

Supplementary Data 2: Amino acid sequences of various cholesterol genes and their homologous sequences used in construction of phylogenetic trees.

C5-SD1 and C5-SD2 sequences

>SI C5-SD2

MEDYLNLFVEETSFFNRLVLGTFLPESWWGPLPHMLQGWLARNYIGGVLLYFISGFLWCF
YIYHLKRNVIYPKDAIPSKQAMLLQISVAMKAMPWYCALPSLSEYMIENGWTKCFARIS
DVGWPTYIINAAIYLVIVEFGIYWMHKLLHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLVPMHFTTHIVLIFVEALWTANIHDCIHGKVWPVPMGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEEDAKKM

> SI C5-SD1

MDDYLNLFVEETSFFNRIVLGTFLPESWWGPLPHWFQGWLARNYIGGVLLYFISGFLWCF
YIYYLKRNVYLPKDAIPSNRAMLLQIGVAMKAMPWYCALPSLSEYMIENGWTKCFSRIS
DVGWIPYLIYVAVYLVIVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVIALFLLPVHFTTHIALLFIEAIWTANIHDCIHAKVWPVPMGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEDEVKKL

>St C5-SD2

MEDYLNLFVEETSFFNRMVLGTFLPESWWGPLPHMLQGWLARNYIGGVLLYFISGFLWCF
YIYHLKRNVIYPKDAIPSKEAMLLQISVAMKAMPWYCALPSLSEYMIENGWTKCFARIS
DVGWPTYIINAAIYLVIVEFGIYWMHKLLHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLVPMHFTTHIALIFVEALWTANIHDCIHGKVWPVPMGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEEDAKKM

>St C5-SD1

MDDYLNLFVEETSFFNRIVLGTFLPESWWGPLPHWFQGWLARNYIGGVLLYFLSGFLWCF
YIYYLKRNVYLPKDAIPSNKAMLLQIGVAMKAMPWYCALPSLSEYMIENGWTKCFSRIS
DVGWMPYLIYVAVYLLIVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLLPVHFTTHIALLFIEAIWTANIHDCIHAKVWPVPMGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEDEVKKM

>Ca C5-SD2

MEDYLLKLFVEETSFYNNRLVLGTLLPESWWAPLPHMLQGWLNRNYIGGVLLYFISGFLWCF
YIYHLKRNVIYPKDAIPSNKAMLLQISVAMKAMPWYCALPTLSEYMIENGWTKCFARIS
DVGWPSYVLNAAIYLVIVEFGIYWMHKLHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVLALFLVPMHFTTHIALIFLEALWTANIHDCHGKVWPVVGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPAEEDAKKM

>Nb C5-SD2

MDDYLLKQFVEETSFYNNRLVLGTFLPESWWGPLPHMLQGWLNRNYIGGVLLYFISGFLWCF
YIYHLKRNVIYPKDAIPSNKAMLLQISVAMKAMPWYCALPSLSEYMIENGWTKCYARIS
DVGWLSYVIYAAIYLVIVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLVPMHFTTHIALIFVEALWTANIHDCHGKVFPVIMGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEEDAKKM

>Nb C5-SD1

MDDYLLNLFIEETSFYNNRVVLGTFLPESWWGPLPHWFQWLNRNYIGGVLLYFISGFLWCF
YIYRLKRNVIYPKDAIPSNRAMLLQIGVAMKAMPFYCALPSLSEYMIENGWTKCFSRIS
VVGWLSYLIYMAVYLVIVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLLPVHFTTHIALLFIEAIWTANIHDCHAKVWPVVGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEAEVKKM

>Nt C5-SD2

MEDYLLKQFVEETSFYNNRLVLGTFLPESWWGPLPHMLQGWLNRNYIGGVLLYFISGFLWCF
YIYHLKRNVIYPKDAIPSNKAMLLQISVAMKAMPWYCALPSLSEYMIENGWTKCFARIS
DVGWLSYVIYAAIYLVIVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALLLVPMHFTTHIALIFLEALWTANIHDCHGKVFPVVGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEEDAKKM

