**Algal rhodopsins encoding diverse signal sequence holds potential for expansion of organelle optogenetics: Sequence dataset for analysis**

**Figure 1.** Sequence relatedness analysis of rhodopsin domain. Aligned 1-7 transmembrane helices of rhodopsin were employed for constructing phylogeny. Sequences used for constructing phylogenetic analysis are mentioned below.

>BR

AQITGRPEWIWLALGTALMGLGTLYFLVKGMGVSDPDAKKFYAITTLVPAIAFTMYLSMLLGYGLTMVPFGGEQNPIYWARYADWLFTTPLLLLDLALLVDADQGTILALVGADGIMIGTGLVGALTKVYSYRFVWWAISTAAMLYILYVLFFGFTSKAESMRPEVASTFKVLRNVTVVLWSAYPVVWLIGSEGAGIVPLNIETLLFMVLDVSAKVGFGLILLRSRAIFGEAEAPEPSAGDGAAATS

>AR1

MDPIALTAAVGADLLGDGRPETLWLGIGTLLMLIGTFYFIVKGWGVTDKEAREYYSITILVPGIASAAYLSMFFGIGLTEVQVGSEMLDIYYARYADWLFTTPLLLLDLALLAKVDRVSIGTLVGVDALMIVTGLVGALSHTPLARYTWWLFSTICMIVVLYFLATSLRAAAKERGPEVASTFNTLTALVLVLWTAYPILWIIGTEGAGVVGLGIETLLFMVLDVTAKVGFGFILLRSRAILGDTEAPEPSAGAEASAAD

>AR2

MDPIALQAGFDLLNDGRPETLWLGIGTLLMLIGTFYFIARGWGVTDKEAREYYAITILVPGIASAAYLAMFFGIGVTEVELASGTVLDIYYARYADWLFTTPLLLLDLALLAKVDRVTIGTLIGVDALMIVTGLIGALSKTPLARYTWWLFSTIAFLFVLYYLLTSLRSAAAKRSEEVRSTFNTLTALVAVLWTAYPILWIVGTEGAGVVGLGIETLAFMVLDVTAKVGFGFVLLRSRAILGETEAPEPSAGADASAAD

>GPR

MKLLLILGSVIALPTFAAGGGDLDASDYTGVSFWLVTAALLASTVFFFVERDRVSAKWKTSLTVSGLVTGIAFWHYMYMRGVWIETGDSPTVFRYIDWLLTVPLLICEFYLILAAATNVAGSLFKKLLVGSLVMLVFGYMGEAGIMAAWPAFIIGCLAWVYMIYELWAGEGKSACNTASPAVQSAYNTMMYIIIFGWAIYPVGYFTGYLMGDGGSALNLNLIYNLADFVNKILFGLIIWNVAVKESSNA

>BPR

MGKLLLILGSAIALPSFAAAGGDLDISDTVGVSFWLVTAGMLAATVFFFVERDQVSAKWKTSLTVSGLITGIAFWHYLYMRGVWIDTGDTPTVFRYIDWLLTVPLQVVEFYLILAACTSVAASLFKKLLAGSLVMLGAGFAGEAGLAPVLPAFIIGMAGWLYMIYELYMGEGKAAVSTASPAVNSAYNAMMMIIVVGWAIYPAGYAAGYLMGGEGVYASNLNLIYNLADFVNKILFGLIIWNVAVKESSNA

>HsHR

AVRENALLSSSLWVNVALAGIAILVFVYMGRTIRPGRPRLIWGATLMIPLVSISSYLGLLSGLTVGMIEMPAGHALAGEMVRSQWGRYLTWALSTPMILLALGLLADVDLGSLFTVIAADIGMCVTGLAAAMTTSALLFRWAFYAISCAFFVVVLSALVTDWAASASSAGTAEIFDTLRVLTVVLWLGYPIVWAVGVEGLALVQSVGATSWAYSVLDVFAKYVFAFILLRWVANNERTVAVAGQTLGTMSSDD

>NpHR

MTETLPPVTESAVALQAEVTQRELFEFVLNDPLLASSLYINIALAGLSILLFVFMTRGLDDPRAKLIAVSTILVPVVSIASYTGLASGLTISVLEMPAGHFAEGSSVMLGGEEVDGVVTMWGRYLTWALSTPMILLALGLLAGSNATKLFTAITFDIAMCVTGLAAALTTSSHLMRWFWYAISCACFLVVLYILLVEWAQDAKAAGTADMFNTLKLLTVVMWLGYPIVWALGVEGIAVLPVGVTSWGYSFLDIVAKYIFAFLLLNYLTSNESVVSGSILDVPSASGTPADD

>ClR

GSSGSSGMKNIESLFDYSAGQFEFIDHLLTMGVGVHFAALIFFLVVSQFVAPKYRIATALSCIVMVSAGLILNSQAVMWTDAYAYVDGSYQLQDLTFSNGYRYVNWMATIPCLLLQLLIVLNLKGKELFSTATWLILAAWGMIITGYVGQLYEVDDIAQLMIWGAVSTAFFVVMNWIVGTKIFKNRATMLGGTDSTITKVFWLMMFAWTLYPIAYLVPAFMNNADGVVLRQLLFTIADISSKVIYGLMITYIAIQQSAAAGYVPAQQALGRIGMDSKAA

>KR2

MTQELGNANFENFIGATEGFSEIAYQFTSHILTLGYAVMLAGLLYFILTIKNVDKKFQMSNILSAVVMVSAFLLLYAQAQNWTSSFTFNEEVGRYFLDPSGDLFNNGYRYLNWLIDVPMLLFQILFVVSLTTSKFSSVRNQFWFSGAMMIITGYIGQFYEVSNLTAFLVWGAISSAFFFHILWVMKKVINEGKEGISPAGQKILSNIWILFLISWTLYPGAYLMPYLTGVDGFLYSEDGVMARQLVYTIADVSSKVIYGVLLGNLAITLSKNKELVEANS

>GLR

MFGDFNRVDNPILSLSYFKIQLTGIGLCRLLKPCLNFSKNIKHIKKFIKINGNKFEIDYFDMTQELGNANFENFIGATEGFSEIAYQFTSHILTLGYAVMLAGLLYFILTIKKVDKKYQMSNILSAVVMVSAFLLLYAQAENWTTSFTFDISRGKYFLEPNGDLFNNGYRYLNWLIDVPMLLFQILFVVSLTKSKFSSIRNQFWFSGAMMIITGYIGQFYEVSNLTAFFVWGAISSVFFFHILWVMKKVINEGKEGLSADAQKILSNIWVLFLVSWFLYPGAYLMPYLTGLDGFFFSEDGVMARQLTYTIADVCSKVIYGVLLGNLALKLSNNKEMVELSN

>PoXeR

MTEAFWLWLYVAVMAAGACLFLYWSRKPRGVPGYEYTIAAVIPIWSGLAYLAMALGQGTVMIDGREVYYARYLDWLVTTPLLLWLLGSTATFYRANDTRLIGSLMFADVVMILSGLFADLTAEQSVRWLWYTIGCVSFLLILWQVWGPLRRIAGEQGEALSKTYTRVAAYLTVFWVSYPLVWLISPSGIGIVGPTVSIALFVILPAFSKVGFSILDLYELRRLGDDRPSPKAAIPPPAGHRAVVERPV

>RmXeR

MSLETLLYTVYIASMAAGALLFLSWMRDPKGVPVWEYIVAALIPVWSGLAYLAMALGLGTAEIAGQTTYWARYADWVVTTPLLLTALWMTAVTRSDKSKHVPLLLGLVSADIIMILCGLVGDLSSGPARYVYFGIGVAALVVVFALTWGPLRRVAEQDPEIGGIYRKVAAYLALFWIGYPLTWILGPSGLGIVGQTVDTTLFILLPIFSKVGFSIVDLGMLRAAGGTGCAAHE

>NpXeR

MVYEAITAGGFGSQPFILAYIITAMISGLLFLYLPRKLDVPQKFGIIHFFIVVWSGLMYTNFLNQSFLSDYAWYMDWMVSTPLILLALGLTAFHGADTKRYDLLGALLGAEFTLVITGLLAQAQGSITPYYVGVLLLLGVVYLLAKPFREIAEESSDGLARAYKILAGYIGIFFLSYPTVWYISGIDALPGSLNILDPTQTSIALVVLPFFCKQVYGFLDMYLIHKAELEHH

>SzR1

MEEIIFYIGAGVFTLTSITFFLLKKKNLEVASLNMIVNFVTIASYLLMVSGLFVASAVSGDSIYWTRWAFYAVSCSFLMVEISMLLSIDKSIKLEIIVFNCLVMITGLLASVSEGIIKWLFFTLSSVAYLYVLFQIIKHRSNEKFIVAFVAIFWSGFPIIWILSPAGLMLIDAFWTALFYLVLDLITKVYFGYHTTLKFSK

>SzR2

MEEIIFYAGIGIFSLTTLTFLILKKKNLKVASINMIVNFVTIGSYVLMLSGLGVISATNGELIYWTRWAFYAISCSFLMVEISIILRIDNKTMVEIIVFNSMVMVTGLFASISEGLIKWLFFALSTVAYVNVLYQIGKNRSEEKFILLFVGIFWTGFPLVWLISPAGFLVLDAFWTALFYLVLDLITKVYFGYHTTLKYTNM

>XR

MLQELPTLTPGQYSLVFNMFSFTVATMTASFVFFVLARNNVAPKYRISMMVSALVVFIAGYHYFRITSSWEAAYALQNGMYQPTGELFNDAYRYVDWLLTVPLLTVELVLVMGLPKNERGPLAAKLGFLAALMIVLGYPGEVSENAALFGTRGLWGFLSTIPFVWILYILFTQLGDTIQRQSSRVSTLLGNARLLLLATWGFYPIAYMIPMAFPEAFPSNTPGTIVALQVGYTIADVLAKAGYGVLIYNIAKAKSEEEGFNVSEMVEPATASA

> OLPVRII

MSDLIEYSFYLTYAFLMTTGTITFIEALRTKNESVRHILNLETCISVVAAFFYSNFIGKLEHINYEEINLNRYVDWAITTPIMLLVLVLAFRVNQTNKAMVKFSDFMIILGMNYGMLGTGYLGDIGVIHKTMGTVLGFLFFGGLFYKLNTLRTSNASNDLLYGAFFVLWALYGVFYQMEQLPRNVGYNVLDLFSKCFVGIYFWAFYAKIFT

>SR I

MDAVATAYLGGAVALIVGVAFVWLLYRSLDGSPHQSALAPLAIIPVFAGLSYVGMAYDIGTVIVNGNQIVGLRYIDWLVTTPILVGYVGYAAGASRRSIIGVMVADALMIAVGAGAVVTDGTLKWALFGVSSIFHLSLFAYLYVIFPRVVPDVPEQIGLFNLLKNHIGLLWLAYPLVWLFGPAGIGEATAAGVALTYVFLDVLAKVPYVYFFYARRRVFMHSESPPAPEQATVEATAAD

>SR II

MVGLTTLFWLGAIGMLVGTLAFAWAGRDAGSGERRYYVTLVGISGIAAVAYVVMALGVGWVPVAERTVFAPRYIDWILTTPLIVYFLGLLAGLDSREFGIVITLNTVVMLAGFAGAMVPGIERYALFGMGAVAFLGLVYYLVGPMTESASQRSSGIKSLYVRLRNLTVILWAIYPFIWLLGPPGVALLTPTVDVALIVYLDLVTKVGFGFIALDAAATLRAEHGE

>ASR MNLESLLHWIYVAGMTIGALHFWSLSRNPRGVPQYEYLVAMFIPIWSGLAYMAMAIDQGKVEAAGQIAHYARYIDWMVTTPLLLLSLSWTAMQFIKKDWTLIGFLMSTQIVVITSGLIADLSERDWVRYLWYICGVCAFLIILWGIWNPLRAKTRTQSSELANLYDKLVTYFTVLWIGYPIVWIIGPSGFGWINQTIDTFLFCLLPFFSKVGFSFLDLHGLRNLNDSRQTTGDRFAENTLQFVENITLFANSRRQQSRRRV

>BeGC1

IYTLFFHERQAYNRGWADIWYGYGAFGFGLGLSFAYMGFTGARNPEKKALSLCLLGVNFISFMSYIIIMLRLTPTIEGTMANPVEPARYLEWIATCPVLILLISEITQYPHDPYKVIVNDYALCLAGFVGAISAQQPWGDLAHFVSCLCFSYVVYSLWSCFTGAIDGETQCNVEKSGLRWIRFSTITTWSLFPITWFSYTSGLISFTVAEAGFSMIDIGAKVFLTLVLVNSTVEQAQNQKVDAITAIAEELENQINN

>CaRhGC

DIWYGYGAFGFGIGIAFSYMGFAGARNPEKKALSLCLLGVNIIAFSSYILIMLRLTPTIEGTLSNPVEPARYLEWIATCPVLILLISEITQADHNAWGVVFSDYALVVCGFFGAVLPPYPWGNLFNILSCAFFSFVVYSLWRSFTGAINGETPCNIEVNGLRWTRFSTVTTWTLFPLSWFAFTSGMLSFTMTEASFTMIDIGAKVFLTLVLVNST

>RhPDE

IFFANPEASRRVFAKFSHLQSFYGATSVAFAFATGLDILAYVNAVSDEKRVLSGILAYVDGVACISYLSMATLNLYFLVDSTQGNPVWLMRYAEWIITCPTLLYWCGLASRADRSSVSDIATADALLLAGGALSSILPSWPAFFVFAGSFATYIYVMLHMWGMFGKAMQPDFQPPPPLPRHALHLLRCEIVMSWSIFPLVEFLRRQGYIDFQVGEAMNCVADYAAKVGLAMIMVNCNLEQINALRVQQMHSALTGMLK

>CsR

MAVHQIGEGGLVMYWVTFGLMAFSALAFAVMTFTRPLNKRSHGYITLAIVTIAAIAYYAMAASGGKALVSNPDGNLRDIYYARYIDWFFTTPLLLLDIILLTGIPIGVTLWIVLADVAMIMLGLFGALSTNSYRWGYYGVSCAFFFVVLWGLFFPGAKGARARGGQVPGLYFGLAGYLALLWFGYPIVWGLAEGSDYISVTAEAASYAGLDIAAKVVFGWAVMLSHPLIA

>AR-II

MADVETETGMIAQWIVFAIMAAAAIAFGVAVHFRPSELKSAYYINIAICTIAATAYYAMAVNYQDLTMNGERQVVYARYIDWVLTTPLLLLDLIVMTKMGGVMISWVIGADIFMIVFGILGAFEDEHKFKWVYFIAGCVMQAVLTYGMYNATWKDDLKKSPEYHSSYVSLLVFLSILWVFYPVVWAFGSGSGVLSVDNEAILMGILDVLAKPLFGMGCLIAHETIFKKM

>CpR1

MSPTFARWYQTYATNNKNRQSAFVPNGQCSFTYEQFASFYSGSYIKDPESVQLAIQRTCYNRITGLGPDFYSPEDAADRGQVFFWIEFGIQAVMFALFLILTLRREEHKRRFHYITTLYSGISTMAYYCMARGQGSVALFDTWSNGDFSPYRVFYYARYIDWFLTVPLIILNLCLLASATKALTIGLALSGMLMVGTGLMGALSITGTKWGWFGISNMCFLPIVVAWVTVLRKNAREKSPEVEKTYNILIIISIIAWFAYPIIWIIATGTHAISLAAEIVSYAVVDTFSKALFGVILLFSRSAIEDASFKDPEKMKLPTSYTSSTIHSGVLSKA

>CpR2

MASVLMAFDPASTNFPAFLDYNNFTEYLLRYNVLLSNPDNITQLGYDFFWLGFGFQVLATFVFLYLTLFHGKAARKLHVLQLGVVGTAAVAYYAMARGQGGVPLPNDVLSGFRYFYWARYAEWAVTVPLTIYSLAVLADVRIIETTLATIVASVIMVVCGLNGALSQSSSRWGWFGLGVWGLFLTLVGLFGNIRKAAYAKSESVGFTYTYLVFLILGSWIAYPVWVIGEGTRAVTVDVEILLYAIFDVITKVVFGFALLMSEPVHGFPNAGDLDLVKTSKL

>CR1

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>ChR1

NGTNAEKLAANILQWITFALSALCLMFYGYQTWKSTCGWEEIYVATIEMIKFIIEYFHEFDEPAVIYSSNGNKTVWLRYAEWLLTCPNVILIHLSNLTGLANDYNKRTMGLLVSDIGTIVWGTTAALSKGYVRVIFFLMGLCYGIYTFFNAAKVYIEAYHTVPKGICRDLVRYLAWLYFCSWAMFPVLFLLGPEGFGHINQFNSAIAHAILDLASKNAWSMMGHFLRVKIHEHILLYGDIRKKQKVNVAGQEMEVETMVHEEDDETQKVPTAKYANRDSFIIMRDRLKEKGFETRASLDGDPNGDAEANAAAG

>ChR2

TASNVLQWLAAGFSILLLMFYAYQTWKSTCGWEEIYVCAIEMVKVILEFFFEFKNPSMLYLATGHRVQWLRYAEWLLTCPVILIHLSNLTGLSNDYSRRTMGLLVSDIGTIVWGATSAMATGYVKVIFFCLGLCYGANTFFHAAKAYIEGYHTVPKGRCRQVVTGMAWLFFVSWGMFPILFILGPEGFGVLSVYGSTVGHTIIDLMSKNCWGLLGHYLRVLIHEHILIHGDIRKTTKLNIGGTEIEVETLV

>GtACR1

ITCDPAIYGEWSRENQFCVEKSLITLDGIKYVQLVMAVVSACQVFFMVTRAPKVPWEAIYLPTTEMITYSLAFTGNGYIRVANGKYLPWARMASWLCTCPIMLGLVSNMALVKYKSIPLNPMMIAASSICTVFGITASVVLDPLHVWLYCFISSIFFIFEMVVAFAIFAITIHDFQTIGSPMSLKVVERLKLMRIVFYVSWMAYPILWSFSSTGACIMSENTSSVLYLLGDALCKNTYGILLWATTWGLLNGKWDRDYVKGRNVDGTLMPEYEQDLE

>GtACR2

MASQVVYGEWASTHTECYNMSRIDSTFVSLLQLVWAVVSGCQTIFMISRAPKVPWESVYLPFVESITYALASTGNGTLQMRDGRFFPWSRMASWLCTCPIMLGQISNMALVKYKSIPLNPIAQAASIIRVVMGITATISPAEYMKWLFFFFGATCLVFEYSVVFTIFQVGLYGFESVGTPLAQKVVVRIKMLRLIFFIAWTMFPIVWLISPTGVCVIHENVSAILYLLADGLCKNTYGVILWSTAWGVLEGKWDPACLPGQEKPEADDPFGLNHEKNAPPNDEVNIRMFGR

>GtCCR2

MVASSAVITANWISFLAISASFIILLVISLRYKGPGGTESFYNGFKEQNMLTVFINLWCALAYFAKVLQSHSNDNGFAPLTVIPYVDYCTTCPLLTLDLLWCLDAPYKISSAVLVFTCLVIAVACSLAVAPFSYCWFAMGMVLFTFTYVFILSIVRQRLDFFTLCARDSNAKQSLKHLKTAVFIYFGIWLLFPLLWLLSYRAANVISNDINHIFHCILDVIAKSVYGFALLYFKMYFDKKLIESGIDEDDFAKFSKVVTTHRSEEKQKRKPAVSQSPKMYYDEAAYQDGEVESNLQSKIR

>GtCCR4

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>CrHKR1

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>CrHKR2

MSSTAFFTALVLNLTSLLFEDNAPKRQLALLSCAIKGAACHTDLLLVTGGATVLYDAYGSICIPQRYVQWLVTTPTMVYILSKISDFTPRQTATAIGLDVLMVLSGLVANFLRSPYLWVAFLTSTAAFIGVLYMMGLMVYSAVKEHTSANSRRSLLFIYMCTLFIWNLFPLAWILHVVHRGSPAAEYLNVFANFMAKVLFSSSIMYGNYMTIAQ

>BatpraRh

SSALTAIVIFSTCILIGLNDVTWTSNSPRRNLSATVTYIACVAFYAHLIMYYGEDVLMNGADGSLVSILRHLEWMFTTPILIVLAYQLQAVSFPENGQKRKAMYLSVVLDEFMLMFGILCHFVSGNMWWLSLSLAILCFIFVMYNMGYLFYELTTKLEHEDDRLRFFMLGVVQSICWSSFPAVFLAKEFNFISAQSEHEWYLIADVCTKSAYSYLLC

>ChleuRh1

GATVMQWTAFVLCVLILMFYTYHYWKATTGWEEVYVCLVELVKVLIEIYLEYESPSALYLSTGNWILWLRYAEWLFTCPVILIHLSNLTGLKDDYSKRTMRLLVSDIGCVVWGVSAALTTGYLKWIFFLFGMLYGFNTYFHSAKVYIESYHTVPKGHCRLVVRCMALFFYSAWTMYPLLFALGPEGLGLMNSYTSTITTSFADIMTKQLWGLLGHHL

>ChleuRh2

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>ChleuRh3

MVAFATAFTLNFATLVFERDSGKMQLALFACYINFLACFNDWLGWQGVSPVLRDIWGGGLLIMRFLMWLHTTPAMVYLLSILSDFDRQRVLYAIMADVLMLAFGLGAQLAPNVPFAVVCFIISTGMFAYVVHEMWCMFSGSLREIRSANSRHSLQVLRCLAVGLWFSFPIIFVAVKAGLTSLYVEEWLWTLGDFMGKVMFSSSLLYGN

>ChleuRh4

LVSCYINLMAASSYAMLWTGFSPILPDVQSCLYIPQRWVLYVFTAPAIIFILSQISDYSPRMRLWVILLNVFMLGSGGMGTIPWISWPHKVFWYVTSCVPFPSILVHMWRMVTSAVEETPERSAKRSVKFIRIFSITTWNLFPIVYFGAIDGSFPLEVIEPLWAALDWLTKMVYSSSL

>ChleuRh5

HLVSSYINLVSACSYYMLWTGFSTIMEDRHSCLYIPQRWLLYIFTVPHIMYLLSQMSDYTTGMWLWVVVENVVMLAAGGLGTVPWFSRSLKALLYMTSIIPFPFINIHMYRMVSGSITADLELASKRSLGFIRIFSIVTWNTFPIMYFAAIDGALPLDVSEPLWSVLDWLTKMVYSSSL

>ChleuRh6

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>ChleuRh7

FAGVLLLNSLNLPHSTNDTRFKSNLVLLYINVLALVTDVVIYYQLTPVLIGGSQRITHPLRYIQWSHSTPTMVYMLSLMSDMSPPQVFFVMVNDVSMMVTGLAATLSMDLNARVGWGAVSFLNFFIVMLFMSKMVLSAMRESADLHSRLSLRSMLWLMLVLWSSYPAIWLLAECNLMSPSCEQLMWGVTDYMAKAVFTSQLWQTNMKSVQERREAALAAWEVSNRSMVVDKLQQLVEAKDNILQVMSQELKTPLMGIIGLVNVMLKDTRSHPAS

>ChleuRh8

AFFTAAVLNLISLVFEETPEKRQLAFLSAIIKGLSWHSDFLVVTGQAIIVYDGYGAILLPGRYVQWSCTTPTMLFTLSKISDFTSRQTWTTMFFDWLMIITGFIAAVLPPGIFSCLFLALSYATMLVVLWSLYCMVQSALSVANSPHARMSLHFTLWSTFIIWNLFPVAWTIERIPHLCHLGEPLWLFCNFSAKVVFSSCILYNN

>ChleuRh9

HLVSCYINILAASSYAMLWTGYSPILPDVQSCLYIPQRWVLYVFTAPAIIYILCQISDYSDRMRLWVILLNVFMLGAGGLATIPWLSWPHKVFWYVMSCIPFPTILVHMWRMVSSAVEETPEPAAKRVVMFIRVFSITTWNLFPIVYFGAIDGSFPLEVIEPLWAALDWLTKMVYSSS

>ChlinRh1

MAYVMNWIAFAISVVVLAWYAYEALHTACGWEEVYVCVIETFNVTFEIFAEFEEPLTVYLSSGMRVPFLRYTEWLMSCPVILIHLSNLSGLSDGYNKRTMLLLVTLIGCLVTGVYSAMCDYGWIKWAMYTISCIYCAFVYWFSAKVYLETYHMVPKGSARKVVLAMASIFFVTWGIVYPLLFALGPEGLNAISFHLSNFLHCIADLFSKLLWGALGHQLR

>ChlinRh2

MIAFGTAFGLNFITLLFERESAKFQLALLACYINFLAGFSDYLSWKGYAPIVRDSWGQGFQLLRTVMWLLTTPAMVYLLSIISDFSRLKVYSVMLADVLMITFGILAFLAYNKIMSILLYMVAWCLFTYVVHSMWSMFHASIAEARHDSSRVSLEVLRLFAVGLWFTFPVIWIVVKMGLVDVHTEEWTWCVCDFLGKVMFSSSLLHGNFLTIEQ

>ChlinRh3

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>ChlinRh4

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>ChlinRh5

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>ChlinRh6

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>ChlinRh7

RPVVVQRYICWMHTTPSILMLLKMISTTITPRETMIAIFFDEVMVVTGVLALVTTGWQRVLWSFLTHVAMLPVVPYMHKAFTECIAAHSAAARTLAPLWASPGSGSAGRRGGYDDYDASGYGGGSGGGGRPGLLARAMEQIRTRPLQLTMLCIYVLNLVLWCTFAVTWDLALLGWISVTMEEVLYVACDFSAKVLFSSTLMLS

>ChlinRh8

LRYVQWAHSTPTMIYMVGLLAEVRGLKLALPVLCDVVMVVTGLAACCTTGLAKAFFTVVSFATFAVVLRCIHDMFDKTLRSGDVAADQRGTLWAVRALLMALWSAFPLVWLAADWRLVSPQAEAVAWGVCDYLAKAVFSSQL

>ChlscRh1

MVKVIVEFFFEFKNPSMLYLATGARVQWLRYGEWLLTCPVILIHLSNLTGLSNDYSKRTMGEWANGIGTIVWGATSAMATGYVKVIFFCLGLVYGANTFFHAAKAYIEGYHTVPKGRCRQVVTAMAWLFFVSWGMFPILFVLGPEGFGVMSVYGSTVGHTIIDLMSKNCWGLLGHYLRV

> ChlscRh2

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>ChlscRh3

WENFWIMAIAFTFYCFYNPEPYTSPQMVFLSTGNFVVVGRYVQWLMATPAISSLVANMTGRPRDYTLRDMFLVLTDVWAVACFIVCCLSTSFWIKITFYVLALVFFLIVFVFAGKSFGELINNDCPTETSRTTAKIVVVVYFVGQNVHTLFSTIGPEVGGFINALQAEIGATFGDLTAKVLFC

> ChlscRh4

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> ChlscRh5

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>ChlscRh6

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>ChlscRh7

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>ChlscRh8

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>ChlscRh9

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>ChlatRh

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>ChrveliRh1

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>ChrveliRh2

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>ChrveliRh3

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>ChrveliRh4

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>ChrveliRh5

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>ChrveliRh6

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>ChrveliRh7

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>ChrveliRh8

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>ChrveliRh9

LFFLVGVFFWTRFPDPHLKDERLAVFSMCMSLNGYIMLFSGFFNLVGLSQIDDFVLEDCVKIDAARAFQWAVSCPLLTWQISLLARGKKQRQIEVVLSTFFCLLLGLFSTIAPERTYRYLYFAASTVFYILLIVNLDWAIRETTENRESLLKGESHLRKIVLCVSATWTVFPIVWLLGPLGTAAVTDDAILIVTTVIDISAKLLLAFYVYFVR

>ChrveliRh10

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>ChrveliRh11

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>ChrveliRh12

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>ChrveliRh13

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>ChrveliRh14

FVAVGLFYWTRFPDPNYKDEHLTVFSMCTSLNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIGRFVQFAITCPLLSWQVSLLARSKKQRQVELVLCTFLMLVLGLWANSIPEFRYRMMAFGLGASFFVLLVVNLDWAVRETSENHDNLFKGNSNLRYIAVCVVITWVAFPITWIIGPMGARAIPPQAEVIVLSTMDLISKLAFSGYVYYVR

>ChrveliRh15

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>ChrveliRh16

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>ChrzofiRh

ISFLFEDSDAKRQLALLNCLVKGLACHSCYMVAMGWTPITFTPYGILFIPQTYVQWSITTPTMVFITSKISDMSATKVATAIVLDVLMIWLGFASCILPLPFNAICFVVSGTFMFVVLIYQYRMYYAATKFPTSVTSFIGIYWASVITWFMFPIGWLLLHVYPTEPQWGEGLTMVANVASKVLLSSSIMYG

>CryptoRh1

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>CryptoRh2

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>CryptoRh3

IGASGAIFDVLAFIALLVTALFMAFRAMNAEPGVRKFYYINAYVCGVATFAYFAMISGMGWETIMGCRQLFYVRYIDWAVTTPLMILNLGLLAGEDTVMILAVMGADLGMIFCGYMGSVALVPTVKWLWFVFGLAVFAPVVIALVRVFRQTVIDKNDVDRIELYGKVSLLTIVVWSMYPIVWLLGVGSGALGVSSEAIAYAILDVISKCAFSFM

>CryptoRh4

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>CryptoRh5

VGALTIAFLILAVSTIVFITRIGSATTQKVYYYCNVFICGVATMSYFAMLSGQGWTAIAGCRQFFYARYVDWAITTPLLLLDLGLIAGADPALIAAVIGADVIMVFSGYLGAVSVVTTVKWFWFVIGMGVFVPVLYVLAVNFREAAVAKGGEVADIYGKVAWLTIITWIFYPLVWLFSEGFASFSVSFEVCAYAVLDITAKAIFGFMIMSAH

>CryptoRh6

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>CryptoRh7

RHFLLIGFLGMFIGAIVFFYMGISRKVNTVMHVLTFFIAAVSACSYYMYAEWAGLGVEYKTTDTTPRVIFWARYLDWVVTGPLILVDLALLSKSDTPTIISLVGNMVLYVICGLIGALTVAPYKYMWWVAGLIFLVIVFMQLLQRLNNAEGYGGDALKGLTWLVVIVWIVYPIVWIVGSEGTGALGLSQEVGILTIADLVAKIGFGFYLLANV

>CryptoRh8

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>CryptoRh9

FLVTSLVIFGVTALCSLVLALRHDGADDSRPHSSVIYYYILMFMATVSALCYYSMYSEVTSPLLLLALALLGNAPWTSIFASIGCDLIMVACLYVGAFISPEHKFFWWGVGVALLLVLIFILIAELSKAVDDGRVKEQDGVTLRILTYLTCFSLAFFPLVWLIGQEGSASASLTTEVALSSVADVLAKVAFT

>CryptoRh10

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>CyapaRh1

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>CyapaRh2

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>CyapaRh3

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>CyapaRh4

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>DesarRh1

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>DesarRh2

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>EdadeRh1

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>EdadeRh2

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>EdadeRh3

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>EdadeRh4

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>EdadeRh5

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>EdadeRh6

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>EdadeRh7

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>EnacosRh1

AGYILYWIVFGIMAASLVLFSLMTFRHQQQDRKRGYLTMAIVATAMSAYFSMASHGGDTTVPLHWDLSGARDVFYARYIDWFVTTPLLLLEVLLLGAVPVGTALWIVFADVAMVVFGLFGAITDHYYRWGYFGIGCAWMFVVFWGLLVTGPRYAFQRDSQLGRLYIFFAGYLVILWCCYPVVWGLAEGSNTISVTAEIACYGGLDITAKAIFGLLFLLAH

>EnacosRh2

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>EnacosRh3

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>EnacosRh4

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>MesvirRh1

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>MesvirRh2

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>MesvirRh3

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>MesvirRh4

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>MicondRh

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>NamoceRh

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>PavlovRh1

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>PavlovRh2

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>PelagoRh

LGFVSLTMSATALYIYGLAMSLEADKRFFHMVSFAICAFASLAYLVMAFDLGRVEVDGRDVFYARYIDWAVTTPLLLVDLGFLAGMSAADVAGLCVWDVLMIAGGLFGALTTHVAAKYSFFAYGCVAFLFIVRSLYAACGLAKEKRSPAVAARYNDLAMLTILVWFAYPIVWVLGEGGGFVSIDVEIILYAILDVTAKVVFSLLLVSVR

>PhaantRh

CFFVCSIAAMTYFCKASGYGEIKINGTLVPIARYIDWITTTPLLMYELGHLAHASTANTMMLVGSDILMIAAGILSACLDRQRQYRMMLFYFAVSCVFYVLMLCIINVRLANGTVLQQTDSVQELFGYLKILTSTVWTFYPIVVFLGRAQCHLISKNTEDCLLCFLDLAAKLGMEGLIIAFAV

>PhagloRh

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>PicspRh

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>SceobRh1

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>SceobRh2

YNCNVLLVLIHSVAFATDWLIEAQSTSLVLGHNGRFFVPLRYVQWTHTTPTMILLMSMMSDLAPWRVAAAVGGDLVMVAAGLGASCSSGPLQVLAGPGAGRSSGPLQVLLLLVSFSGFAVVMRAIMDMFAGAIAESSADAASRQLLGRMLALTLVVWSLFPLVWLLGQAGLVSLTVEQVRGAAGGLVGWRAGVLVWLLGQAGLVLWGAVAAVLWGAADYGAKVVFS

>SceobRh3

FGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKSVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSN

>SceobRh4

MFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLML

>SceobRh5

PVQYNCNVLLVLIHSVAFATDWLIEAQSTSLVLGHNGRFFVPLRYVQWTHTTPTMILLMSMMSDLAPWRVAAAVGGDLVMVAAGLGASWSSGPLQVLLLLVSFSGFAVVMRAIMDMFAGAIAESSADAASRQLLGRMLALTLVVWSLFPLVWLLGQAGLVSLTVEQVLWGAADYGAKVVFSSHLWQ

>SceobRh6

MFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGL

>SceobRh7

ASVELQVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSGALHSNKQCCSMNAAAATQQQARAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLMLGS

>SceobRh8

CAAFGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKSVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFS

>ScespRh

MFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGVATLTNILVRYGWGAIGAAPNGTVVMLQRYICWMHTTPTILLLVKMISTTISRKQLTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAGSVVSMHAAGYTMALVYYITMFMWSAFGVIWDLRMFGLVGLKVEEVANICCDFSAKVVFSCGLMLS

> SymretAfRh1

NGQNALWAVFIIQSVAALVYGFSGFRLPADRRDHFLVTTAIVATAAISYYAMATGLGQVDIEIGSGKEAVTRPIFFARYIDWSITTPLLLVDVLLMARLPIVVAGWAIFADLAMVVTGLIGGLDGSEYRWGWFIIGCFFMLAIFVVLFLDGVKYVEKRDSNLLSFYNSVVLGLVVLWTAYPIVWALGEGTQYISSDTEAYLYGILDVLAKVGWGGFIL

> SmyretAfRh2

AGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGYVTCLIVTTASCAYYAMASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVML

> SmyretAfRh3

LSLCYETSPIKKQLALLQCTIKGVSLLADLQLGLQGAIVLADSNKRALIPSRYLQWALTCPLITWLCAWISDASALRISTAVLCSAATPIIGFLAALTPNPHKGIVWSCAVCSHAHVIISLNYFIKSAERESVDEDGKRGLRWIRYLTHLTWKVFPIMDLCRETQVLSRFTIECIIVFENYASKVIFSSTVMYSQFQTIAQ

> SymretSwRh1

NGQNALWAVFIIQSVAALVYGFSGFRLPADRRDHFLVTTAIVATAAISYYAMVSDFDIEIGSGKEAVTRPIFFARYIDWSITTPLLLVDVLLMARLPIVVAGWAIFADLAMVVTGLIGGLDGSEYRWGWFIIGCFFMLAIFVVLFLDGVKYVEKRDSNLLSFYNSVVLGLVVLWTAYPIVWALGEGTQYISSDTEAYLYGILDVLAKVGWGGFILY

> SymretSwRh2

AGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGCEYTTTMLQLPPACDVLYRLLLLTILSNTASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVML

>SymmicRh1

IVQAVMGMSSVFLYLSCLCLFFMGQKDVSRPYNMIACLVTFIAGSAYLGMSSGLFVHVVDGRHVYCLRYVDWCFTTALMLLDLALMRGADMKATAALIGIDVAMILMALMAALSTSNAGKWGFFGMGTVCFAGMVAFLFTVLQRAAEERGGEAEGKFKFVASRTIELWCLYPVIFALGELTHTIPEELEVVGYSVADVLAKSGIPMMI

>SymmicRh2

VFLLFALASAVLLVFWARHINEEAYVVTFFVMAIAALAYLAKISGMGEIKLGGRKLPIIRYIDWITTTPLMLFELCVVGGAEKHTAILVIGCDLLMLTGGIVSAMIVPKEKSLQRNLWFGISVFFFVIMVTALQVDVANGTVLERPPDVQQLFSYLKWLTIISWSGYPVVVLLGRAHFGLISKGMEDALLCILDCISKIGMEFFVVIS

>TrebspRh1

GWIVYWVTFGLMAFSAVCFMAITLTKPQRHRKHGYCTALIVTIAAVAYYAMASEGGSTYIYATHGANMRQIYWARYVDWAFTTPLLLLDLXLLAACPIGTAMWIIAADVFMIILGLFGGVNTHKFKWGYYAMGCFCELIISIGLVFNAMRSAMARGGGISKVYAGMAAYLTILWWGYPIVWGLAEGANVISSDAEVAAYAGLDIAAKVFFGWMIMAA

>TrebspRh2

SAAAFFSAFVQNCCALIYEAGSTKKQLALVSCFIKGLSAYVDLLLATGNGAIILDYAGHPLVISRYTQWMVTTPTLIYVVSKISDFTRTQVATVVLCQFSVILTGLLASVAPSPWKWLWMLYCMVAYCYVIYSMGKMLQSAITESADASQRQGLLFIYYGTVVIWSAFVVVWFGQELGMLSIYRAELGNMLANFAAKVLFSSSVMYGNFVTIAQ

>TetsoRh

VANVLQWSAFGFSALILVFYAYQTWKATCGWEEIYVCAIEFTKVIIEFFHEFDEPAMLMLSSGARVQWLRYGEWLLTCPVILIHLSNLTGLKDDYNKRTMRLLVSDIGTIVWGATSAMSKGYVKIVFFLLGCCYGANTFFHAAKAYHTVPKGNCRLIVRCMAWLFFVSWGMSPILFVLGPEGFGHLTVYGSTIGHTIIDVMSKNCWGLFGHVLR

>TetdesRh

NCNVLLVLIHSVAFVTDWLIEAQSTSLVPGRNGRFFVPLRYVQWMHTTPTMVLLMSMMSDLPSWRVAAAVGGDLVMVLTGLGACWTSGPLQVFLLLLSFAGFAVVLHAIVDMFSAAMAESADGTSRQLLGRMLALTLAVWSLFPLVWLLGHAGLVSVTTEQVLWGAADYGAKVVFSSHL

>TetobRh1

GWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLML

>TetobRh2

ASVELQVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSGALHSNKQCCSMNAAAATQQQARWLQGLWRSQLCSCSSSAASSTLQDVTCWAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLML

>TetobRh3

FMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLM

>TetobRh4

MFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVRQAHAQLLPAWQTAAQSTLGLGLWHQQAVGGYGLQVGRSAGASSRQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSC

>TetobRh5

FGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKNVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSNFV

>TetobRh6

FGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKNVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSN

>TetstrRh1

MYTSPATIYQTNGNTVSWLTYSEWLLTCPVILVQLCNITGLESDFNNRTMQVLVSDVGAIVLGTYAAFSEGYVKLIFFVLGCCYGAFTFYHAAKVYIESYYMVPKGICRRLVRYMAWCFFTSWVGFPIIFLAGPDGFNHLSIWAEVIAQQICELVSKNIWGFLGHFLR

>TetstrRh2

AANNAPRIKKLVLIPLVIDILPMLFSIMYQHGLSPVYLDVQGRVFQPIRYLTWICTTSMLIYLQWLTSESRVMRDLLSTLAWDITMLLSGVWASFASSETLFYFAAGVACYAGYIVLEQQRTIYLESIKVFHHLPHTARALRSVYLFSTLSWCLFPIVWFMGKNDWISHNDEEALWCAADFLAKMCQSIALHQGVLSTVE

>TetstrRh3

TTAALHWLGHAPIWTMAGLNGVVIETPLRYVTWCFTTSLLSHSNWCASSLPLSSYAINVAMDVPMVLLGMAASLTEGPLSVFFYLLSCALFIPGLFHKWSIQSSILAECEGLPKAQNSVRRLRIVSVMIWCAFPVIDILHRCGAISNLSAELLIGAADISAKCVLA

>UlvmuRh

METLKVLIELRLEYESPAMIYQVNGSAAPWIRYAEWLLTCPVILIHLSNLTGLNGEYSRRTMFLLVSDLGTIVWGVSAANATGAAKAIFFCVGLIYGSNTFYNAARVYIEAFHTVPKGICRNLVMALAWMFFASWGMFPLGFVAGPEGSKTISYAGSTIVHTFADLLSKNLWGFVANYLRVCIHK

>VitbrasRh1

GVAVLWVAFVCMALSTLYFISQSAGYDIEMRKFHYVSAGITAIAALAYMCMALGIGVSADPYGRSFYWGRYLDWTFTTPLLLVDLGLLAGVHWNELTYVILMDVLMIISGLVGGLYAHEPTKGWPLFVFGMVVFLPIIQSLVTSMKDKAIKTSPAVADRFNQLSVMTVVLWSAYPVVWVVAEGTKVIPVDIEILLYGVLDVTAKCLFGFILLANR

>VitbrasRh2

TAVLVLTAIAMLTSGVVFGWLTYSKSAARVCGVLTTSIVAIAGAAYVLMSLGYGVTAVGGRELYYARYADWLVTTLLLLVDILLFAGVSWKPIVALCTLDVLMIGTGFLAVIVSTTAAKWSLYLSGVACLLPIAMILYQEATDTQLVLVPSAIASRLPSAAPTKVPLLAKTATAKEGADAVLAAYRRATLLTLCAWVSYPVVWVLGEGLFVLPLDMEILAYAALDVMSKVVLGFVLL

>VitbrasRh3

GRTVLWVGFACMALSTLYFVQQAYSFEIFQRKFHYVSAGITGIAALAYLCMSLDIGVSSDEGGRSFYWARYVDWTLTTPLLLVDLGLLAGVHYNELIYVIIMDILMIVAGLIGGLYADDPYKGWPLFVFGMIVFLPIILSLTTSMKEKALSFASDVGARFNQLSVMTVLLWSAYPVVWVIAEGTKVIPVDLEIVLYAILDVSAKCLFGFILLANR

>VitbrasRh4

KYVQYCVTCPVITYQLVELGGGAFHRKVEITLQTFMMLSFALFASIIPERGYKMIVFCCGAFFFGIVIYTMNLVIQESTNFKENLFEGTSYLRKTALVVMLSWIPFPITWLIGPEGFDVMSGDLFDIIFTVCDLVAKVGFSMYIFQ

**Figure 2.** Homology and comparative analysis of identified algal ChRs with ChR1 and ChR2. Sequences used for the analysis are mentioned below.

