLRHTGPSVGDGWAPDGAGNSGGGRAGRDLGRGDSQAPDGPWEATFID
AGDDGGLEDDSFWSAAAHGPLLKESALEAADAQAQTLLEGGGGLDRDWSDTAWAGGENDQASSYI
AHLFERGDAASRGGAGLSLGDIVLLAEPQKVGVSSELRLSIPSRVYDVAVVKKALKTALGVVPDF
SADQDAENSALRRKRKRDMLTAPGEEEPQEEEDVDSDCLDSVDGETKEPCRDALWNPGRRRDGDIF
ETLCAETTRKLPSTEKANLSPQMLFVCLLYTCNEETLHLEQSADFSSSAFVHAPTDWHMRDDAEAVR
VLDTVRHYPALPAVPEKKEKETSLEAPSAESAADDGGAAGDADDAQSPAKRRRGA LGDEERRQRR
REGRGGKHHEGNRKGHRDEETGSKKRRGKRRKEDSDESSDGSDDDEEAAASEDRDGC

>cgd3_3960 | Cryptosporidium parvum Iowa II | Condensin complex subunit 2 (Kleisin Iy) | protein | length=901

MARLSLHPRIFESEYSAETDNYLEENVSNLNKNGWGRKIQKSVLPNKRRSISIGQSRNDDSETTRLS
RTSINLKGQIDQNKSFSSKSSSDQLPNEELDKLCNQCLNLLRQNKISSKNAFDILLIDHLNDIVNVQDSQ
NEEEKSNIKKENKENVSKINNSKEKNIEIDKSKMNKGEFHNEISSSETTSQDTNFQKFQRAAVTLEA
SARIYGYRVDSTFDNAYRILSNIKSGQILARNDSCEEDEKQDQEDDSSGNRLEESSKKKKYKRNLI
FSGENNTIVSNPESITLKEFEKTKEMSEKPFVNFNLNDKVKIDNIRFGLDYNNIGSISMLMNNLELKD
SLYNRDKSASLTFNISGRNNLINSNMFSCSTICKDELFKVNKTLDLLLPNPNENFGKDISNIVCPNLSR
IFDSIQEITENYGDIKQVKDSTSIEEYQLNEQVIRFFFEFTDPSFENDSLESENFLKKHSQSMDDIEY
VNEQDLEFLNNFEEEEKVELNMGLQDFQMHVERVIKDLNKTESSEHILEDLDQNKDIEIEKKSGEFKFS

KIGDVLDFLAKKSTKSLEFFNERKKGKESNSVFGQKLRSKSENTNFEIPSPLLTNNIFNGIEWMNNLPK
IKQTQINSSRSKTKNLSSNKLFVKGKSTTSIFNYNLNHLFCLANLTGVKINLRSIHKAEENSEETAGQNYI
TNDILIKTNNQSHINKNILNNSMSEQTDLMVNHCEIEDLMQVESYLQPLSQEEFSIDNGKDILIQSKLLLP
FDEDKISDITDILLEKSSKSLHVRDEYNSSLKFSKSSNHVVIDLIKNVLKNISIQILQSDDSNSLTLFNIINQS
RKLQDGLNSVSTGIFFICILHICNENNYSLNLSQDQANSDSPIELNSENIVHIMLNLNSSVDLQK

>ETH_00039510 | Eimeria tenella strain Houghton | Ccaat-box DNA binding protein subunit B, related,
related (Kleisin I γ) | protein | length=122

GFDEEEPLEAAAAAAERVSFCHLSSAIEGATKVYGYRVEAVYDQTYHLLNGLSSLKNSSNGVEDDE
EQQQQQQQGSKRKQRQQQQQLALFFKGGSSTLADPQDILNEQQDTGVLIDPFFV

>BBOV_I002180 | Babesia bovis T2Bo | hypothetical protein (Kleisin I γ) | protein | length=726