>Nt C5-SD1

MDDYLLNLFIEETSFYNNRVVLGTFLPESWWGPLPHWFQWLNRNYIGGVLLYFISGFLWCF
YIYRLKRNVIYPKDAIPSNRAMLLQIGVAMKAMPFYCALPSLSEYMIENGWTKCFSRIS
DVGWLSYLIYMAVYLVIVEFGIYWMHRELHDIKLLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQAVPHVVALFLLPEHFTTHIALLFIEAIWTANIHDCKHAKVWPVVGAGYHT
IHHTTYRHNYGHYTIWMDWMFGTLRDPVEDEVKKM

>*A. thaliana* DWARF7

MAADNAYLMQFVDETSFYNNRIVLSHLLPANLWEPLPHFLQTWLNRNYLAGTLLYFISGFL
WCFYIYYLKINVYLPKDAIPTIKAMRLQMFVAMKAMPWYTLLPTVSESMIERGWTKCFA
SIGFGWILYFVYIAIYLVFVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFA

GLAFHPVDGILQAVPHVIALFIVPIHFTTHIGLLFMEAIWTANIHDCIHGNIWPMGAG
YHTIHHTTYKHNYGHYTIWMDWMFGSLRDPLLEEDDNKDSFKKAE

>*S. cerevisiae* (ERG3)

MDLVLEVADHYVLDDLYAKVLPASLAANIPVKWQKLLGLNSGFSNSTILQETLNSKNAV
KECRRFYGQVPFLFDMSTTSFASLLPRSSILREFLSLWVIVTIFGLLLYLFTASLSYVF
VFDKSI FNHPRYLKNQMAMEIKLAVSAIPWMSMLTVPWFVME LN GH SKLYMKIDYENHG
VRKLIIEYFTFIFFTDCGVYLAHRWLHWPRVYRALHKPHHKWLVCTPFASHSFHPVDGF
LQSI SYHIYPLILPLHKVSYLILFTFVNFWTVMIHDGQYLSNNPAVNGTACHTVHHLYF
NANYGQFTTLWDRLGGSYRRPDDSLFDPKLRDAKETWDAQVKEVEHFIKEVEGDDNDRI
YENDPNTKKN

>Pp C5-SD1

MSADVEVVNASFSSVVGAKTGKSGVVPANGSPEYLALFVEETR WYNDLV LGPWL PSSV
RDSIPHTLQTWLRNYVAGMLLYFVSGGLWCLYVYSWKGEHFFPAGDIPAKEPIMLQIWV
TMKAMPVYTGLPTLSEYMIERGWTCKFARIEDVGWLT YVGLVIAYLAVVEFGIYWMHRE
LHDIKPLYKHLHATHHIYNKQNTLSPFAGLAFHPIDGILQACPHVIALFLLPMHFFTHE
VLLFCEGVWTTNIHDCIDGNVWGIMGAGFHTIHHTTYRHNYGHYTVFMDWLFGTLRDPY
ERKATAHVKSS

>Bd C5-SD1

MAAAAHGGGGGAEYSVLFREETGWYNEIFLSAVVPGDWWRALPHPLQSWLRNGVGAYLI
YFLTGFLWC FVIYYWKRHAYIPKDSIPTLEAMKKQIIVASKAMPFYSALPTISEYMIES
GWTRCFFHISEVGWPMYLVYVALYLT FVEFGIYWMHRELHDIKPLYKHLHATHHIYNKE
NTLSPFAGLAFHPLDGILQAIPHVFALFLVPTHFRTHIALLFLEAVWTTNIHDCIHGKI
WPMGAGYHTIHHTTYRHNYGHYTVWMDWLFGT LREPEDI FKKD

>*S. moellendorffii* C5-SD1-1

MMALPLLSLAILSSFVFAASASNHTWSGGGGGGGSIDQARLRLFLEETAWYNHLVLRPL
ALHFDSMPHALRTWLRNYIAGLIVYFLSGGLWCLYIYWWKPRIYFPNGGIPKQEPIWLQ
IKVSMKAMPLYTLLPTVSEYMVERGWTKCFPRISDVGFPTYIVLSLTYLVMVEFGIYWM
HRGLHDIKPLYKLLHATHHIYNKQDTLSPFAGLAFHPIDGILQALPHVLALFVIPMHFF
THEFFLFLEGIWTTNIHDCIDGKVWPI MGAAYHTIHHTTYKHNYGHYTVWMDWMC GTLN
EPARPKKA