>ChR1

NGTNAEKLAANILQWITFALSALCLMFYGYQTWKSTCGWEEIYVATIEMIKFIIEYFHEFDEPAVIYSSNGNKTVWLRYAEWLLTCPNVILIHLSNLTGLANDYNKRTMGLLVSDIGTIVWGTTAALSKGYVRVIFFLMGLCYGIYTFFNAAKVYIEAYHTVPKGICRDLVRYLAWLYFCSWAMFPVLFLLGPEGFGHINQFNSAIAHAILDLASKNAWSMMGHFLRVKIHEHILLYGDIRKKQKVNVAGQEMEVETMVHEEDDETQKVPTAKYANRDSFIIMRDRLKEKGFETRASLDGDPNGDAEANAAAG

>ChR2

TASNVLQWLAAGFSILLLMFYAYQTWKSTCGWEEIYVCAIEMVKVILEFFFEFKNPSMLYLATGHRVQWLRYAEWLLTCPVILIHLSNLTGLSNDYSRRTMGLLVSDIGTIVWGATSAMATGYVKVIFFCLGLCYGANTFFHAAKAYIEGYHTVPKGRCRQVVTGMAWLFFVSWGMFPILFILGPEGFGVLSVYGSTVGHTIIDLMSKNCWGLLGHYLRVLIHEHILIHGDIRKTTKLNIGGTEIEVETLV

>ChlinRh1

MAYVMNWIAFAISVVVLAWYAYEALHTACGWEEVYVCVIETFNVTFEIFAEFEEPLTVYLSSGMRVPFLRYTEWLMSCPVILIHLSNLSGLSDGYNKRTMLLLVTLIGCLVTGVYSAMCDYGWIKWAMYTISCIYCAFVYWFSAKVYLETYHMVPKGSARKVVLAMASIFFVTWGIVYPLLFALGPEGLNAISFHLSNFLHCIADLFSKLLWGALGHQLR

>ChlscRh2

MAYVTNWIAFAISIVVLAWYAYEALHSACGWEEVYVCVIETFNVTFEIFAEFEEPLTVYLSSGMRVPFLRYTEWLLSCPVILIHLSNLSGLSDGYNKRTMLLLVTLIGCLVTGVYSAMCYYGWIKWAMYTVSCIYCAFVYWYSAKVYVETYHMVPKGRARTVVLVMASIFFTTWGIVYPLLFALGPEGLNAISFHLSNFLHCIADLFSKLLWGALGHQLR

>ChleuRh1

GATVMQWTAFVLCVLILMFYTYHYWKATTGWEEVYVCLVELVKVLIEIYLEYESPSALYLSTGNWILWLRYAEWLFTCPVILIHLSNLTGLKDDYSKRTMRLLVSDIGCVVWGVSAALTTGYLKWIFFLFGMLYGFNTYFHSAKVYIESYHTVPKGHCRLVVRCMALFFYSAWTMYPLLFALGPEGLGLMNSYTSTITTSFADIMTKQLWGLLGHHL

>EdadeRh1

AQALMWITFGLSVAVLIFYAYETWKHTTGWEEVYVALIEMIKFIIEYFHELDSPAMLSLSSGVRVVWLRYAEWLLTCPVILIHLSNLTGLKDDYNKRTMGLLVSDVGCIVWGTTAAMSTGYVRLIFFLLALSYGLYTFFHAAKVYIEAYHTVPTGICQKLVRILAWVYFLSWGMFPIMFVLGPEGLDHISQYSSAIAHAILDIVSKNLWGFIGHYLR

>EdadeRh2

MALAMNWTALGISAVTLLWYGYEYFVASVGWEEVYVAIIETINVTLEITNEFDEPLTLYLANGMRVPFLRYTEWRMSCPVILIHLSNLSGLKDAYNKRTTVLLVSLIGCLVTGVYCAMISPGWLKWLMYTISFVYCAITYWSAARVYIETYHMVPKGNCRRMVAWMAVIFFACWGLTYPFLFVLGPEGLNAISFHLSNFLHCITDLFSKLLWGAMGHQLR

>EnacosRh2

AAMACSWIALSLSVAILVFYAYHYFKDKTGWEEVYVCVIELIKVMLEIFAEIYPPATITQINGVNTTWLRYAEWLLTCPVILIHLSNITGLHNNYNKRTMTLLISDIGTIVMGVTAAFATGPTKVVFFCMGLCYGTNTFFTAAKVYLDAHREVPEGQCKTLVKAMAYVFFSSWLSFPLLFLMGPEGFGHISPYGSIIGHTVVDLMSKNLWGLTGHHLR

>TetsoRh

VANVLQWSAFGFSALILVFYAYQTWKATCGWEEIYVCAIEFTKVIIEFFHEFDEPAMLMLSSGARVQWLRYGEWLLTCPVILIHLSNLTGLKDDYNKRTMRLLVSDIGTIVWGATSAMSKGYVKIVFFLLGCCYGANTFFHAAKAYHTVPKGNCRLIVRCMAWLFFVSWGMSPILFVLGPEGFGHLTVYGSTIGHTIIDVMSKNCWGLFGHVLR

>DesarRh1

MQEVYVVTVEMLKTIIEVFFETSTPATILQFNGTHISWLRYSEWLLTCPVILIHLSNLTGLGHYNKRTMRLLVSDIGTIVCGITAALSTGPAKIVFFLFGLCYGSSTFLTAATVYLSAYKEVPKGQCQTLVKLCAWVFFGSWLLFPILFLMGPEGFGHFSVYGSIIAHTFADLLSKNLWGLLAHHLRNK

>UlvmuRh

METLKVLIELRLEYESPAMIYQVNGSAAPWIRYAEWLLTCPVILIHLSNLTGLNGEYSRRTMFLLVSDLGTIVWGVSAANATGAAKAIFFCVGLIYGSNTFYNAARVYIEAFHTVPKGICRNLVMALAWMFFASWGMFPLGFVAGPEGSKTISYAGSTIVHTFADLLSKNLWGFVANYLRVCIHK

>ChlscRh1

MVKVIVEFFFEFKNPSMLYLATGARVQWLRYGEWLLTCPVILIHLSNLTGLSNDYSKRTMGEWANGIGTIVWGATSAMATGYVKVIFFCLGLVYGANTFFHAAKAYIEGYHTVPKGRCRQVVTAMAWLFFVSWGMFPILFVLGPEGFGVMSVYGSTVGHTIIDLMSKNCWGLLGHYLRV

>TetstrRh1

MYTSPATIYQTNGNTVSWLTYSEWLLTCPVILVQLCNITGLESDFNNRTMQVLVSDVGAIVLGTYAAFSEGYVKLIFFVLGCCYGAFTFYHAAKVYIESYYMVPKGICRRLVRYMAWCFFTSWVGFPIIFLAGPDGFNHLSIWAEVIAQQICELVSKNIWGFLGHFLR

**Figure 3.** Alignment of topoisomerase 6A subunit coupled to ChleuRh1 and topoisomerase 6A subunit from yeast and archaeal system. Sequences used for the analysis are mentioned below.

>Topo6A\_S. cerevisiae

MALEGLRKKYKTRQELVKALTPKRRSIHLNSNGHSNGTPCSNADVLAHIKHFLSLAANSLEQHQQPISIVFQNKKKKGDTSSPDIHTTLDFPLNGPHLCTHQFKLKRCAILLNLLKVVMEKLPLGKNTTVRDIF**Y**SNVELFQRQANVVQWLDVIRFNFKLSPRKSLNIIPAQKGLVYSPFPIDIYDNILTCENEPKMQKQTIFPGKPCLIPFFQDDAVIKLGTTSMCNIVIVEKEAVFTKLVNNYHKLSTNTMLITGKGFPDFLTRLFLKKLEQYCSKLISDCSIFTDADPYGISIALNYTHSNERNAYICTMANYKGIRITQVLAQNNEVHNKSIQLLSLNQRDYSLAK

NLIASLTANSWDIATSPLKNVIIECQREIFFQKKAEMNEIDARIFEYK

>Topo6A\_A. fulgidus

MKEIERRCLRALIGIVQNIYDQMKAGQVPELHIATRTKYNIEFNEESEVWVYGDRKSVRSAKTVKGAYRILKMTYVIGFLKEQLNLNKSSTLRELYYISEGWGAAKFEEQPESDRLVEDLEILTNFQREHFHIRPEEDGATVIGPLRVREETRRGVREIHCQDDVGEGGYQIPVNVDKIEFVDHDAKFVIAIETGGMRDRLVENGFDEKYDAIIVHLKGQPARSTRRLLRRLNTELNLPVVVFTDGDPWSYRIFASVAYGSIKSAHLSEYLATPAAQFVGIRPTDIVKYDLPADKLTEEDIKALNAILTDPRFDSEFWKKEVNLQLEINKKSEQQALAKYGLDYVTDVYLPERLSELGVI

>Topo6A\_A. pernix

MSGEMFGDEVDIKARLRAAEVMYKKFHRLISDVIKGRPPKLEIPKRTLSNTIFDPERGILVIGEEKLEREFLNVGESRRFMQTLLMASIIYQSLIENEYPTIRDLYYKGKHTIVYRDYSGRKREENTWDEQKESDSVIQDIEVYTGLFREDMLILSKEKGKVVGNMRIRSGGDVIDLSKLGHGAYAIEPTPDLIEFLDVDAEFVLVVEKDAVFQQLHRAGFWKKYKALLVTGSGQPDRATRRFVRRLHEELKLPVYIITDSDPYGWYIYSVYKVGSITLSYESERLATPKAKFLGVQMTDIFGYRGKKPYLSEAERKKFMIKATDKDIKRAKELLNYSWIGKNRRWNVEIRLFLKHLVKLEIEAIASKGLKFFAYQYIPEKIETGDWID

>Topo6A\_M. acetivorans

MWKGLKKSWLPGQRLSGVFEMAGDVNNEVNSKKRQGDTLAKERLLGLAEKIYNQFEEEVIPSVSLPSRTKANIEYSDESDVWVYGDRESERSAKTVKGAFQLLKTTYATDFLINEHLAHNRGSTLRELYYISEGWDYAKFKEQAESDRLIEDLELLTSLQREYFHMRPEEDGATMFGPIEISELTKRGARNIHCQKDVGEGGYQIPFNVENIEFKNHDASMIIAIETGGMYARLMENGFDEAYNAILVHLKGQPARSTRRIIKRMNEELEIPVAVFTDGDPWSYRIYASVAYGAIKSAHLSEFMATPAARFLGLQPSDIVEYELSTDKLTEQDISALRSELSDPRFESEYWKEQIQLQLDIGKKAEQQAFAGKGLDFVTEVYLPNRLKELGMV

>Topo6A\_M. jannaschii

MVKLPAISKKPREIAKQKIIELAKKMYEDLMKGKRPKITMPIRSLSNAMFDKEKGSFTLVGKEKARTLTVNQAKIFAQTTKMLEFAKQLLETDDFSTLREAYYVSKNWGEARFDDQQASNNVIEDLEAALGVLREHLGFIPEEDGSSVVGPLKIIEETPEGELVVDCTKLGTGAYNIPNDVTKLNLETDADFILAIETSGMFARLNAERFWDKHNCILVSLKGVPARATRRFIKRLHEEHDLPVLVFTDGDPYGYLNIYRTLKVGSGKAIHLADKLSIPAARLIGVTPQDIIDYDLPTHPLKEQDIKRIKDGLKNDDFVRSFPEWQKALKQMLDMGVRAEQQSLAKYGLKYVVNTYLPEKIKDESTWLP

>Topo6A\_M. kandleri

MSEALQRLREFAKQVLKCVEKDEPVRIPKRTTSNIRYDPEREIFTLGPDKLERRPRTLKGSKKLAQMLSVAAFAKELVEKGRSATLREIYYTSEGWEVDFKDQRESDAIVEDLEATLGLKREEFGVWPEEDGAAVYGDLLVREDGVEIHAERAGISGYNIPPNVDAVEILDCGAERVIAVETMGMYRRLVQERAHEKLNALIVGLKGQAARATRRLLRRLNEELGLPVYVFTDGDPYGWHIYMVIRSGSAKAAHLNEELACPDAKFIGVTATDIVEYDLPTEPLKKTDYKRIEELRRDPRYYDPFWKKELDLLEKLGKKAEQQAFAKYSLDYVVKEYLPAKLDELE

>Topo6A\_P. aerophilum

MSTRSEFLKRLESWGTQLAKAILELEEPIMEIPARTLSNTIWDEKARMLKLGPEKLHRRFLDVKEARKFMQTVLMLRLIVEAIREDVYPTIRDLYYNGKHTIVFKDPLGRTHRENTWDEQSESNAVIEDIEVATNVLREEMGVSADVKGKIVGPIVVRSQGYELDASKFGETALSLPVNVDALEIVKVEASYVLVVEKDAIFQRLVREKFWSQEGAILVTAKGMPDRATRRFIRRLNEEYKLPVYVLTDGDPYGWYIYSVYKSGSIKLSYESERLATPDAKFLGLTATDIDTYKISDNYVIAANDRDIKRAQELLRYPWFQKPEWTREINLFLKKKKKVEIEALSTHGLKFLHDYLRDKIRSKKFID

>Topo6A \_S. solfataricus

MSSEFISKVDKEARRKAASILRDKFLNLVEQLKKGEPLVMEIPMRTLSNAIYDEKRKLLLLGEKKLKRNFLDMNEAKRFMQTVLMASIIYDALVSDEYPTIRDLYYRGKHSLLLKSIDGNKIVSEENTWDEQKESDSVIVDIEVFTSLLREEMLILSKEKGKVVGNLRIRSGNDTIDLSKTGHGAYAIEPTPDLIDFIDVDAEFVLVVEKDAVFQQLHRAGFWKQYKSILITSAGQPDRATRRFVRRLNEELKLPVYILTDADPYGWYIFSVFRIGSISLSYESERLATPDAKFLGVSMSDIFGNSRKKPYLSEAERKNYIIKAKEADIKRAEEIKNYEWFKTKAWEEEINTFLHRKAKLEIEAMASKGLKFLAFQYIPEKITNKDYIA

>Topo6A\_ChleuRh1

GAGKKGNLRVKDAEVVDKGADSVLDEIEATVLEISASILEGNGFSFDIPSRAKGNQMYVPELDRIVLKDSISKRPFSSTQTCRKTAITTRILGLVHQLCTKQIHVTKRDLFYTDVKLFEDQSQSDSILDDMACMLGCTRSSLHVVASEKGVVVGRLTFREAGDQIDCQRMGVGGKAIPPNVDKVDSIQSDALFILLVEKDAAFMRLAEDRFYNTYPCIILTAKGQPDVATRLFLRKLKTTLKIPVLALVDSDPYGLKILSVYMKGSMNMSYDSSNLTTPDIKWLGVRPSDLDRFNIPQQCRLPMTEEDIKTGKKLLEEDFVKANPLWVAELELMLKTKEKAEIQALSSFGFQYLSQFPANPYLSTTSETCQ

**Figure 4.** Sequence comparison of identified rhodopsins clustered with algal proton pumping rhodopsins (CsR and ARII). Sequences used for the analysis are mentioned below.

>CsR

MAVHQIGEGGLVMYWVTFGLMAFSALAFAVMTFTRPLNKRSHGYITLAIVTIAAIAYYAMAASGGKALVSNPDGNLRDIYYARYIDWFFTTPLLLLDIILLTGIPIGVTLWIVLADVAMIMLGLFGALSTNSYRWGYYGVSCAFFFVVLWGLFFPGAKGARARGGQVPGLYFGLAGYLALLWFGYPIVWGLAEGSDYISVTAEAASYAGLDIAAKVVFGWAVMLSHPLIA

>AR-II

MADVETETGMIAQWIVFAIMAAAAIAFGVAVHFRPSELKSAYYINIAICTIAATAYYAMAVNYQDLTMNGERQVVYARYIDWVLTTPLLLLDLIVMTKMGGVMISWVIGADIFMIVFGILGAFEDEHKFKWVYFIAGCVMQAVLTYGMYNATWKDDLKKSPEYHSSYVSLLVFLSILWVFYPVVWAFGSGSGVLSVDNEAILMGILDVLAKPLFGMGCLIAHETIFKKM

>SymretAfRh1

NGQNALWAVFIIQSVAALVYGFSGFRLPADRRDHFLVTTAIVATAAISYYAMATGLGQVDIEIGSGKEAVTRPIFFARYIDWSITTPLLLVDVLLMARLPIVVAGWAIFADLAMVVTGLIGGLDGSEYRWGWFIIGCFFMLAIFVVLFLDGVKYVEKRDSNLLSFYNSVVLGLVVLWTAYPIVWALGEGTQYISSDTEAYLYGILDVLAKVGWGGFIL

>SmyretAfRh2

AGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGYVTCLIVTTASCAYYAMASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVML

>SymretSwRh1

NGQNALWAVFIIQSVAALVYGFSGFRLPADRRDHFLVTTAIVATAAISYYAMVSDFDIEIGSGKEAVTRPIFFARYIDWSITTPLLLVDVLLMARLPIVVAGWAIFADLAMVVTGLIGGLDGSEYRWGWFIIGCFFMLAIFVVLFLDGVKYVEKRDSNLLSFYNSVVLGLVVLWTAYPIVWALGEGTQYISSDTEAYLYGILDVLAKVGWGGFILY

>SymretSwRh2

AGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGCEYTTTMLQLPPACDVLYRLLLLTILSNTASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVML

>TrebspRh1

GWIVYWVTFGLMAFSAVCFMAITLTKPQRHRKHGYCTALIVTIAAVAYYAMASEGGSTYIYATHGANMRQIYWARYVDWAFTTPLLLLDLXLLAACPIGTAMWIIAADVFMIILGLFGGVNTHKFKWGYYAMGCFCELIISIGLVFNAMRSAMARGGGISKVYAGMAAYLTILWWGYPIVWGLAEGANVISSDAEVAAYAGLDIAAKVFFGWMIMAA

>DesarRh2

AGYILYWVVFGIMTGAAILFSFLTFKHQQKDRKHGYLTAAIVTVAATAYYWNDYLKGAAAAPQQLQASHGGDSYIPLYWDLGGARDVFWARYIDWFITTPLLLLDVLMLAMVPIGTALWVVFADVLMILFGLFGAITSHHYRWGYFAIGCFWMFVVFWGLFKTGPRYAFKRDRQLGRYYILFAGVLGVLWCLYPIVWGLAEGSNTISVTAEIACYGALDLTAKVVWGFLFLMAH

>EnacosRh1

AGYILYWIVFGIMAASLVLFSLMTFRHQQQDRKRGYLTMAIVATAMSAYFSMASHGGDTTVPLHWDLSGARDVFYARYIDWFVTTPLLLLEVLLLGAVPVGTALWIVFADVAMVVFGLFGAITDHYYRWGYFGIGCAWMFVVFWGLLVTGPRYAFQRDSQLGRLYIFFAGYLVILWCCYPVVWGLAEGSNTISVTAEIACYGGLDITAKAIFGLLFLLAH

**Supplementary Data:**

**Supplementary Figure S1:** Domain organization of the algal rhodopsins. Sequences used for the analysis are mentioned below.

&gt;jgi|Cyapar1|4904|g4760.t2/ CyapaRh2

MLRRPQGAAALAAVALALQTAGALAQNAALDSLNGSSESTERALYWVGFAGMAFGVACFFGRWLWNGHRDYYVLNAFQVLVACMAYWGLSFLHGQVDMNGFHVNWIRYVDWVFSTPMILLCIASIGRYTWNQKIALVLADVTMIGIGFFAAIAPEPGRWGFFAFSCAIFVAIAAVLIKGSPRALQRLPRGGPRTGYKAMLALTLLTWTVYPIIFGVGPEGAGKLNRQGEAIAHTVLDLFAKVVFGFLYLYVAERRFRHHKRHRDPEYGRDAKYESAGGHGYADGHAQGARLGPDSTSSTQRSGEQKKKASPERKSSTDGSPKKKSGFMSWWRNRPAARKGEESPPAPPEVAPAPVPSATAAAVEAARAAGSGPMGPDGRRLQVGDHVYFRDESGESEVGRIVSFSEDGRKLRVRRFLRARRMARVQLSAAALAITREPRQFDRLLVRSNQLVLVDTAHIVGRCTVENAADVADLSAYLARDQNAWFYVDSYDVLTGRTARGDAPNASSHEDSTSDDDVTFEMEYEGAPLGGGVPPSPRAPSRPRDPPPPERSGFGPRGAEGGVRMQATRTPPEPNPLAYTEGMTPRQGRPSGTRSRPLRPRLGGPARGGPWAPPSRPLAPPAAAAGAARGALPRAGSVSGAAGGGPGGREETRSPERFESAAGRPGTPAFAAGAASGGPSSGYQRMTLRNPSREQDSRSPPNVSGAGGSYGRVGSPGGGWQDAGLAQSGGSGGGFGREQESRSPQLGGGGYQRPDQRPAGFAGREQESRSPQLGGGGGGAPQGRQQETRIPELGGATGAPSGASRGPWGQPARAPSQSGSAGPWGQPVRPPSRGPSERDAESTPQGSRFVQVAL\*

&gt;jgi|Cyapar1|5225|g5067.t1/ CyapaRh4

MDSKRVLLCAIFLCGLAGRAFAAGGGGGGGSSSSASAETVDLARVFQWIDFAFMCVGIIGFLAIWIWHGHREYYVFNFLVVLIASQAYLLIALGEGSIDINGNHVNWIRYLDWSITTPMLVIDLMTIADASWSRKVLFCVIDWLMIATGFAAALMAEPNRWILYAFSCLFEFILLVGLYSYVKPTIEALPDKKSAFLFKISVVMFFAAWTVFPIVWAVGPEGKHHLSLAGEAILHAAADLVAKVLFGFIYIKIEDEKHAAEVEEEAAREVEIFMDRTGERYVKLTAGAAIDDAGTIKLHPHKLNKKIKESHEAKDNVHKHLHPHEMHGPDGHHAHDSHHGHPMPTGMQTPRIPMDPVDIGPHNMAETRGHMTPYGAKSAPMIVDLTSMGQARNVVVDPHGPGTPRAMAMNPGRLELHDASEVRVGADVYVLGPNGENEICRVIGRTPDGRRVRVRRYMYAKDVTRGAPRDSKLLFRSNAVDLVSVRDVIGYCQVVHISEVDDLDMYASVHDNWYFKDSFDVNSQQIAPWRPGMDQDEFDGPYDGPNDGFGGRPPSRPGFRNDFGGNDYAEPRRSFSRGPQMAPVNGGSMTPRRNYM\*

&gt;jgi|Mesvir1|11311|Mv25056-RA.3/MesvirRh3

MAHVRVDKPVPKPAMQSTGDSASRGPPRSTSPSMSRRSSEWLLARGPWLLLSFSALYILLTTAVCIFVESSTAFQDVRFLSNWHMNIMVMFLGALALNLVGLITDHDHPSKWQVSVTTMFINSAAAICHLTAVLGKAPVITSSFGGRPLLPMRYIQWSFTTAAMTYLHSHIWHWDALLTIQMMMLATFMSVTGLLGTWMAFPLNVMGMAVSFYCFALLGQGLWHGYRIHLSSKDCEFSMVALRRIVLATSFLWSTYPTIWVVGGVGLISPELEEVLMGIMDVVSKGVVTHTMVQLHAVAHERHRAKSLLELEYWGSQATLERMEAILIARDRVVMSVCHELQAPVHGIIGLCESLIKMQSQGDRTSPSGRGSPRAGERGVERTPRAYGREIGEYYGTVAMLEGRDSYFRQVIRTMKSTSERLTVVLRSALDRSTSPTSPIPLKCQRIFVGDCVRHMLSLMHPLLPPNVNVTLSWDASRGNTAAEDDMYVVPVMADPSRVSQVGAYAEALASLDKKDETRTAERGGPQSSPKGLGMSQGAAVVARLLEDTKLKLGLDSKSDAKDIEAVLDGYRDKMLVLYDQLNAAVRRVEDLIAQKAWLEKQLEKYRGSSGTSPSEQTPSAQAAAAEGLSPCPAGAGGLNSPEAMGSAAQNHRSRVDLIVAEASDLVSELVARVSTQLPSLLSAQFSQLLHRWHQQHLRTAHHADAVNRLHQLNIPQHLMLSGEPFSRQGGGGQAYPPQPGGGGIHPGGPELMGSRWAFPPSPGLAGSIIGAGIERRYSVGSIRYAMQTSPTSQTSPLAGSPIKRNHSLPGGRQSGRAWGVLGSGGAHLSNSMPASPSGVFGRPVFPTPPMQQQQQIPMHPQQGGGGPGPQGPPQVGTPGIHPFPKLALPNKALIQQPIAENGSLKRGDGSGAGAGSHATTPAKLRPMDVRTFLGLVGMESLCDVMEREAITVEMFSYIDDADMADLGITSAATRTLIRLAARRVVAGHAMAGSPGKELANGSPGNELANGSAGNEPANGSASGNGSLSPMSPT\*

&gt;jgi|Chrveli1|31632|Cvel\_14066.t1/ ChrveliRh16

MPLRVAKYPFLGITFTLHHRELWLKFAILLLIALAAVIAADFATFLSSLLKSLDDKEHGSFISTLPASFLTGLKMIFLALQSGLALIVLSIIFFRLFLGGFFDDVFRIRGLADGLVDDNPRKLSMGERVVCMVWLMVIQLATFLLLIPLNVLPVVGTLIWLGILGFEFAWGFHQYYFSLCGLHFEQQWKVVYANLWDYAVFGGVCLLLNLVPFFNVFLIQTSIVGAAVWAADIEEERLNTEGFRHTVVDVDFENGPSTSLYYEMPEHSRGERGGEHPARGVGGDIQEMQEGMPIVDREHQGAGGGEGPDLPPSAPPLPSAEHAAGRSWVRDLTEEGIEPNPGPGRGEGGQAAAAAASSSQTCNNTRQELNETQKAAQARRDELEERYPEKVPSEVEQMMEPAEVRLLEGKCEWANCPLKDISLHRNDENAKASGGLSWGLFALWTFIVLAWFLSVVFAAFGWISHWFATISAGFVLFPDPHLKNERLAVFSMCTSLNGYIMLFSGFMNLVGLSQIDDFILDNCVKIDAARALQWAISCPLLTWQISLLARGKKQRQLEVLLSTLFCLILGIFAHISPEPQLRYVYFACATVFYLLLVVNLDWAIRETTENRESMFKGESHLRKIAIVVPSTWAVFPIFWLLGPTGAGVMTGDQSLILVTVCDIVSKLILTFYVYFVRYSWQKTLLEEEREKEGHDPSGHRKDERKKSFVTGNRQVREDQTGSFSAAVAAERVGGTEGSDRIQLQKLPRNATADVQTVEASPALSARRSSILKSTGGTGNSLSQQQNVMHHLQSHLPGSDLICTSPSHQVIVNNLFDSEALLKSLRRAEEKDRQGTSQRGDRDAHSLYPPPPHRDASASGAGPSASRAMPSSPQNSARALGGGAGQAQNAGARDTAVGEDGVRCVPSLVGRVGAFPLS

&gt;jgi|Symmic1|42812|rna30210/ SymmicRh1

MQKADVYWRQKTQLVRDWGRQRRWQQAAALFLAEWDTDQLPDLRACNACAQTFARSGRWEEIIQLFACMDRASLSPDAITATAAVGALGKSARWQLAFWLLDDLQQGRLAADSWLLAAASAAAATSGAWEASLIFIDESAEVVTYSSVITACERGGQWQRALLLFHQMKVEGVEANVVTYNTAMTACERGSHWPGSLELFEEMEEHKLLPTVVSFGAAINACGQGQSWERVLAFLAKMRASDVRGNRVIYTGSMDALSSASQWQLALLLWDDLRNDPGNQIDAASFSIAMGAWACGTHWQQALSLLHVLDTRGGIDAAAQVSALGALAAAQQWEVSVCLLCNAEKSPGAAVVAAAGLSAVAAAQRWEVVLRLLEDETLQCADDAVAYGVAMTCCGRTGRWEWSLELLRRLKVASIRSNSVIFNAAIASCDASAEWQRALSMLEDMRHAKVAADVVSYGAAISACEKCKKWRHGLALLDELRGQDLAANVVALSAAIGSCGEVQWRRTLVLLKAMLEQQLQPNEVTFTSIVSACAGALRWEVAVKMLTEMNCCGISGGVVASSRVLEALERAAAAPAAPSTLQCVLARGERLCGELVSEKNRATRFKLSGCCRSIAWLSARKYSSEAMTDTSPDQSIVQAVMGMSSVFLYLSCLCLFFMGQKDVSRPYNMIACLVTFIAGSAYLGMSSGLFVHVVDGRHVYCLRYVDWCFTTALMLLDLALMRGADMKATAALIGIDVAMILMALMAALSTSNAGKWGFFGMGTVCFAGMVAFLFTVLQRAAEERGGEAEGKFKFVASRTIELWCLYPVIFALGELTHTIPEELEVVGYSVADVLAKSGIPMMIWIWSIFETKATSLPTILENEKDLSRRTARPWLQSKGDEDPGTFWGFQFGNFAPAQVFLRSEVGLAFLLVQHQHAEFSLVPASSQNTTVTTAGEEQISARIAFSALSLLCRLLSPPWLASASNFADLAAAAGLDLVRGTMSTSATSTISPGREPTAGDIGEIAVQPTSGATAVIEPDASSPPPSGAVPLADPFNFRDFGIQTEGEIFIMNFLAGTSVEAFTAAIRALSPEDRDRLVAAHAVAVDQPHTPTWRLPTGWRSPR\*

&gt;jgi|Symmic1|26267|rna18679/ SymmicRh2

MGVLRAILLLASLSKLAYAEGEKNQNSSGWLRLCQDVAVLRSQPPPFLAKLGKLYEARQTLSKKRRLRLRKEVNATSPLWDGEIHASCDTAVGAGPWRLKVEPLLLELLGCFGLLCRCTGPMPTNLIGRPKPRILLVFTPGWPQVLPQIRFLSKLQSFYTKEVGEEKMDYHVREPTGKLLARLHESLGEAVSCMWRQTGSCSAKGVREPERDRLCSETLPSMVSGFCDCDGDDAQGVGEQGFDCGQTPGSCASVCPKSARSPGATPIFDLNGLLTVLHRSLGGSLHDSDERAWQKSAATFSKSSSTVVRYKAHGRKHPFLFESGGFRPEDAIEPRMLKLISSLDGSSRDTARKQVLESGMVTEVISGLVFSFPIFTMEFCELLMEEIRHFYGSKLPAKRPNSMNNYGIILNDIGLEPLIFDLQDAVIQPLASVLLPVEGSELESHHSFTIRYKGGEDTHLDVHTDDSDITFNVNIFGNYTGAPLVFCGINGEPDHRQFRTAYQHQLGHAVLHRGRHRHGAEDISSGERMNLVIWSYSPSYRSSKVSYTHDRDFGRFREWPDGKKSQFHGRGWCPPQGKEYDGFVPDVPDSQLPRRAAGEGQCRWRRAKKTTRRRPVLHTVAVCPTHTTGTLAAFVSGRTGRSHSSMVEAGVRLKGKSTMALSPMCPTASSRAERLGRANDVNRAPELVLRHTTPQRSVNGSTLHILAHPALYRRAMARKELQKYEAALADVEALLPMLDQAPSKDALDLREELLRLTAPRKEVPKADPGPLRFAASFAPCELLSAKDEEDQKDRDETVREGKLVTPEPSRDNSFARDLFPEGVRKSLTSVSESLRERQQKVQSSQHEWWTYQLLRLMAKERGLKTVEFDDELSTDVGELLNVIGRFEILAEAMDEETSSGNGTNWLFHRLRLFQGHAASLRVLDKDPRNTTVEQRALDDNWTPQLCHHLRLWIRSLPRVRIRSDTNDGLSRHLKPGAQVEFVIDLQVAACDGCRFFITKETVWADRGYEAVRKRLAETCKDKSLGIPVFGPEGHRTERGLPRQENIGIASLACPNCSSSNLGGGICCFRSDARLEPYSDVSMALEGDKAKRLAARKGEPMNFMALQHPLLYQRQPKHKPKKGTRCLAYAGEYSAAVMQVARDPLGQSRGYGFVHYQAEEAAKHAIECPDLKSIEARAERLRQLFSPAGEGGKPMGGCFPMGQPAAPLPTLLSKAVRKSRMLAHQLWSAITIPKATVERPGQSDIADQIRAMVKRANKVLPLAMTSKDGAVALTMYEYKDGHVELESSRGLGAEGLLLVDTGDGNEALQRSNGSLLCILENLRLGRKDVPFGRRDGSNSIPGTGCVSERQFAIWVSRVVFLLFALASAVLLVFWARHINEEAYVVTFFVMAIAALAYLAKISGMGEIKLGGRKLPIIRYIDWITTTPLMLFELCVVGGAEKHTAILVIGCDLLMLTGGIVSAMIVPKEKSLQRNLWFGISVFFFVIMVTALQVDVANGTVLERPPDVQQLFSYLKWLTIISWSGYPVVVLLGRAHFGLISKGMEDALLCILDCISKIGMEFFVVISCSGEGAQCHAKDGK\*