MASRKRSRDVDSSEISEAPQPVSQKVTGSPGNTQDLLTLFTDCMSALSTNKICSRNAFEVGIIDHMTD
LVHLDDGSVDDVVPELLPEDTSSGASRRLNFRASKVVESASKIYGYRIEAIYDQTFNVLMSMNSANQ
ADGTSGSTSATKPRGRHRVKIDLTSSRTLAPSEVTLTEIPMDNVILDYFLKISSMFDHSGAMGLLLI
NLQVTDLSDLDGDSLVFPPRARSEHDDSNVILSRDAVKKCFGNTPEKRMELPEAAFRQELER
LREMRRRKECGDVIASDSDGEINPEPESEKHIDFFKVRQPIAPIEDSLEPMDAMGHIDDVPEDTVHDMPI
SGTTPDGTGSDTGSVPNSTGIALRQLAEIDLIGGSQFSYYTSVPVKTHVPSSKNKGSDEPDDTNLKT
QRPVKSQRNITNDLESYLRNIDLEEKIASVELSTVFTTPKAVGKKAPSTFAASDFTGAIYRFNDTFLTRL
GLLGNRCLRFVSDHEWRNGPNTDSSVPILQVHYCADIDAPYSTMRISENFSWRLDEQVGLLEDDDM
WNASNDFEDPELPLTQDGPVVANIESMYESEPGEPLLALSQHADPAAISQWPREGAIVPAPVAAYVDI
FKIKKTLCGVIVPPPAFHEALEDKQQIDKEHSGGNTQSEYSCGFQDAVTDTVSRLMDSVAALTSHIL
FVCLLHVCNEQDLLLLKQSRPLEDFVICAGAPKEQHLGDVQGS

>PBANKA_030180 | Plasmodium berghei ANKA | condensin-2 complex subunit H2, putative (Kleisin
II β) | protein | length=775

MSTQEDEVRLLIQNQLKCNNTNECINFDLASTIQEFLNSLDKNSFEDIDKTIRENEKDKDLMNSFTSAI
FLENCVKILGLKIEHLHNLAHNTLYNIYKENKNSNSNKKQLLIIDEEYLYINEIKNLKNTITENDIIEEDLL
VKTIPLPTFLFDHIRVKNKTENHNKIYDEKDNFLINKKLLNEPDIEINIPYIDTLGNESINSIETKIMDLN
STNSYKNMDNLNLIDNKQTIEISSVNSLNFDFKLENDGIILLDINDYNIFINDEYDFTLQKNSTILFEKY
EFFSRNSIYLSNNLTEYIHEQNTIQHTYKINNIYDITSLRLCTDTLLFKTDFYSYDIALDIKNKNYLINKFE
RQKKKLYILDETIHKDHKYNTIYKQADYCYCGSIITSIENPNPNNRCIYCNNTQIDRNEKNGLYKLL
PGYYNLSCYNITETEDFLTYMQPNKIIDIIMKNEINDINLDSNSTTNKFEENIIDPIFQNNDFTDKGDNY
RLSNDQKLFQIKIPSLYIQLGLNIDYIYLEPLIYNLIKNLKKEKNVDRFFSINFYDHNENYDIEILKDDY
YHEIKDEQNKTIQETLNMDTFINIKSIDNHVKNFPTSILKKTDSNTSLVFSFEDKIQDRVNAWSNFLEEK
LVILKRQPQYNVEYKILKYIINNGDNIYFPDLIKNDEKYQIYRNFLTTLMLINTNKNLISEIDQQKHSN
NITNYQINIKNINVNEYMNISAFDNTKFTINDKKRKITEKSDNIDNSFHLEKKNHI

>PFB0185w | Plasmodium falciparum 3D7 | condensin-2 complex subunit H2, putative (Kleisin II β) |
protein | length=797

MSTTDELNLLIQNLQKCNNTNECINFDLSSTIQGFLNCLDRNVLENIDKGLGENEYEKEVVDNFTSAI
FVENCVKIFSQKIEHLHNLAHNTLYNIYKENKHNSSSKKNQLIMSDEEYLYINEIKNMKNTQHDNDIIE
DDILIKTIPPTFLFSDNIKTKDINEDKRKTNFNNEEDKEKDNKNKDNDIDAINFEITDNNVNTLNF
EKIFIENDGILLLDINDYNVFIDDPYNSIQKNSTILFEKYDFFSRRSTYLSSTLSKYVVENKNMDHIY
KLYNHITDIINKNICFDIFLFKQDFDYDFSLGILKNKKSILNFKKQQKQLHPLEENTHMDTHHINNNHH
LQKYDLNRPLPNYYMLHCYNIKNYQDFFRYMQPNYILEIMKRHIIEIYNTNQQERAIQKEAYEYIYNEQT
KKKNDHKENNNIDVPKYKDNKCYDSPFYNYISNIIQFDHLIDDDMIYFDEYFYKSLILYNTNINDLHK
NTNNNQTNDETNIINNMKDEKQKNIISNINNFSDQKLFNQIKPELYIQLGLNFSYHLEPLIYNIK
TLKKKNDFEKFFSVNLFDDKPIYEFDILRDDEYDEQKNEDNKNHIEENINFENITDKNILNDEMNIPIAI
FENDHLDNTFIMNDDQELQDRVSKWNAFLEEKLEILKRQPKYDLDLKKNIIYNTINNGENILFTKLIK
KDKFEISRNFLLMLINADILNIKKINKHKSNNISYIEIHKENLQQYLSISKQVQNKSFILKEKRRK
NKQHLTNGMKDTSKQKQKI