>*S. moellendorffii* C5-SD1-2

MALPLLSLAILSSFVFAASASNHTWSGGGGGGGSIDQARLRLFLEETAWYNHLVLRPLA
LHFDSMPHALRTWLRNYIAGLIVYFLSGGLWCLYIYWWKPRIYFPNGGIPKPEPIWLQI
KVSMKAMPLYTLLPTVSEYMVERGWTKCFPRISDVGFPTYIVLSLTYLVVVEFGIYWMH

RGLHDIKPLYKLLHATHHIYNKQDTLSPFAGLAFHPIDGILQALPHVLALFVVPMHFFT
HEFFLFLEGIWTTNIHDCIDGEVWPIMGAAYHTIHHTTYKHNYGHYTVWMDWMCGLTNE
PARPKEA

>Os C5-SD1

MAGGGGEYLRQFVEETAWYNEIFLSHVVPGDWWRALPHPLQSWLRNGLGGYLIYFACGF
LWCFVIYYWKRHAYIPKDSIPTIEAMKKQIIVASKAMPLYCALPTLSEYMVENGWTQCY
VNISEVGWPMYLVYLALYLIFVEFGIYWMHRELHDIKPLYKYLHTYHHIYNKENTLSPF
AGLAFHPLDGILQAIPHVFALYLIPHTHFRTHIALLFIEAVWTTNIHDCIHGKVWPMGA
GYHTIHHTTYRHNYGHYTVWMDWMMFGTLREPEDILKKD

>*Trypanosoma cruzi* C5-SD

MDVAFDLYTAVIPVDRNALSHQLFVFWLILTTGGIFLYLLCASISTFIFVVFEEITYFP
HTMDKKNQKHELRRQMLHEIFIAVLSIPFMAILMAPSSTLAHRGYSKIYYNVSDYGWPY
LFLSILMFFIFTDFMVYWFHRGLHHPTLYRYLHKLHHTYKYTTPFSSHAFNPCDGGFQG
SPYYAFIFLFPMHNYLFVILFFAVNLWTISIHQVDFGGHFVNTTGHHTIHHVLFNNDY
GQYFTVWDRIGGTYPKPAQQTHLFLFTKGGRIEEVESTKKMG

>Sb C5-SD1

MAAAAHGGDYLRRFVAETEWYNAVVL SAVAPGDWWRGLPHPVQSWMRNCVGGYLLYFIS
GFLWCFVIYYWKRHAYIPKDAIPTNEAMKKQIVVASKAMPFYCALPTLSEYMIESGWTQ
CYFNISEVGFSMYLCYMAMYLI FVEFGIYWMHRELHDIKPLYKYLHATHHIYNKENTLS
PFAGLAFHPLDGILQAIPHVFALFLFPHTHFRTHIALLFLEAVWTTNIHDCIHGKIWPVM
GAGYHTIHHTTYRHNYGHYTIWMDWMMFSTLREPEDILKKD

>Vv C5-SD1-1

MDDQLHLFVAETSFYNRIVLGTFLPAKLWETWPHFVQTWLRNYIGGTLIYLVSGFLWCF
YIYYLKRNVYVPKDAIPTTRAMYLQIYVAMKAMPWYTALPTLSEYMVENGWTRCYSSIS
DVGWPAYFVNLA VYLVFVEFGIYWMHRELHDIKPLYKYLHATHHIYNKQNTLSPFAGLA
FHPLDGILQALPHVLALFLFRTHFLTHVLLL FIEAIWTANIHDCIDGKIWPVMGAAYHT
IHHTTYRHNYGHYTVWMDWMMFGTLC DPEESPCKVT

>Vv C5-SD1-2

MEEYLQLFKSETDFYNQIVLGSLPENIWRSLPHVCRTWLRNYVAGVLVYSITGFLWCF
YIYYLKRNDVYIRGDAIPSMKTMVLHV KASMRSLPWFAALPTFSEYAVENGWTKCFSRIS
EVGWFAYLVIIMAYIVFVEFVTYWIHRKLHDIKPLYKYLHVQHHSYNKQHKLSPLAGMA
LHPLDGLAQQGAPHTIALFLVPHTLTHTLTISFFGAIWTANIHDCIDEKLWPIMGGGYHM
IHHLNRRHNYGLYTIWMDWMMFGTLSHPMSDGTKPN