&gt;jgi|Chleu1|12980|rna-CEUSTIGMA\_g10038.t1/ChleuRh1

MSERNKKQKLDPGEGSSGAGKKGNLRVKDAEVVDKGADSVLDEIEATVLEISASILEGNGFSFDIPSRAKGNQMYVPELDRIVLKDSISKRPFSSTQTCRKTAITTRILGLVHQLCTKQIHVTKRDLFYTDVKLFEDQSQSDSILDDMACMLGCTRSSLHVVASEKGVVVGRLTFREAGDQIDCQRMGVGGKAIPPNVDKVDSIQSDALFILLVEKDAAFMRLAEDRFYNTYPCIILTAKGQPDVATRLFLRKLKTTLKIPVLALVDSDPYGLKILSVYMKGSMNMSYDSSNLTTPDIKWLGVRPSDLDRFNIPQQCRLPMTEEDIKTGKKLLEEDFVKANPLWVAELELMLKTKEKAEIQALSSFGFQYLSQFPANPYLSTTSETCQGSQYGCINNFWCDPAFGLADAGFGYCFLEAAEGDLCIVQESNLAWLHSHGTEGQRLGATVMQWTAFVLCVLILMFYTYHYWKATTGWEEVYVCLVELVKVLIEIYLEYESPSALYLSTGNWILWLRYAEWLFTCPVILIHLSNLTGLKDDYSKRTMRLLVSDIGCVVWGVSAALTTGYLKWIFFLFGMLYGFNTYFHSAKVYIESYHTVPKGHCRLVVRCMALFFYSAWTMYPLLFALGPEGLGLMNSYTSTITTSFADIMTKQLWGLLGHHLRVKIFEHILIHGDIRKTTTMQVAGEELQVETFVEEEDEDTVKHSTKELANRASFVAMARDLKQKGVDVRMSMDPGEEDVEGGQPGGLEPGRVILAVVDMSMVDYFRMQFSHLSPPIELVPALGVDNTLQLVQQAASMGGCDCVILHPELLQDRSPNGLVAKLRMMGQRVAAFGWTQSMSPVRTLIETSGLDGWLEGPTFGSGITTHALWQLVHRMQSLRKQQQMNMLVGGGGMGGMGMMGMQTNPMMMHQQTMGMPASAGGMNPMMMQKQMNQVTGVNPLFGSAPTPLGSNTGMYGNGASPLGSQAGGNGAAAVNGNNDNFYGQAAAGTMSGANTPTATSASMNEAEMLQQLMGEINRLKSELAVPGPTGR\*

&gt;jgi|Chlsc1|4977|g12445.t1/ ChlscRh6

MLGRAFFHNPAGLAELRKEVPNSVYDRSSSIFLTALAIDILNIVFERQTIKLDCVLLPAFIKGMASTTNVLVRFFTPVIALTNMGRPV

VVQRYICWMHTTPSILMLLKMISTTITPRETMIAIFFDEVMVVTGVLALVTTGWQRVLWSFLTHAAMLPVVPYMHKAFTEAMEQI

RTRPLQLTMLCIYVLNLVLWCTFAVTWDLALLGWISVTVEEVLYVGCDFSAKVLFSSTLMLSSFKEIEARRENAMRVIEGSSKAKLIAELQALLEQKERFMSSVSHELRTPLNGIIGISEGMLSGCCGVLPEGVRRQIYIIRTSGARLLALINDVMDAAALRQNKLVLKQEQVVLRHVVDDVLDLTRSLVDGEVALVNLVPPRMMVLGDTGRIVQILNNLLGNAAKFTRRGQIRVTARQVEGGRKVAVTVSDTGIGIPRNKLATIFLPFEQVDMSISRKYGGFGLGLNIVQELVKAHGGTINVSSIEGKGSAFTFTMPLVRALGRESLEEGRNAAQRAAAAGSNVAAKLLAGAGMSTTDTSSQLGGSTSGSGCGPGGGGGGTISGAVSTATPRAGARTPGGAAATTVSDYPADTDTVYTHRSDLSESSRARGGGGLGGGLGGDSQSGADATTAELEQYGELKYNAAELSALASSRPYAQSAARDSLPSLGADGVAMPSGALSPSTAFDSSAGGVGSAAGLGRGSSSQLPVLPSGAGAASAAVAAAARARSRAVERSGAGAGAGAAGGKAGGGGGGADGAVAAELPGGKIVPGPKPFHYTMYKRFQLLSVDDDPVNQSVVKSLVQGTGYEVVSARSGAEALRWVAGAPALPDLVLLDCMMPEMDGYEVLQRLRAMTPHVHLPIIMVSAQTEEDHVVCGLDLGADDYVTKPFKRAELLARIRSQLAYGEWEQDEGVFDTISTMDGGELVNAAAAAANVAAGRGVMGGPAPLPPGGSGGSGGAAGGSDDSEAGAVSAALGSLQTGPGGVAGAAGGDGLGGASAADQRLIVCIDDDDVNQVVLQGMLASQHYRYVRASTGAQGLAFVCGPSNGGIPPDLVLLDCSLPDMTGFDVCRVIRQMYNKQQVPIIMLSARHNESAVVEGLKCGANTYVTKPFRRNELLARIRLHLRSRDGPLQRGASSNDMGQMDEAAAAAGAAAAAAAAANAAGAAAAAAAAGMVGGADIGGGPGFGAQQPSLSFGLGGLGGGSYGQVASPTALPGAVAAQAPLGALTSSSAAAAAVFPVSAVLVVSVADYAGLCGMLLPGEMAELSGRMLAAFERAVRAAGALPIEAGSGVMSATVLPPPPSAAAPPPQTAAAADAAAGLRLAALHRVGRALLDAASTIPVPGTTTCLQLQQALALGTLTVSGGGAPTATGGGAAAPSFFGPVLAELLDLARRAPPMTIVTPDVEAAALRACGATADIRGPLFLEAGDVAAGAGGNGGAAGGGGGPLVSRRLWLVEAHPLAHQYLPPQLLFASGAARGTLFQLPPGSAAPPGGAEAAPAQAGALGQGAALAEHQLQQQPATRSGSAVLLGGAGAAVGAVGGMVPVSVHQAPGIGAVPADGAGGRGFGSSSVASYGAAGGGGVPGLMAASSGLGGPVMGLGLYANGAGVSRGVSRAFSHAFGLDSDNHGRANSTAAGSVGGGSVAGGGAHTGHTAATSGNGGTSGNGASQSSGPTVGRGGGGGSDVAAAAAMSAVLPSGLDSSSVAGITFSLQAAAAAVAAASTSGGVVGGGGGGSAPQHLPSVTGVSGVLLSPAGGGSGLHDSAGGGSLYFYGSGGAGAAPAGGRSSLQPFGAMLGGGVGGGPGMGYAPAAMHPQLQQPPPQSQQVDLVSAAAAEPQIRALRHELAAMRQQLEALQGAASSSSASNTVAPATGGAGGSAGQQPRLLAPQQQLSQAQLSPQLTQQQLSSQLTQQQLLQQQMSIHQGFVDAALAAAAAAAAAAAAAPPGGGASASGMAPPGTAAGLLPAAAASSVGSAAPPAPTESEAGAASNAGSAAPAEKPSKKGGKISRLFKMGSSKNGK\*

&gt;jgi|Chlsc1|4978|g12445.t2/ ChlscRh7

MLGRAFFHNPAGLAELRKEVPNSVYDRSSSIFLTALAIDILNIVFERQTIKLDCVLLPAFIKGMASTTNVLVRFFTPVIALTNMGRPV

VVQRYICWMHTTPSILMLLKMISTTITPRETMIAIFFDEVMVVTGVLALVTTGWQRVLWSFLTHAAMLPVVPYMHKAFTECIAAH

NATARTLAPLWASPGAGRRGGGGGAADGYYDAAGGGGRGGSGGGGRPGLLARAMEQIRTRPLQLTMLCIYVLNLVLWCTFAVTWDLALLGWISVTVEEVLYVGCDFSAKVLFSSTLMLSSFKEIEARRENAMRVIEGSSKAKLIAELQALLEQKERFMSSVSHELRTPLNGIIGISEGMLSGCCGVLPEGVRRQIYIIRTSGARLLALINDVMDAAALRQNKLVLKQEQVVLRHVVDDVLDLTRSLVDGEVALVNLVPPRMMVLGDTGRIVQILNNLLGNAAKFTRRGQIRVTARQVEGGRKVAVTVSDTGIGIPRNKLATIFLPFEQVDMSISRKYGGFGLGLNIVQELVKAHGGTINVSSIEGKGSAFTFTMPLVRALGRESLEEGRNAAQRAAAAGSNVAAKLLAGAGMSTTDTSSQLGGSTSGSGCGPGGGGGGTISGAVSTATPRAGARTPGGAAATTVSDYPADTDTVYTHRSDLSESSRARGGGGLGGGLGGDSQSGADATTAELEQYGELKYNAAELSALASSRPYAQSAARDSLPSLGADGVAMPSGALSPSTAFDSSAGGVGSAAGLGRGSSSQLPVLPSGAGAASAAVAAAARARSRAVERSGAGAGAGAAGGKAGGGGGGADGAVAAELPGGKIVPGPKPFHYTMYKRFQLLSVDDDPVNQSVVKSLVQGTGYEVVSARSGAEALRWVAGAPALPDLVLLDCMMPEMDGYEVLQRLRAMTPHVHLPIIMVSAQTEEDHVVCGLDLGADDYVTKPFKRAELLARIRSQLAYGEWEQDEGVFDTISTMDGGELVNAAAAAANVAAGRGVMGGPAPLPPGGSGGSGGAAGGSDDSEAGAVSAALGSLQTGPGGVAGAAGGDGLGGASAADQRLIVCIDDDDVNQVVLQGMLASQHYRYVRASTGAQGLAFVCGPSNGGIPPDLVLLDCSLPDMTGFDVCRVIRQMYNKQQVPIIMLSARHNESAVVEGLKCGANTYVTKPFRRNELLARIRLHLRSRDGPLQRGASSNDMGQMDEAAAAAGAAAAAAAAANAAGAAAAAAAAGMVGGADIGGGPGFGAQQPSLSFGLGGLGGGSYGQVASPTALPGAVAAQAPLGALTSSSAAAAAVFPVSAVLVVSVADYAGLCGMLLPGEMAELSGRMLAAFERAVRAAGALPIEAGSGVMSATVLPPPPSAAAPPPQTAAAADAAAGLRLAALHRVGRALLDAASTIPVPGTTTCLQLQQALALGTLTVSGGGAPTATGGGAAAPSFFGPVLAELLDLARRAPPMTIVTPDVEAAALRACGATADIRGPLFLEAGDVAAGAGGNGGAAGGGGGPLVSRRLWLVEAHPLAHQYLPPQLLFASGAARGTLFQLPPGSAAPPGGAEAAPAQAGALGQGAALAEHQLQQQPATRSGSAVLLGGAGAAVGAVGGMVPVSVHQAPGIGAVPADGAGGRGFGSSSVASYGAAGGGGVPGLMAASSGLGGPVMGLGLYANGAGVSRGVSRAFSHAFGLDSDNHGRANSTAAGSVGGGSVAGGGAHTGHTAATSGNGGTSGNGASQSSGPTVGRGGGGGSDVAAAAAMSAVLPSGLDSSSVAGITFSLQAAAAAVAAASTSGGVVGGGGGGSAPQHLPSVTGVSGVLLSPAGGGSGLHDSAGGGSLYFYGSGGAGAAPAGGRSSLQPFGAMLGGGVGGGPGMGYAPAAMHPQLQQPPPQSQQVDLVSAAAAEPQIRALRHELAAMRQQLEALQGAASSSSASNTVAPATGGAGGSAGQQPRLLAPQQQLSQAQLSPQLTQQQLSSQLTQQQLLQQQMSIHQGFVDAALAAAAAAAAAAAAAPPGGGASASGMAPPGTAAGLLPAAAASSVGSAAPPAPTESEAGAASNAGSAAPAEKPSKKGGKISRLFKMGSSKNGK\*

&gt;jgi|Batpra1|6198|XM\_007512601.1/BatpraRh

MPTNAARGGGSSGGGNGGGGGRRTKHHPKSPTDQVRVDREDILFGNGTDTDKGNYAHNGRNDDDENKTNNKELFDRNGFENAKMGDDSIERRKEYYRWWMNDNVNGVGCSPLTLILLTIGFDVVIEITRKTLAENPEEVKVLLFFYERMMNSIKNFFGFNNGSAGLDFSSAAGGLSLVCDSSALTAIVIFSTCILIGLNDVTWTSNSPRRNLSATVTYIACVAFYAHLIMYYGEDVLMNGADGSLVSILRHLEWMFTTPILIVLAYQLQAVSFPENGQKRKAMYLSVVLDEFMLMFGILCHFVSGNMWWLSLSLAILCFIFVMYNMGYLFYELTTKLEHEDDRLRFFMLGVVQSICWSSFPAVFLAKEFNFISAQSEHEWYLIADVCTKSAYSYLLCQGNIRVIDGKAKDELEELQLLTEFQRDFFYNITHELRMPLNSVIGFNTLAVENGSMDNFSGELIKNSLTSAEALLGLINQVLDYAKFNRKTKANKSAKHGLDLSEDSFTLEHLLSQTMDISQQGSTSFKRNVDIFFEVNPPDLFCENIVGDYFRIRQCLVNIVDNAIKYSATEEETKRRGIVNIVVNGRVDTSEVYIEFNVKDNGVGIPKNKQHTVFVPFSQPTNDSTTRKQGTGLGLSITRAIVECMGGTVTFKSMEGFGTTFTIALSFKRMKGSANGNSFSSTSGEEVTHLPKDLLYVVCENSGPRRSFLLNLLECYGIEDKNVLTLDVSPFYAPQGRIQSTLEELIAIEKDSTIKPVVFTYTETLMENIADFVDMDHSMCIFGSPAQLIDINKGRFEHGESNDLNRRGRPRASISEKDVENFLKSAKRRETCMTPVRPGEFFKVVRRLCGLFADDGTDSRINYGMAARPETPELGGDGSRGGSARQSFEAASSGQFRNVSSKLIGVEGDATANSTKAMGDGGAGIDDKPNAAISAAGLKIPEQKRKVPPKDSLKHEADWDLDISSMRVLLVEDNLMNQKVATVSMAACNVTTHIADNGKIACDAYKQILTGDIPPYDVIFMDQMMPIMNGTEATVCIREMESEARKQFENGELAKEPPASALIVGLSANVGPEHVSAIQKAGMDGTLSKPFYPSTLRGLLRDVYLGRYMGFREADSGYVKNAQAKPGN

\*

&gt;jgi|Micco1|8917|rna-C2E20\_8981/MicondRh

MASPVKSPRAQGGGPSAPCGEEQEEQVPAPRLHFSRAASLVSVFTLSYAFWIFYLCGHPDTAASREFYAAVPDTVYMWPMVAFATAILLNLLSMGFERRPVKRQLCFLAVYISGVAFVYEFLAWKRTAPIYITASGRPLSLLRYVMWGHATPVMLYALSMISDFSAKEIYQTIAVDIVMIATVIPGELIPAWHRWIWNAISCGVYPYIFHQLWHMYSAGIREAREEGAQTSLRMLRNITVLFWTVFPVVWLLVQVDAVSLLTEEVLWCLADTCGKIFFSSTLLHSNFMSIEHRRMMAMRVVEEANRIRVIHELRQLVEQKEQFIALMSHELRTPLNGIIGLSNVLLMDADTMPPEFVKTQTTIRNSGARLLNLINDILDASALRKGKLAVAQGKVNLKNVADDVIDLSQALVKPGVAIRNKIGPDVPQVVGDTSRLVQVLYNLLGNACKFTERGAIWVEAAASADGDTVSVSVHDTGIGIPEDKLDEIFNPFAQVDMSTTRRYGGTGLGLNLVKQLVEAHGGAITVASRRGKGSVFTFTLRTWHEDDFAPGPTSEAQRKRLSLAAQAARREAEEALDSVTMPDPEQEPLLSSGRMSRRDSEPDMLQRLSHDAQPANMLQRLSGDSRMRSSYDADYTNYHKAPQQLPPQAAFNAFLSAGAHDVVREIQKGNVAQPRDVAAAAVHAAVARAASADGGAAQPPAEPVHDWLLADRAVQEAATSGQIKVLSVDDDPVNQMVIQTMLSKAGFKVLKAADGQKALDMLDESLRHGSPPHVMLLDVMMPGLSGYDVVRLVRERHPSLMLPVILVSANSREEHVVEGLQAGGNDYVSKPFGQKELVARIQVQLRTRNFAQGVAPTTGCDAAPGSMAAVAGRHPCMA\*

&gt;jgi|Picsp\_1|1837|NSC\_05304-R1\_two-component hybrid sensor and regulator/PicspRh

MHHIDEDMSSQTKLQDNGTVEENMAHMNGSVDRPATNYKSSAYYEASQLASGGLHYTNRDVGGSAISLNAMLEEEVDKNEGDNSHGCKRVNSSGTLLQGYSNALPGALKSTKGDDYSGDGPGYQYREHENPLVVKAFLEEVPSSMYSWPMTAFGSAFFLNMSSWMFEHHPMRRQLCFLVMYISGIAFLYEFCSWYELTPVVLTATGRPNCLLRYVMWMHATPAMIYSLSLMSEFSLQRTVSVIVGDIVMIAVALPGEFCQSWVLRYTFNTLSMMLFPYICFEMWTMFTQAMNVACEYDKAGYKSLKALRGVTILLWSIFPFVWTLCQFQLIDSFAEEMLLSLADVMGKIVFSSSLLQSNFATIDARRKIALKAVEDANRAAVIFELQELLSQKEEFIAVMTHELRTPLNGIIGLSEALLAANVLDGSNERSLGAIRNSGIRLLALVNDILDAAAMKRGTLSVSFKRASLWNIVDDVVELTAPLVHSGVKLTTRVPAIIPGVHGDSQRLVQVLYNLVGNACKFTEKGEIRIEAKGTADDEFVSVTVSDTGPGIPESKFEEIFVPFSQSNMSLKRQHGGTGLGLSVVKHIVEAHGGKISVKSEMGKGTSFTFTIPVSPDSRSSDDGTQGMSRIGQNMWRRLSRDSEARQSFEFEKSMLKKAGQQVDPEKASSIFAKSVAPLPDLETSNDVEGRWTDKPKIKKQYESPSESIMKLRSKEIIKVLSVDDDPVNQMVVNAMLKNKGFDVSTAADGERALEMVENQLNSGSPPDAILMDVMMPGLSGFDVVRSIRSSHPDWNVPILLVSASGQRQKVQEGLEAGADAYLTKPLRIEELDGIIRSHVTDAQARKIHAY\*

&gt;jgi|Chlin1|6338|g16651.t2 ChlinRh6

MLGRAFLHNPAGLAELRKEVPNAVYDRSTSIFLTALAIDILNIVFERQTIKLDCVLLPAFIKGMASTTNILVRFFTPVIALTNLGRPVVVQRYICWMHTTPSILMLLKMISTTITPRETMIAIFFDEVMVVTGVLALVTTGWQRVLWSFLTHVAMLPVVPYMHKAFTEAMEQIRTRPLQLTMLCIYVLNLVLWCTFAVTWDLALLGWISVTMEEVLYVACDFSAKVLFSSTLMLSSFKEIEARRENAMRVIEGSSKAKLIAELQALLEQKERFMSSVSHELRTPLNGIIGISEGMLSGCCGVLPEGVRRQIYIIRTSGARLLALINDVMDAAALRQNKLVLKQEQVVLRHVVDDVLDLTRSLVDGEVALVNLVPPRMMVVGDTGRIVQILNNLLGNAAKFTRRGQIRVTARQVESGRKVAVTVSDTGIGIPRNKLATIFLPFEQVDMSISRKYGGFGLGLNIVQELVKAHGGTINVSSIEGKGSAFTFTMPLLRALGRESLEEGRNAAVRAAAAGGVAKLVGGAGLSTTDTSSQLGGSTSGSGGAPGTGGGGTLSAAVSTATPRGGSRTPGGGGGAATISDYHGDTDTVYTHRSDVSESSRVRGGGGGGLGGDSQSGADATTAELEQYGELKYNAAELSALASSRPYAQSAARDSLPSLAADGGSVLAMPSGALSPSVVHDGSAGGAGGGGLGGGSSSQLPALPSGSAAVAAAARARSRAGDRGRGGKGGAAGGGDGAAAGGELPGGKFVSGPKPFHYTMYKRFQLLSVD

DDPVNQSVVKSLVQGTGYEVVSARSGAEALRYVVAAPALPDLVLLDCMMPEMDGYEVLQRLRAMTPHVHLPIIMVSAQTEEDHVVCGLDLGADDYVTKPFKRAELLARIRSQLAYGEWEQDEGVFDTISTMDGGELVNAAAAAAHVAAGRGPAGGPAPPRPAASGAASGGASGGAGGSDDSEAGAVSAALGNLATGPGGVASDGLGGASAAEQRLIVCIDDDDVNQVVLQGMLASQHYRYVRASTGAQGLAFVCGPTNGGIPPDLVLLDCSLPDMTGFDVCRVIRQMYNKQQ\*

&gt;jgi|Chlin1|6337|g16651.t1 ChlinRh7

MLGRAFLHNPAGLAELRKEVPNAVYDRSTSIFLTALAIDILNIVFERQTIKLDCVLLPAFIKGMASTTNILVRFFTPVIALTNLGRPVVVQRYICWMHTTPSILMLLKMISTTITPRETMIAIFFDEVMVVTGVLALVTTGWQRVLWSFLTHVAMLPVVPYMHKAFTECIAAHSAAARTLAPLWASPGSGSAGRRGGYDDYDASGYGGGSGGGGRPGLLARAMEQIRTRPLQLTMLCIYVLNLVLWCTFAVTWDLALLGWISVTMEEVLYVACDFSAKVLFSSTLMLSSFKEIEARRENAMRVIEGSSKAKLIAELQALLEQKERFMSSVSHELRTPLNGIIGISEGMLSGCCGVLPEGVRRQIYIIRTSGARLLALINDVMDAAALRQNKLVLKQEQVVLRHVVDDVLDLTRSLVDGEVALVNLVPPRMMVVGDTGRIVQILNNLLGNAAKFTRRGQIRVTARQVESGRKVAVTVSDTGIGIPRNKLATIFLPFEQVDMSISRKYGGFGLGLNIVQELVKAHGGTINVSSIEGKGSAFTFTMPLLRALGRESLEEGRNAAVRAAAAGGVAKLVGGAGLSTTDTSSQLGGSTSGSGGAPGTGGGGTLSAAVSTATPRGGSRTPGGGGGAATISDYHGDTDTVYTHRSDVSESSRVRGGGGGGLGGDSQSGADATTAELEQYGELKYNAAELSALASSRPYAQSAARDSLPSLAADGGSVLAMPSGALSPSVVHDGSAGGAGGGGLGGGSSSQLPALPSGSAAVAAAARARSRAGDRGRGGKGGAAGGGDGAAAGGELPGGKFVSGPKPFHYTMYKRFQLLSVDDDPVNQSVVKSLVQGTGYEVVSARSGAEALRYVVAAPALPDLVLLDCMMPEMDGYEVLQRLRAMTPHVHLPIIMVSAQTEEDHVVCGLDLGADDYVTKPFKRAELLARIRSQLAYGEWEQDEGVFDTISTMDGGELVNAAAAAAHVAAGRGPAGGPAPPRPAASGAASGGASGGAGGSDDSEAGAVSAALGNLATGPGGVASDGLGGASAAEQRLIVCIDDDDVNQVVLQGMLASQHYRYVRASTGAQGLAFVCGPTNGGIPPDLVLLDCSLPDMTGFDVCRVIRQMYNKQQ\*

&gt;jgi|Chlin1|5312|g6750.t1 ClinRh8

MGALAEAERSGGAHLIWTLGPRRNFVGQLYSVDIPVLLWCCLGSLSYACCALGLHQLHSTGGERSDQGEEAVEWTIQVQTAAFGAVLLLNVLNLGMRQHLLPFKCNLLLLFINAVAFATDLIIWRRGTPLLPLSPGLGLGPGRGGGGGDRAFVPLRYVQWAHSTPTMIYMVGLLAEVRGLKLALPVLCDVVMVVTGLAACCTTGLAKAFFTVVSFATFAVVLRCIHDMFDKTLRSGDVAADQRGTLWAVRALLMALWSAFPLVWLAADWRLVSPQAEAVAWGVCDYLAKAVFSSQLWQSNLTGVHVRREVALEAWEAHNRVEAVARLSSLLAQRDELLSTLSHELRTPLAGIVALTGSLYRDVAAALPSSARTLGAVRAAATCMLHIVTSTLDAFAGQRAERGAGGADGGSSGAASPGYSLAAAPKAPGAAAGAGGSGAGGAAGGGAAVAAAVVDLRPLVETVAAVLRPLAHDGVAVAADLPEGLPAVTADATRLNQVLYNLVGNALRFTSAGEVRVSARVLGPDGSVWRCRDPAASSDSNGNSNGNGNGCGTDTLDVVATAAAAATAARGRRSEDFTCTAAARSPLAGGRGAPGSTGLWRRRSRMSASAEHCVAPPGGAGGPLGAAAAAAALPPGCMVEVAVEDTGVGIPQASGVAAEFMVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVASAQLDALMAPAHRPLGEAGAGGAAAGYATSSNFVTAPGGSGGDPDGAHSDDTGARKRSNRSRRRAAKAGKGDAGGAVVSETGALAFGGGGISIGGTGLGLYLVRLALRAQGSELTAESAAGIGSVFRFRLPVATAACALALANKQAAQQQGAAGAAAAAASKRGAAGVAREASVAWMVAGAEGEGEGGRADPASAAAADAAPAKVGTAPVVPPSNAAAIARLIGKVKGSSGTAAADSANSGDGAAAGVSSLLRYAQSCCSPLAATGSVPGDADSGGFPLPTSAGGSHGGSGGLGPLDINTHMHPGGRPPPLERGLSCSACDGPGGLRAASGISVVMAAGAAAAAAAAAGTGSAVGSMGSVEGALLPGAVMGALRAKSSLAGYPQREVLDVRSLAPADGGPIAVIDEAAPAPVAAAPAANNYRHRNNGTLQVMSVDDDPINQLVAGQMLSSQQWKVVKCMDGPQALKFLRLPSAPEPRASTAGGGGGGGGGGGGGGGGGGGGGGSASAASAADALAEALAAAGAAAPPLEVVPDCVLLDVMMPGMTGFEVCRRLRRRYPHAALPVIIVSAKSDAAAVEEAFAAGADDYMTKPYKRAEMVARIRAQIRIRDSMAGAAAAAAATVAPPAPHRQEQNQQQLAAPPAAAARPDSADVLMLGRDLRVHVRAPHLAAAPAAQPQPQPHTPGSHAGSLAGLLGGAAVSDSAATPPGIYARRSVAAASTPAAVAAMALVAAASASTPGGTVSAAVTAPFAPAASPPAGSVNGAFGSRLLGDSTCVTENGMQAPAAAAGAAAPRGSAAAGPAALGSFEAGAAGAGLYYSPVPGGGGGGIGGGGGGILSATNTLTGTGQFRYVDDGCASELALITTAFTTATATATHAATMPPRAAALTVAYMDAEGSGAGGGAGGAARRLRAAAAPLPAAAAASVGDVMTADGGVAGLSSGRLMLLPADTASAPTPVGGARPAGGVAAVAAAASAALPHQYQQAEQQPAAMGTPGSTWTSLTSPVGGGAASASAAGSSVQQHPSPTQMPLAAASPNPPFGGAAAASTLAGTSTASGAAAAAAAAAAAGPMDPASLMAELLAEVRRSRVLEADVAKLTARVAALQTACGTLAADRDGWRRQVRDLRAFMASGMAAAAAASGGGGGGAAAAPPSLMFGNVGGFTSLNALGQPTSSVGTASVVGRANSLLNEAALAAANGSIASADSGNHALPAAASGGAASGGAASGGGGGGGGSVATQLEDLRRETAALRQQLRVALASVGGGSNSVVGGGAVAAGAAGVSGGRRAGPGMSSSRLSSAAQMGMGDGAGHGSPAVPSGAGAGGGGSAASPRQHRQLGPAVGNGGAPAGAAAPAARAACAVPPASAAAAGADVSLGSSGLVAASWSPHHHLLPNPLFGTSMADVLLNTAGSGASAGSGAAPHLLAAAAAGAAGGGSSREGRRGGSVTAANSAVAAASSGARTTGSAAAATTGGAAAEAHATAGGADEVGRAEPAQRMLAPTAAEPASPTPLSLLPSDDVPTPARPDGDAGGGAGSLGARRGGGGASAHAHAQLLPAESQGHMGVTSLSSDLPPKVPRGNANNVSTGVNNSSGDGAGDAGAAAASGPRGCRDAGGEDVGRAGSGGGSAEADSGIVRGGVSASENSRGGSTPSAPVSACEGAGTPRAAARCVPSPAAQPLAAASPMTPAVAAVAMVAPAAASSTAGSGRDGARGRGGGATAGILRLLCSKGAVPAASSVDSY\*

&gt;jgi|Edade1|20005|g17199.t1 EdadeRh6

MTALAIDVLNIVFERQTIKFDCVLIPAFIKGMASTTNILVRFFVPVMAFTDMGRPVVVQRYICWMHTTPSILMLLKMISSTITPKEALTAIMFDEIMVITGVLGLITTGWQRVLWAIVTHVAMVPVLPYMHKAFTEAMEQVRTRPLQLTMLVTYVLNLILWCVFAITWDLALLDWISVQTEEILYVGCDFSAKVIFSSTLMLSSFKEIEARRENAMRVIEGTSKAKLIAELQALLEQKERFMSSVSHELRTPLNGIIGISEGMLSGCCGVLPEGVRRQIYIIRTSGARLLALINDVMDAAALRQNKLVLKQEQVILRHVVDDVLDLTRSLVDAEVSLVNLVPPRMVVVGDTGRIVQILNNLLGNAAKFTRRGQIRVSARQVESGRKVAVTVSDTGIGIPRNKLATIFLPFEQVDMSISRKYGGFGLGLNIVQELVKAHGGTINVSSIEGKGSAFTFTLPLLRALGRESLEEGKAAAARSAGFAAASSMGGASQTTGTGTGNGTGTGTGNSGEQRTGTGRDSERNGNGGAGQAVSRSGGGGGGEDNSSTVLSSSDAGSRHRAGVQGGGSSKGLGAGGSMADQELEKYGELQYNAAELSALASSKPYAQSARDSATVSSMDAIEPLRSPTAAAAQTKLRRRPKAPAAAAAAGGGPDAAAAAMAAAAAAALASTGGADPAAVAALPGGDAKIVHGPRPFHYTMYRRFLLLSVDDDLVNQSVVKSLLGSTGYEVVAVPSGPEALKYVASAPALPDLVLLDCMMPEMDGYEVLQRLRAMTPNVHLPIIMVSAQTEEDHVVCGLDLGADDYVTKPFKRNELLARIRAQLAYGDWEQDEAGFENLPTVDFNALGGGTPGGGSSAHHAAAAGAVLGILDSGAALDLAAGVGGGLPALAGPSPHLDGVGGLERSSSPGASGGDMRLILCIDDDDVNQVVLQGMLTSQHYRYVRASTGAQGLAYVCGPQNGGIPPDLVLLDCSLPDMTGFDVCRCIRQMYNKQQVPIIMLSARHNESAVVEGLKCGANTYVTKPFRRNELLARIRLHLRSREQTPGRNNNDSSSVEDAAAAALAALHDGPGPGHHGHTTTSTSGALPAATGGGGGGGGGGSVAAIITADARAAAALAPPAAAAAAAAAAYAQAAAGVAAAGGVRLWAESAVLVVAVADYAGLCRMLLPTEMAELSGRMLSAFERTVAAHGAVVVEAGSGVMSAAVLPAAPPQPGPAPDAAAMAAAAGLRLAALHRVGRALLEAAATIAVPGTTTCLQLQIALALGTIMGSGSGSESAVQYFGPVLAELLDLARRAPPMTIVTADAEAQALKASGATADIRGPLFLEADDGGAAGAAAARRLWLVESHPLAHQYLPPQLLYMGSTGRSTFMHSGVEEFDGSLKASTSGMALAPPPAGGAAGLSRQPSPATAGVAAAAQRLVAPANGGGGGAAATLASPIHLGGGAAPPGAVPMAVDFGRASASTSIFNTNLGLYGPGAAATGLSRNVSRTMSHTFAMDGEAAPGTHARASGVGGVAIGVGAAVAPSANGMSHTSGTTGTTVRGAGTNTGSNGSIPMGLDPISPAMAPLASSSGAGITFSLQAAAAAVAAATAAGGGPGGANSGPHEPAAFHMASGSTLTGGMASQGPSLLYGTASSALLRAAAPHPAGSIAVHSDAADNEAAAAEPQIRALRSEIAAMRQAIQALTSAGGSVGPVSPFSAAAAAGGGGALPSQGPPPLPTYGQLDLPDGVTAPPAPPAPAAAAAPLPPGVAAGGGSARQSGDTAGGNSAAGLQAAGSTASASGAGGESLGDGWAPGADKSGSKKGSKLTRLFKRSSKSGGTK\*

&gt;jgi|Edade1|8040|g6626.t1 EdadeRh7

MSWDEEPRRPRRAEAAAAEWTVQAQTCNLLLLFINGVAFATDALLWLRATPVLAAAGSGRPFAPLRYVQWLHSTPTMIYMVALLADVRGRQLTTALAADVTMVLTGLAACYTTGAAKLALATVSFGTFVVAVRAIRDMFEKTISTDGVTPEQRATLRTLLRLLLGLWGAFPAVWLAAEAQALGPQQEALAWGVCDFMAKVVFSSQLWQSNLTSVQSRRDTALEAWEASNRAEAVGRLTALLRQRDDLLSTLSHELRTPLAGVVALAGSVQREVEAALPASGRTLGAMRATAMCMLSIVTSTLDNFAAQRMDSDGCGSVGPCGPGGDPSASHPAASTASTSAVDLRPLAETVTSVLRPLAHEGVEVVAALPEDLPAVAVDATRLSQVLYNLVGNAMRFTHQGEVRVSARVLLPDGTEPRDVAAAAAADGGGGGSRGGGGGGSWTRRRPARVSLGSSSGSSAQAAAAAAALPPGCLVEVRVEDTGVGIPEGQLDDLFLPYRTADRTAGSSSSSSRTGSRRKDGGGGGSSSKDGSSKRRGGGSSNGRSSKQDQDRSLAPGLATGLGGTGLGLYLVRLALRAQGSDIEAESAPGLGSVFKFKLPVARGCAPSACPALPHPTHATPAAIGTEPGPGVDPTSQDLPPPLYQAQAQAHSLAGCGTPQTSSGQLRMGPGPGRLSMGERPTPTQIHSGGGPASGRHSMGEGPSGGWRASHAGGGARQDGGGAAAAGGASLLQQLLGPEAAAAAVVGPSGEWFDAILEEPPVSPSATSAAAANLPPPLPHLASPASRLAAAAAGLRRPASGPAAHMSPGGGGGAAAATPGVSRLYNLTGPGNAAGRASESPTPDAAAQRPGGAGGSTGGAADASSPDIDGRQAFSRASSGLANAPGGAASTPPAGARTTSVLTMTPVDVNSPAVAAGQVLPPPPPPPTAAVEPERPLPGLGAGLVRPNHRHRNNGTLLVLSVDDDPINQLVAGQMLASQSWKVVKAMNGPDALRRLGIDPNAELRSDADGPGSGSGSGFGADDPALLLLPAVLPDLILLDVMMPGMSGFEVCRRVRQVLSNAQLPVIIVSAKGDAAAVEEAFASGADDYMTKPYKRGEMVARIKSQVRVRDDLIGPAAAAAAPAAVTAATAGSTAAAAAAAGLASPPPAAAGQTGSMVVAGRALAAAQTDRQASVDVATLAAARAGGAATTTGAPAAPATAPAASGSSGGLTPLPASTPVAGAPPSVPPAAADGAATAAASSPPAATAAADGALQGLVQE

VLAEVRKSRALEAEVAKLSAKVGSLQTACGTLAADRDGWRRQARDLRAMLAAGYAGGSAGGGGGGGGGGVLSALSPLPTYSGACAGGGGGSNGEGGGGGRYYAAGGIVSDATDGTGANAGDVAARGRQLAEALAGPPPPSAVGAASGGDSGGFLAALQGSVGGGGGGGASVALQLQDLQKEAAVLRQQLVSVVTGSGREAGVASGVTLPGDYASGSPAAGGGSDTSACTRAVSLGAGASPGLYVRHAVRGDSLTRGLIVGGIGVGGGGGFAAAITEHDACGGGGGSSAAGGGSRRPSTLQDAATPPGGGGWGGPLVVGSAVFTAAQEMLLVTDASGMSGNSGTGIPKVGDDGSGGGAGGGGGSPADAAAQPLAARDASMPRREPTARLTLAAAAAAGSAPLPPPSGDGSGGGGVTDSGGVRIPTTASLPTPAAAAAAEQQLAGDTPPPPSQPPSHLRSVTAPVTPRYASTPDVDGAAGPGRARDSDENRNLATSISSDGPHGGHLSAPPTAANDQPPTAAATTATATDASASAAADAAKASPPLPLPSPPQRPPQRAASQEPSSADPSLATSGSLVGLGTGTGTGLPSSASVQGGGRFGGLRTRSRSSGLSAADKGGDRAGDKGGERGGVRSGGAGGGGGGPFAWLLCVGSPLSGRRQQAQAQAGVAGKAT\*