>PVX_003630 | Plasmodium vivax Sal-1 | hypothetical protein (Kleisin II β) | protein | length=784

MSTPDELTAIQNLQKCNNTSEINFDLASTIQEFLNCLDRNVLEELEGGAHEGEKERESDREREKEG
EREREQDVANSFTSAIFVENCVKIFGLKIEHLHNLAHNTLYNIYRENKHSNAGKKHMVMSDEEYLF

NEVKNLKSCPGESEPCMEEDLLVKTIPLPTFLFSENVKKKEGAAEVDSELGIDLSADLDTPRRSDNGS
GTDDRRGHSNLSKESEEAAREANGETDSIASSPAWRKGENDRLTEEAEVLEQNSLKPLNFDKMYL
ENDGILLLDINDYNVFINDEYDMSILNQNSSMLFEKYDFSCSRHSTYLSANLTKYIEREKTVDIYRTY
HFNDILSDDLCSVDVFLFKSDFSHYDLALGIIKSKKYLLSRFKEQKKYLYVLDENAHMDKDRVGTSTIEK
NDIKRKLPHYYMLNCQNIKRAQDFFTYMQPSQIIDIITRNARRRYLSCLPSGETSQGGQSGNAAGADS
PVGGAASHTSPPATPAPPPPGRSTDQKLFEQIKIPDIYVQKLGLNFRYYHLEPLIYNLIKELKKKKNVEK
YFSLNLFDEQNNYDFDILQDEEYADEQNEGNAAAEGEGLTNDENFLDVRSNLNGDMVGGMMGGMMG
GMMDDIPLDVFEKKDSSDAFFASFDEDIHDRVNKWNAFLEEKQLQLLRSHPKYDQYKKNIIHHTLNS
GAKTPLCNLIKDREPYQVCRNFLTTLMLINTNMLQISEVNQHSQSNDVSNYQINVKKENVQEYLGSSK
RFKNASFAIKDKKRKTASKGGTRNAKPAKKKPHKD

>PY01684 | Plasmodium yoelii yoelii 17XNL | hypothetical protein (Kleisin II β) | protein | length=773

MSTQEDEVRLLIQNLQKCNNTNECINFDLASTIQEFLNSLDKNSFEDIDKTIRENEKDKDLMNSFTSAAI
FLENCVKILGLKIEHLHNLAAXNTXYNIYKENKNNNSNKKQLLIIDEEYLYINEIKNLKNTITENDIIEEDLLIK
TIPLPTFLFTDHIKVKNKIDNHKNIKNDEKDNSLLNKKKLNKSDIENIPYIDTLENESITSIQKNVMDLNS
EYSYQNMDNMDNMNSMENKQTLISSVNSLNFDFKLFLENDGIILLDINDYNIFINDEYDFTLQKNKSTIL
FEKYEFFSRNSIYLSNNLSEYIYEQNTIQHTYKINNIYDITSLRLCTDTLLFKTDFYSYDLALDVIKKNKYLI
NKFERQKNKLYILDETHKNHKYNTIYKQANANYCDYCGSIIEPNESNNHCIYCNNNNEKNGFYKKLPG
YYNLSCYNITETQDFLYMQPNKIIDIIMQNEINDTNLDANSTTNKLDQNIIDPIFHENNDSSDKSDDQKL
PNDPKLTNDQKLFKQIKIPPLYIQKGLNIDYYYLEPLLYNLIKSLKKEKNVDRFFSINFYDHNENYDTEIL
KDDDYQEIKDEQNKTQETLTMGTFINIKSIDNHVKNLPTSILKKTDSNTSLAFSFEKIQDRVNKWRNF
LEKKLDILKRQPPYNVEYKKKILKYMISNGDNIFPDLVNDNEKYKIYRNFLTTLMLINTNKLDATEIEQN
NSNNITNYKINVKNMNVNEYINFPNSFDNIKFTINDKRRKITQNFNKNDSLYLQKKHHI