>*Ostreococcus tauri* C5-SD1

MGLSNADVSTGGADVIVFAERVAVRRRARTHRASRVSEARRASRERVHRARVVGGDARE
TREVDDDRSNDRLGTMAEVPIIIIGLFHGFDTGHWLNHVLIDRWILGTSTKIGDAYDPSQ
YSLLRKFSVMWAFLTVFTYALYFTLCPLAYWWHFVRKDKDGKNNARWTGREGKDQVKNE
IVLSTWSIAVMTFMIAPFELMVEAGWTKLYWDVDKYGKAYFFLTPLLFLVFSBTCIYWI
HRGLHHRLVYAPVHKLHHKYKDTTPFSAYAFHPLDGWLQGCPYHLFI FLFPMHHMTYFI
SLAIVGLWTINIHDRVMTQLPHVNGAAHHTIHHTMFNINYGYFTFWDKIGGSYRNPMML
YPPYAEKSPALTASAKKDK

>*Volvox carteri* C5-SD1

MADMPKEERLRLLLKEENEWLNSFVMWIFPDGIREQIPHFWQTLRCWILCALVYFGIGA
VWSYIYFCFGDKLFAPDTMPAFKDVAEQIRVSNIAMPLYSMLPTLTEYAAEKGWTCAY
PRVANVGLPAYVLYFFLYMASVEFGVYWMHRLLDIKWAYRFLHYDHHKYNKEHTLSPF
AGLAFHPIDGILQAVPYTWTLFYCPMHFLTTHEILLFATGVWTANIHDCLHARVWPVMGA
GYHTIHHTTYKHNYGHYFVFMDWLMGTLHTPEQYADKEARGLSKLIPTTAAAAPQMPA
IAAGGSGGKKQQ

>*Chlamydomonas reinhardtii* C5-SD1

MSATLARSLAVVAVFGAVLVSSHLLAGSAEVVHTKFPNVVIAGHSSSLLSGVRAWFASF
ATQADMPVAERLRLMREENEWKNNLVMWLFDPDSVRDQIPHFWQTLRCWILCAAVYFGV
GGLWCYYTYFCFGDKWFAPGTIPAWKDVAEQMRVSNIAMPLYSMLPALTEMAAEKGWTR
AYPRVENVGLPAYVLYFFLYMTSVEFGVYWMHRIHGWPLYKYLHWDHHKYNKEHTLSP
FAGLAFHPLDGILQAVPYAWTLLYCPMHFLTHELLLFATGVWTTNIHDCLHGHVWPIMG
AGYHTIHHTTYKHNYGHYFIFMDYLMGTLTTPEQYDADKAARATKAVKAQ

>*Ostreococcus lucimarinus* FAH

MFAKVWRVVLDFNHPFVIAGPLTFAYHEAVYFGAWTPWLAMDQFEYFKRWKIQPDKTPS
KEMVMKCLTKLLKSHVFIQLPMQMMFYFVAPYFGFSLAMEALPKSRDLLWQIPVFFAIE
DFYFYWVHRGLHHKRKYVHKIHHEHKFPFGIAAEYAHPVETFFLGIGTLLGPLFFAK
HMTLWVWVLFRLVETVEDHSGYDVPWNPTNLIPFWGGAVHHDHFKTFEGPYSSVFTW
CDWMFGTDKEFRKHQLKLRGGSESLAYPAVFRGAPNERSLPSKKVD

>Zm C5-SD1-1

MEAVAHSGDYLWRFVAETEWYNEVVL SAVAPGDWWRGLPHVPQSWMRNCVGGYLLYFIS
GFLWC FVIYYWKRHAYIPKDAIPTNDAMKKQIVVASKAMPFYCALPTLSEYMIESGWTQ
CYFNISEIGFSMYLCY MAMYLI FVEFGIYWMHRELHDIKPLYKYLHATHHIYNKENTLS
PFAGLAFHPLDGILQAIPHVFALFLFPPTHFRTHIALLFLEAVWTTNIHDCHGKIWPVM
GAGYHTIHHTTYRHNYGHYTIWMDWMFGTLNEPEDILKKA