&gt;jgi|Scesp\_1|1654479|MIX362\_6347\_35 ScespRh

MRGGESSGEAGAKQHQQQGPPDEAPTVYGDYSSAAKTPLGAVATWRAEVPVLVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGVATLTNILVRYGWGAIGAAPNGTVVMLQRYICWMHTTPTILLLVKMISTTISRKQLTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAGSVVSMHAAGYTMALVYYITMFMWSAFGVIWDLRMFGLVGLKVEEVANICCDFSAKVVFSCGLMLSSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGVSEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQVVGDVSDLTRSLVDNDVSLRNEVPEAMLVWADSGRIIQVLNNLLGNAAKFTRQGFIRVSASWHDSQHQWVAVHVTDTGIGIPKQKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSSFSFTLPSYTGQSKAAAAAVRVQATASITPGTAESAAPGLPRRGSRSALLEGGARSRRGSVLLPPPDGLAGGADGSGRLRPPQQLEGAGSLGLIGEFGDALLGDEYARELPYDAAQLSALASSKPFAAPANSASGSQQHRHKLQHSSRLRRSSSSASAMSGSNLRCGGGSGGDAGGLAAGQPVLLDPRPTQFARTGRHQVLSVDDDILNQTVVQSLLSSTGYEVVCLPSGVATLEYIDSAEVLPDLILLDVMMPDMPEVCAQLAAREPQLAVPIILVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLSLCSDSQGGAQQEQVQLVRAGGRGGRACVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQSYRYAKARSGSQALSLLDSAGGGLPHLVLLDTALPDTTGLDVLQQIRARFNQVVLPVVMLTARHNEKAIVEALNNGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVAPMSPVAAALAAADEGASMELQQLLPAAEQLQQVPLLVAQLDGLEVAAAGLAPEQLSQLLGAIADTFDAVVEKYAVLKVEASDKLLMVAAPLSSSAANSARNSMQLPTVRLPEGSTAAAAASPADLQLGRQQGHSQPGLSALAAAQASAAGVSLQQLLRLAQELMQCLDVSLEPDSSDGPDSPAADVEQPVLSPGSAQPAPGIRAAAASLPECCRGVLQLRIAVHVGALHAGVVGARRPRYRLLAPPCSSSSSQQLWTVAAQGVGRCVDAAAGSRGSSDRVHALLKAAASAVAAGAAGRPCNGDVIPVVEQQPRSSRVSSEALQPLESTPNKQQQQELLQAQHVQSQAVQQHQLLAGSNQLAPSLPLQQLLAAGTALSMPPLSWQQQQLLAAAGFAQQVLIPPVAGCLPFSCTPTSTLGACWPNGAALFSNVWGGAEETQQIMQLHQELDLMQQQVAALTGASLPWPASAAAPAAPAAAAANAQLGQLFRRRLSKKGDS\*

&gt;jgi|Tetobl72\_1|2658784|fgenesh1\_pg.12\_#\_294/ TetobRh2

MLLSLLARSVLHSEQAVATWRAEVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALLSNASVELQVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSGALHSNKQCCSMNAAAATQQQARWLQGLWRSQLCSCSSSAASSTLQDVTCWAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGCSRRGSVLLSPSDNTLDGSARVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLEYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVTPMSPVAAALAAAAAEEGLSVELQQLLPAAEQLQQVPLLVAQLDGLERATAGLAPEQLSALLGAIADAFDAVVEKYAVLKVEASDKMLMLRIAVHVGALHAGVVGARRPSGVSNNSGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLGDCDRSISRAPHGLHYA\*

&gt;jgi|Tetobl72\_1|2776194|estExt\_fgenesh1\_pg.C\_120289/ TetobRh3

MPGGENSSEAGGGAKQHQQGPADGARLVYRDSASSSQIRLGVIWIMLGIASYMLLSLLARSVLHSEQAVATWRAEVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGCSRRGSVLLSPSDNTLDGSARVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLEYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVTPMSPVAAALAAAAAEEGLSVELQQLLPAAEQLQQVPLLVAQLDGLERATAGLAPEQLSALLGAIADAFDAVVEKYAVLKVEASDKMLMLRIAVHVGALHAGVVGARRPSGVSNNSGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLGDCDRSISRAPHGLHYA\*

jgi|Tetobl72\_1|478746|CE478745\_7372/ TetobRh4

MFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVRQAHAQLLPAWQTAAQSTLGLGLWHQQAVGGYGLQVGRSAGASSRQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGCSRRGSVLLSPSDNTLDGSARVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLEYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVRLGGLVRV\*

&gt;jgi|Tetobl72\_1|2797259|estExt\_Genemark1.C\_3\_t10035/ TetobRh5

MSAAWHLVLSYASCTLLLHQLVGGPGLAEAFRSQVPLGYHLLSCAAFGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKNVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSNFVTRDMRRLALMRSIEAQSRQQLIAELRALVAQKDAFMSSVSHELRTPLNGIIGLSEAALHNSDLAQQAGPAGAPHVLPPATRQQLALIRTSGLRLLSLVNDILDAAALQHSRLVLARGRVVLRPLVEEVADISRPLEVADISRPLLRDRALRLVTRVPHDLEVLGDADRIVQVLGDADRVVQVLGGADRIVQVLGDADRAVQVLNNLVSNAAKFTEAGTITISARVGRQPPRNSSSSRASSRAGSRPGSSSGARLKPSGSGAAAAAAAAAGPQEVVLVSVEDTGLGIPEEKLQAVFEAFEQYNVNEAFEQVHTDISRSQRGLGLGLSIVRQLVDAMGGSISASSVVGSGTTFTFSLPLYTPEAAAAAAAGAAAQASAQVPAPEEDTLAAAAAAAVSAKAMGSSSPSPSAAASRSAAGGGAGQRRLLTDRQAVLAMGSAAVAASYSAAVATAGGGRRSSAPAVGGTGAMGAMGSLAAELAGLAASVGFGGGGGGRMRSAGGSLRDGAAGGGSPAAAAAAGWDNMHDGGGNIGGNDGDNADGVDDGNGGDDDDSWALQQPLVPSPLAGRRSDVAAVLADEQAAAALPHMQRWPQGGSQQQQQQLSRERSSIPAMQFHSQVKGGRVQLLVVDDDPLNHQLLLEAAGFSLVHVMSGAATLAFLASCELLPDLVLLDVAMPGMDGLETCRRIRAAMAGSGLHLPIVMLTAQVAAQSVEDSLSAGADDHLSKPCTRQELMAAIARNCKKQQRL\*

&gt;jgi|Tetobl72\_1|1636738|CE1636737\_3485/ TetobRh6

MRSLSTRSEPLNLSWFTHLVLSYASCTLLLHQLVGGPGLAEAFRSQVPLGYHLLSCAAFGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKNVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSNFVTRDMRRLALMRSIEAQSRQQLIAELRALVAQKDAFMSSVSHELRTPLNGIIGLSEAALHNSDLAQQAGPAGAPHVLPPATRQQLALIRTSGLRLLSLVNDILDAAALQHSRLVLARGRVVLRPLVEEVADISRPLLRDRALRLVTRVPHDLEVLGDADRIVQVLNNLVSNAAKFTEAGTITISARVGRQPPRNSSSSRASSRAGSRPGSSSGARLKPSGSGAAAAAAAAAGPQEVVLVSVEDTGLGIPEEKLQAVFEAFEQVHTDISRSQRGLGLGLSIVRQLVDAMGGSISASSVVGSGTTFTFSLPLYTPEAAAAAAAGAAAQASAQVPAPEEDTLAAAAAAAVSAKAMGSSSPSPSAAASRSAAGGGAGQRRLLTDRQAVLAMGSAAVAASYSAAVATAGGGRRSSAPAVGGTGAMGAMGSLAAELAGLAASVGFGGGGGGRMRSAGGSLRDGAAGGGSPAAAAAAGWDNMHDGGGNIGGNDGDNADGVDDGNGGDDDDSWALQQPLVPSPLAGRRSDVAAVLADEQAAAALPHMQRWPQGGSQQQQQQLSRERSSIPAMQFHSQVKGGRVQLLVVDDDPLNHQVLSLLLEAAGFSLVHVMSGAATLAFLASCELLPDLVLLDVAMPGMDGLETCRRIRAAMAGSGLHLPIVMLTVAAQSVEDSLSAGADDHLSKPCTRQELMAAIARNCKKQQRL\*

&gt;jgi|SceoblEN4\_1|348006|fgenesh1\_pg.1\_#\_707 SceobRh1

MLLSLLARSVLHSEQAVATWRAEVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGRSRRGSVLLSPSDNTLDGSAQVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLAYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVTPMSPVAAALAAAAGLAPEQLSALLGAIADAFDAVVEKYAVLKVEASDKMLMTPHQQAPTAAQQQLRIAVHVGALHAGVVGARRPSGVSNNSGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLGDFEIFISRAPHGLHYA\*

&gt;jgi|Sceobl1450\_1|1281297|fgenesh1\_pg.3\_#\_152 SceobRh7

MLLSLLARSVLHSEQAVATWRAEVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALLSNASVELQVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSGALHSNKQCCSMNAAAATQQQARAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGRSRRGSVLLSPSDNTLDGSAQVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLAYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAITPMSPVAAALAAAGADGGTAAGAEQLLPPAGVAMTPGMQAAVAALPECCRGVLQLRIAVHVGALHAGVVGARRPSGVSNNSGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLACRWLQAVKTAPPHSCEWVSVDAVTRCAASGGSVWHNLLLLYGNCHAPASTCNAAGVGCR\*

&gt;jgi|Sceobl2630\_1|384948|CE384947\_9623 SceobRh8

MRSLSTRSEPLNLSWFTHLVLSYASCTLLLHQLVGGPGLAEAFRSQVPLGYHLLSCAAFGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKSVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSNFVTRDMRRLALMRSIEAQSRQQLIAELQALVAQKDAFMSSVSHELRTPLNGIIGLSEAALHNSHLAQQAGPAGAPHVLPPATRQQLALIRTSGLRLLSLVNDILDAAALQHSRLVLARGRVVLRPLVEEVADISRPLLRDRALRLVTRVPHDLEVLGDADRIVQVLNNLVSNAAKFTEAGTITISARVGRQPPHNSSSSRASSRAGSRPGSSSGARLKPSGSGAAAAAAAAAAAAAGPQKVVLVSVEDTGLGIPEEKLQAVFEAFEQVHTDISRSQRGLGLGLSIVRQLVDAMGGSISASSVVGSGTTFTFSLPLYTPEAAAAAAAQASAQVPAPEEDTLAAAAAAVSAKAMGSSSPSPSAAASRSAAGGGAGQRRLLTDRQAVLAMGSAAVAASYSAAVATAGGGRRGSAPAVGGTGAMGAMGSLAAELAGLAASEGFGGGGGGRMRSAGGSLRDAAAGGGSPAAAAAAGWDNMHDGGGNIGGNDGDNADGVHDGNGGDDDDSWALQQPLVPSPLAGRRSDVAAVLADEQAAAALPHMQRWPQGGSQQQQQQLSRERSSIPAMQFHSQVKGGRVQLLVVDDDPLNHQVLSLLLEAAGFSLVHVMSGAATLAFLAACELLPDLVLLDVAMPGMDGRETCRRIRAAMAGSGLHLPIVVLTAQVAAQSVEDSLSAGADDHLSKPCTRQELMAAIARNCKKQQRL\*

&gt;jgi|Tetstr1|423092|TSEL\_013863.t2/ TetstrRh3

MSALRPRSRLSEASGISDGGRAGADTPSTTGQASSKPDEKKLQTSSLRTPARDSVLVTLVAVAGYATVATAVCLLAPSSPAAVEAIQSPAMQDAYLAGFAAFSVQPLGIALCGTTTAALHWLGHAPIWTMAGLNGVVIETPLRYVTWCFTTSLLSHSNWCASSLPLSSYAINVAMDVPMVLLGMAASLTEGPLSVFFYLLSCALFIPGLFHKWSIQSSILAECEGLPKAQNSVRRLRIVSVMIWCAFPVIDILHRCGAISNLSAELLIGAADISAKCVLASSIRHGILCTAEDRKTARVQQMSVTMVDQLREQEKHKDRFFAVMTHELRTPLNGILGLIDVLLLTEKSMSDRCQQCLNSVIDTGRRFQNLINSILDSASMAENKLTLHKQPASVHQMVDEVALLIDPIVKKGVELRVELPDSLPLIYADYNRMVQVLFNLLGNAAKFTEKGHITVGAALARDRDALEIFVADTGIGIDTSDQSKIFLPFEQAESGHTRAYGGAGLGLSLALKLVQAHGGTLTVGSVIGVGTRFTAKLPVSQAELEKAMAKSNAASSAANSRLDRKTVQSMRASAKAHRAADAKAKAGGATHTSSGADPNQFGRRRSNGLNSDVSDVVRRTSSRSSMGRPNLGGVKARRSSAAPGGLRKDIVAWVNDQTNPMVRKEGSTFARSGNKTVEILSVDDNNLNQEVIGEMLKASGFKATKAMNGQEALLLLEERYVENGLDSFPDIILMDFMMPGMTGVEATRIIRETYPSCNVPIIMVSAVSSEKDICEGLHAGCNDYVLKPYRHMELMARIGMQLRIVEFYRRELTSRQHERILYEILPVSVIERLNKGETAIADELKDVTVVFSDIVGFTKIAAAHGTPEIITMLDDMFTAFDELVEQHGAYKVETIGDAYMIACGLGGQKDHASVAIALAADMISAVSCMASPSGTPLEIRLGMHSGPAYAGVVGQKCPRYCLFGDTVNTASRMESLGFPMTIHMSDATKQRACEHGSAEAAFADLGQRHVKGEGETQTWLAKEGEWEHAIWDYENVVTTKSSSRTIYGAAMFRRSDASGEDDSPHDE\*

&gt;jgi|Enacos1|2418346|fgenesh1\_kg.2\_#\_2801\_#\_TRINITY\_DN292\_c2\_g1\_i1 EnacosRh3

MAGSRQTLKDQPHDARRAGPRSLLSFASQLPLGPTWILCGVCSYAVMTAALRWLHSEQAVELWHKEVPITVYDRSMFTFAAAFIIDALTICFEYKSSRLDMVLLPAFIKGAATLTNVLVRFNWAVIGAGPAGSYGTIVIVQRYICWMHTTPTILLLVKMISTNITKKQVLRAVICVEVMLVTGLAGALCSGWWAVFWGVASHLAFLPLLPYLHQGLTEAGCVVDLHAASHTMTLSYYLIMSLWCMFGLVWDLRMFGYLPSYVEEVFYVCCDFAAKVMFSSGLMLRNFKGRDSRREGVMRQIQDSHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGLLNESVRRQVYIIRTSGARLLALINDVMDAAALRQHRLVLKQERLDLRQVVGDVSDLTRSLVDNDVSLRNDVPEGMVVWADSGRFVQVLNNLLGNAAKFTHQGYIRVSAEWYDPQRQWIAVHVTDTGIGIPKQKLATIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELRVKSKEGKGSCFTFTLPSFTGQTKQSAQQPAAQHTGAAITAPVIRANSLAAVSGDKQDSAGSSGVEARGDSAQGLVDGIAPSDVHLPDEYTKELPYDAAQLSALASSKPYTAPTAVLGSTDNCRPAVADSTRIRRPSNAAVKRDPRPTQFARTGRYQIMSVDDDQVNQTVVDSLLSSTGYEVVTLSSGKQMLEYLDSCEVLPDLILLDVMMPDMSGPEVCAELAKRPASLPVPIIMVSAHSDEAVVVKGLDSGADDYVTKPFRREEFLARIRAKLQLATGGAEQVPVDPGDSGDPTVMCVDDDEVNHIVLEGMLQSQKYRYIKARSGAEALQLIDRVSPHLVLLDAALPDTTGLEVLQQLRNRFSQVALPVIMLTARHNERAIVEALDSGANDYAVKPFRRSELLARIRMHLRSSQRAAAVAAEAANLDPVAAALAQAEQDLSAELRDLLPAAELLKTVPLVAAQLSGLDDAAVGLSPEQLSALLGAISDTFDATVEKYALLKVECTDNCLTVAAPLTSSAANSARSSLQQDQARASQELQPSAGPNSASNAAEVTPLNAVLQQLLKMSQELMSTFDPPGAQQTDSSHPVGQKQGLSRASINNSAVSSLQAQLPDCCKGVLQLQVALHVGELHAGVVGARRPRYRLLGPALQYVKQAAAAAPVNSIVATDAAAEQLRALGMHLKPIAADKPDLETVDWSSEGSGSKRLWVVAASANDQGEAEVSDTAAYQPTDPGGMPAVDTPRAAQQEHDQAQGSLPRADPVELPTSQQVQPAQVLTSSPQQASWATLLLQQQQQLMALAAQLGAVGGTTLPSLAGLGLGPLGWPSGLAPYGLPSSPTATAHSSNSGTAPPCRLSSGEGSASSSDKPAASNASTVSSSCAGQQQTPPAWAGVLNGMSPTYSSTVLGGNAYLSAAADLAGALGALGGLQLGPAEAQQLLLIQQEIDALQRQMSAVAAGCIPCPSFGGCRAASGACTPTATRTCQGNGKLCGCDSPYAHARSPVAVAALASGKPANNTSVTAGGVQRQTSSSAGQLSPRSNSEGGSLPASRRNSSSPEDLLSSPGQPGRRSSFGQLFKRRSRKQKTLAE\*

&gt;jgi|Tetobl72\_1|2788934|gm1.9559\_g/ TetobRh1

MAIVNVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVTEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLHMFGLVGLQAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGCSRRGSVLLSPSDNTLDGSARVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLEYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVTPMSPVAAALAAAAAEEGLSVELQQLLPAAEQLQQVPLLVAQLDGLERATAGLAPEQLSALLGAIADAFDAVVEKYAVLKVEASDKMLMVAAPLSSSAANSARNSLQLPSVPLQEGSTPTAGTAADQQQGQQQQQQPGLAAAPTSAAGACLQRLLLLAQELMRCPCLTTGSDAAPAGADGGTAAGAEQLLPPAGVAMTPGMQAAVAALPECCRGVLQLRIAVHVGALHAGVVGARRPRYRLLGPALQHVKQACSVAPANTVVATGAAASQLLALGVSGLRPLSVAWPDVDAGAAGADSSSSSAQQLWVVTPEAAGSCGDAAVASRGSSDQVHALLKAAAGAVAAGAAGRVCNGDVAPLAEQQQRQQQCSSRVSSEALQPLVSTPTKQQQHRLVQALPVQNPVQQQQQQQFLPNQQVAVLQQLLAASSALSMPALPWPQQQQLMQQQLLQQQQQQLLAAAGLAQQVLPVTAAAGGVPCNCTPLAASGAGWPNGAGLFGTAWGSGEHANGHCAGAAASVVAPASCAGSTASTAAPARTASGVSNNSGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLGASLAALGGFQLGADEVQQMLQLQQELDLMQQQVAALTAGGLAWATPAAAAAPAAPAGCLGDNGSSYGFIGGANGAGLSHAAVAGMLAQLQQAQQCQLQPPPQQQQQQQQRSSGGGSAASSTGASSKSSRDSPPPASEAAGEAAAAAAAAAANGSSSGRGRGRGRAAAQQLGQLFRRRPRKPSDS\*

&gt;jgi|SceoblEN4\_1|586480|gm1.8571\_g SceobRh3

MSAAWHLVLSYASCTLLLHQLVGGPGLAEAFRSQVPLGYHLLSCAAFGTAFALDLLAVLFYARSSRLELTLLPAWIKGLPFLSSVLMASGKAVVAQAANGRLVNLQRYVCWMHTTPAVMYLIKSVSNSITTQQMYSIILLHEVQLGLGAVAKLSGGVTQVLLGGCVHCALIPVLMFLHTGLKELSVQYSKNIAAFVYLSTLVTYGSFGVVWDLGSFGLLSPAQEEAAYLWAELASKILISTVLLFSNFVTRDMRRLALMRSIEAQSRQQLIAELQALVAQKDAFMSSVSHELRTPLNGIIGLSEAALHNSDLAQQAGPAGAPHVLPPATRQQLALIRTSGLRLLSLVNDILDAAALQHSRLVLARGRVVLRPLVEEVADISRPLEVADISRPLLRDRALRLVTRVPHDLEVLGDADRIVQVLGDADRVVQVLGGADRIVQVLGDADRAVQVLNNLVSNAAKFTEAGTITISARVGRQPPHNSSSSRASSRAGSRPGSSSGARLKPSGSGAAAAAAAAAGPQEVVLVSVEDTGLGIPEEKLQAVFEAFEQVHTDISRSQRGLGLGLSIVRQLVDAMGGSISASSVVGSGTTFTFSLPLYTPEAAAAAAAAQASAQVPAPEEDTLAAAAAAAVSAKAMGSSSPSPSAAASRSAAGGGAGQRRLLTDRQAVLAMGSAAVAASYSAAVATAGGGRRGSAPAVGGTGAMGAMGSLAAELAGLAASEGFGGGGGGRMRSAGGSLRDAAAGGGSPAAAAAAGWDNMHDGGGNIGGNDGDNADGVHDGNGGDDDDSWALQQPLVPSPLAGRRSDVAAVLADEQAAAALPHMQRWPQGGSQQQQQQLSRERSSIPAMQFHSQVKGGRVQLLVVDDDPLNHQLLLVVEDDPLNHQVLSLLLEAAGFSLVHVMSGAATLAFLAACELLPDLVLLDVAMPGMDGRETCRRIRAAMAGSGLHLPIVVLTAQVAAQSVEDSLSAGADGHLSKPCTRQELMAAIARNCKKQQRL\*

&gt;jgi|SceoblDOE13\_1|285132|CE285131\_20856 SceobRh4

MPGGENSSEAGGGAKQHQQGPADGARLVYRDSASSSPTRLGVIWIMLGIASYMLLSLLARSVLHSEQAVATWRAEVPIVVYDRSMFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGRSRRGSVLLSPSDNTLDGSAQVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLAYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAVTPMSPVAAALAAAGAEEGLSVELQQLLPAAEQLQQVPLLVAQLDGLERATAGLAPEQLSALLGAIADAFDAVVEKYAVLKVEASDKMLMVAAPLSSSAANSARNSLQLPSVPLQEGSTPTAGTAADQQQGQQQQQQQPGLAAAPTSAAGACLQRLLLLAQELMRCPCLTTGSDAAPAGADGGTAAGAEQLLPPAGVAMTPGMQAAVAALPECCRGVLQLRIAVHVGALHAGVVGARRPRYRLLGPALQHVKQACSVAPANTVVATGAAASQLLALGVSGLRPLSVAWPDVDAGAAGADSSSSSAQQLWVVTPEAAGSCGDAAVASRGSSDQVHALLKAAAGAVAAGAAGRVCNGDVAPLAEQQQRQQQCSSRVSSEALQPLVSTPANSSSNSFCRTSKWLSCSSCWQLAQHSACLRCPGRSSSN\*

&gt;jgi|Sobl393\_1|11016|SZX66820.1 SceobRh5

MVQEHKDTRLMDHANVSYHQSLLGTSSRLAWAYVGVLCASYAACLMLLHSIAPVDLRMWQAFLQQVPLDVFKWQLAAFGGVLLLNIINLVFCSNPVQYNCNVLLVLIHSVAFATDWLIEAQSTSLVLGHNGRFFVPLRYVQWTHTTPTMILLMSMMSDLAPWRVAAAVGGDLVMVAAGLGASWSSGPLQVLLLLVSFSGFAVVMRAIMDMFAGAIAESSADAASRQLLGRMLALTLVVWSLFPLVWLLGQAGLVSLTVEQVLWGAADYGAKVVFSSHLWQKNLSTVQQRREAAQELMGVLDRGLLLERVRGLVASKERLVYALSHELRAPINGMLALVQELLHNKTQSAASRTRMLHMIRSSATCLLNTIDTTLSHNGGSAGGAAGQHSRRTHKVYLWRVCESVLRLTRPMLKDNVRLINCISKDMPPVKGDSTRLMQVLLNLVCTCLKFTHAGDVRVSASQTHSAASVVVADTGQGIPPEQLAQALDPFQQAGEGADVWDVCRSGLGLYLVQQALSSMGSSIAAASEPGRGSSFCFELPLADSECESESEMETDMFSEAGSLRASLELADFEGPGARAAAPRSMFAPDPSQFGGSKHTCGDLLSTPAATAGGPRLGSFLGSSSSAHQGLAAATDSSTAASSTCGSGEQEATAAAASNTSAAASASAQAECSQQQALTARASEGTAAAQEQAAGSPDAAAAGVLPMKPCHRSVHGGVIQVLSVDDDPVNQLVASTALRSHKWEVVKCMSGAEALAYLERSCAVLPDLVLLDVMMPAMSGYEVAARLRTSYPSSLLPIIMVSAKTEEADIVQGLRCGADDYITKPFKRAELAARIRAHIRARDAFAQQQAAEQAWLMQHNLLPPNVQRKLRAGETVIAESHPQATVLWAEVVGGLTGSVSPAAASSATPPGQQRQQQPEQLVGTHAGSLQQQQQQQHGGMDGRAAAGRASCERVLSPAEAVVTLNSLYTTWEELCGQRDVLGVDFSGSTFVAVSGHDDNPGHLGHMLATAEAMLGVAAAMAAQHEGCSLSVRLGLHTGPITTGLVGSKAVKLVLMGDTVEVARLLASSGCPLGLHISAPVYEALGGSSGLAAAAMPWTLQALPGSSARQHTYLLPSVACAAAAAAWGSGLEEQQQGSSLLALQGRQDSSSCTFLSTAAAAAAQLQQQAAAAAAAGAGAQGSHAAGAAADPALAATTDCTGSGSRAQVALLPSLTSQAATASASADAAAAAAAKNSVSCTAAGTATPDVSDAPHAATATAAATDALATERQQQQQANVPPGTSALQTATKGAGAVVVCTALPAPAPCGSVGFIGTAGRSSRDKGAAVAYGEVAVGPSSASTAATAAAAAPGIAQRSSSLSVQNWLLASAQQAPSTNSSNTSQPAAGEDTSSKSQSTSTAARAAAAARRSIGASGSVHGSVHGGGSMLGLLAPASPAVGSSKEAGSAAAEARLAVHQFGAWDQQQDQQQQQQQQQLSTALLQQLGDERRQLQQQLLAASQQCAAAVAELGCLRQQLQETQHEAASKSSLVESLRQQLSSAVVRAHLADCWRALATMKIQLSSALGSGGQQPQLLSGPLQLAVLQQVLLAAQQGPGAAVPQQLLQQPVPAVAAAGSALPSNPAQLCGAAQPSGGAAAAAAAYGVAGSAAAGASAAALTADVEAAVVLLQMQQVIAQAAQTGALSLQQQQQLLLLAGLLQPQPQPPSSAGSQQQLALQLAASLLGQQQAAGSSDAVLATGSQVQDTLPSGGSPHMPQRRSSIH\*

&gt;jgi|Sceobl1450\_1|539218|CE539217\_113361 SceobRh6

MFMFGTAFVIDVLSACFELKTSRLDMVLLPAFVKGMATLTNALVRYGWATIGTAPNGTVVMLQRYICWMHTTPTILLLVKMISTSISRKQVIEAIVCVELMLVTGAAGAMTTGSLSVILGCLSHMFFLPLVPYLHQGLKEAAAVVSKHAAGHTMTFVYYTTMIMWSAFGVIWDLRMFGLVGLEAEEVVNLCCDFAAKVVFSCGLMLGSFKGMDCRREGVMRQIQESHRQTLIQELKRVIEQKDAFMSSVSHELRTPLNGIIGISEGLLSGCCGILNESVRRQIYIVRTSGARLLALINDVMDAAALRQHRLVLKQERLELRQLVGDVSDLTRSLVDNEVALRNEVPEGMAVWADSGRIIQVLNNLLGNAAKFTRQGTIRVSASWHDGQHQWVAVHVSDTGVGIPKHKLASIFLPFEQVDGSISRQYGGFGLGLSITQELVKAHGGELWVRSREGKGSCFTFTLPSYTGQSKAAAAAVRVQATASITPGTADSAAPGLTRRGSRSALPEAGGRSRRGSVLLSPSDNTLDGSAQVRLDSASSMGLSGELGDSLIGDEYTRELPYDAAQLSALASSKPFTASATPSGSQQQRQQRRPSSSASSVAGGASRRGGEGQPVLLDPRPTQFARTGRHQVLSVDDDVLNQTVVQSLLSSTGYEVVCLPSGVATLAYIEAAEVLPDLILLDVMMPDMSGPEVCARLAARQPQLAVPIIMVSAHSEEAMVVRGLDAGAVDYITKPFKRAEFLARIRAKLNLSSDSQGEAAQQVLDEQDAAEPLVMCVDDDEVNHIVLEGMLQSQNYRYVKARSGSEALSVLESSGGRLPHLVLLDTALPDTTGLDVLKQIRARFSQVVLPVVVLTARHNEKAIVAALDSGANDYAVKPFRRSELLARIRMHLRSSQKAAATAAAITPMSPVAAALAAAGAEEGLSVELQQLLPAAEQLQQVPLLVAQLDGLERATAGLAPEQLSALLGAIADAFDAVMEKYAVLKVEASDKMLMVAAPLSSSAANSARNSLQLPSVPLQEGSTPTAGTAADQQQGQQQQQQPGLAAAPTSAAGACLQRLLLLAQELMRCPCLTTGSDAAPAGADGGTAAGAEQLLPPAGVAMTPGMQAAVAALPECCRGVLQLRIAVHVGALHAGVVGARRPRYRLLGPALQHVKQACSVAPANTVVATGAAASQLLALGVSGLRPLSVAWPDVDAGAAGADSSSSSAQQLWVVTPEAAGSCGDAAVASRGSSDQVHALLKAAAGAVAAGAAGRVCNGDVALLAEQQQRQQQCSSRVSSEALQPLVSTPTKQQQHRLVQALPVQNPVQQQQQQQQQFLPNQQVAVLQQLLAASSALSMPALPWPQQQQLMQQQLLQQQQQHGSAYEVKAGAVQQQEQKLSALGGSGGAGGAAADLGASLAALGGFQLGADEVQQMLQLQQELDLMQQQVAALTAGGLAWATPAAAPAAPAGCLGDNSSSYGLIGGANGAGLSHAAVAGMLAQLQQAQQCQLQPPPQQQQQQQQQRSSGGGSAASSTDASSKSSRDSPSPASEAAGEAAAAAAAAAANGSSSGRGRGRGRAAAQQLGQLFRRRPRKPSDS\*

&gt;jgi|Chleu1|3502|rna-CEUSTIGMA\_g3682.t1 ChleuRh8

MGVLEPVYERVNSQETLEHGDVTDGDNKSKNSNKLGIASTSSIEPPTHGDGISGWSMTLLWAGCILLWYTAVQMFFVPAILKEDPKARDQLFSQLSIRYYQYSEAAFFTAAVLNLISLVFEETPEKRQLAFLSAIIKGLSWHSDFLVVTGQAIIVYDGYGAILLPGRYVQWSCTTPTMLFTLSKISDFTSRQTWTTMFFDWLMIITGFIAAVLPPGIFSCLFLALSYATMLVVLWSLYCMVQSALSVANSPHARMSLHFTLWSTFIIWNLFPVAWTIERIPHLCHLGEPLWLFCNFSAKVVFSSCILYNNFVTIQQRRLAAQIEQEHKDRIVMVAELKEALRHKDEFISVVGHELRTPLNAIIQLSVAMTHNLGAFGTWERHRTWLETIARSATHLLGIINDIITMRAARTGLSLKQELVFVEKVVDHVIHTLSPMAKRGVVLEKALAMASLPPIVGDERRIMQLLSNLIGNALKFTDKGKVAVVVQTDRHARNVIIVITDTGCGIPHQELRKLLVPFKQADMSTNRKFGGTGLGLSIAQQLVDAHAGKLELESKEGEGTTVVVTLPVLQPETRTSLEDQFKERYTASGYSFEDLMDPAVARAEGRRSAVFRASLDSPAGRFRAPSTNDSQYQVEHYQWEDDLLRGEELGGEISAAASGEGGPPPMAVALVSSLYTTEVTQSRPPSNLRPAGMPFTQATASNGLPPGTYQSMQQQNFMMSGLSATAASGSVAGGKDSRSHSHVGLAGQRYSDEPMSKESLELERQQRERLLAWALATQHSVPGATSAGAADGRGASGEGSSYGGPPPIQTIPDIVCVCSEEGGYATQQDPVPEEGLGELEMDEYAGSWHKPARFQDAFDANKEYYSYDNRMSYEYRPSLDFGSKKGGSGRRRSWMQPSSEVETLVPEEVHGGLKTTAAAAGEELIVSSPVLTSAGAGTSEGPPPPLQKNSTALSFKKVSGLKSMVRRSVDLLHMGSFNKLSKGATAGSSTSTSASPTNKGM\*

&gt;jgi|Enacos1|2415101|fgenesh1\_kg.1\_#\_16735\_#\_TRINITY\_DN13095\_c0\_g1\_i5 EnacosRh4

MKKSRGINSYSQSVLSISAPLAWLYVSLLGASYTACTLVLHRSAPVDSALWVTFKSQVPSSVFHWQLAAFGGVLVLNIINLMFCSTPVQYNCNVLLTLIHGVAFATDWLIEAEMTPVVMSWGGHMFLPLRYIQWMHTTPTMILIMSMMSDMSAGQVAVAVVADLVMVATGLAASWTDGRLQVVMLAASFAGFIIVLRAIIYMFKSAVAESSAGHSTRQLLTRMLGLTLSVWSLFPLVWLAAYGGLINIVWEQVLWGVSDYSAKVVFSSHLWQKNLATVQQRREAAQELMGALDRGLLLERVRNLNASKEKLVYALSNELRAPINGMLALVQELLHNKTQSSASRTKMLMMIRSSASCLLNTVNTTVSNSVGSDATAVVAPIGSKRMHKVNLYRVADAVLRLTRPMVKEHVRLINCISRDM

PPVKGDSMRLMQVLMNLVCTCLKFTHTGDIKVSATATHSTAHVVVSDTGEGLSPEQLQQALNPFEDADGEAADVWDVCRSGLGLYLVQQALGSMGSSIEASSEVAKGSTFRFELALADEECDSESDMEHADMFSEAGSLRASLELTEVDSWRAAAAAASDLSQVHLPARFGTSV\*

&gt;jgi|TetdesSNI2\_1|4108075|fgenesh1\_kg.6\_#\_1196\_#\_TRINITY\_DN3844\_c0\_g1\_i3 TetdesRh

MQERKDYSLMGRADFSCHQSLLATSSRLAWLYVGVLCVSYALCSMILHSFVPVDVGMWQAFLHQVPLDVFKWQLAAFGGVLLLNIINLVFCGNPVQYNCNVLLVLIHSVAFVTDWLIEAQSTSLVPGRNGRFFVPLRYVQWMHTTPTMVLLMSMMSDLPSWRVAAAVGGDLVMVLTGLGACWTSGPLQVFLLLLSFAGFAVVLHAIVDMFSAAMAESADGTSRQLLGRMLALTLAVWSLFPLVWLLGHAGLVSVTTEQVLWGAADYGAKVVFSSHLWQKNLSTVQQRREAAQELMGVLDRGLLLERVRGLVASKERLVYALSHELRAPINGMLALVQELLHNKTQSAASRTRMLHMIRSSATCLLNSIDTTLSHNGDGGLQHLRKAHKVNLWRVCEAVLRLTRPLVKDNVRLINCINKDMPPVKGDGARLMQVLLNLVCTCLKFTHAGNVRVSASQTQSAATVVVADTGQGIPAEQLAQALDPFQQVMLCLLCVSCPGQ\*

&gt;jgi|SceoblEN4\_1|618856|estExt\_Genemark1.C\_150274 SceobRh2

MAPVDLRMWQAFLQQVGRSSSCSSSSSGSSSSSSKERSCVPLDVFKWQLAAFGGVLLLNIINLVFCSNPVQYNCNVLLVLIHSVAFATDWLIEAQSTSLVLGHNGRFFVPLRYVQWTHTTPTMILLMSMMSDLAPWRVAAAVGGDLVMVAAGLGASCSSGPLQVLAGPGAGRSSGPLQVLLLLVSFSGFAVVMRAIMDMFAGAIAESSADAASRQLLGRMLALTLVVWSLFPLVWLLGQAGLVSLTVEQVRGAAGGLVGWRAGVLVWLLGQAGLVLWGAVAAVLWGAADYGAKVVFSSHLWQKNLSTVQQRREAAQELMGVLDRLALDVGEAAAELMGVLDRWADMMPQVQQELMGVLDRGLLLERVRGLVASKERLVYALSHELRAPINGMLALVQELLHNKTQSAASRTRMLHMIRSSATCLLNTIDTTLSHNGGSAGGAAGQHSRRTHKVYLWRVCESVLRLTRPMVKDNVRLINCISRDMPPVKGDSTRLMQVLLNLVCTCLKFTHAGDVRVSASQTHSAASVVVADTGQGIPPEQLAQALDPFQQAGEGADVWDVCRSGLALAAAGEGADVWDVCRSGLGLYLVQQALSSMGSSIAAASEPGRGSSFCFELPLADSECESESEMETDMFSEAGSLRASLELADLEGPGARAAAPRSMFAPDPLQFGGSKHTSGDLLSTPAATAGGPRLGSFLGSSSSAHQGLAAATDSSTAASSTCGSGEQEATAAAASNTSAAASASAQAECSQQQALTARASEGTAAAQEQAAGSPDAAAAGVLPMKPCHRSVHGGVIQVLSVDDDPVNQLVASTALRSHKWEVVKCMSGAEALAYLERSCAVLPDLVLLDVMMPAMSGYEVAARLRTSYPSSLLPIIMVAARLRTSYPSSMLPIIMVSAKTEEADIVQGLRCGADDYITKPFKRAELAARIRAHIRARDAFAQQQAAEQAWLMQHNLLPPNVQRKLRAGETVIAESHPQATVLWAEVVGGLTGSVSPAAASLATPPGQQQQQQPEQLVGTHAGSLQQQQQQHGGMDGRAAAGRASCERVLSPAEAVVTLNSLYTTWEELCGQRDVLGVDFSGSTFVAVSGHDDNPGHLGHMLATAEAMLGVAAAMAAQHEGCSLSVRLGLHTGPITTGLVGSKAVKLVLMGDTVEVARLLASSGCPLGLHISAPVYEALGGSSGLAAAAMPWTLQALPGSSARQHTYLLPSAACAAAAAAWGSGLEEQQQGSSLLALQGRQDSSSCTFLSTAAAAAAQLQQQAAAAAAAGAGAQGSHAAGAAADPALAATTDCTGSGSRAQVALLPSLTSQAATASASADAAAAAAAKNSVSCTAAGTATPDVSDAPHAATATAAATDALATERQQQQQANVPPGTSALQTATKGVGAVVVCTALPAPALCGSVGFIGTAGRSSRDKGAAVAYGEVAVGPSSASTAATAAAAAPGIAQRSSSLSVQNWLLASAQQAPSTNSSNTSQPAAGEDTSSKSQSTSTAARAAAAARRSIGASGSVHGSVHGGGSMLGLLAPASPAVGSSKEAGSAAAEARLAVQQFGAWDQQQEQQQQQQQQLSTALLQQLGDERRQLQQQLLAASQQCAAAVAELGCLRQQLQETQHEAASKSSLVESLRQQLSSAVVRAHLADCWRALATMKFQLSSALGSGGQQPQLLSGPLQLAVLQQVLLAAQQGPGAAVPQQLLQQPVPAVAAAGCALPSNPAQLCGAAQLSGGAAAAAAAAAYGVAGSAAAGASAAALTADVEAAVVLLQMQQVPGCTADLETTGKPYCSVKRICPEHMKADAIPCSSGLMRYCQQCGVLEPLALFDDIKRSCRDSLCRRVKRPAATDSHTKRKRQANFSSCAYDAANSTSCYIAAGAASAAVPEAAISPAAMLDAAMHAGWDAAYMAGATAMPSAAELAALGVCDAAAWNGSWLEVPAAETTDPLESAATAAQTAPVEAAAAAARTNSGAAAAAAAAAASPVSSSCTAATSGAAAAAAAGGSRSTGAACGSPATAGPSAAAAGAAAGAANAAGMSWPAYWQQQQDPQLAYAPSLAAAAAAAAAAAAAGLSSPISGSYSSSDSKDPAVAELEQFMMQELAAAGVMAMDSSSATALTAVPTAVGAQEQQPCYQHTFQPLLRHASTVESSALLPLLPQQQPQQLSGMAPGTTMLSASPAPYAAASCGRACIPGLPALGGAAGWVPTAASGGQAQAGAALHVQQGPAPAAAAAAAAEAEAAAPAARGQMRARMMARLEERLQALAAQLGDMQLMLRLLQDA\*

&gt;jgi|Chlsc1|16108|g13716.t1/ ChlscRh5

MTNSSGGAKGRSGGAGDKLLGDASDRDSGAVNAKQMQGERQHSSVGPPVPPSATVTAPTEHLKEAYNTLVLLVSCASIWMVCS

YIDATYTPRDLNYIPSRSLIISYQWCMVGYASNLILTLMKVIFETNRSKLKLHMVSCYINILAATSYCMLWTGFSPIVPDVQSCLYIP

QRWLLYCFTAPAIIYILCQISDYTTRMRVWVIMLNVFMLAAGGLGTVPWISWTHKVYWYVMSCVPFPSILVHMWRMVSSAVDET

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QLSTAIERKDDFLSAMSHELRTPLNGIIGLSESLMAGACGSLPEKAVKTISTVKLSGKRLLQLINDILDAAKMKQGTLVIKHEKVDIK

RLVTDVLDLSLPLVRKGVRLVNNVGNVPKIVGDNGRIVQILYNLVGNAAKFTRQGIISITAGVSEDNAKVYVSVTDTGVGIPKEKIS

KIFGAFEQADMSTTRRYGGTGLGLHLVKELVKAHCGDITVESEVGVGSSFTVWLPIAQDGAMLGNVEESDGAGGGAGGGKEPYT

LDFNGPLRRISEDSDEGGYLQAAAAAAAGRRGGSITRRGGGPNRGGGVGGGGGGGRSRGGAAADSDSDADQLALGGMGGAGDEDESEDGTPRGGRGGGGGRGGRSGGGGGGGSASYHGFYSNEDSGASGSGPGGPGGSRGGAGNGGQGDSGAGGAGGGAGGGGPGGGGGAKGPSGRGRESSAENLLTVTKSGFKVMKPFYREKFGGCMVLSVDDDPINQMVVENLLSPEGYKVEQAMSGSEALDFLKRTTTLPDVILLDIMMPDMSGYEVCQEIRRRYSAVSIPIIMVSAKGHPEHVMKGLEAGSVDYVKKPFHRQELLSRIRAQVRNREIFEAEMESRKVTEMLKRILPLSVIQRLQQGQSMIADAHDEVTVLFADVAGWLSAQELSARTTSDVVIVLNEMYGAFEKLLLKYQVFRVEHTGESYLVVSGHDGTKDHMRRMLSMAADMLSAVQQLAFPGGEPLRLRIGLHTGPAYAGVVGIDNPRYCVFGDTVSVANALEARGFANAVHCSNAVYEAMRSKDRDRAAAMFAAARRAMAAGPVIMDTFVYKVGNWESALKELEEEEQRREAADREAKEKDDAVRAAESEAAAAAAAAAAAAAAVAETASRGREELAAACARAEDLERKVSKLAAEKAAAEEAAAAARAAADALRARAVDEEAERGRLRASIATYERLLAEAREAVAAAAARAAAGPAGGSGLAAAAAAGAAAMLHRRGSPAGATAAAAAMHFPGGAGSPSSFSLPASGHHHHPHHHQHHPMADGAPSGGGGLDSGASGLFSPPGSDVFPLFPGGAGGMGGGMGGGSVAGSAGGGSLAGQAVAQSFWTMAYPIDMFMRDIGLPQYVDLMRDQEVTPLVLAGMKDRELEALGVETVGARRRIVEAARQYAGKVKSTAKMMAMYRDGQALAAASAAASAHAAHALAAAQHMQQQRQQAAEASAASAASAASGLGPAALEALLGGQGPAGLGMEAHGLGGLGAHSDSVKAASAGAASGAGAAAVRGVPPLAAVLDA\*

&gt;jgi|Chlsc1|6257|g3276.t1/ ChlscRh8

MLVYQMSSTAFFTALVLNLTSLMFEDNAPKRQLALLSCAIKGAACHTDLLLVTGGATVLYDAYGSICIPQRYVQWLVTTPTMVYI

LSKISDFTPRQTAAAIGADVLMVLSGLVANFLRAPFQWVCFCVSMAAFVGVLYAMGRMVYSAVREHTAATSRRSLLFIYMCTLFIWNLFPLAWILHVVHRGSPAAEYLNVFANFMAKVLFSSSIMYGNYMTIAQRRLLAQQEAENAHRVQMIQELRDSVTRKDQFMSLMSHELRTPLNGIIQLSDALVRGAGGEMNPKGQHFVKTIKNSSNHLLNIINDILDVAALKEGKLTIKHEVVSLAKAVDHVVDIVAPLAKKEVVMERWVDPSTPLIIADFSRVIQILYNLTGNALKFTHKGRVGVRVEPSADGTHVLLQVSDTGIGIPKNRLSSIWGAFEQVDMSVTRKYGGTGLGLNIVKQLVEAHEGTIEVTSSEGRGTTFAVALPVLQSSTRRSLEVQVLESLTKCGHTAARDIVVQRRARGRPSLSVEETITQFARGVQRRASGLLGGAKTAAQETRLEGGSNAGGGPAGGGGGGNAGGGGAGGGAGGGGGGGGGGGGGGNRRDSLDREEDEQLYRKRTYELDHESRLGDLARRTEHKRSLEEADLASRQLQLSDYERRAERDSRSLERIDSGQPGPMAAMATVAVHGAAAAAGAAAGAGGSRGGGGGGGGGGGGGGGGGGGKCGGDTAGASGGSAPGSAGKAGPGAGGSGAGGAGAGAGAASGLGRGDSRGGGGGSRPASGRASMGEPPSGGGGGGGGDGGGGGDVSHSAGALAKRGSLSAGQHCLSMGNLAGAAGLRGPPSSKTGGGGAAGAASTSGGGAAAAAAGRRTSNTDTGFAASGLGSALAGWRGDSQRTVTGGADAGSVSSANGASIADIYETLQLGRGSNESAGGGGGGGGGGSLMRKLSGHSLKAGGGSLALRMSAYGRAGGGFGVNGVNGIAGGGGGGGGGGGGGGSGGPSGSLLKSALESDLYRNGPSPRDPYDCDASSVGADSEYEWTGGGGDGGGGGGTYSGRSRGPTSTGTLMFGGGMGMGSGPGARRHQPPKPAAHHSLRSGKLTPMLSNAAAAAAVATAAPPGLTLDKLAYSDMYGTIQVLSVDDEDINQIVLEEILTDSGYAFARCMDGVEALEWLCASDTMPDLILLDCMMPLMSGHEFCATLRKVIPGNVLPVIMVSAKSDEENIVEGLRSGSNDFVRKPYQREELLARIETQLRLKSDSWWLAELVNNVDGRETESMKLLKNILPESIIARMQQGQKFVADSHGHVVILFSDIVGFTSLSSKLPTAEVFLMLSNMFTAFDKLTDRFSVYKVETIGDAYMVAAGHDEDEDKQAKGSPLMRVLGFARAMLDVVRNITAPNGERLRIRIGVHCGPAFAGVIGMKCPRYCFLGDTVNTASRMESTGFPMCIHVSENVYRHHPAAEAELQEVGERDIKGKGRMRTYLVRAGAWEQALRDFAARQQAVAAAAAVHAQTLALARQHAAQQQQQQQQQQQQQQQHEQDGGGGGGGGALPGGSGGSVSVCVVPGGGGAAAAGADALALLPACLSNDSNTSLTSCNSFLPLSGGNAV

AALAVMAAAASSGGGGATARAASGPSPAAGAAADTTAGGGGGGGVRMVHLLSTVAEEGSFPVSPSAVAAAAAAAALLPGAAG

PAACQQQQQQQQHQQHPQSQPYHPSHLRTPSGSAGRSPLSRGELPAASTSPPPPPPLPLLHGGANNYFDPRLALRPIFSTEGYVLDD

DSDDGGTSTNTGLGMGGGTGPGMIEGRAGSISLTGIGAGSFTGACYGGGGGGAGGGGAGGGGGPSSVGGGSGRAAPGDAEQGG

TVTGGGGGGGGGGGGSGGGGTPSGLRVHVPRSLSGGSYGSGGSTGAGMARAGLGSATAAAAAAAAIGAALAAAADASFSGGVDAAASSHAGLGMGLGLAAAGVSDGSAAAAIPVGAARRGSTAVSGGGGGGGGIVPGSSPAAASPPPLPPPLVPGGGAGSLSPQSQSPLMSSLYGGAHHGLLSPNSAGLHTGHASTTTAYLEQRIASLGTQLATEALARQRLQEELDAERRRAAGAMQQASLLMQQLQTAAAAAAAAAAAAAAAPGRGSGAAGTGQSPAAAAAAAGQEQLLARLQQGGGAGGSGAAASGSNGGGGGGGGGGVALASTAAVPLSRLPPRVGAGGAISAIRAVVAANSLLSASNDFSSVAADADVVIVGDGSGGGSSSVIPAAATPPSPGSAAASGGGGGGTDEHEITLGSPFLIDTPEHGGAAAIDAAAAAAAAAAAHPGDELPRSLDFSCAGVGSAGSRAAAAAAAGSGGGGAAGGGAAGPRGPRRPSNVLRMDVGDAASMMLQPQQAAPLQPTMTEGDGGSSSGGGVAEPLPRSAAELYASYSRQQLEDQLLLPVPMPLPAAAGAATAAATTTTTTTTVSHHRHHVIHTHGPHSSLARALAPVPVHHPHHNHQLQVHHQQQQQQLQPPLLPCYSLEALFLGLGLEPYLPRFRDEAIRLDMLLAMDVAQLERLGLKPLGYCIRLREAVADLARGLLRSSEDAAMLLGMATAAATAAQQQQQQQQQLEQLEQ\*

&gt;jgi|Mesvir1|11309|Mv25056-RA.1/MesvirRh2

MAHVRVDKPVPKPAMQSTGDSASRGPPRSTSPSMSRRSSEWLLARGPWLLLSFSALYILLTTAVCIFVESSTAFQDVRFLSNWHMNIMVMFLGALALNLVGLITDHDHPSKWQVSVTTMFINSAAAICHLTAVLGKAPVITSSFGGRPLLPMRYIQWSFTTAAMTYLHSHIWHWDALLTIQMMMLATFMSVTGLLGTWMAFPLNVMGMAVSFYCFALLGQGLWHGYRIHLSSKDCEFSMVALRRIVLATSFLWSTYPTIWVVGGVGLISPELEEVLMGIMDVVSKGVVTHTMVQLHAVAHERHRAKSLLELEYWGSQATLERMEAILIARDRVVMSVCHELQAPVHGIIGLCESLIKMQSQGDRTSPSGRGSPRAGERGVERTPRAYGREIGEYYGTVAMLEGRDSYFRQVIRTMKSTSERLTVVLRSALDRSTSPTSPIPLKCQRIFVGDCVRHMLSLMHPLLPPNVNVTLSWDASRGNTAAEDDMYVVPVMADPSRVSQVLFTLMDLVRRFSRKGCVRVGSCVRDSFVVTSISHPGMVLTEGRLTGTEIFKPFRKGNEALAGMLGGNGFGLSLVYELVTAQGGEVSIRCEGNVTEYSFSLPICRDTGSPVAERKAVAEPEEKGVDLYLSARGLNEMEPSRHFVALTSKLSRAEEILATVLPTQVTSLLLKGPVHVRSMVPNMAVLSLSVHNFVGLATELSPLELVVFLDELFTDIDGVCENYNALKVGWGAASMVIALSNEEGSGNPGSSQDSRCAIAVQIAEALLDKCAQVKAPKKIGKILARIGLHCGPVCAAMIGFTGVQYGLYGKTVEVARVLDATAYPMTAQLSVAMYEAAQSSHGSRIVFFRMTSVFGNDNMTYVLQVGAYAEALASLDKKDETRTAERGGPQSSPKGLGMSQGAAVVARLLEDTKLKLGLDSKSDAKDIEAVLDGYRDKMLVLYDQLNAAVRRVEDLIAQKAWLEKQLEKYRGSSGTSPSEQTPSAQAAAAEGLSPCPAGAGGLNSPEAMGSAAQNHRSRVDLIVAEASDLVSELVARVSTQLPSLLSAQFSQLLHRWHQQHLRTAHHADAVNRLHQLNIPQHLMLSGEPFSRQGGGGQAYPPQPGGGGIHPGGPELMGSRWAFPPSPGLAGSIIGAGIERRYSVGSIRYAMQTSPTSQTSPLAGSPIKRNHSLPGGRQSGRAWGVLGSGGAHLSNSMPASPSGVFGRPVFPTPPMQQQQQIPMHPQQGGGGPGPQGPPQVGTPGIHPFPKLALPNKALIQQPIAENGSLKRGDGSGAGAGSHATTPAKLRPMDVRTFLGLVGMESLCDVMEREAITVEMFSYIDDADMADLGITSAATRTLIRLAARRVVAGHAMAGSPGKELANGSPGNELANGSAGNEPANGSASGNGSLSPMSPT\*

&gt;jgi|Chlat1|5711|Chrsp38S05552/ChlatRh

MRVPAYMDSGQMQLIGNLKFVVFASVSYFTVTYISSVVFASSDVSRFGEAEQAQLWPVMAFGTQLVINILTMAFDWDPGRMSLDCIVCFINLTACFNFLLAAFPGAAPVLSDVRGRRLYPQRFVAWGHSTVAMLFLCGLVSDYSANRKLATYITNVIMIVTGFTASWCEWAPWGAISLCISMLCFCHVSYAMWHMLGSSSHAPGGKRKLTTNMEYLKIYTVAAWSAFPIIWVAAALHLMTPTVEESAYTFCDFFSKVAFTSSLLRGNFLTSEQRRLNAFMDMEEGKRVQLIKELENELNKKDKFLATISHDLRTPLNGIIGLSESALEGSCGAVPDNLHKTLHTIKISGVRLMALVCDILDNASLHENALYIKQEPVMLKQLVDDAFQLTKILVAKDVQLISKVPESLPPFLGDTGRILQILFNLLGNASKFTHQGSITVSADLIQNGTAIAISVTDTGIGIPEDKINVIFEAFQQADASTGKKYGGTGLGLSLVKQLVLAHRGTVTVNSTFGQGTTFAVTLPFERPQGTAAAPTPKPFAPARSVSRKSHHGPPQLITLPESPSKESSHAPHPHSPQETNTTTTGATTTAGGTGTTTRDPTSPKEPPTSGGPALTAANNNLTKATIASIPSGPAVSSTTRDGVSTNEPLLPLTAAISTASELVAARRTHKESHGVVEILSVDDDAINQMVIESLLQPLKCKVTQAMDGIQALEYISKATSFPDLILLDVMMPKMSGYEVCEQIRKLYPSANIPIIMISAKSQEKNIVEGLKAGSNDYVTKPFNRTEMLARIQTQLKLKDAWRIEVEAARHVQLLQKMLPMPIITRLQSGQTMISDSHEDVTVLFTDIVGFTTIASSTPTMSVIHMLNEMFTAFDGLVDKHGVYKVETIGDAYMAVAGHEECSAANHAERVLNLALDMIEAVSKLILPAGMPPVQIRVGMHSGPAYAGVIGAKCPRYCFFGDTVNTARHVTRMESNGFPMAVHCSDQTYERLIYLYPDDFVLCGARKIKGKGIMRTFLHKSGLWEEALHKAQAMAALAARDTTTTTPIEKATVGLQCELITPSSIAASSSQARAKPASTEDTTQTDNPTSASTTTASPPPQPLRSPVGSPTQALSGLANGESNNQVGDGTTSSQFEQKYVQRKERSSMEYGSRSPEAQKKRSSLTVAISQQAEHRSHSHDSGSNRSSPGFRSPPSPQSMQRMFIQKGGNVPEMHLDDASSYNAHHQQQQHQHQHNNNGGSVSPPRRSHPVEMLGAHTSRSPTNAARPEADHMHPNMLARVAQMQEDLERALDSPSPRVAPRMHEDYRHMDAGSALMIPDDMRAMESAQRHMHTLPTAQQNGSGQQYPQQQQQHQHRRHLSAGQPTQQLAGSARTSVSSRSSSPGRYVLSPQKAGAAARDMQAGVQVGWVGVQPGAALVQRSFSGTPSPNHSDDGSGSPYVRQRRLSLRAQGQHYGVVQGGSPRSAANSASLSLLAPRHHDMANPHWLADLQHVLQQAGLEQHFDALAREDVSVDLLATMSDDNLRALGVTALGARVRLRQAAQQACAHLDLLGGGGGGCVGVDAYGYPTQQPGMVSPRQSHSSDGFAPRTPRGSGPSAGPSLERYSSGSDWEEPSRGPWAWQD\*

&gt;jgi|TrebA12\_1|12812|rna-gnl|WGS:VXIU|FRX49\_03169-mRNA-1\_mrna\_FRX49\_03169/TrebspRh2

MARTSGTFQRSTVQTIEETKPLLESQPTPSPVRTPAEEDETGLGSAFLWVLVASVLFAASGQAVRSQLSLSSETEAAVLLYHEVPKLFYFVSAAAFFSAFVQNCCALIYEAGSTKKQLALVSCFIKGLSAYVDLLLATGNGAIILDYAGHPLVISRYTQWMVTTPTLIYVVSKISDFTRTQVATVVLCQFSVILTGLLASVAPSPWKWLWMLYCMVAYCYVIYSMGKMLQSAITESADASQRQGLLFIYYGTVVIWSAFVVVWFGQELGMLSIYRAELGNMLANFAAKVLFSSSVMYGNFVTIAQRRALAKEAQEHKDRLKQIEDLKVSMQAKEEFLSMVSHELRTPLNGIIGLSEAMLRGGSWQLGEKGTHYIKTIKNSSHHLANIINDILDAAAFSKGRLVRMTVVLDHVLDTVQHLLKKKVALERAVDPDTPDIIADGSRIVQIIFNLLGNALKFTTEGYIRVTVKPLPAAGVGMDMVQLSVEDTGCGIAKDKQKLIFEAFGQGDMSATRKFGGTGLGLNITKSLIEAHGGSITVESVKGKGSTFTVRLPVNPSTPKVSSELARDTGQFMGSNSPRATDVQFTPQKGRSAPNSLEEARAEEAKASQTATLKAAAAAMVPKRSGVTSTPINPIDRVSMEGGPGPVVPGQAPAVSYRLVKFDSSSSGMPGDNPGRFMLSGESATASTNLFQTASLAKSKKHLPKRAASRIQTAKTTQPGAPCSMKDGSCLTDRKSTHMEAHGSTLILTVDDEPTNHLVIEEIVTSQGYQVHSELDARDALKWVEESPVLPDLILLDCMMPEMSGQEFCVELRKTVPDAVVPVIMISAKTDEENIVKGLSHGCNDFICKPVKQNELLARISAQLRVKADATWVQSIVKGVLEDDSEAMNILQTILPEPIISRIQEGQHVIGDAYDHVVIMFSDIVGFSTMSSTMSAVEVFLMLTNLYYAFDRLVDKYGVYKVETIGDGYMIAAGHDEDPAKAAMGTPLERIMKMGAAMLEAVRTFKPPSSDGKKFEIRLGVHCGAAYAGVIGMKCPRYCFLGDTVNVASRMESNSFPSCMHVSDAVVKGLKSQADNFVPLGERAIKGKGNMITHLYKAGDWEQALEKYNASREEAAALATSQAAVMENRAMSLAEGGLGLRKALSPQATRNLIRSGSKRAEALEVLTAQVAELQNTLQSERGQKEISAARVQQEMNLVKSQPLKSSLEVIGAQVKLEAASIGPATTAPALPGCSVRSLLQDMGLQEYVPKFESEHVKLHMLLGVDHRGLEALGMHSYGHREQLIEGVKEYLRAYLRAAETTTQISAKY\*

&gt;jgi|Chleu1|7876|rna-CEUSTIGMA\_g6283.t1 ChleuRh4

MPLDCRVIFETNGNKLTLHLVSCYINLMAASSYAMLWTGFSPILPDVQSCLYIPQRWVLYVFTAPAIIFILSQISDYSPRMRLWVILLNVFMLGSGGMGTIPWISWPHKVFWYVTSCVPFPSILVHMWRMVTSAVEETPERSAKRSVKFIRIFSITTWNLFPIVYFGAIDGSFPLEVIEPLWAALDWLTKMVYSSSLMEANFFTIAQRREYMLKAVEEANRLQTIQQLSNAIERKDDFLSTMSHELRTPLNGIIGLSESLIAGSAGQLPEKAIQTISTVKLSGKRLLQLINDILDAAKMKQGILVIKHENVDIKRLVTDVLDLSLPLVRKTVRLVNNVGNVPKIVGDTGRIVQVLYNLVGNAAKFTRTGTIAISAGVSDDGQRLYISVADTGVGIPRDKIDHVFGAFEQADMSTTRRYGGTGLGLHLVKELVKAHNGEITVESEMSLGSTFTVWLPLRQDGSGLEDHDSRDLYGGSGAYRSSELSNEHGEKPESGGTGSPRASHLKRGKRRWNNTDLSRRFPSRSNGRGGERLPVMMEDSTLLMSSSSSIPVAETDGNLLAVTKSGFKVVKQFYREKHGSCMVLSVDDDPINQMVVENLLVPDGYKVEQAMNGSEALEFLTNCDALPDVILLDVMMPDMSGYEVCQEIRSRYSSISIPIIMVSAKSNPEHIMKGLEAGSVDYVKKPFHRHELLSRVRAQVRNREVFEAEVESRKLTDRLKAIMPMSVVHRLQAGQSMIADAHAEVSVLFADIAGFWAPGSPGSGRTTADVVMLNEMYSLFEALLNKHQLFRVEHTGEAYMVVSGHDGNRDHVKKMLALAQDMLSASWSLRFPGTGEPVRLRVGLHCGPAYAGVVGVDNPRYCVFGDTVLIASSLETSAWPHTIQVSDSLISRYSRKERFVPFRSKLIVGTQTVATHLCKLGDFQSAVKALQEGLLESRGSESGGRSKSLEVAAISAMLAGCRDERNRLQTQLVSLQEEQSATLRACSAAESDVAKLKSRLCAVEKERQRLNELVASQEAAIAASAAAAAAPAHSMSGHAHGSPSMLSNSPLRGPLPAGRSRKVTAGSVAGSESLYAGGSEMMPLSNKSAVASQMVANFWNMTYRLDTFLKDIGLEQYYPALAAHEVTPLLLSKLSNKELMELGVETFGARRRILQAALEYRLKMESMSRMMIAYKDSGDHPTSSAAAPIKSYLMPELTTEEGGSGFQMNVVGAGDVTLPLKSNINQ\*

&gt;jgi|Chleu1|1453|rna-CEUSTIGMA\_g11542.t1 ChleuRh5

MVSSSVKPKAHSSTMLMQLWSVGLTSVVLLICFFIWFGASCLDAIYTPRDFTFVPTRRMIVSYQWCMVGYGSNLLLTLIKVIFEKNRNKLNLHLVSSYINLVSACSYYMLWTGFSTIMEDRHSCLYIPQRWLLYIFTVPHIMYLLSQMSDYTTGMWLWVVVENVVMLAAGGLGTVPWFSRSLKALLYMTSIIPFPFINIHMYRMVSGSITADLELASKRSLGFIRIFSIVTWNTFPIMYFAAIDGALPLDVSEPLWSVLDWLTKMVYSSSLMEASFFTISQRRELQKAAEEQDRIKQIEQLNIDITRKDDFLSTMSHELRTPLNGIIGLSEALMIGTGGELPEKAHQTIATLKMSGKRLLQLINDILDAAKMKQGGIVIKHEEVDIHRVMHDVTEITKSLVSRKVVLVNNVGKDVPIITADADRLVQIMYNLIGNAAKFTRSGSITVAGGKSKDGRRIFLSVTDTGLGIPSTKFEQIFGAFEQVDMSTTRRYGGTGLGLHLVKQLVEAHHGEITVQSEVGVGSTFTVWLPIDQKTDSFAQEEEAVGSRSVDEEWDALSEAMKSSRRPSADVSRTFHHEKNQGQFLVLSVDDDPINQMVVESLLSPEGFKVEQAMDGDDALEYLSSSPYLPDLILLDVMMPGMNGYEVCQLVRKRFKKEAIPIIMLSAKNTSEDVAKGLELGANDYVKKPFDRKELISRINVQLRNRDAMRSGEY\*

&gt;jgi|Chlin1|15888|g8515.t1 ChlinRh3

MVGYASNLILTLMKVIFETNRSKLKLHMVSCYINILAATSYCMLWTGFSPIVPDVQSCLYIPQRWLLYCFTAPAIIYILCQISDYTTRMRVWVIMLNVFMLAAGGLGTVPWISWTHKVYWYVMSCVPFPSILVHMWRMVSSAVDETMDPTSKRAIKFIRIFSITTWNLFPFVYFAAIDGALSLEISEPLWAALDWLTKMVYSSSLMEANFFTIAQRREFAVRAIEEANRLATIQQLSTAIERKDDFLSAMSHELRTPLNGIIGLSESLMAGACGSLPDKAVKTISTVKLSGKRLLQLINDILDAAKMKQGTLVIKHEKVDIKRLVTDVLDLSLPLVRKGVRLVNNVGNVPKIVGDNGRIVQILYNLVGNAAKFTRQGIISITAGVSEDNAKVYVSVTDTGVGIPKEKISKIFGAFEQADMSTTRRYGGTGLGLHLVKELVKAHSGDITVESEVGVGSSFTVWLPIAQDGAMLGSVEESDAGTGREQTYTLDFNGPLRRISEDSDEGGYLQSAAGGGRGGGGGGAAGRRARQMNSQRSNGAGIGRSDHDHGGGGGGGSDGEQDGPGRGGGGGAGLEDETDEGTPRGGRGGGGGGRGGGNTSYHGFYSNGDSGASGGGGGGGGGGGGGGGGGGNRGGGGSVQGDSGGAGGGSGGAGGKGPSGRGRESSMENLLTVTKSGFKVMKPFYREKFGGCMVLSVDDDPINQMVVENLLSPEGYKVEQAMSGSEALDFLKRTTTLPDVILLDIMMPDMSGYEVCQEIRRRYSAVSIPIIMVSAKGHPEHVMKGLEAGSVDYVKKPFHRQELLSRIRAQVRNREIFEAEMESRKVTEMLKRILPLSVIQRLQQGQSMIADAHDEVTVLFADVAGWLSSQELSARTTSDVVIVLNEMYGAFEKLLLKYQVFRVEHTGESYLVVSGHDGTQDHMRRMLSMAADMLSAVQQLAFPGGEPLRLRIGLHTGPAYAGVVGIDNPRYCVFGDTVSVANTLEARGFPNAVHCSNAVYEAMRSKDRDRAGAMFAPARKAMAAGPTVMDTFVYKVANWEAALKELEEEEQQKEAADREAREKDDAARAAEAEAAAAAAAAAAAAAAVAEAASREREELAVACARAEELERKVTQLAAEKDAAEAAAAAARAAADALRARAVDEEAERSRLRASIVTYERLLAEAREAVTAAAARAGTGGGSGGGGLAAAAAAGAAGLLLPRRGSPAGAAAAALHPHHLQQQPQYLTGSPSSLSLPGPHHHHAHHAHPMEGGMDGPGGPGGGGGLFSPPGSDVFPLFPGGGGGAGSVAGSAGGGSVAGQAVAQSFWTMAYPIDMFMRDIGLPQYVELLRGQEVTPLVLAGMKDRDLEKLGVETVGARRRISEAARQYSAKVRSTAKMMAMYRDGQALTAASASAYAAHAMAAAQHMQQQRQQAAAGLGGLGPVGLEVLGLGLEHGPHSGAASVADGPAGAGGGAGAVLAAAAASGGGLPAGTSAHAPAAGLLDP\*

&gt;jgi|Chlin1|13034|g16005.t1 ChlinRh4

MILTLLKVIFESSRSKLDLHLVSCYINALAAASYLMLWTGFSPIVPDINSCLYIPQRWLLYFFTAPAIIHILSQISNYSTRMRIWVVLLNAFMLAAGGFGTVPWISWTHKVFWYTLACVPFPSILCHMWRMVTHALDETQDPSSKRAISFIRVFSITTWNFFPIVYFAAIDGALPLEISEPLWAALDWLTKMVYSSSLMEANFFTTHWRELTLRAIEEANRLATIQQLSLDIERKDEFLSAMSHELRTPLNGIIGLSDSMIAGACGNLPDKAVKTISTVKLSGKRLLQLINDILDAAKMKQGMLVIKHEKVDIRRLVSDVLDLSLPLVRKGVRLINNVGNVPKIVGDNGRIVQILYNLVGNAAKFTRAGTISVSAGVVEGKVYITVSDTGVGIPPDKIDKIFEAFEQVDMSTTRRFGGTGLGLHLVKELVKAHSGRISVQSKVGVGSSFTVWLPINQDESDLADSYMPSRPRQASEDSIDGGLAARPVGSSVKWMDTSVHTGAGAAGDTAATTAAAQAAAAARTFNKEVGANNMGAGAAALEGDSDDAAIVAAALEAERRAGGRSPPPMEASRNMPEDAQTLLSVTKSGFKLVKPFYRERNGGCMVLSVDDDPINQLVVENLLLPEGFKVEQAMCGSEALDWLQHTPLLPDVILLDIMMPDMSGYEVCQEVRRRFSTVCIPILMVSANGTPEHVMKGLEAGAVDYVKKPFNRQELLSRIRAQVRNREVVDAEMETRLVNKMLHRLLPAPVVEALQGGAGVNGFVELHEDV

TLLAADVGSWLNTSGLMMSADGCRALLAVVNEMHAAFDKLLLKYKAFRVVSTLDHYLVVCGHDGTPDHVRRGLSLAEELVTAARSLTLPPGCGGGQLRVRCGLHTGPLTSVVVGVDTPHYAVFGETVGVVAALVSRGFDNTVHCSFTVHAALRLKSQDRISASFVPAHLALKLPGKLPAVQTYLYKCGDWEQALRQLDEEEGDRETVESAMAELAARERKWQEEQVAAEAAAELTAASLEEERAALEALAARLTTEKAELDGARAEVARLRSEMEAARAGGAAASASAARAAAEADVALAAARAEVETLTARLAESEAERSRIKITYEARLIEARETAAAAAASAHRSMLPMRGYATNEYMHGPPPGDSPRQQMLLAQHHQQQAQAQRARPAVVSRASASSDIGAPGVGSPPAPPVPQPSGAAAGGYAQYPYSYGRRGPPSVGGASSMNMSGGSFWTQPYRIESFMRDIGLPQYAAVLRRQDVTPAVLAGMRESDLEAMGVPTLGARLRILEAARQYGSQSTVRMALLCKDGQDGADGSEQVLSDAMGQGGVEGTATWAHMGGGDSEDAAGGGTGSGNERL\*

&gt;jgi|Chlin1|6056|g12722.t1 ChlinRh5

MSSTAFFTALVLNLTSLMFEDNAPKRQLALLSCAIKGAACHTDLLLVTGGATVLYDAYGGICIPQHYVQWLVTTPTMVYILSKISDFTPRQTATAIGLDVLMVLSGLVGNFLRSPYLWVCFLISMVAFAGVLYMMGLMVHSAVKEQTSATSRRSLLFIYMCTLFIWNMFPLAWVLHVARRDSPAAEYLNVFANFMAKVLFSSSIMYGNYMTIAQRRLLAQQEAENANRVQMIQDLRDSVTRKDQFMSLMSHELRTPLNGIIQLSDALVRGAGGEMNPKGQHFVKTIKNSSNHLLNIINDILDVAALKEGKLTIKHEVCSLAKAVDHVVDIVAPLAKKEVTMERWVDPATPLIIADFSRVIQILYNLTGNALKFTHKGRVGVRVEPSADGTHVLLQVSDTGIGIPRDRLSSIWGAFEQVDMSVTRKYGGTGLGLNIVKQLVEAHEGAIEVASAEGRGTTFTVELPVLQSSTRRSLEGQVLDSLGRSGHTAARDALLQQRRARNRPSLSVEDTITQFARGVQRRASGLLGVAKPAQPAPEARPEGGSGTSGGANGPATAAAGGGAGAAGGGRDSIDREEDEQLYRKRTHELEHECRLGDLARRTEHKKSLEEVGFASRQLMLSEMERRAERDTRSLERGGARPVNGGGGGGGGGSGGGGAGGGADAAGGAEGSAPGSAEKAAAMGAAGGSCRGDVRGAGGGGGGSGGGAGGGGGGGSGSGDGGGGGGGSAGRRSGGPTSGRVSMGEHPSGGGGGGPDSPRSGSLAKRASLSAGQHSFSLGNMNGSLRASSSARAAAAAGGPTGPGGAAGAAGAAASGGGSRRPSNTDTGFASLTSAVAAWRGDSHRTVTGVEGGSVSLSSANGTSIADIYETLQLGRGSNESTGGGGTGGSTLVRKLSGQSLKAGGGGGPLALRMSAYGVGRPGFGNGTGPPGGGGAPGSASLLKNALDSDLYRNGPSPRDPYDCDASSVADSEYEWVGDGGGGYGGGGGGYGGGGGGGGRSRGPTSTGSLALGGLGCGPGGRRHQPPKPAHHSLRSGKLTPMLSNAAAAAAAATAAPPGLTLDKLAYSDMYGTIQVLSVDDEDINQIVLEEILTDSGYAFARCMDGAEALEWLCASDTMPDLILLDCMMPVMSGHEFCATLRQVIPGNVLPVIMVSAKSDEENIVEGLRSGSNDFVRKPYQREELLARIETQLRLKSDSWWLAELVNNVDGRETESMKLLKNILPESIIARMQAGQKFVADSHGHVVILFSDIVGFTSLSSKLPTAEVFLMLSNMFTAFDKLTDRFSVYKVETIGDAYMVAAGHDEDEDKQAKGSPLMRVLGFGRAMLDVVRNITAPNGERLRIRIGVHCGPAFAGVIGMKCPRYCFLGDTVNTASRMESTGFPMCIHVSENVARHHPAAEAELQEVGERDIKGKGRMRTYLVRAGAWEQALRDFAARQQALAAAAHAQAQALALARQQAAQLQQQHEQLQQQQQQQLAAGGGGGGGGESMALLPSSLSADSAASLGSCNSSMLQASGGGGGATGGASRAANGPLPGGGGGGGADGGGGGARMLSTVAEEGSFPGSPAAPAATAAAAAAAAALSPSGSQQQQQLLYGHHPSHLRTPSGGAGRSPLSRGELPTAAPPSQQQPGGGGGSPLLSPAGGGGGALSPPLMRGGGGHFDPVRFGGGGGSLRPSFSTEGYVFDDDSDDGGTSTNTGVGGTGTGLGMCLPGEGRAASISLTGIGAGSFTGNANWGGGGGGGGDLSGGGGLRVLQSPTGRYDIGGAGAGGEGGSGLFALMGGAGAGGGGGSAAAAGEGGIGEPGRGGTVGTPPGLRVHVPRTFSGLSGGSNGSGCSTGMGMTRAGLGSATAAAAAAIGAGGLLAADAADASFSGGVEAVATSHAALGFAAGGGSAAAAIPVRGGGGGAAAAAAGVVMGSSPAAAPPPVSSPSGAAGVPSPQSSLYGGAVQLLSPNSAGLHTGHASTTLAYLEQRIASLGTQLATEALSRQRLQDELDAERRRAAGAMQQASLLMQQLRNATEAAAAAGGAAAGGSSGGGAPSSAAAAAAAGQQQHLARLQLGGGGGGGAGSGGGAGGASGGGVLVTSAAVPLSRLAQRGAGGVAAALRAGGGNGLLSTSTDASSTADADVVIVGGGGGGFSSSVIPAAAAAGGGGGGGSSHGEQEEITLGSPFLSDQSGPDALDDADGMRDEAPGSLDLGGGGGGGSARGPRPPSNVLRMDVGDAAALMLQPPKAPLQPPAEDEGGSSSGGGGGASGGGMMAEPLPRSAAEMYASYSRQQLEDQLLLPVPGGAAVAGTATAASTTTTTTTTVSHHRHHVIHTHARALASGAAAAAAAAAASTALQLQPSRQLQPLQPLQPPPLPCYSLDALFGDLGLQPYLPRFRDEAIRLDMLLAMDVQQLEALGLKPLGYCIRVREAVVDLARGLLRSSEEAALLLELAHSQQQQQQQQVQQLEQ\*