>Zm C5-SD1-2

MAVHGGDYLRRFVAETEWYNEVVLSAVAPGDWWRGLPHPVQSWMRNCVGGYLLYFISGF
LWCFVIYYWKRHAYIPKDAIPTNEAMKKQIAVASKAMPFYCALPTLSEYMIESGWTRCY
FNISEMGFSAYLCYMAMYLI FVEFGIYWMHRELHDIKPLYKHLHATHHIYNKENTLSPF
AGLAFHPLDGILQAIPHVLAFLFLPTHFRTHIALVFLEGVWTTNIHDCIHGKVWPMGA
GYHTIHHTTYRHNYGHYTVWMDWMFGTLREPDDILKKA

>Mt C5-SD1-1

MHTMEQDYRTLFIEDTDFYNSILLGTLLPQFLWVPLPRFFQTWLRNYIGGLLLYFISGF
FWSFYIYCWKRNVL PKDAVPSRRAIFLQISVAMKAMHWYTLLPTLSEYLTEIGWTRCF
PRLNNVGWIAYIGYLAMYMVIVEFGIYWHRVLHDIKPLYKYLHATHHMYNKQNTLSPF
AGLAFHPLDGILQALPHSLALFIVPVHFIAHLVLLFIEGVWTANIHDCIHGKLWPMGA
GYHTIHHTTYRHNYGHYTIWMDWVFGTLRDPEEDVGKVM

>Mt C5-SD1-2

MQIMEDPTTDYHRFFVEDTNMYNHVVLGTLLPQYLWVLLPRFFQTWLRNYVGAVLLYFI
SGFLWSFYIYHWKQNVYVPKDSIPSRRAMFLQISVTMGMPWYSLLPTISECLVELGWT
KSFPRLNNLWIAIYIGYLAIYMVIVEFGIYWMHRKLHDIKPLYKYLHATHHIYNKQNTL
SPFAGLAFHPLDGILQALPHSLTLFIVPVHFNVHLVLLFIEIIWSSNIHDCIHGKLWPF
MGAGYHTIHHTTYCHNYGHYTIWMDWIFNTLRDPEEVEGNVM

7-DR1 and 7-DR2 sequences

>SI 7-DR2

MAESQLVHPPLFTYISMITLLTLVPPFVILMWYTNVHADGSVLQTYNYLKENGLQGLID
IWPRPTAIAGKIIICYALFEATLQLLPGKRVEGPISPTGHRPVYKANGMAAYTVTLIT
YLSLWWFGIFNPTIVYDHLGEILSTLNFGLIFCLFLYIKGHVAPSSTDHGSSGNIIVD
YYWGMELYPRIGKHFDIKVFTNCRFGMISWGLLPITYCIKQYEEYGSLSDSMLIHTIIT
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVFLPCMYTSPGMYLVKHPVNLGPQL
AISILVAGILCVYINYDCDRQRQEFRRRTNGKALVWGKAPSKIVASYTTTTGETKTSILL
TSGWWGLSRHFHYVPEILASFFWSVPALLNHMPYIYVIYLTGLLLDRAKRDDERCKSK
YGKYWKKYCEKVPYRVVPGIY

>SI 7-DR1

MVENKLVHSPLITYGSMLSLLSFTPPFVILMWYTNVHADGSILKTFNHLRENGLQGLID
IWPKPTAIAGKLIICYALFEAALQLLPGKTVEGPISPTGHRPVYKANGMAAYAVTLIT
YISLWWFGIFNPAIVYDHLGEIFSTLIFGSLVFCVLLYIKGHVAPSSTDGSSGNIIVD
FYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIKQHEEYGRVSDSMLVNTILM

LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSIYTSPGMYLVKQPVNLGLQL
SLYILVAGLLCIYINYDCDRQRQEFRRRTNGKCTVWGKTPSKIVAAYTTTSGEKKTSLLL
TSGWWGLARHFHYVPEILAAFFWSVPALFNHFIPYFYVIFLIILLLLDRAKRDDDRCKAK
YGKYWKLYCEKVPYRVIPGIY