&gt;jgi|Edade1|1130|g11331.t1 EdadeRh4

MPAEPSRTRSDSGEVMPKLGGANHGHGTGALGGTHSAAPGGVHSAPSQHTSIGPPVPAATIAANAPAEHLREAWNTLCLLCSCASVWLVCSYVDATYTPRDANYIPSRGLIISYQWCMVGYASNLILTLMKVIFETNRSKLKLHMVSCYINILAATSYCMLWTGFSPIVPDVESCLYIPQRWLLYCFTAPAIIYILCQISDYTTRMRVWVIMLNVFMLAAGGLGTVPWISWTHKVFWYVMSCVPFPSILVHMWRMVSSAVDETMDPVSKRAIKFIRLFSITTWNLFPFVYFAAIDGALSLEISEPLWAALDWLTKMVYSSSLMEANFFTIAQRREFAVRAIEEANRLATIQQLSTAIERKDDFLSAMSHELRTPLNGIIGLSESLMAGACGQLPDKALKTVSTVKLSGKRLLQLINDILDAAKMKQGTLVIKHEKVDIKRLVTDVLDLSLPLVRKGVKLVNNVGNVPKIVGDNGRIVQILYNLVGNSAKFTRQGIISITAGVSEDNSKVYVTVSDTGVGIPKEKVAKIFGAFEQADMSTTRRYGGTGLGLHLVKELVKAHCGDITVESEVGVGSSFTVWLPISQDGAVTSIEEAEAKEAYSLSLNEPLRRISEDSENEFGGGGAADGGAYSASVRRARLAAVAAHRRSRTSRASPGRSSDESDGGAGGSVAVAMGARGSTSAEDTDGGAAGRDRDLGDRGGGGGGDSGGGGGAAAVANSGNLEDLLDGEGAVTNDSGTGDSFLGTKRPGSARSRAAAAARRRGRGSGLGPNGGGADGGGGDSGESGSGRQRFNTSKENLLTVSKSGFKVMKPFYRERFGGCMVLSVDDDPINQMVVENLLAPEGYKVEQAMSGSEALDFLKRTASLPDVILLDIMMPDMSGYEVCQEIRRRYSAVSIPIIMVSAKGHPEHVMKGLEAGSVDYVKKPFHRQELLSRIRAQVRNREIFEAEMESRKVTEMLKRILPLSVVQRLQQGQSMIADAHDEVSVLFADVAGWLSTQSLSSRNTSDVITVLNEMYSAFEKLLLKYQVFRVEHTGESYLVVSGHDGTPDHQRRLLSMAADMLSAVQQLAFPGGEALRIRIGLHTGPAYAGVVGIDNPRYCVFGDTVSIANALEAKGFANAIHVSHDVYAAIKAKDRDRHPSMFVPARKAMTAGPAVMDTWIYKAGNWQGAVQLLDDEERDREAVELEAAERDAANRRAEGEAAAAAAAAALAEAAAAEAAREREAVDAEKARTAALALQISQLTAEREAAQAEAGAARARADLLAARVAEEEAERRRLKESLSLYEKLLTEAREAVAAAARRSATPPPAAAASPPFHPGYPHTHAHAHAHAHPHAAALAASGAAVARWLPEPGTSPHLPPHLAMAGEALGGGAGVGGMGMMHGGGGGGGGGVFSPAGSAAASDVFSVADSAMGPRGPGSVVAGQVAQSFYTMAYPVDMFLRDIGLPQYVGLMAAQEVTPLVLAEMTEAELEALGVETVGARRRICDAARQYAAKVKSTARMMAMYRDGQAMVSTAPAVAAYMTRQRQQAAAGGAAAAEAEAAAAAAVAAGGSTEPALAAEASGGGGSLPPASGAATAAAALAAALSAVDGGQSPGPGSPGV\*

&gt;jgi|Edade1|7944|g18443.t1 EdadeRh5

MSSTAFFTALVLNLTSLLFEDNAPKRQLALLSCAIKGAACHSDMLLVTGGATVIYDAYGSIIIPQRYVQWLVTTPTMVYILSKISDFTPTQTAVAIALDVIMVLGGLCANLLPGPYLNWMLFGVSMFAFMGVLYAMGLMVYSAVREQTSGSSRRSLLFIYMCTLLIWNMFPLAWVLHVVQRSSPTAEYLNVFANFMAKVLFSSSIMYGNYMTIAQRRLLAQQEAENLHRVRMIQDLRDAVTRKDQFMSLMSHELRTPLNGIIQLSDALVRGAGGEMNPKGQHFVKTIKNSSNHLLNIINDILDVAALKEGKLTIKHELCSLTKAVDHVVDIVAPLAKKEVAIERSVDPRTPMIIADSSRVIQILYNLTGNALKFTHRGRVGVRVSPCTDGTAVSIQVSDTGIGIPKDRLASIWGAFEQVDMSVTRKYGGTGLGLNIVKQLVEAHEGSISVESAEGRGTTFTVVLPVLQSSTRRSLETQVLDSLARCGHVSAKDALSKRTRVGAKRASLEEAFTQLARSGPGGRRHSGSAGGKDALGESDLTEEESEVLYRRRTQELERENLMGELARRTEHKRSLEESQMASRVLVMSETERRAERETRSLERGGGEGGGGGGGGGGGGGGDEGGMDGLGGGSGGGGGWSTKRRSGTYARAVGSAAGGGAGSVAAVQAWRGDAAAAAAAAAAAAGGGGSGGSSGPHGGAGPALLPPLSGPGESEELKHLPVPRGSNESSGGAPSILGGPPITRKLSATSLSGKGGGIISALALRMSALRPGGGSNSGVPGGGFGFGGGAGGSGGPASGSGSNAALMKSALDSDLYRNGATPGRMTDPNVYFDDASSIADSESEGPTFSLNRTSRARQQKPSHVRSNKLPALGSTLSNAAAAAAAAAAPPPGLTLDKLAYSDMYGTIQILSVDDEEVNQIVLEEILTSSGYHFARCMDGLEALDWLCQSETMPDLVLLDCMMPNMSGHEFCATLRRVIPGNVLPVIMVSAKSDEENIVEGLRSGSNDFVRKPYQREELLARIETQLRLKSDSWWLAELVNNVDGRETESMKLLKNILPESIIARMQQGQKFVADSHSHVVILFSDIVGFTSLSSKVPTAEVFLMLSNMFTAFDKLTDRFSVYKVETIGDAYMVAAGHDEDEDKQAKGIPLLRVLGFARAMLDVVRNITAPNGERLRIRIGVHCGPAFAGVIGMKCPRYCFLGDTVNTASRMESTGFPMCIHVSDNVYRHHPDPEDLVQVGEREIKGKGRMTTYLLRVGAWEQALRDFTARQQAVAASAAAMAAHQKQLQALLGGHSTLAEAAAAAAAATGTGPGPLDGHLLRPEQLHRMSMDSECNSCYSPVASLPPTQPGGGLYSPAAGASPGGFAPGLGGPGLLQSVDSPLRGQPSPSRTAAGRALPGGSGVHLLTTVAEEPSRPNSPGHPAHLRTASSGGPRSPLGRPSDLGQVRFAHRATFGSEAYYEDSSEDGGTSTGMGMGGPSMTGMSGVAGSLTGLVPIGSRSESFGNLRLQAGASASSLMIPPTGSAGATTLRSPPPPSGARRESNSADGAAAAARGGAATAAAGGVPSGGEGYACGSLPTDLSPSWSMNTSGGQRNYLNHLFADEAPVAPAVPILSPGSAGLHTGHPSTTMAYLEQRIASLGTQLATEAAARQRLQEDLDSERRRAASAMQNASLLMQQLRTASSASASASAAAAAASVSASAAAASAPLPSIPSDGAGWAPANGLTLDVSGGGRSGSSGGVDPQGAPESPFRRTPAMDSVADAEVAVSGAHGRRGPRPPSRVVPLDVPAPPDGAAGAGTGAAAAVGARVAHVVIGAQGGGGGGGGGGSAMSTPLPVRNTSGPALSTASPLGIRAVLGLPSSPAALALADATAGATARATAGSGSGAGARAGAGAVQPHQRLPCYSLDQLFSDLGLLPYLPRFQEEAIRLDMLLAMDMPQMEQLGLRPLGYCIRVREAVVDLARGLLRACEEAAVLVQLQAPATLPAPAPATALAPGRTPPTAHGHRGAGEDRSTQVAAPAVAQGGELGQEAERREGGPGLERRRQLGAELEAVGAGLIQP\*

&gt;jgi|Chrzof1|2952|Cz12g05190.t1 ChrzofiRh

MCTQIPDTAYIICAAAYFTSFTKNTISFLFEDSDAKRQLALLNCLVKGLACHSCYMVAMGWTPITFTPYGILFIPQTYVQWSITTPTMVFITSKISDMSATKVATAIVLDVLMIWLGFASCILPLPFNAICFVVSGTFMFVVLIYQYRMYYAATKFPTSVTSFIGIYWASVITWFMFPIGWLLLHVYPTEPQWGEGLTMVANVASKVLLSSSIMYGNYITIHQRSLIAQQAEENISRIELISGLKEAITQKDQFMSLMSHELRTPLNGIIQLSDSLVRGGCGKLSAKAGHFAGTIHKSSNHLLNIINDILDVAALKEGKLAIKHECVEAVTHVVDLVAPLARPGVKLEYQ

VDPDTPSLIGDMSRIIQILYNLAGNALKFTHSGRVCVNVRPGGGGDHYVSIEVTDTGVGIPKDKLGTIFKAFEQVDMSVTRKYGGTGLGLNIVKQLVDAHNGMITVKSTVGKGTTFVVRLPVLQPGIRQSLEASLVDTLQANGYDYKVLQQLANDGFRRITTKGGSQASPNISDELRRSTCLPHSPSQNSPIMSADLRRSIGIGTLASTGGSGVTSPSARCSISNNSPKPARDISRSQGSVPVVMKSTAVGLIRTASCMIPGLQLPSLGLTKNITGQTLELSPVSPDAVAARQQAARGSLQLGARPQSTPTAKEFDSVLSEDSRSLKARLTGSLKWVEESFSQPSGKAASSKVSSKTQLQQAPSMKILSKAAAAAVYDSELYAVSPRSSCDTPGPTQMPIKQQQDDQDTELPDDEGDGTPKPTPKSTNLTGQTTAATVYTDQAALSTSLPASPSKITLYKVSPTASKQQVLLESKIQAASATTAAAADMSPLASPRQNQLLLQPKAATATARHPDVVRCSLESDAGSSIVSPGGSSARSTRSTGASFVRGMKPCYSDMHGTLQVLSVDDEEVNQMVVEEILTCVGYLCIQAMNSQEALDLIEASPTLPDLILLDCMMPGMSGHEFVAKLRTTVPRSVVPVIMVSAKTNEDNIVEGLQSGCNDFIRKPYQRNELLARIDAQLRHKHDAMSIVDMLRTQDSDTSKQLLKTILPESIIARLQSGQNLVADAHKNVCVLFSDIVGFTRLASSIPTSEVILMLNNMFTAFDRLVDRYHVYKVETVGDAYMAVAGHEEDKDKKLTDKPVKRMLQMAEAMLQVVSNFTAPNGENLYIRIGLNCGPVYAGVVGSKCPRYCFIGDTVNTASRMESTGFPMTIQVSEAVMVEADDPDSFAAVGYRDVKGKGAMKTYLYKTGNWEQALEHWQQQQQQQQQQQQQKHLEHNNSSAAAAPIRAARSSNGSSKAETLVALRLASNNGASSGSSAGAGADNRVSTNAMLKDSTASKRSLRSPSSMRKSDSHMLLKSLVSCPSRMSADDIPHTAEVNGLAGLLGGCSSLLQPESATASAASSSQPCAIRTVPSWSSLQLGCAANYCDQQQQQQQQQDNLITVPACSTSSLLLQLGLDTYAATFANEAVSLDLLLPLKVDQLRVMGIHPVGHCLRIQHAVRELAVECLRRCEAAAAAAAAAAAAAAAASAADTTAAVLTTDEAGNPSMIDE\*

&gt;jgi|Tetstr1|428454|TSEL\_018467.t1/ TetstrRh2

MGSGSKRTVRIDSGAADGRAGAGEPRRGERAPPKAEPSTRELQLSRCSKAISDDDLEPPGNEFHAGLVCIPVLAMWTSGALFLSQMPSDSAALEIASTWSPMIHVALTTATVVHAMLQLINLAANNAPRIKKLVLIPLVIDILPMLFSIMYQHGLSPVYLDVQGRVFQPIRYLTWICTTSMLIYLQWLTSESRVMRDLLSTLAWDITMLLSGVWASFASSETLFYFAAGVACYAGYIVLEQQRTIYLESIKVFHHLPHTARALRSVYLFSTLSWCLFPIVWFMGKNDWISHNDEEALWCAADFLAKMCQSIALHQGVLSTVEDRNQQAMEASRDSMLHQIMMMKDREQAGTMHIANVSHELRTPLNGIIGLSEALITDPDLRADEAETIQCLKAIRDSGARLNMMVNNMLDNAELTQQELKLELGPVKLAECLREVTLLLAPMVSSKTTLKMDVPDSLPPMRGNRDRLVQVFFNLIGNSVKFCRDGTINIVAYTRKRDMIVEVRDTGPGLSPEQMEKLFTPFAHGGAPKDTKLGSTGLGLCLVEALVQTHGGTVKAISEPNVLTVFTTTIPLYSPKPRRSSQDRKSLECSTSEDSAEPRAGRQEIIIRAPDMATNTGGLRRRGQVEILSVDDDPMNHMVLRNVLKQTGYKIIEADCGEQALKFLTERYMQGKLDALPSLILMDVMMPGLNGFQTTEKIREMFPQALLPIIMISATASDDSICRGFRAGCNDYISKPIKKKDLLMRIKQKLGVTHKVKQHLLVQQYEEEYGDDGTAVDTPEEEPPERTVDMTVVAMAVTNVSALADTTTPEQLHKALAALFKKLHAIRQSCRFCTLCMLGDLCVLGIGHQAGGMPAAEQAEAALTLSTLAMHAADAVSRESGVALTLGATVHAGPLLAVCLPSGGFVHVGRLPVAALAARRYPGCICVGGEVATHAAGWALAEMPPARTGAPALWVVQDGAHWVAAQQQAAAEAAAGGDAPPAGAPGAAASDTGFAPLRVTAEEDLAPFLASIGMREYTELLAANRVTVGSLAGTEEAELQRLGVAALAHRQRLIAAAKYGCLIWGAGGNGGT\*

&gt;jgi|Chlsc1|12077|g13982.t1 ChlscRh4

MIAFGTAFGLNFITLLFERESAKFQLALLACYINFLAGFSDYLSWKGYAPIVRDSWGQGFQLLRTVMWLLTTPAMVYLLSIISDFSR

LKVYSVMLADVLMITFGILAFLAYNKFMSILLYMIAWCLFTYVVHSMWSMFHASIAEARHDSSRVSLEVLRLFAVGLWFTFPVIWIVVKMGLVDVYTEEWMWCVCDFLGKVMFSSSLLHGNFLTIEQRRLIAMRIVEEGNRIQVIQELKDLVEQKERFMSSMSHELRTPLNGIIGLSDALLVGSCGDINDQALKTITTIKTSGARLLNLINDILDAASMRKGKLTIKHEKVNLKRVVDDVIDLCQPLAKRGVKLVNDLRENVPFVLGDTGRIIQVFHNLIGNSCKFTHNGTISISAAVKDDEVEVAVADTGIGIPEDKFDQIFLAFEQVDMSVTRKYGGTGLGLNLVKQLVEAHGGRISVKSRENQGTTFYFTLKIHSEHPNEGQPQMTPTETVAAVPPPEHSQLATVRGTAPSAGGLNPSSSSGAPAGPRRAPSRRGSFTDKMLGALGAGMGAHHKKPPSETGKSSLGPHGGAGAGGAGAAGAGAGSAAGTAGGSAGYAAAAPPRPSQAPSSPSTAAAAAGQQHDDRAKSESRDGPQGGNTGPGGGTGAGGAGSSALRRMSRDTHGPGAQQPQPHPNSVTAGPQVSGPMSLSDAAALMKGALKRKSSFREKGTKVRVLSVDDDPVNQLVIQNLLAPVGYEILQAMDGQEALKVLTEEERLPDVILLDVMMPGMSGYEVCRKLREMYPLSCIPVIMISAKSKEEHIVEGLAAGSNDYVVKPFGRQEILARIAAHLRFRDTVYQAGEIAGAIPGDVRPERVLLRGGANSGGLDLTPFLTGPARFTSLPPRIARGIEAGTTSTTLQMFESLTLLEVRLVNLGDLLASVPASDLLVALASLFHDLDTLLEQHGCYLLEGLDESHLIVSGLDSVGDQVLHALGLARSLIAAADTFALGGRRSKLHLAIGVHTGPAQGVLVGYSHPLMYFTGQLPAEVHMLQATCPSNCVHVSARVLESVAHSEREHFVPAGVMASGATTYLMKVGGWEGGGIVAASEATARWIKAKRGMHDGLATDARRMRPIQLALLDMAQANPAFLVDIASAAHGGGGGGGATSSDGQGEPKAGGGRGGGEELSKLKREYESLERQMEEVSGEAARLQDLVDELEEQLLARSSSAAASTAAASQQAAAAVADAASLKAHVAALEGQLAEAARERSGLEAALAEMEQRLVATHAALASANHEAADRARTRTPGPQELLLPHQAPHSVSHSHASPLQQQHTPRVETASMAPSASGSEANFAGLGGGGGGLFGGGGGALMSRHGGMSLSVPMRMPNLAALRAHAGDMRGVLEELGLGSLAARFEAEDVSPGLLPYLDDAAMRELGATSVGARLKLRLAAQALYMQGGAP\*

&gt;jgi|Chleu1|4525|rna-CEUSTIGMA\_g4227.t1/ ChleuRh3

MVAFATAFTLNFATLVFERDSGKMQLALFACYINFLACFNDWLGWQGVSPVLRDIWGGGLLIMRFLMWLHTTPAMVYLLSILSDFDRQRVLYAIMADVLMLAFGLGAQLAPNVPFAVVCFIISTGMFAYVVHEMWCMFSGSLREIRSANSRHSLQVLRCLAVGLWFSFPIIFVAVKAGLTSLYVEEWLWTLGDFMGKVMFSSSLLYGNFLTIEQRRLIAMRIVEESNRIQVIKELKDLVEQKERFMSSVSHELRTPLNGIIGLSDGLIIGSCGPLSESALKTVATIKTSGSRLLTLVNDILDAASMRLGKLVVKQEKVSVKRAVEDVLELCQPLAKRGVHLVNNVSESLPAALGDTGRIIQIFHNLIGNSCKFTHSGHIYISATSKGEEIEVSVSDSGIGIQEERFQKIFEAFEQVDMSTTRKYGGTGLGLNLVKQLVEAHNGTIWVNSKMGVGTTFTFTLKTWNSFNREKPVKSAEEVASDKDDASQSGEKVHFPRRVRSFVSDGGLPGSDNEGVAKASNLRKGGLAVSSGNLQALIDKHRVSAGSGALHSPRNADTSSSPWLGGENVFKSYNAKEVQLFGIESIKGSSSSPLRVLSVDDDPVNQMVVQNLLEPEGYEILQAMDGQEALDLLKSEDRLPDVILLDVMMPGMSGYDVCRKIQELYPLNCLPIIMVSAKSKEENIVEGLEAGSNDYLVKPFGRKEILARIKAHLRFRNAVYLMGQLSASSYLREQDALKVGSTAGDCAGVESLLLEDAKSIPFSLPNDLKTDVEHGKSPTMKMFEKATLVVASIVNLDKLADILTPSELVSLLTGLNRQVDKLLHDIEDAYVLPGSEGHIMVATGLSGSRDQVQDAVSFSSDLLSWLEDEGPQSLNPSGTDIRIQLSVGIHTCAAQGAVIGVNRPGLHLLGNLVYDSSRLVAICPPSCILVSSNVYGIIDEPAMFCKTDVLHGLGPTYLLKDGSWEAGAKIAPELLSRYNAEKPYGPVNSSARRLWPVQLAILMLMEYDPGLLIGLLNKSSRVRSLPPISIKLGQGAQARAGYFGSHTSDALLGTDPEIICGDDGDNDQSKGAPLALISQLQHEKDVLEKQLEEVSEECNRLQDLVDSLQSCMDEKQLAQTPHTSHCSAGDTEREGLSEATAHHATEGKGVDNDAAVVVGLSTILEVSESEHKSEPSAVHQQLQERVDELEEKLAIAEVVEQQLEAAEELLLTLQKEKLALAEELRSCHQLLASLQQHDSPSASGHHRIIEDSHLEFPKLSEGIASTSIFYLRPLSRSRSVGKASLGGSLPPSRHSSAVFSHSRSQHSQSLVVADTSYTLPLVDSRDDQTMSRMSSLLHDAGLSHLINRFSAEDITPEMLPYLDDEVLKDLGVSSMGARMKLKSLGSLVNDMGDQSEEL\*

&gt;jgi|Chlin1|12222|g13460.t2 ChlinRh2

MIAFGTAFGLNFITLLFERESAKFQLALLACYINFLAGFSDYLSWKGYAPIVRDSWGQGFQLLRTVMWLLTTPAMVYLLSIISDFSRLKVYSVMLADVLMITFGILAFLAYNKIMSILLYMVAWCLFTYVVHSMWSMFHASIAEARHDSSRVSLEVLRLFAVGLWFTFPVIWIVVKMGLVDVHTEEWTWCVCDFLGKVMFSSSLLHGNFLTIEQRRLIAMRIVEEGNRIQVIQELKDLVEQKERFMSSMSHELRTPLNGIIGLSDALLVGSCGEINDQALKTITTIKTSGARLLNLINDILDAASMRKGKLTIKHEKVNLKRVVDDVIDLCQPLAKRGVKLVNDLRETVPFVLGDTGRIIQVFHNLIGNSCKFTHSGTISISAAVKDDEVEVAVADTGIGIPEDKFDQIFLAFEQVDMSVTRKYGGTGLGLNLVKQLVEAHGGRISVKSRENQGTTFYFTLKIHSEHPNEGQPQMTPTDTVAAVPPPEHSQLATVRGAAPSAGGLSPSSGAPAGPRRAPSRRGSFTDKMLGALGASMGGHHKKPPSETDARGEGPHAGNAGCGGTGSSALRRMSRDSHGHGPNPPPHPNSVTAGPQVSGPMSLSDAAALMKGALKRKSSFREKGTKVRVLSVDDDPVNQLVIQNLLAPVGYEILQAMDGQEALKVLTEEERLPDVILLDVMMPGMSGYEVCRKLREMYPLSCIPVIMISAKSKEEHIVEGLAAGSNDYVVKPFGRQEILARIAAHLRFRDTVYQAGEIAGAIPGDVRPERVLLRGGANGGGLDLTPFLTGPARFTSLPPRIARGIEAGTTSTTLQMFESLTLLEVRLVNLGDLLASVPASDLLVALASLFHDLDTLLEQHGCYLLEGLDESHLIVSGLDNVGDQVLHALGLARSLIAAADTFALGGRRSKLHLAIGVHTGPAQGVLVGYSHPLMYFTGQLPAEVHMLQATCPSNCVHVSARVLESVAHSEREHFVPAGVMASGATTYLMKVGGWEGGGIVAASEATSRWSKAKRGMHDGLATEARRMRPIQLALLDMAQANPAFLVDIASAAHGGGGGASSDGQGERGGGGGGEELSKLKREYESLERQMEEVSGEAARLQDLVDELEEQLLARSNSAAASTAAASQQAAAVAADAASLKAHVAALEGQLAEAARERNGLEAALAEMEQRLVATHAALANANHEAADRARARTPAPQELPQQHPHSASHSHVPQQHTPRVETASMAPSASGSEANFAGMGGLGGMGGGGLFGGGALMPRGAMQLSVPMRMPNLAALRAHAGDMRGVLEELGLGSLAARFEAEDVSPGLLPYLDDAAMRELGASSVGARLKLRLAAQALFMQGAAP\*

&gt;jgi|Edade1|9542|g5573.t1 EdadeRh3

MVAFGTAFGLNFITLLFERESAKFQLALLACYINFLAGFSDYLSWRGYSPIVRDTWGQGFQLLRTVMWLLTTPVMVYLLSIISDFSRLKVYSVMLADVLMIAFGILAFLAYNKFISIVLFVIAKCLFAYVVYSMWTMFHASIAEARHDSSRISLEVLRVFAVGLWFTFPLIWMVVKLGLVDIYTEEWMWCVCDFLGKVLFSSSLLHGNFLTIEQRRLIAMRIVEEGNRIQVIQELKDLVEQKERFMSSMSHELRTPLNGIIGLSDALLVGSCGDVNDQALKTITTIKTSGARLLNLINDILDAASMRKGKLTIKHEKVNLKRVVDDVIDLCQPLAKRGVKLVNDLRENVPYVLGDTGRIIQIFHNLIGNSCKFTHSGCISIAAAGRDDEVEVAVSDTGIGIPEDKFDQIFLAFEQVDMSVTRKYGGTGLGLNLVKQLVEAHGGSISVKSKENVGTTFYFTLKTHHDHPNEGQPQVTPTEPVAAPAEHSQLASVRAAAAAASAGAGPGAPAPPTAPGAPRRAPSRRGSFTDKMLSTAKKALSVTENAKSSLGLGSSSGPQAAAVAAARALAAGGGGGDDGGAPMPKLSSEGAGERSSRDPSGGPGGARSGGSVTAGPQVSGPMSLNDAAALVKGALKRKSSFREKGGKVRVLSVDDDPVNQLVIQNLLAPVGYEIVQAMDGQEALKVLSEEERLPDVILLDVMMPGMSGYEVCRKLREMYPLSCIPVIMISAKSKEEHIVEGLAAGSNDYVVKPFGRQEILARIAAHLRFRDTVYQAGEMAGAIPGEVLPGRVLLRGGSGGALDLAPFLTGPARFTSLPPGIVRGLEAGTTSTTLQMFDQLTLLEVSVANLAELLASVPAADLLVTLSSLFHDLDTLLEQHGCYLLEGMDECFTIVSGLDNVGDQVLHALGLARSLMAAADSFALGPRRQKLALCVGVHSGPAQGVLVGHAHPALYFTGQLPSEAHMLAATCPRSCVHVSWRVVEGVGIEREHFVAAGNMNSGITYLMKVGSWDSGGIITASELTAAWGKARSGTVAGGINTAASRMRPIQLALMAMAQTNPGFLVDIASSPPDLKSAPGSSSSSGAAPAPATSAAAAPSAGPPGSGSGEDAARLRREYEALEKQLEEVSNEAARLQDLVDDLEEQLIAKAGEGASDAAAQQAEVAAAAAEVAAASAAAAAAAADVEALQARLGELEGQLEAAARERNGLEAALAEMEQRLVATHAALATANHEAADRARTRTPAPEPRVDTGSVASEAGFGSAAGGGGMGLGMGMGGYGVGPGGALMSRGPMPLGLPMRLPNLAALRAVGGDMRAVLEELGLGALAARFEAEEVTPALLPYLDEGTMRELGAGSVGARLKLRLAAQALFMC\*

&gt;jgi|Mesvir1|6529|Mv16792-RA.1/MesvirRh1

MTTMNEKRDPAGQQDTAVGSVAGNRVGLSSRSNFPAMSEESFGGEAKEPMESELSEDVQQLGITSHAGTSVDYTLMSVSIPSITVLCLMVSYTVFITALWASEFKDARNGEGKEAFEAYNPQTYEWTMIAFGVTFMVSTLQLCFERDPAKSALSFYLCYVHFCAFFSYYLLTVPGFLPVTIKHNGRGLVLGRYVEWAHTSPVLVLLCGKMAVSSQKMVVVTFALNWAMLVLGLFGELFPMPWMLYFYLASVFCLFLVSKNLWWMFESAMREDTLNLNRNIVRVTRLLCLVLWWMFGVVWVVAQMNAISMETEEVLYQVLDLATKAMFSSALLLGNYHTLEQRRIVAMIALEEWKRVKLIRELRNALTHKDRFLSSMSHELRTPLNGIIGLSDSVLDGACGAIDKKLRSSILTIRNSGARLQALINNILDTTSFCGNSYELHKEKVNVHEIVDDVMFLLRPLVRQGVQLVNNIDADAVGLLGDRACIIQILYSLLGNSVKFTEKGSITVYGQLCQNDTLMAISVADTGIGIAEANLKGIFAAFQQVDMSLTRKYGGTGLGLSLVEHLVGAHGGVIEVKSKAGFGTVFTFTLPVVPSAQSQEKSLISARPSTLSLDEEPIMDAHRTHEILVVDANPEVHMKLVLLLPHCTVIKTSTSEEARSILAEHVANRSPPSLVAINVKLTPEDGYSLCKLIRETYPQLDIPVILMHEAREEPDLERGREVGGTDFLALPIERQELLQCVQPFLLQMETPGSFALLRTLAPSWVDTQAAEVYYTHATILAVGVIGLGSISKDEFSAKLEVIHSLYVAFDELLDEQDVVKLESNGEVYLVMKGIQMQREPATDGKGGSSSSSSSTFLGTSHRQRHHNARTMLDLAAKMGKAAAALQGPDSFKGGVKLKMGVASGPLCSRELGLRPTGPCYFGDALDYARHLERLLSSSGMLMAESTYSLLEDGTQGKSPYEMQEVDCPAVANGATPLKCYECRMPFSDSLLQFSELGMSWRRCMGKMGGGIEDYDTGNEALEDHMLTSDERRVTSGSSFLSDEDSFTKSSSQAVGGADSATSLAETKVGAWLSINEAEDQRRDHDLLASLKERMQMLDLDSWQSRARMEEVMAQASYREAFYEEETQKMMSAIKLLNDEVIHLQQREKMLLEAMPPHETTMHRDQDVHYPDGGPDWEGRLLYPAPIHARTIPGSTHGSGIWRGVGIPGANATGTVYDPSLGPRRRKPHSFDDRAFLHPRAAQDMSMGGGVPSPPLPRGGRMPSPGGQPPRATGGAIPTANLPNVGDSSHGPVYNTVTNNNGLGSPGYLARDPAGTGASMTPGPPGGAGQQRALRHSITLPVGAAANGANNSGSKPSEPHANSTNNSSSGFGGKGYASHPGGVPPPGDVSARRWSLPAMFPGPDMHRSAPITTGRARPGPLSVDVGGPGGMEGGSGVPVGSSSGGNDFVGSPVSSRGSPRVGTLRGREAAGQPAPGPASNAATELLMFLQNMQLEHYFELLHKEAVSVEMLPHMDDHELRQMGIVSMGARMRLRGGATAYLSGTGPL\*

&gt;jgi|Chleu1|4169|rna-CEUSTIGMA\_g4025.t1/ ChleuRh2

MMEPHIMEKEKMSPSEKSSVSIMSQAQSMAKTTVAITISLIGLSSYFFCTWALCDGSMGDKELEAKFHAETTEATYTWPMVAFGTAFSLNFLTLLFERDSAKMQLPLLACYINFLACFNDYLSWKGVTPIMRDVWGDGLQIMRVLMWLHTTPAMIYLLSIISDFSHQRVLRAIMVDILMLTLGIFAHTAICALMAAVSYILSVCCFAYIIREMWDMFSAPIKDARTPSTMQSLATLRLLMVGLWFSFPIIFITAKLGLVSIHTEEWLWTAGDFLGKVLFSSSLLYGNFLTMEQRRLIAMRMVEEGNRIQVIQELKDLVEQKERFMSSMSHELRTPLNGIIGLSEGILVGSCGNVPETAKKTIATIKTSGSRLLNLINDILDAASFRMGKLLVKHEKVNLFKAAEDVRDLCQPLAKRNVRIVNEIREGLPLVKGDTGRIIQIFHNLIGNACKFTQQGTITVSAVQKGSEVEVSVTDTGIGIPEDRFNVIFEAFEQVDMSTTRKYGGTGLGLNLVKQLVEAHGGSITVRSKIGSGATFSFTLKMWTSEDDEATSYEDAASDTPNDKVPLRKAAVRRAFSCAKILVPSSRSSSSGPETVPALNNQLSTSSSTLVLHPAVSAIKAKAYAESANVSGPVELQDVIPLTQRIRRSCSFVKTRGNGKVRVLSVDDDPINQMVVQSLLSPEMYEVTLAMNGEEALEILQHSEAMPDVILLDVMMPGMSGYDVCRKLRELYPFACIPVIMVSAKSKEEHVVEGFTSGSNDYMVKPFGRQEILARITAHLKFRDDVFDAVLLHLYRYSCTNYLTTSIQMYDQITLQIISISNLEELTQMVRPTELSAALATLNLYMEELLERHDAYLVPAWESRFMVVTGLGKSQNHTKKAMSFARDLFEASATVCMSGGFTFKLAIGIHTGAAQGVVIGVDQPVLLLTGSVVLEASLLEAICPPGCIITSHALFIAAGAPDTFAQSMRTRSGPTYLFKSGDWEEGLEEAGVLLDRYNQSRPYGPMNCSAKKLSPMQLALMLLVQVNPSVLVDVLRQSRPAGLGSTGGKPGTMTSSPSPSLGGRGSVDPGPKSVDLITEVKELKHEREVLNRQLEEVSAEAARLQDVIDELEKQLPPRNNNAEKLLSRSPSKRRSSGDLGAPGGENGDSQAMVKKLEEQLEQAVKQQEIVETRLQEAEEELLRVCEEKRSLQLELRNNAREHPVKDGVGTDGLETDGTDGLETDGLGTDGLGTDGLGTDGLEADGLGTDGLEADGLGTDGIETDGLGTDGLGTDGLEADGLGTDGLETDGLGTDGLGTDGLEADGLGTDGLEADGLGTDGLETDGLGTDGLETDGLGTDGLEADGLGTDGLETDGLGTDGLGTDGLEADGLGTDGLGTDGLEADGLGTDGLGTDGLEADGLETDDLGTDGLETDGLGTDGLEIDGLETDELETDGLGTDGLETDGTDGLGTDGLETDGLGTDGLGTDGLETDGLGTDGLGTDGLEADGLGTDGLEADGLETDDLGTDGTDGLESDGLETDGLGTDGLEIDGTDGLETDGLETDGLEADGLETDGLEIDGTDGLETDGLGTDGLEADDLETDGLETDDLETDGLEADGLETDGLGTDGLETDFFY\*

&gt;jgi|r1|7758|g7510.t1/ CyapaRh1

MSAIPKDPATGVTVQSPRGGALPAGATLVDTTGRIQVNDVNPALTAVDTANRAIDATLASLKTRDVNTYADYNLNTKADFAQRDLTYQPNGAGAPVTGLYSAINKADGDYQLGMLGQRSWGSLTPRPNTAGTDQATDAAGNLLWNLRPSGWNQYNGLTYVRATNGVVSHLYPGDGTFDATTRGPAMYIPGDHANNQFAFGQPLVESLMTEGSFVKDITSVSDMIKKWNYVMFRAKNGNGYGQYMPDDRTTIGVVFFWIGFGVLSGLGLIFLFLTLRRDETKRRFHYITVCYSWIAAVAYYCMARGQGSVALFDTLATNSNYSPFRVFYFARYIDWTFSTPLILLDLALLAGTSIATAAMLCFADVMMIVTGLLGALSMSGTKWGWFAFSSVGFIAILISLVTTLRKAAREKSPEVEKTYNILVLLVFLTWPIYPIIWIIGQGTKSIHIDAEIIVFSVTDCCAKGLFGLVLLLSTNAIEDATFKDSKKMSLPPTYTSSTIYQGVLESKA\*

&gt;jgi|Cyapar1|10034|g9724.t1/ CyapaRh3

MTAVLPTTQTGFQVAPAFPRYSVECTWPHPQFLRNFPNGYKGPAYEVSEGICQPVTQIGQSWPSTISQYDLDSQSARKPEYFANGQEINARGYQPVKRPVQLYSADIRPFSGPAGDPRFPVMSGEVPQDLSVYDKDGVARGLTPMDLFGGSYVKDYWSILRAVSRRGYDSKTGLPLAPGSAPIYTPDDQTTIGTVFFWIGAGVMAVVALIALILTLRRDPAKRIFHYITIVYLTISMLAYYCMARQQGSVAIWDDATASNNSPYRVFYYARYVEWFMTVPLIILNLCLLAGTTFATFLALAFASMIMVVSGLLGLLSSTGTKWGYFTFAMFCFVPIEVAFVTILRKSAREKSPEAEKTYNVLMAISFITWLVYPVIWVIGEAVHVISVDADIIIHTIADIFSKAIFAFVLLFSTSAIEEASFKNPRTSSFPTNYTSGTIYQGVLENK\*

&gt;jgi|Phaglo1|9851|Phglo.0002s0115.1/ PhagloRh

MAPPASHLEVSHFVPGDGQLVPVGKGPTARQAGDTPLCGFLRGAGVSEQYVEVPCLLENLDLLQPKLPIATHSALVAYRKRIAASLPPQPTYQSSEFRVATPQPTYQQPAEWLQRQQQQEQQRQQQRQQQQLLPGITRARETPRGFPAELRGPALSHTDLTDPDAVLSLSTDADEEYQTFKSASWDMDLEAGPYRGEATTTRPGSMSVLRKATAAVGVPSGYPPGGGGNRLTNRRRSNDFLATVLGGPMAPPPPLPSEPSKESLRAGGGGGGSFGRRLSAMQSKASQESLVITQPLEMGLVWLTQIGFTLSTLVLASFYFLSPSHEKASFVTTLLTCAIAAAAYYAKATGYGDVVYQGVTVPLARYIDWIFTTPLMLYELQIPTITLALSGCDLITLSFGLCSAFIDRKESSRRMLTWFFSAGFFYVMMMVALHGEVANGPALAQPQAVQDLFQRLTILTSISWSLYPVVVFLGRAECQVITKEMEEFLFVVLDIISKMGVEALIITHVVSQHGSDSTSSSSPSSA\*

&gt;jgi|Chrveli1|7208|Cvel\_557.t1/ ChrveliRh1

MKSAQSFVIALCVLAALVSADVDKAPAGEQPAQPAQPQQPESGDWEKFVPAAYAKAAKATRTSKGAKAVELEETAGEQPAQPAQPEQPSQPEQPSQPQQPAQPQQPESGDWEKFVPAAYQTMAEATRTTSASTDAKAVELAEDGDADSTSPTDTPIEAEDDDDDEAGVIDLADKKKEEEEKKKEAEKKKEEEEKKKQETTTTPAPSNPYSQYIPEAYRGSAAGGGKGSSGGAPSSGGSSPAGQGAGMDYKQFIPKAYAGSAGGQGGKGGAPSTSLADSAKDKKDKKETPSPSPSPGPGMDYKQFIPEAYRGSAGGGKGGPSATLLAADKGKDKKKEKGEQPEKPQQKEKPQQPEQPELPQLPQQKQLPQQKEKPQQPQQPQQPQQPQQPQMDWKQFIPEAFRPNSTEITMLPSTELGVAENCLKQCTEAEPACPCCTGKGDSSQCSLQCLFHCSGSKDACGCCKAQLKSKFDEIAKKANETGTEVGARASKVFDDLKSKASAFGKDTSTEAKKMYDDLKAKAKEADTPEKNPKLETETATAVADTELLGVSAAEAAPTRFEASVVGRSALWTVCAIMGLTSLWAVQQSTAFQADGRKLHYVTAMITGIACLAYLCMAVGVGVSGGVEGGRPVYTARYYDWLVTTPLLLFDLGLLAGAPRNEIFCTVGCDMLMIVAGLLGTHAKGAGSWILFAFGCVMLVPIFSGLAVSFRSKCHQVDQARRYTVLATLTLVTWTLYPLVWAAAEGASLISVDAEILCYAVLDVAAKAVLGFILLGDRGATEAFNRFENEREQGGLLAGAGQA

&gt;jgi|Phaant1|35268|Phant.0007s0674.1/ PhaantRh

MRSERCSGDLEESESSPRSVPGSPLVEAFSWLQSAEKKDGAPMTPMFGWLSKPNAYANASTSSSPGSATSSPATPSPIPQRALQDPLAFKRATTTTANRPLEYRGRRSHLEVTQPQPRGHGQVERVWSDTDNSPTVVELSVDNDNGTVGSTPASRTNQRVLWMPPPTQRGAGELPLFVRPNSLPTMRPTIAPPARSNTRAAPTLGGSPYGSPRVAPTADEDFKRRAVTAREAAAVASDARAAALRMAAEADEAEEVLRDALHAVQDEGQDDNLDALDAVDSLTVDLPMRPPNYEGVDPQVYRQEPAPHIRTAQGWTDRRSQSSTPCLPPCSPPSASTSASASFSHGSTRTVDPSSTAHLARTTSESTLLQADVGASPKTAGHSFGARHEAANKLITNHERVLRDLCRADGPPASQPELARLPGQEREVNIFLREATRRLQQPAQRTRQPTAAAGVTWAGAAAYLAGRLQVSEEEVRHVPSHEGRKADLSPAAGAAMRDVLAEMGREGAQHEAANKLITNHERVLRDLCRADGPPASQPELARLPGQEREVNIFLREATRRLREATQPGQRTRQPTRAEGATWAGAAAYLAGRLQVSEEEVRHVPGHKGRKADMSPAAGAAMRDVLAEMGKEGGDVREGQYMPQSLFRRRNSFSEEMGDKLEQWREEKLGVKSTFWASSENGAHKDCTTDAIVHGVAWVTFALFLLGAAALLVLWSFMDESRTEPFVGCFFVCSIAAMTYFCKASGYGEIKINGTLVPIARYIDWITTTPLLMYELGHLAHASTANTMMLVGSDILMIAAGILSACLDRQRQYRMMLFYFAVSCVFYVLMLCIINVRLANGTVLQQTDSVQELFGYLKILTSTVWTFYPIVVFLGRAQCHLISKNTEDCLLCFLDLAAKLGMEGLIIAFAVFSVDSSDGSDGSA\*

&gt;jgi|Chlsc1|6377|g5650.t1 (ChR2 homolog)/ ChlscRh1

MVKVIVEFFFEFKNPSMLYLATGARVQWLRYGEWLLTCPVILIHLSNLTGLSNDYSKRTMGEWANGIGTIVWGATSAMATGYVKVIFFCLGLVYGANTFFHAAKAYIEGYHTVPKGRCRQVVTAMAWLFFVSWGMFPILFVLGPEGFGVMSVYGSTVGHTIIDLMSKNCWGLLGHYLRVLIHEHILIHGDIRKTTKINIGGTEMEVETLVDDENETGAVNKGTGKYASRESFLVMRDKMKEKGIDVRASLDTSKETEQEQAARAAVMMMNGGMNGMGMGMGMGMGANMGMGGMGGGKPGLELTPQLQPGRVILAVPDISMVDFFREQFAQLPVAYELVPALGADNTLALVAQAQNLGGLDFVLIHPEFLRDRSANSILSRLRGAGQRVAAFGWAQLGPMRDLIESANLDGWLEGPSFGQGILPAHIVALVGKMQQMRKMQQMQQIGMMSGMGGSGMNGGNGMGGNGMGGNGNGMMGGMMGNGNGSMNNGMGGMDGSMNGMSSGVVANVTPSTASGMGMGMGNMNGGMNGGMNGGMGGGMNGGMGGGMNGGMGGGMNGGMGGGMNGGMGGGMMNGGMAVPQSPGMNGSSGRMGTNPLFNAAPSPLSSQPGAEAGLVGGMGGAAMTPAAGGAAEAEMLQNLMNEINRLKRELGE\*

&gt;jgi|Chlsc1|12342|g2244.t1/ ChlscRh2

MAYVTNWIAFAISIVVLAWYAYEALHSACGWEEVYVCVIETFNVTFEIFAEFEEPLTVYLSSGMRVPFLRYTEWLLSCPVILIHLSN

LSGLSDGYNKRTMLLLVTLIGCLVTGVYSAMCYYGWIKWAMYTVSCIYCAFVYWYSAKVYVETYHMVPKGRARTVVLVMASIF

FTTWGIVYPLLFALGPEGLNAISFHLSNFLHCIADLFSKLLWGALGHQLRIIIHKHILQYGDIRKKTKVGFGTDEMEVATMIEPEEAD

ETAERLPVEKYLRRPSFARIRNQLKQQGKDIYPDLDRDSMYGSNSSYTGGRYLDFADPDFPDDNYTPIPFFAGGGDLGLQAAAAA

GSPQLAPGRIVLVVPETARWMVEFMRHGLSALPAPFEIIPTIGGGAVMQLTQMGTTAPGGLEAVLMHSYYARTGLVSKLRMRGV

HVVIFGYSPSAPDAAEVQAAGADQLCEGYSMAPGSNGLKQLISALANFQAQAGKLPDGGSGGAGRTGGAAAGFTGSPSPPPPSST

YGGASMMMAASAPPPQAAPASIRMTSTTGGTFGISNPLFGMPPVAQELQPGLYSAPRSGTATPPNGPAGGNATGDGGAAEAAML

QSLLGEIAKLRSELGEN\*

&gt;jgi|Mesovir1|3878|Mesvi248S04552/MesvirRh4

MEMAHVRVDKRVPKPAMLSTVDSVSRGRPRNTSPSMARRSSEWLLARGPWLLLSLAALYILLTAATCRFVGNSRAFQDVHSLSNWNIDFMLMFLGALALNLVGLITDHDHHSKWQVSVTTMFINAAAAVCYFVAVLGKSPVLTSSFGGRPLLPMRYIQWSVTTPAMAYLHSHIWRWDALLTVQMMMLAMLMSVTGLLGTWMAFPVNVVGMAVSFYCFVLLGQGFWHGFRVHLASKDCEFSTGAMRRMAIATSVLWAGYPTIWVVAGTGLISPELEEGLMGTMDVISKVPVEWTIEWTVWWQPLGENAPK\*

&gt;jgi|Tetstr1|437754|TSEL\_026408.t1/ TetstrRh1

MYTSPATIYQTNGNTVSWLTYSEWLLTCPVILVQLCNITGLESDFNNRTMQVLVSDVGAIVLGTYAAFSEGYVKLIFFVLGCCYGAFTFYHAAKVYIESYYMVPKGICRRLVRYMAWCFFTSWVGFPIIFLAGPDGFNHLSIWAEVIAQQICELVSKNIWGFLGHFLRLKIHEHIIIYGDCRKLSKVKFGGKEIMVMSYVDQDDKDTIRVSAKHHVERRASFAKMREGMKKKGINVHTSVDNVEFNPKLAYEDPIIGMPTDLLKRGDILDEHGQFRPPQYVQTCMRGMPPMADFANLPMEQQQLLLMMMQQQQQMQQLQQLSMSNGAIAGIGANQVWPNLADGGKAAMPQVEPGLQPQVPMQHAVGGNESASAVSASQAMPRQMQMQMPMQPNGVAVQIPVMPQQAMLPQQQQAMMQQQAMMQQQAMAQQQQQQQALMQQQAMALQAQAAPSPGSRAVMGHMDGPMAHSVQMQVRVQAPPADMQAHDDPQFSSQRSVGDLQVACSQGSVSGLPNLRTTDAERADEIRFAMKDMQKSLKNSPLSVRGHSGML\*

&gt;jgi|SymretAf1|620056|estExt\_fgenesh1\_pg.C\_3470003/SymretAfRh1

MTLSGLSNNGQNALWAVFIIQSVAALVYGFSGFRLPADRRDHFLVTTAIVATAAISYYAMATGLGQVDIEIGSGKEAVTRPIFFARYIDWSITTPLLLVDVLLMARLPIVVAGWAIFADLAMVVTGLIGGLDGSEYRWGWFIIGCFFMLAIFVVLFLDGVKYVEKRDSNLLSFYNSVVLGLVVLWTAYPIVWALGEGTQYISSDTEAYLYGILDVLAKVGWGGFILYNNDMLYTSYTKGYGPITMHAINGLPACH\*

&gt;jgi|SymretAf1|196012|CE196011\_2296/SmyretAfRh2

MSLPTITPVPVYLPGQEVRQVTTAGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGYVTCLIVTTASCAYYAMASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVMLCYPVFTRQSKDEYSRGIGLPSLLSSPTNALLSPAHASSSAEHTSKYTNPTAGSPATPTRDNVPTGGTLDGTTTTNNGTTAV\*

&gt;jgi|Nanoce1779\_2|606484|fgenesh1\_kg.35\_#\_207\_#\_TRINITY\_DN7673\_c4\_g13\_i2/NamoceRh

MNSLADSLVWEHPQQDRLRLNSIIFFIAFLWSAGTGLSSKLKVRTGTSYFLMSNNYVPLVPTSKGRPLFIARLFEWMVTVPMLLSLIAWLVDPDSRRVNQLRGLQFFCLVTGGIGPILRFPFNWISYCYSCYLQVLVLSTLHRLFQGMKRKLPSSYDRRLICLLHYTILTIFSVYAIFWLFAAELDLVSIATEANVYATLDISTKVILTSVLSNLTGAAYDYDFEAFPQYFRSLFSSIQVPAFGLNKEGSVVVWNSDMEALTGCSAGSVLFLKFNRCPAFTKAGHAAISTALSFPLLPLPSSQNIQTNVKPEITIDLVLQSNSPETKALFYVLRNGGGQPALPETFFIDARSNPRGAEQVGREGRRGVAGASP\*

&gt;jgi|SymretSw1|634709|gm1.6437\_g/SymretSwRh2

MSLPTITPVPVYLPGQEVRQVTTAGLTVYWVTFGLMAFSALCFFGLSLFKPVEDRSHGCEYTTTMLQLPPACDVLYRLLLLTILSNTASWGGNSPIGITDSTTVYRSIYWARYVDWFVTTPLLLLDLMLVSAIPFGDFLWIAACDIFMILTGLFGATSSHRFKWGFFGAGCLFQVLLTLGMIHPGIKFARRRSPRIALLYTGLTGYLLTLWWGYPIVWGLAEGSNTITVDAEVAAYAGLDIATKVIFGWAVMLCYPVFTRQSKDEYSRGIGLPSLLSSPTNALLSPAHASSSAEHTSKYTNPTAGSPATPTRDNVPTGGTLDGTTTTNNGTTAV\*

&gt;jgi|TrebA12\_1|2936|rna-gnl|WGS:VXIU|FRX49\_05746-mRNA-1\_mrna\_FRX49\_05746/TrebspRh1

MAQNPTSGYVSTTRPGWIVYWVTFGLMAFSAVCFMAITLTKPQRHRKHGYCTALIVTIAAVAYYAMASEGGSTYIYATHGANMRQIYWARYVDWAFTTPLLLLDLXLLAACPIGTAMWIIAADVFMIILGLFGGVNTHKFKWGYYAMGCFCELIISIGLVFNAMRSAMARGGGISKVYAGMAAYLTILWWGYPIVWGLAEGANVISSDAEVAAYAGLDIAAKVFFGWMIMAAGPIITAQQDREYKEGKGYPSILDASIDSPLSITQTQPIANPAAQATRGLPAMEPGANGTAGGAPAETGTLQTVV\*

&gt;jgi|Pelago2097\_1|529106|fgenesh1\_kg.96\_#\_24\_#\_Locus535v1rpkm379.35/PelagoRh

MSSSDVSATGFAVLGFVSLTMSATALYIYGLAMSLEADKRFFHMVSFAICAFASLAYLVMAFDLGRVEVDGRDVFYARYIDWAVTTPLLLVDLGFLAGMSAADVAGLCVWDVLMIAGGLFGALTTHVAAKYSFFAYGCVAFLFIVRSLYAACGLAKEKRSPAVAARYNDLAMLTILVWFAYPIVWVLGEGGGFVSIDVEIILYAILDVTAKVVFSLLLVSVRPEEHMKEEERLVGRA\*

&gt;jgi|Ulvmu1|6603|UM003\_0240.1/UlvmuRh

METLKVLIELRLEYESPAMIYQVNGSAAPWIRYAEWLLTCPVILIHLSNLTGLNGEYSRRTMFLLVSDLGTIVWGVSAANATGAAKAIFFCVGLIYGSNTFYNAARVYIEAFHTVPKGICRNLVMALAWMFFASWGMFPLGFVAGPEGSKTISYAGSTIVHTFADLLSKNLWGFVANYLRVCIHKHIIMYGDLRKKVKVNVAGEEMELEQYQDEQDDETIKYSTEPLASRNSFITMRDRMQAQGIETRASLDMSGMSGNFNAMPMMGGMKMMPPQIRAGRVIIGVAEPGHADIFRSAYAQVSTQIEVVPAMGPENVWSTCQQVRCYVPPNAVVQPSFGLTCDPVLTG\*

&gt;jgi|Crypto2293\_1|1957945|fgenesh1\_kg.343\_#\_42\_#\_Locus484v1rpkm398.47/ CryptoRh1

MPFTVLAGASAAAKALAPTACTTIEEVGSTGVGALTLGFLALAVSTVVMVAKAASADQERRKYYFCNTFICGVATFAYFAMLSGQGWTAIAGCRQFFYARYVDWLITTPLLILDLGLVSGQDFVTIAAVVGADILMIVAGYMGAVSVVTTVKWFWFLFGMAMFLPVVYSLARTFRETVITRKDPEMIELYGKIAWLTIIMWSFYPVVWLFSEGFASFSVSFEVVAYTIMDIISKCVFCFMIVSAHDSLGSPSQAPAQSREYV\*

&gt;jgi|Crypto2293\_1|2015976|estExt\_fgenesh1\_pm.C\_4310001/ CryptoRh2

MPFSMLAGASAAAKALAPTACTTIEEVGSTGVGALTLGFLALAVSTVVMVAKAASADAERRKYYFCSTFICGVATFAYFAMLSGQGWTAIAGCRQFFYARYVDWLITTPLLILELGLVSGQDFVTIAAVVGADMLMIVAGYMGAVSVVTTVKWFWFLFGMDPEMIELYGKIAWLTIIMWSFYPVVWLFSEGFASFSVSFEVVAYTIMDIISKCVFCFMIVSAHDSLGAPSQAHHNPYLHPR\*

&gt;jgi|Crypto2293\_1|1955359|fgenesh1\_kg.301\_#\_73\_#\_Locus1240v1rpkm162.99/ CryptoRh3

MPFSLLAEDGEVVDDNDVARLLPADCLAIEEIGASGAIFDVLAFIALLVTALFMAFRAMNAEPGVRKFYYINAYVCGVATFAYFAMISGMGWETIMGCRQLFYVRYIDWAVTTPLMILNLGLLAGEDTVMILAVMGADLGMIFCGYMGSVALVPTVKWLWFVFGLAVFAPVVIALVRVFRQTVIDKNDVDRIELYGKVSLLTIVVWSMYPIVWLLGVGSGALGVSSEAIAYAILDVISKCAFSFMIVQLNVYESVAPSTQKEYV\*

&gt;jgi|Crypto2293\_1|1747950|fgenesh1\_pg.271\_#\_18/ CryptoRh4

MFIGAIVFFYMGISRKVNTVMHVLTFFIAAVSACSYYAEWAGLGVEYKTTDTTPRVIFWARYLDWVVTGPLILTDLALLSKSDTPTIISLVGNMVLYVICGLIGALTVAPYKYMWWVAGLIFLIIVFMQLLQRLNNAEGYGGDALKGLTWLVVIVWIVYPIVWIVGSEGTGALGLSQEVGILTIADLVAKVGFGFYLLANVDTPDSESAPLNQSSQQYV\*

&gt;jgi|Crypto2293\_1|1925274|fgenesh1\_kg.8\_#\_40\_#\_Locus442v1rpkm426.67/ CryptoRh5

MATAMRHLLEAEATAPTACTTIEEVGSTGVGALTIAFLILAVSTIVFITRIGSATTQKVYYYCNVFICGVATMSYFAMLSGQGWTAIAGCRQFFYARYVDWAITTPLLLLDLGLIAGADPALIAAVIGADVIMVFSGYLGAVSVVTTVKWFWFVIGMGVFVPVLYVLAVNFREAAVAKGGEVADIYGKVAWLTIITWIFYPLVWLFSEGFASFSVSFEVCAYAVLDITAKAIFGFMIMSAHEQLGAPGGEAREYV\*

&gt;jgi|Crypto2293\_1|1957939|fgenesh1\_kg.343\_#\_36\_#\_Locus523v1rpkm365.73/ CryptoRh6

MPQFLTMLDEAPTACTTIEEVGSTGVGALTVTFIILAVSTCVFLSKGISAGENRKYYYLSTYICGFAAMAYFAMLSGQGWTAIAGCRQFFYTRYADWVVTTTLLVILLGQVSNASMDVIFGACGSNLIYVLAGYMGSVSVVTTVKWFWFLIGLVGLACVIMHFAQTFKVSADAKGGELAALYGKVAWLSILVWICYPVVWLFSEGFASFSVSFEVCAYSVLDIISKVVVCFMVMSGSEFLSGEGGAQSREYV\*

&gt;jgi|Crypto2293\_1|1917250|estExt\_Genemark1.C\_9360008/ CryptoRh7

MARFLLQDDETPTVTFPDDYPNSVRHFLLIGFLGMFIGAIVFFYMGISRKVNTVMHVLTFFIAAVSACSYYMYAEWAGLGVEYKTTDTTPRVIFWARYLDWVVTGPLILVDLALLSKSDTPTIISLVGNMVLYVICGLIGALTVAPYKYMWWVAGLIFLVIVFMQLLQRLNNAEGYGGDALKGLTWLVVIVWIVYPIVWIVGSEGTGALGLSQEVGILTIADLVAKIGFGFYLLANVDTPDSEAAPLNQSSQQYV\*

&gt;jgi|Crypto2293\_1|1928756|fgenesh1\_kg.27\_#\_87\_#\_Locus2276v1rpkm91.76/ CryptoRh8

MGLPRVARGGLLLLAGLLALLACVQAAGQASAVRPAELSPAELGIRARQAARTQVLAEEDDDEDYGDEDDGEAESGKVNVLLPADCLSVQEIGAVGGFFMVLTWMVLVVASIFMAIKAYQVGPEVQVQKYYYLNAFLCAVASYSYFAMFSGMGWETIEGCRQYFYVRFIELGVSMSITIFSLGLLAGQDTATLLAVMGSGVGSVYALYMGGIALVPLSKFLWFFFALALFAPVVFALLREFRQTVIDLNDPERIELYGRVSLLTIIAWSCYPLVWLLGVGFGGIGVSVEAICYCIVDVWAKVVFSFMIVNTIAYSAEAPGDFQKEYV\*

&gt;jgi|Crypto2293\_1|1946234|fgenesh1\_kg.176\_#\_86\_#\_Locus2936v1rpkm71.02/ CryptoRh9

MARYAPGVPLLLLVAAVLGSEAGPSGKPVTTGVKAGEKAAVLGSEAVPSGKPVATGIKVGAKGSLLPGGVPYVRRQGGVAMTTRRAQAAHSAHRQGGNIRSAHHVVSWLAEEEGDAEAAASEEESWLLKTDDQGFTNLALIFLVTSLVIFGVTALCSLVLALRHDGADDSRPHSSVIYYYILMFMATVSALCYYSMYSEVTSPLLLLALALLGNAPWTSIFASIGCDLIMVACLYVGAFISPEHKFFWWGVGVALLLVLIFILIAELSKAVDDGRVKEQDGVTLRILTYLTCFSLAFFPLVWLIGQEGSASASLTTEVALSSVADVLAKVAFTVTLVVRLPLDGDSYGGKLSSVTAGSGKFESTYV\*

&gt;jgi|Crypto2293\_1|1611851|e\_gw1.44.95.1/ CryptoRh10

TLHQVGSTGVGALTLAFIILLVCTLVFVQKSQAAANKSVAYLSIYICGFAAMSYFAMLSGQGWTTVAGCRQFFYARYLDWAITFPLMTLLLGVVAGVDMVCIFGAIGAQEIQLFAQYIGAISTVMSVKWMWFLISLTALAGAVYHIVQVFKASADAKGGEVAALYGKVAWLAAGLWCMYPVVWLFSEGFASFSVSFEITAYAILDVCMKYPPPNL\*

&gt;jgi|Vitbras1|11823|Vbra\_9095.t1/ VitbrasRh1

MRSSVVVCVLLALVAVTRAEDVSKNETDAKGGKSMRGEQAQQPQVQQEPQQPQEPQTPQKPQEPQPQQPQQPQQPTQKAQGQDSQRQQREQPEQPQQPPFPFFTNQQRSPPPTNLLTTEATATPTSGGAYAASTPTTFGVAVLWVAFVCMALSTLYFISQSAGYDIEMRKFHYVSAGITAIAALAYMCMALGIGVSADPYGRSFYWGRYLDWTFTTPLLLVDLGLLAGVHWNELTYVILMDVLMIISGLVGGLYAHEPTKGWPLFVFGMVVFLPIIQSLVTSMKDKAIKTSPAVADRFNQLSVMTVVLWSAYPVVWVVAEGTKVIPVDIEILLYGVLDVTAKCLFGFILLANRSIIEFATQSHQPLAGQ

&gt;jgi|Vitbras1|22169|Vbra\_19386.t1/ VitbrasRh2

MLLFACAASATRTRFLRADGSSLGALTAGATEGAYSVAGEVMDALSKMRQASYHTLIGTAVLVLTAIAMLTSGVVFGWLTYSKSAARVCGVLTTSIVAIAGAAYVLMSLGYGVTAVGGRELYYARYADWLVTTLLLLVDILLFAGVSWKPIVALCTLDVLMIGTGFLAVIVSTTAAKWSLYLSGVACLLPIAMILYQEATDTQLVLVPSAIASRLPSAAPTKVPLLAKTATAKEGADAVLAAYRRATLLTLCAWVSYPVVWVLGEGLFVLPLDMEILAYAALDVMSKVVLGFVLLTDFSLSAKDVSLSAAADVAKAAYSYAAEAFGKAGDSIKKGSTTAFETLKKPFTKKETPSTTDSGAPTATTQQQTAAAAAAPQRTGLFGLGRRQS

&gt;jgi|Vitbras1|18158|Vbra\_17777.t1/ VitbrasRh3

MRALFVIALAITLTAAVFADDAAVDTSDVQHIEQREQPEQPQQQPKAFRHADATELLSAEAEAPRLEATAGYKASTPTTIGRTVLWVGFACMALSTLYFVQQAYSFEIFQRKFHYVSAGITGIAALAYLCMSLDIGVSSDEGGRSFYWARYVDWTLTTPLLLVDLGLLAGVHYNELIYVIIMDILMIVAGLIGGLYADDPYKGWPLFVFGMIVFLPIILSLTTSMKEKALSFASDVGARFNQLSVMTVLLWSAYPVVWVIAEGTKVIPVDLEIVLYAILDVSAKCLFGFILLANRSLIERATGQALAAQ

&gt;jgi|Vitbras1|17891|Vbra\_17620.t1/ VitbrasRh4

MAGAQRSPWWLLLGGVVACCSVMMAGAYGQTSAPEKEDDDGSPMDLSDAVLGSRIFSTIFFSAFGLWLWNKRPDPNVPNERERRFNFCSAVNSFMLLYTGLFNLVQLSRLDNIRLDNGFEVDTAKYVQYCVTCPVITYQLVELGGGAFHRKVEITLQTFMMLSFALFASIIPERGYKMIVFCCGAFFFGIVIYTMNLVIQESTNFKENLFEGTSYLRKTALVVMLSWIPFPITWLIGPEGFDVMSGDLFDIIFTVCDLVAKVGFSMYIFQVKTAWKQAMLKGEMESWEKADEASRIGQILARIQAGDLEFLDRVEEEKPKLLNEPIKGDDGKDGDPEKGIRGDRRRRSTKMLATVLAQLQGRALPQLDNTSTLMSMPPQMMQPMQPMQQQQQQKTPISQPTSPHQQPQQPSTPSAKSMVNNSSSMMMMPPMIGGGGVGGSGAGPVEPVSMAAMMNQLKTIQEEFARLSSSGGGGSPPRSSIPDEYPTEFIAQPPPQGISTRNMNYM

&gt;jgi|Pavlov2436\_1|609238|estExt\_Genewise1.C\_320046/ PavlovRh1

MNMSLLIGFIIMFASTGAYYAMSLKYPMEKRTFHYVTMFVTGIASIAYLIMAFDGGNVMVTLASGDERKFFYVRYLDWAFTTPLLLLDIGLLAGASLSHISFIIGCDVLMIVGGLAGPVFFPANETAKWTLFTIGMIWFAPIIYAMLVEWKVKMNPAVAGTYSLVANLTVVLWAAYPIMWALCEGTGVLSDETEVILYTILDVTAKAALGFVLLGNHGTIEAATSGDKAGLPMN\*

&gt;jgi|Pavlov2436\_1|951474|fgenesh1\_kg.36\_#\_119\_#\_Locus1439v1rpkm109.38 PavlovRh2

MNMSLLIGFIIMFASTGAYYAMSLKYPVEKRFFHHVTMFVTGIASIAYLIMAFDGGNVMVTLASGDERKFFYVRYLDWAFTTPLLLLDIGLLAGASLSHISFIIGCDVLMIVGGLAGPVFFPANEAAKWTLFAIGMIWFAPIIYAMLVEWKANMNPIVAGTYGLVASMTLVLWCAYPIMWALCEGTGILSGEIEVVLYTILDVIAKAAFGFVLLSNHATLEAATASESDKQASLLGRLPAMH

&gt;jgi|Chrveli1|1330|Cvel\_15171.t1/ ChrveliRh2

MFGKYPLLVTTIVFGLAAAAFIFILVTSEPGKRTSKAVATSVVVIAFVSYVLMWRGYGIEMVGERPFYYARYFDWALTTPLLILDLGLVSGTPLREMLYPIGFDVLMIAAGYLAGYQEEGARWYLFALGCFFMLPVAHALMTTFQDFAEESTRKSVDADVKEQSKLLCTMLLVLWSLYPVVWVASEGLMVMSVYWEVISYAWLDFISKAVFGFIVLTVDADVKEQSKLLCTMLLVLWSLYPVVWVASEGLMVMSVYWEVISYAWLDFISKAVFGFIVLSGSSADTL

&gt;jgi|Chrveli1|30816|Cvel\_13428.t1/ ChrveliRh3

MNSFIVLCSVAGLMALSSVAYLAQSADRPYSKKLCPYLSVAVTSIAFLSYFAMSLGIGITEVDGRPFYQARYWDWALTTPLLLIDLGCFAKAPTSEIFYAVSFDILMVLAGLIGCMVGGLAKWYFFGLGMLFFIPVIQVLFTSFKESSELSDDSKKKYMQLAVMIAALWSFYPLVWIAAEGTQLISPFIEITLYAVLDVCAKCVFGFVLINDESLKKPQ

&gt;jgi|Chrveli1|14621|Cvel\_24766.t1/ ChrveliRh4

MMRNRLLSTVLFLAAVLLPCIEATRDFLAECIAKDAIEGMSNVTRGVRIAQATLFFIIGVFYWTRFPDPHLKDQRLAVFSLCTSLNGYIMLFSACHNLIMLSQADDVIYEDCTRTDIGRYIQFAVTCPLLSWQVSLLARSNRQRQIEMVLSTFLLLILGVWVNAIPEFSYRMMAFGLTFFFFILLVVNLDWAVRETSENAESLFKGNSHMRYICLCVVVTWVTFPITWFIGPAGVAAVPRQAETIILSVMDLASKLAFSGYVYYVRKKWTATLRKEVEEEEQARQNGTAEDFARHRKRKMSFVTGQPRVGDDLEELRQETALVQQNTDGLSPSKKSPNRVVPRAIVAEPQQQVAAPQTPSIVIANCFDANSLAQAIGGRSPASAFFPGQRAATTGGHSQRANANGFVQLEEDDLPEEGSADMV

&gt;jgi|Chrveli1|2034|Cvel\_15662.t1/ ChrveliRh5

MSESTFYIRIAQASICMTVGLFYWTRFPDPHVEDESLAVFSLCTSLNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIARFVQFAITCPLFSWQVSLLARSKKQRQVELVLCTFLMLALGLWANATPEFSYRMMAFGLGGSFFVLLVVNLDWAVRETSENHDNLFKGKSNLRYIAVCVVVTWVAFPITWIIGPMGARVIPPQAEVIVLSTMDLISKLAFSAYVYYIRSKWTATLQQEKKKITACIDKGEEPPEELQPEIVTGRRRMSTVVVQAGNKALKELQELHSPPSVDMKGVADVPDVHQMSDPDGLAEKSRSTQKPEAQQLHETKPEESVDMMVIDAAIRAYTERRTKKSPDPLLEIEAPMRPEEDSTSEAPLPLVQAAPNCASASGGVPGILER

jgi|Chrveli1|11872|Cvel\_747.t1 (Channelrhodopsin like sequence)/ ChrveliRh6

MLYGTRSLLRSDYVINSRGAYEDYALECQEGSAYMTPAAMGLRIGASTFFFIYGMYLWTRFPNPKVEDERLKRFALCSSLNAWIMLFTGLFNLLQMSQVDDFYLDNCFKVDAAKYAQWSITCPMLTLQIAILAKAEVQRHVELVLSTFFMLVIGLGASIAPELEIRLILWVCSTFFFILMWWAINKIVMEATGDRENLCRGSSYIRKTSLFVLVSWTLFPILWIIGPEGGNLITAEVATGGIAVIDFASKGAFSLFIFWVRLKWGGQMLRGELEEWQQADEATRIATLIKHINTGDAGFFSHLEPDQIESLVKNPEAFQNIMQQIEQKAASGELEEKQDPETLRKKKRTQTAVLMNMLHGSQQNFQQQPRGPALGGNQWDVEKQTYPPHGAPGPMGSPMKMTSNVTMQSMPNHGAPMGSMGSMGGQYYDSSPMKAPSVSMQQMTPRAEPYQQPFTHQASTLSASPFQQQQQMQMPQQQQQQVQPDQMAQIMQLQQQIAAMQQQQQSAQPSNPHTPRSHVSVGGQVDRMFQQMDDQQF

&gt;jgi|Chrveli1|30551|Cvel\_13239.t1/ ChrveliRh7

MTTYGLTNSNIVDRLNKLPSNYWFANQKGDYTDWALKCQAGSEGFNVIQYGLRAGAIFFFFAYGFYLWTRFPNPQLEDSRLRRFSLCSSLNAYIMLFTGLINIIQLSQADDFFLDNCFRVDIAKYFQWAVTCPLMTLQVAILANAAPQRMIETHLSTLFMLLLGIGASMAPEFTIRLAMFFAAGWFFFLLWYTYNNIVMEGTKRKETLFRGSSFMRKTALFVLVSWTLFPIIWILGPEGADVINGAVMMGGITVIDFLSKALFSLFIFWVRAKWGGQMLAGELEEWERADEATRLAMLMQHIGKTDSTFLSRIGPDGVQKAIRSPSETEKLLKDVEKNAKKGEQGHEAQEELRKKGRLASGQLMQLYMSRAGVGGFPSAAVPPQQQQQQPARFQQQMPTMAAAQTPQQGYDGTSGQTARAHFADTTAHQMTPMSMGSMQTPYSSAPMNSPFGQTMPMQQMPQQQQPAPFTQPQQQFGGGMMQMQQTMPMQFQQQGMQQPQGMQFPQGPGMYSQQPAGVLPSTPSFPSASATPPGPARTEGGATEVEDQVDGLLSGVNFSRVGTQHFSY

&gt;jgi|Chrveli1|9404|Cvel\_21152.t1/ ChrveliRh8

MLRLSLILFLAAGVAAQNRIGEGYVSYQDECAAKDQGEDVTAFSIHMAGIAFFVGYGLYLITRHTSPVTDDLRVQRFNIVTRLNAFIMLFSGLMNVIQLSSVDDVFVKTVNGNCFRTNISKYIQYAITCPLMTTQIPILAASNIQRIMEVGLSTLFTITLGIFASATPEWYFRIVFGLCAACFFTLMAISINYVVIDATSKRESLFTGTSMYRKISLFLVISWLAFPFLWFTGPEGADVIPDNVVLGVTTVADLASKVFYSLYIFLIRHRWAKMMLAGELEEWEKASRAQKASEMLHKLRVGDSKFLDNIDVGELISDREEGANGGIPGAPSLPQVGGRPQARKESTSRDSAGDSPESRRMRTGGRRVSARAVLADLLGINYQSHEPGMQKALSSPALRSQASTDSGHNPDAHTVLDRLMARLEEQQVQIDYLLSRTPGAKRLPTTMSIPGQGDEGGRTHVTFAKTSSLVSGTRTLKTTTKGEQMGVSLVSCKLNVSEGPVGEHSVVEADESV

&gt;jgi|Chrveli1|31262|Cvel\_13779.t1/ ChrveliRh9

MSARVISALVALGITSVMGVTTDYITKCSAELTEDSLLRRGVLIGQASLFFLVGVFFWTRFPDPHLKDERLAVFSMCMSLNGYIMLFSGFFNLVGLSQIDDFVLEDCVKIDAARAFQWAVSCPLLTWQISLLARGKKQRQIEVVLSTFFCLLLGLFSTIAPERTYRYLYFAASTVFYILLIVNLDWAIRETTENRESLLKGESHLRKIVLCVSATWTVFPIVWLLGPLGTAAVTDDAILIVTTVIDISAKLLLAFYVYFVRSEWQRMLQVDEEVAKADPSHARRHKRAKSLVTGNKPGGGKGTSDEASAYRAATLARLAAEGQEQSSAEMHGGDVEKGLIREDSALYATPDGTKRSSILKASPASGRVQLQREREKGVGEKAGGSDGIAHQVVINNLFDAQALLQALRKAEAAAIGEAPPVFNTDASSRVNSKRGVGVGLSGMREEGGGDQGARTVPTMLGGVGGRLSTD

&gt;jgi|Chrveli1|10216|Cvel\_21729.t1/ ChrveliRh10

MKNRFISTVLLSAAFLLPCVEATRDFLAECIAKGEIEGLTDISRGVRIAQATLFFLVGLFYWTRFPDPHLKDERLAVFSLCTSLNGYIMLFSACHNLIMLSQADDIIYENCFRQDVGRFIQFVVTCPLLSWQVALLARAKKQRQIEMVLSTFLLLLLGIWVNVIPEYQYRMMAFGLTFFFFILLVINLDWAVRETSENHESLFKGNSHMRYICLCVVVTWFAFPLTWFIGPAGMDFIPPQAETIVLSTMDFVSKIAFSGYVYYIRKKWTQSLRQEQEEQEQARLNGTAEDFARHRKRKMSFVTGTPRQGDLAKLQEEAQMGRTPSFFPTSGGSPKELSPSQKMVSRMVAPAPAHQMAALQTPRIVIANCFDANSLAQAIGGRTGGFFPSQRAATTGAQSQRANPNGFVQMGADDFPDEGTAGMV

&gt;jgi|Chrveli1|12218|Cvel\_23116.t1/ ChrveliRh11

MFNMRKFRKSKRKSGLGTADEKKHNDFTIASLSRVHTQGLKSRFQFVTSLTCWLFYWTRFPDPHVKDERLAVFSLCTSLNGYIMLFSAFVNLVQLSQADDVVFDNCFVNDIAKYVQFAITCPLLSWQVSLLARSKRQRQVETVLNTFLMLVMGVWTNSTPEFQLRMMGFGLTFFFFILLMINLDWAIRETTDNRESFFKGTSHLRYICLTVGITWVTFPVTWLLGPVGIRAIPAAAETVVITVMDLTSKIAFSAYVYYVRFKWSAALKQEAQEQEEAEKEGKADEFKRHRKRKMSFVTGNQLAEMKQLSNLEEGGGATTRTAVGKSPSRTALSPSMRAAPTYPAQFEQAPNQTSAPPIVIANCFDVNALGQLLQGQTPAVFNGGGAGAGATASPQNLMATVNRDYYPAEVPDEGEAFRP

&gt;jgi|Chrveli1|2034|Cvel\_15662.t1/ ChrveliRh12

MSESTFYIRIAQASICMTVGLFYWTRFPDPHVEDESLAVFSLCTSLNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIARFVQFAITCPLFSWQVSLLARSKKQRQVELVLCTFLMLALGLWANATPEFSYRMMAFGLGGSFFVLLVVNLDWAVRETSENHDNLFKGKSNLRYIAVCVVVTWVAFPITWIIGPMGARVIPPQAEVIVLSTMDLISKLAFSAYVYYIRSKWTATLQQEKKKITACIDKGEEPPEELQPEIVTGRRRMSTVVVQAGNKALKELQELHSPPSVDMKGVADVPDVHQMSDPDGLAEKSRSTQKPEAQQLHETKPEESVDMMVIDAAIRAYTERRTKKSPDPLLEIEAPMRPEEDSTSEAPLPLVQAAPNCASASGGVPGILER

&gt;jgi|Chrveli1|16985|Cvel\_6422.t1/ ChrveliRh13

MVRAHLLFAALMGAAILAPLAEATRDYLAECIAEDAITPMSTITFGIRVAQASLFVLVGLFYWTRFPDPHVKDERLAVFSLCTSINGYIMLFSGCHNLIMLSDADDVIFEDCTRNDVGRFVQFVITCPLLTWQVSMLARSKMQRQVELVLCTFLMLVLGCWTNAIPEFNYRMMAFSLGALFFVLLVINLDWAVRETSDFKESLLKGRSHMRYICVCVVLTWITFPIAWIIGPAGLAVIPGQAEKITLAAMDLVSKLTFSGYVYYVRNKWTNTLKEETAMKAEAEAAGLDPPPLTTAKSPVTGLDRRTLKHQDAEAEKSKRLLLVLTNKKSEPAVEQTGEKEAEKEAAKEAGEVMDG

&gt;jgi|Chrveli1|928|Cvel\_14881.t1/ ChrveliRh14

MVPYMMPRFALLLAGLSFLVSCAEGTRDYLAECIADGNIEEMSETTFYIRIAQASLFVAVGLFYWTRFPDPNYKDEHLTVFSMCTSLNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIGRFVQFAITCPLLSWQVSLLARSKKQRQVELVLCTFLMLVLGLWANSIPEFRYRMMAFGLGASFFVLLVVNLDWAVRETSENHDNLFKGNSNLRYIAVCVVITWVAFPITWIIGPMGARAIPPQAEVIVLSTMDLISKLAFSGYVYYVRSKWTSTLQQEQKRIAACIDKGEAPPEELQPEIITGQRRMSTTPVKRALRDGQHDPSPPSFDLKGVDSAPQAQQNSDDVDALVDKKGGKENTEPQELHEAQFEEDVDKAIDAEINDNPADHLLEIEAPMRPEDLTSERGFFQPPPPTVQAAPLGASKILN

&gt;jgi|Chrveli1|3636|Cvel\_16888.t1/ ChrveliRh15

MAVPSLAEATRDYLAECIADDAIEPMSTLTFGIRVGQASLFVLVGLFYWTRFPDPHVKDDRLAVFSMCTSLNGYIMLFSGCHNLIMLSQADDVIFSNCTRNDLGRFVQFVITCPLLAWQVSLLARSKMQRQVELVLCTFLMLVMGLWANAIPEYHYRMMAFGIGLLFFTLLVINLDWAVRETSENKESLFKGRSHMRGICVCVVVTWITFPIAWLIGPNGVRAIPGQAEVIVLSCMDLISKLSFSAYVYYVRTSWSNTLLAERRASAMAASSGIEPPPLQHLTSPVTGLPRDHIRSGLGYEGHKEGEEENENNSGVLVLAPGAEVEK

&gt;jgi|DesarB2533\_2|248208|estExt\_Genemark1.C\_contig\_4740003/DesarRh1

MQEVYVVTVEMLKTIIEVFFETSTPATILQFNGTHISWLRYSEWLLTCPVILIHLSNLTGLGHYNKRTMRLLVSDIGTIVCGITAALSTGPAKIVFFLFGLCYGSSTFLTAATVYLSAYKEVPKGQCQTLVKLCAWVFFGSWLLFPILFLMGPEGFGHFSVYGSIIAHTFADLLSKNLWGLLAHHLRNKIEAHIHKYGSIDAGPEGEDGTEGAAAKLGREPMTPRIAAAVSHAAVNSDAIATITLGKSLTRGSFKGSPTKSQANLGRSTSGVWSTIGAGAVSGPVRVLLALPSDDAEAVLQHFQQQFAALPIPAEALPATGPAALLSAAANTAAFNGADAALLHLSYVQPGAASGLNVVGTLKELGIRVYLYGCDVGGPAEDLLDAAAVDGWIEGPTWASPLNSSQLTALLLLLNAAHTGSRPPSSQGYSQPASPRAVSLRANSLGPILRSHSYGNIAGPSGPMTGASGSKRNSFDVARMGLSPVRTNTLGPLQVAAPGVAAPVAAAATAPTTSAPPAAPGSAAAAMPGDASLSDAALLQQLMAEISRLRKELGDAR\*

&gt;jgi|DesarB2533\_2|gm1.2466\_g/ DesarRh2

MAAHMSSLASLPQAGSPTLLPQRYAAPSTAGYILYWVVFGIMTGAAILFSFLTFKHQQKDRKHGYLTAAIVTVAATAYYWNDYLKGAAAAPQQLQASHGGDSYIPLYWDLGGARDVFWARYIDWFITTPLLLLDVLMLAMVPIGTALWVVFADVLMILFGLFGAITSHHYRWGYFAIGCFWMFVVFWGLFKTGPRYAFKRDRQLGRYYILFAGVLGVLWCLYPIVWGLAEGSNTISVTAEIACYGALDLTAKVVWGFLFLMAHERVISSKLEEERRRGKYAMSLLSAPVTSPLHAVELGLAKHPAFAAHGQPDETTTMGPTTPWNHRQIRHLLGFTTAPEHHSGSLSAGRGSSVLDL\*

&gt;jgi|Edade1|16206|g8013.t1/ EdadeRh1

MDWPAGGLDMAPFPVRRGLTAQYLTNSSGQIWMNDTTICIPNDGQCFCMDWLETFGTNSEKVAAQALMWITFGLSVAVLIFYAYETWKHTTGWEEVYVALIEMIKFIIEYFHELDSPAMLSLSSGVRVVWLRYAEWLLTCPVILIHLSNLTGLKDDYNKRTMGLLVSDVGCIVWGTTAAMSTGYVRLIFFLLALSYGLYTFFHAAKVYIEAYHTVPTGICQKLVRILAWVYFLSWGMFPIMFVLGPEGLDHISQYSSAIAHAILDIVSKNLWGFIGHYLRVKIHQHVILYGDIRKKTKISVAGEEMEVETMVAEEDDETVKQPTAKYAHRDSFINMRDRMKAQGLDVRASLDASSALPQQAEEKPVQQAPAMAGKGMEMGKMGGMGMGAGMGAPGIESGRVILAVPDISMVDFFREQFAHLPVPYELVPALGADNTLALVQQAQGLGGCDFVLMHPEFLRDRSPTGLLPRLKMMGQRTAAFGWAPMGPMRDLIEGSGVDAWLEGPSFGAGINQAALMALVGRMQAARKMAAMNPMMGMGGGMGMGGGMGMGGGMMGGGMGMGGMQPQTSMGGMSGNMGMMSGGGAMGGMGGMQPQPSGRVGTNPLYGSAPSPLGSQPGVSPGGMGTPGAAPAGGGQSEAEMLQQLKAPLIRRVEGSTRTR\*

&gt;jgi|Edade1|1661|g1953.t1/ EdadeRh2

MALAMNWTALGISAVTLLWYGYEYFVASVGWEEVYVAIIETINVTLEITNEFDEPLTLYLANGMRVPFLRYTEWRMSCPVILIHLSNLSGLKDAYNKRTTVLLVSLIGCLVTGVYCAMISPGWLKWLMYTISFVYCAITYWSAARVYIETYHMVPKGNCRRMVAWMAVIFFACWGLTYPFLFVLGPEGLNAISFHLSNFLHCITDLFSKLLWGAMGHQLRIMIARHILMHGDLRKKTRIDFADAELEYMRRPSYLLIRNKLKHQGQNIYPELDRDSFYNGQHSDSSIDGGVTGPVLDSDFMPFTAGGGGSYGGGSWQMVPGRIMVVVPDSARWMIEFMRHGLSALPVPFEIVPAIGEAAAMHLAMVFMAANGGIDAALLHPVFVRTGLVRRLKSRGVRVIIYGWSPSSPLAAEIQAAGADMLCDGFSFAPGSSGIKQLMSALSTFQAEAGRFKSDDLLSFGGTQGGGGTQGGGGTQGGGGTQGGGGYVALPMHPRSGSMTGGGTQGGGGYAEPPMHPRGGSITQGGTQGGGYVEPPAQHARADSIAGSMGGIQLGPTGALPSARGGCGMTNPLYGVRTPMDSQLGGTSPLASWTGNSGELGAEAAMTQSLRNEIAMLKRELAEAGRWEIQPSTRV\*

>jgi|Enacos1|2617895|estExt\_fgenesh1\_pg.C\_90352/ EnacosRh1

MGASMSDLATTVPLADREYVNPRYVAWPSTAGYILYWIVFGIMAASLVLFSLMTFRHQQQDRKRGYLTMAIVATAMSAYFSMASHGGDTTVPLHWDLSGARDVFYARYIDWFVTTPLLLLEVLLLGAVPVGTALWIVFADVAMVVFGLFGAITDHYYRWGYFGIGCAWMFVVFWGLLVTGPRYAFQRDSQLGRLYIFFAGYLVILWCCYPVVWGLAEGSNTISVTAEIACYGGLDITAKAIFGLLFLLAHEKTIKHKLKAERESLWQTNSTRGLQAQTTGRLQEPQLAICTTLMVMLLLSTLLMNMDMLSIQPTTGQDLCLLGQVDRH\*

&gt;jgi|Enacos1|2564750|fgenesh1\_kg.24\_#\_2149\_#\_TRINITY\_DN11025\_c0\_g1\_i4/ EnacosRh2

MESIVCDLKHHVMRSLLNESPTEEAAEGEVCYFVHPHSHGTDMEHHAAMACSWIALSLSVAILVFYAYHYFKDKTGWEEVYVCVIELIKVMLEIFAEIYPPATITQINGVNTTWLRYAEWLLTCPVILIHLSNITGLHNNYNKRTMTLLISDIGTIVMGVTAAFATGPTKVVFFCMGLCYGTNTFFTAAKVYLDAHREVPEGQCKTLVKAMAYVFFSSWLSFPLLFLMGPEGFGHISPYGSIIGHTVVDLMSKNLWGLTGHHLRCVVSTAVGGTAKHSL\*

&gt;jgi|Tetso1|14162|rna3769/ TetsoRh

MEGPLDDWRRSLNQRTFTDLGNGSFIIPNDGQCFCEAWLKSKGSHVEGLVANVLQWSAFGFSALILVFYAYQTWKATCGWEEIYVCAIEFTKVIIEFFHEFDEPAMLMLSSGARVQWLRYGEWLLTCPVILIHLSNLTGLKDDYNKRTMRLLVSDIGTIVWGATSAMSKGYVKIVFFLLGCCYGANTFFHAAKAYHTVPKGNCRLIVRCMAWLFFVSWGMSPILFVLGPEGFGHLTVYGSTIGHTIIDVMSKNCWGLFGHVLRVKIHEHILLHGDIRKKTKIKVAGQEMEVETLMAEEDEDTVKQPTAQYANRESFIVMRDRLKEKGFEVRASLGEGSPNGGEGGGDMAMQQSGAKAGMEMGKMGGGRAAIESGRVILAVPDISMVDFFREQFAMLPVPYELVPSLGADNTLQLVQQAAGMGGCDFVLMHPEFLRDRAPTGLAGRLRMMGQRTAAFGWAPLGPMRDLIEGASLDGWLEGPSFGAGISQPSLLALIARMQQAVAKAGMEMGKMGGGRAGWGRGPGGRAGGGEVGVRGNGMGMSGGMNGGMNTMMMGGGGGMNTMMMGGGGGMSPGGGMGGAGMMMGGGGSMGGASGMASMGGAGMMQQQMSGGGMGSMQPASSGRVIGTNPLYGSAPSPLSSQPGGGAMGGGGMSPGGGGMVGGGASEAEMLQSLMSEINRLKSELGEQH\*

>jgi|Chlsc1|12343|g2245.t1/ ChlscRh3

MLANVFLFVKWGKGAARWENFWIMAIAFTFYCFYNPEPYTSPQMVFLSTGNFVVVGRYVQWLMATPAISSLVANMTGRPRDYT

LRDMFLVLTDVWAVACFIVCCLSTSFWIKITFYVLALVFFLIVFVFAGKSFGELINNDCPTETSRTTAKIVVVVYFVGQNVHTLFSTI

GPEVGGFINALQAEIGATFGDLTAKVLFCSVATVLNFQVFMYHKRQAEEQQAEGGSELNAPTKGVLAPLDDGGQAEDAKEAKMT

TKPTLQSGIVILAVPDLSMMPYFRAAFKALPANIELVPAIGPANTLMLTERAAQSGHLDCVLVHPALLHESTFDRPNLATRIKMLGQ

RVCAFGFDGSEGPGVGWMLDGWFDGPSGDEAVDQENLLHLLVVMQSLQKFKYSSTLAAAANAHPLPAPPLAPAPPQPQYAQQQ

PQQQYMQQPSPYAPQQPSPYAPQQQPPSLATTSMRMTAGGMPSFANNNGTNPLYEPAPSPGQSLGGGYGAPMSPLATSASMRVD

RYSPQPQPMAIPQQQAAAPMQQVDAAVMQQLLTEIVRLQAELGENK\*

&gt;jgi|Chlin1|12318|g7927.t1/ ChlinRh1

MAYVMNWIAFAISVVVLAWYAYEALHTACGWEEVYVCVIETFNVTFEIFAEFEEPLTVYLSSGMRVPFLRYTEWLMSCPVILIHLSNLSGLSDGYNKRTMLLLVTLIGCLVTGVYSAMCDYGWIKWAMYTISCIYCAFVYWFSAKVYLETYHMVPKGSARKVVLAMASIFFVTWGIVYPLLFALGPEGLNAISFHLSNFLHCIADLFSKLLWGALGHQLRIIIHKHILLYGDIRKTTKVGFGNEELEVATMIEPADADETAERLPVDKYLRRPSFALIRNQLKQEGKEIYPDLDRDSLYGSNSSFTGYTGRFVDFADPDFLPIPFTAGGGDLGNAAGAGGSTPRLVPGRIILVVPDSARWMVEFMRHGLSSLPAPFEIVPTVGVGAVMQLAQMGTAAPGGLDAVLMHAHLARTGLVTKLKMRGVPVILFGWSPSAPDAAEVQASGADQLCEGYSMAPGSNGLKQLVSALSTFQAQAGKLVENGLGGGGAGFNDQPFSPQAVGSTYGGASMMPTPQPAAVAPSARVPSSVGGAFGISSNPLYGMPHAQTMEPQQPGPYYARSGAATPPNGPAAGATTAAPEGGTAEAVMLQSLLGEIAKLRNELGEN\*

**Supplementary Figure S2:** Alignment of algal rhodopsins (grouped with algal proton pumping rhodopsins) with their reference sequences. Sequences used for the analysis are mentioned below.

>CsR

MAVHQIGEGGLVMYWVTFGLMAFSALAFAVMTFTRPLNKRSHGYITLAIVTIAAIAYYAMAASGGKALVSNPDGNLRDIYYARYIDWFFTTPLLLLDIILLTGIPIGVTLWIVLADVAMIMLGLFGALSTNSYRWGYYGVSCAFFFVVLWGLFFPGAKGARARGGQVPGLYFGLAGYLALLWFGYPIVWGLAEGSDYISVTAEAASYAGLDIAAKVVFGWAVMLSHPLIA

>AR-II

MADVETETGMIAQWIVFAIMAAAAIAFGVAVHFRPSELKSAYYINIAICTIAATAYYAMAVNYQDLTMNGERQVVYARYIDWVLTTPLLLLDLIVMTKMGGVMISWVIGADIFMIVFGILGAFEDEHKFKWVYFIAGCVMQAVLTYGMYNATWKDDLKKSPEYHSSYVSLLVFLSILWVFYPVVWAFGSGSGVLSVDNEAILMGILDVLAKPLFGMGCLIAHETIFKKM

>CpR1

MSPTFARWYQTYATNNKNRQSAFVPNGQCSFTYEQFASFYSGSYIKDPESVQLAIQRTCYNRITGLGPDFYSPEDAADRGQVFFWIEFGIQAVMFALFLILTLRREEHKRRFHYITTLYSGISTMAYYCMARGQGSVALFDTWSNGDFSPYRVFYYARYIDWFLTVPLIILNLCLLASATKALTIGLALSGMLMVGTGLMGALSITGTKWGWFGISNMCFLPIVVAWVTVLRKNAREKSPEVEKTYNILIIISIIAWFAYPIIWIIATGTHAISLAAEIVSYAVVDTFSKALFGVILLFSRSAIEDASFKDPEKMKLPTSYTSSTIHSGVLSKA

>CpR2

MASVLMAFDPASTNFPAFLDYNNFTEYLLRYNVLLSNPDNITQLGYDFFWLGFGFQVLATFVFLYLTLFHGKAARKLHVLQLGVVGTAAVAYYAMARGQGGVPLPNDVLSGFRYFYWARYAEWAVTVPLTIYSLAVLADVRIIETTLATIVASVIMVVCGLNGALSQSSSRWGWFGLGVWGLFLTLVGLFGNIRKAAYAKSESVGFTYTYLVFLILGSWIAYPVWVIGEGTRAVTVDVEILLYAIFDVITKVVFGFALLMSEPVHGFPNAGDLDLVKTSKL

>CR1

MPFTQLAGATAAAKALAPTACTTIEEIGSTGIGGLTLGFLALTVTTVVMVAKAANADPERRKYYFCNTFICGIATFAYFAMLSGQGWTAISGCRQFFYAHYVDWLLTTPLIILNLGLIAGQDYVTIAAVCGADVLMIISGYMASVSVVTTVKWFWYLFGIGMFLPIIYSLARTFRETVIMRKDPEIMELYGKVAWLTIIIWCFYPIVWLFSQGFASFSVSFETVAITIMDVIAKCVFSFMIIAAHDALGPTQQTAHSREYV

>CyapaRh1

VVFFWIGFGVLSGLGLIFLFLTLRRDETKRRFHYITVCYSWIAAVAYYCMARGQGSVALFDTLATNSNYSPFRVFYFARYIDWTFSTPLILLDLALLAGTSIATAAMLCFADVMMIVTGLLGALSMSGTKWGWFAFSSVGFIAILISLVTTLRKAAREKSPEVEKTYNILVLLVFLTWPIYPIIWIIGQGTKSIHIDAEIIVFSVTDCCAKGLFGLVLLLS

>CyapaRh3

TVFFWIGAGVMAVVALIALILTLRRDPAKRIFHYITIVYLTISMLAYYCMARQQGSVAIWDDATASNNSPYRVFYYARYVEWFMTVPLIILNLCLLAGTTFATFLALAFASMIMVVSGLLGLLSSTGTKWGYFTFAMFCFVPIEVAFVTILRKSAREKSPEAEKTYNVLMAISFITWLVYPVIWVIGEAVHVISVDADIIIHTIADIFSKAIFAFVLLFS

>PavlovRh1

LIGFIIMFASTGAYYAMSLKYPMEKRTFHYVTMFVTGIASIAYLIMAFDGGNVMVTLASGDERKFFYVRYLDWAFTTPLLLLDIGLLAGASLSHISFIIGCDVLMIVGGLAGPVFFPANETAKWTLFTIGMIWFAPIIYAMLVEWKVKMNPAVAGTYSLVANLTVVLWAAYPIMWALCEGTGVLSDETEVILYTILDVTAKAALGFVL

>PavlovRh2

LIGFIIMFASTGAYYAMSLKYPVEKRFFHHVTMFVTGIASIAYLIMAFDGGNVMVTLASGDERKFFYVRYLDWAFTTPLLLLDIGLLAGASLSHISFIIGCDVLMIVGGLAGPVFFPANEAAKWTLFAIGMIWFAPIIYAMLVEWKANMNPIVAGTYGLVASMTLVLWCAYPIMWALCEGTGILSGEIEVVLYTILDVIAKAAFGFVLL

>PelagoRh

LGFVSLTMSATALYIYGLAMSLEADKRFFHMVSFAICAFASLAYLVMAFDLGRVEVDGRDVFYARYIDWAVTTPLLLVDLGFLAGMSAADVAGLCVWDVLMIAGGLFGALTTHVAAKYSFFAYGCVAFLFIVRSLYAACGLAKEKRSPAVAARYNDLAMLTILVWFAYPIVWVLGEGGGFVSIDVEIILYAILDVTAKVVFSLLLVSVR

>VitbrasRh1

GVAVLWVAFVCMALSTLYFISQSAGYDIEMRKFHYVSAGITAIAALAYMCMALGIGVSADPYGRSFYWGRYLDWTFTTPLLLVDLGLLAGVHWNELTYVILMDVLMIISGLVGGLYAHEPTKGWPLFVFGMVVFLPIIQSLVTSMKDKAIKTSPAVADRFNQLSVMTVVLWSAYPVVWVVAEGTKVIPVDIEILLYGVLDVTAKCLFGFILLANR

>VitbrasRh2

TAVLVLTAIAMLTSGVVFGWLTYSKSAARVCGVLTTSIVAIAGAAYVLMSLGYGVTAVGGRELYYARYADWLVTTLLLLVDILLFAGVSWKPIVALCTLDVLMIGTGFLAVIVSTTAAKWSLYLSGVACLLPIAMILYQEATDTQLVLVPSAIASRLPSAAPTKVPLLAKTATAKEGADAVLAAYRRATLLTLCAWVSYPVVWVLGEGLFVLPLDMEILAYAALDVMSKVVLGFVLL

>VitbrasRh3

GRTVLWVGFACMALSTLYFVQQAYSFEIFQRKFHYVSAGITGIAALAYLCMSLDIGVSSDEGGRSFYWARYVDWTLTTPLLLVDLGLLAGVHYNELIYVIIMDILMIVAGLIGGLYADDPYKGWPLFVFGMIVFLPIILSLTTSMKEKALSFASDVGARFNQLSVMTVLLWSAYPVVWVIAEGTKVIPVDLEIVLYAILDVSAKCLFGFILLANR

>ChrveliRh1

GRSALWTVCAIMGLTSLWAVQQSTAFQADGRKLHYVTAMITGIACLAYLCMAVGVGVSGGVEGGRPVYTARYYDWLVTTPLLLFDLGLLAGAPRNEIFCTVGCDMLMIVAGLLGTHAKGAGSWILFAFGCVMLVPIFSGLAVSFRSKCHQVDQARRYTVLATLTLVTWTLYPLVWAAAEGASLISVDAEILCYAVLDVAAKAVLGFILLGDR

>ChrveliRh2

MFGKYPLLVTTIVFGLAAAAFIFILVTSEPGKRTSKAVATSVVVIAFVSYVLMWRGYGIEMVGERPFYYARYFDWALTTPLLILDLGLVSGTPLREMLYPIGFDVLMIAAGYLAGYQEEGARWYLFALGCFFMLPVAHALMTTFQDFAEESTRKSVDADVKEQSKLLCTMLLVLWSLYPVVWVASEGLMVMSVYWEVISYAWLDFISKAVFGFIVLTV

>ChrveliRh3

GLMALSSVAYLAQSADRPYSKKLCPYLSVAVTSIAFLSYFAMSLGIGITEVDGRPFYQARYWDWALTTPLLLIDLGCFAKAPTSEIFYAVSFDILMVLAGLIGCMVGGLAKWYFFGLGMLFFIPVIQVLFTSFKESSELSDDSKKKYMQLAVMIAALWSFYPLVWIAAEGTQLISPFIEITLYAVLDVCAKCVFGFVLIN

>CryptoRh1

VGALTLGFLALAVSTVVMVAKAASADQERRKYYFCNTFICGVATFAYFAMLSGQGWTAIAGCRQFFYARYVDWLITTPLLILDLGLVSGQDFVTIAAVVGADILMIVAGYMGAVSVVTTVKWFWFLFGMAMFLPVVYSLARTFRETVITRKDPEMIELYGKIAWLTIIMWSFYPVVWLFSEGFASFSVSFEVVAYTIMDIISKCVFC

>CryptoRh2

GALTLGFLALAVSTVVMVAKAASADAERRKYYFCSTFICGVATFAYFAMLSGQGWTAIAGCRQFFYARYVDWLITTPLLILELGLVSGQDFVTIAAVVGADMLMIVAGYMGAVSVVTTVKWFWFLFGMDPEMIELYGKIAWLTIIMWSFYPVVWLFSEGFASFSVSFEVVAYTIMDIISKCVFCFMIV

>CryptoRh3

IGASGAIFDVLAFIALLVTALFMAFRAMNAEPGVRKFYYINAYVCGVATFAYFAMISGMGWETIMGCRQLFYVRYIDWAVTTPLMILNLGLLAGEDTVMILAVMGADLGMIFCGYMGSVALVPTVKWLWFVFGLAVFAPVVIALVRVFRQTVIDKNDVDRIELYGKVSLLTIVVWSMYPIVWLLGVGSGALGVSSEAIAYAILDVISKCAFSFM

>CryptoRh5

VGALTIAFLILAVSTIVFITRIGSATTQKVYYYCNVFICGVATMSYFAMLSGQGWTAIAGCRQFFYARYVDWAITTPLLLLDLGLIAGADPALIAAVIGADVIMVFSGYLGAVSVVTTVKWFWFVIGMGVFVPVLYVLAVNFREAAVAKGGEVADIYGKVAWLTIITWIFYPLVWLFSEGFASFSVSFEVCAYAVLDITAKAIFGFMIMSAH

>CryptoRh6

VGALTVTFIILAVSTCVFLSKGISAGENRKYYYLSTYICGFAAMAYFAMLSGQGWTAIAGCRQFFYTRYADWVVTTTLLVILLGQVSNASMDVIFGACGSNLIYVLAGYMGSVSVVTTVKWFWFLIGLVGLACVIMHFAQTFKVSADAKGGELAALYGKVAWLSILVWICYPVVWLFSEGFASFSVSFEVCAYSVLDIISKVVVCFMVM

>CryptoRh8

GFFMVLTWMVLVVASIFMAIKAYQVGPEVQVQKYYYLNAFLCAVASYSYFAMFSGMGWETIEGCRQYFYVRFIELGVSMSITIFSLGLLAGQDTATLLAVMGSGVGSVYALYMGGIALVPLSKFLWFFFALALFAPVVFALLREFRQTVIDLNDPERIELYGRVSLLTIIAWSCYPLVWLLGVGFGGIGVSVEAICYCIVDVWAKVVFSFMIVN

>CryptoRh10

GVGALTLAFIILLVCTLVFVQKSQAAANKSVAYLSIYICGFAAMSYFAMLSGQGWTTVAGCRQFFYARYLDWAITFPLMTLLLGVVAGVDMVCIFGAIGAQEIQLFAQYIGAISTVMSVKWMWFLISLTALAGAVYHIVQVFKASADAKGGEVAALYGKVAWLAAGLWCMYPVVWLFSEGFASFSVSFEITAYAILDVCMKYPP

**Supplementary Figure S3:** Sequence alignment of identified rhodopsins forming a clade with schizorhodopsins. Sequences used for the analysis are mentioned below.

>SzR1

MEEIIFYIGAGVFTLTSITFFLLKKKNLEVASLNMIVNFVTIASYLLMVSGLFVASAVSGDSIYWTRWAFYAVSCSFLMVEISMLLSIDKSIKLEIIVFNCLVMITGLLASVSEGIIKWLFFTLSSVAYLYVLFQIIKHRSNEKFIVAFVAIFWSGFPIIWILSPAGLMLIDAFWTALFYLVLDLITKVYFGYHTTLKFSK

>SzR2

MEEIIFYAGIGIFSLTTLTFLILKKKNLKVASINMIVNFVTIGSYVLMLSGLGVISATNGELIYWTRWAFYAISCSFLMVEISIILRIDNKTMVEIIVFNSMVMVTGLFASISEGLIKWLFFALSTVAYVNVLYQIGKNRSEEKFILLFVGIFWTGFPLVWLISPAGFLVLDAFWTALFYLVLDLITKVYFGYHTTLKYTNM

>SzR3

MQILEENPLAGEEFIFYIGGAGFGIATILFGIINARRENPPFNTELFVSFITAVSYIVMALGYATVVGLGGELVYWSRWLFYIGSCTLLTTDIAHVKGLPKAKILEVGIYTGLTMFAGFLASIITTVDRWWFFALSSIAYLAMLYELLRGQEESNPEMPKILAFVAIAWSLFPVVWVLAPTGLGVINTFAEVILYWILDLTTKTAFGLYLYTRVK

>SzR4

MEQIIFYLGIGMFILSTIMFFFLKKKNAKLASINIIVSFVTIVSYILMLSGLFTLSATSGDTIYWTRWAFYAVSCSFLMVEISYLLRIDNTTRLEILVFNSMVMITGLFASISEDLYKWLFFIISSVAYLNVLFLIAKNRSEKKAIILFVAIFWSGFPIVWILSPAGLMVLNAFWTALFYLVLDFITKIYFGFHTTFKHIEQ

>ChrveliRh4

ATLFFIIGVFYWTRFPDPHLKDQRLAVFSLCTSLNGYIMLFSACHNLIMLSQADDVIYEDCTRTDIGRYIQFAVTCPLLSWQVSLLARSNRQRQIEMVLSTFLLLILGVWVNAIPEFSYRMMAFGLTFFFFILLVVNLDWAVRETSENAESLFKGNSHMRYICLCVVVTWVTFPITWFIGPAGVAAVPRQAETIILSVMDLASKLAFSGYVYYVRKKW

>ChrveliRh5

LNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIARFVQFAITCPLFSWQVSLLARSKKQRQVELVLCTFLMLALGLWANATPEFSYRMMAFGLGGSFFVLLVVNLDWAVRETSENHDNLFKGKSNLRYIAVCVVVTWVAFPITWIIGPMGARVIPPQAEVIVLSTMDLISKLAFS

>ChrveliRh6

STFFFIYGMYLWTRFPNPKVEDERLKRFALCSSLNAWIMLFTGLFNLLQMSQVDDFYLDNCFKVDAAKYAQWSITCPMLTLQIAILAKAEVQRHVELVLSTFFMLVIGLGASIAPELEIRLILWVCSTFFFILMWWAINKIVMEATGDRENLCRGSSYIRKTSLFVLVSWTLFPILWIIGPEGGNLITAEVATGGIAVIDFASKGAFSLFIFW

>ChrveliRh7

KYFQWAVTCPLMTLQVAILANAAPQRMIETHLSTLFMLLLGIGASMAPEFTIRLAMFFAAGWFFFLLWYTYNNIVMEGTKRKETLFRGSSFMRKTALFVLVSWTLFPIIWILGPEGADVINGAVMMGGITVIDFLSKALFSLFIFW

>ChrveliRh8

LNAFIMLFSGLMNVIQLSSVDDVFVKTVNGNCFRTNISKYIQYAITCPLMTTQIPILAASNIQRIMEVGLSTLFTITLGIFASATPEWYFRIVFGLCAACFFTLMAISINYVVIDATSKRESLFTGTSMYRKISLFLVISWLAFPFLWFTGPEGADVIPDNVVLGVTTVADLASKVFYSLYIF

>ChrveliRh9

LFFLVGVFFWTRFPDPHLKDERLAVFSMCMSLNGYIMLFSGFFNLVGLSQIDDFVLEDCVKIDAARAFQWAVSCPLLTWQISLLARGKKQRQIEVVLSTFFCLLLGLFSTIAPERTYRYLYFAASTVFYILLIVNLDWAIRETTENRESLLKGESHLRKIVLCVSATWTVFPIVWLLGPLGTAAVTDDAILIVTTVIDISAKLLLAFYVYFVR

>ChrveliRh10

TLFFLVGLFYWTRFPDPHLKDERLAVFSLCTSLNGYIMLFSACHNLIMLSQADDIIYENCFRQDVGRFIQFVVTCPLLSWQVALLARAKKQRQIEMVLSTFLLLLLGIWVNVIPEYQYRMMAFGLTFFFFILLVINLDWAVRETSENHESLFKGNSHMRYICLCVVVTWFAFPLTWFIGPAGMDFIPPQAETIVLSTMDFVSKIAFS

>ChrveliRh11

IAKYVQFAITCPLLSWQVSLLARSKRQRQVETVLNTFLMLVMGVWTNSTPEFQLRMMGFGLTFFFFILLMINLDWAIRETTDNRESFFKGTSHLRYICLTVGITWVTFPVTWLLGPVGIRAIPAAAETVVITVMDLTSKIAFSAYVY

>ChrveliRh12

NGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIARFVQFAITCPLFSWQVSLLARSKKQRQVELVLCTFLMLALGLWANATPEFSYRMMAFGLGGSFFVLLVVNLDWAVRETSENHDNLFKGKSNLRYIAVCVVVTWVAFPITWIIGPMGARVIPPQAEVIVLSTMDLISKLAFSAYVYY

>ChrveliRh13

ITFGIRVAQASLFVLVGLFYWTRFPDPHVKDERLAVFSLCTSINGYIMLFSGCHNLIMLSDADDVIFEDCTRNDVGRFVQFVITCPLLTWQVSMLARSKMQRQVELVLCTFLMLVLGCWTNAIPEFNYRMMAFSLGALFFVLLVINLDWAVRETSDFKESLLKGRSHMRYICVCVVLTWITFPIAWIIGPAGLAVIPGQAEKITLAAMDLVSKLTFSGYVYY

>ChrveliRh14

FVAVGLFYWTRFPDPNYKDEHLTVFSMCTSLNGYIMLFSGCHNLIMLSQVDDVIFEDCTRNDIGRFVQFAITCPLLSWQVSLLARSKKQRQVELVLCTFLMLVLGLWANSIPEFRYRMMAFGLGASFFVLLVVNLDWAVRETSENHDNLFKGNSNLRYIAVCVVITWVAFPITWIIGPMGARAIPPQAEVIVLSTMDLISKLAFSGYVYYVR

>ChrveliRh15

LNGYIMLFSGCHNLIMLSQADDVIFSNCTRNDLGRFVQFVITCPLLAWQVSLLARSKMQRQVELVLCTFLMLVMGLWANAIPEYHYRMMAFGIGLLFFTLLVINLDWAVRETSENKESLFKGRSHMRGICVCVVVTWITFPIAWLIGPNGVRAIPGQAEVIVLSCMDLISKLSFSAYVYYVRTSW

>ChrveliRh16

WTFIVLAWFLSVVFAAFGWISHWFATISAGFVLFPDPHLKNERLAVFSMCTSLNGYIMLFSGFMNLVGLSQIDDFILDNCVKIDAARALQWAISCPLLTWQISLLARGKKQRQLEVLLSTLFCLILGIFAHISPEPQLRYVYFACATVFYLLLVVNLDWAIRETTENRESMFKGESHLRKIAIVVPSTWAVFPIFWLLGPTGAGVMTGDQSLILVTVCDIVSKLILTFYVYFVR

>VitbrasRh4

KYVQYCVTCPVITYQLVELGGGAFHRKVEITLQTFMMLSFALFASIIPERGYKMIVFCCGAFFFGIVIYTMNLVIQESTNFKENLFEGTSYLRKTALVVMLSWIPFPITWLIGPEGFDVMSGDLFDIIFTVCDLVAKVGFSMYIFQ