>St 7-DR2

MAESQLVHPPPLFTYISMLALLTLVPPFVILMWYTNVHADGSVLQTFNYLKENGLQGLID
IWPRPTAIAGKIIICYALFEATLQLLLPGKRVQGPISPTGHRPVYKANGMAAYTVTLIT
YLSLWWFGIFNPTTVYDHLGEILSTLNFGSLIFCLFLYIKGHVAPSSTDHGSSGNIIVD
YYWGMELYPRIGKHFDIKVFTNCRFGMISWGLLPITYCIKQYEEYGSLSDSMLIHTIIT
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVFLPCMYTSPGMYLVKHPVNLGPPQ
AISILVAGILCVYINYDCDRQRQEFRRRTNGKALVWGKAPSKIVASYTTTTGETKSSLLL
TSGWWGLSRHFHYVPEILASFFWSVPALFNHIMPYFYVIYLTGLLLLDRAKRDDDERCKSK
YGKYWKKYCEKVPYRVVPGIY

>St 7-DR1

MVENKLVHSPLITYGSMLSLLSFTPPFVILMWYTNEHADGSILKTFNHLRENGLOGLID
IWPKPPTAIAGKLIICYALFEAALQLLLPGKTVEGPISPTGHRPVYKANGMAAYAVTLIT
YISLWWFGIFNPAIVYDHLGEILSTLIFGSLVFCVLLYIKGHVAPSSTDGSSGNIIVD
FYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIKQHEEYGRVSDSMLVNTILM
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSIYTSPGMYLVKQPVNLGLQL
ALYILVAGLLCIYINYDCDRQRQEFRRRTNGKCTVWGKTPSKIVAAYTTTSGEKKTSLLL
TSGWWGLARHFHYVPEILAAFFWSVPALFNHFIPYFYVIFLIILLLLDRAKRDDDRCKAK
YGKYWKLYCEKVPYRVIPGIY

>Ca 7-DR2

MGDSQLVHPPPLFTYISMLTLLTIVPPFVILMWYTNVHADGSVLQTFNFLKENGLQGLID
IWPRPTAVAGKIIICYALFEAILQLLLPGKRVEGPISPTGHRPVYKANGVAAYIVTLIT
YLSLWWFGIFNPTIVYDHLGEILSTLNFGSLIFCLFLYIKGHVAPSSTDHGSSGNIID
YYWGMELYPRIGKHFDIKVFTNCRFGMISWAVLPITYCIKQYEEYGNLSDSMLVHTIIT
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVFLPCIYTSPGMYLVKHPVNLGPPQ
AISILVAGILCVYINYDCDRQRQEFRRRTNGKALVWGRPPSKIVASYTTTTGETKTSLLL
TSGWWGLSRHFHYVPEILASFFWCVPALFNHFIPYFYVIYLVLLLLDRAKRDDDERCKSK
YGKYWKKYCDKVPYRVIPGIY

>Ca 7-DR1

MAETKLVHSPLITYASMLTLLSFTPPFVILMWYTNVHADGSILKTFNYLRENGLOGLIN
IWPKPPTAIAGKLIICYALFEAALQLLLPGKRVEGPISPTGHRPVYKANGMQAYAVTLIT
YISLWWFGIFNPAIVYDHLGEIFSTLIFGSLIFCFFLYIKGHVAPSSTDGSSGNIIVD
FYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIKQHEEYGRVSDSMLVNTILM

LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSIYTSPGMYLVKQPVHLGLQL
ALYILVAGLLCIYINYDCDRQRQEFRRRTNGKCTVWGKTPSKIVATYTTTSGEKKTSLLL
TSGWWGLARHFHYVPEILAAFFWSVPALFNHFIPYFYVVFLLMILLFDRAKRDDDRCKAK
YGKYWKLYCEKVPYRIIPGIY

>Nb 7-DR2-2

MAESQLVHPPLVTYLSMIALLT LAPPFVILMWYTNVHADG SVLQTFNYLRENGLQGLID
IWPRPSAVAGKIIICYALFEAALQ LLLPGKMVQGPISPTGHRPVYKANGMAAYVVTLIT
FGIFNPTLVYDHLGEILSALNFGSLIFCLFLYIKGHVAPSSTDHGSSGNI IIDFYWGME
LYPRIGKHFDIKVFTNCRFGMISWGVLPITYCIKQYEEYGSLSDSMLVNTILTLVWLLH
MLGMLSMASMYIYFSWNLAIYILVAGVLCVYINYDCDRQRQEWGLARHFHYVPEILASF
FWSVPALFNHFIPYFYVIYLTILLFDRAKRDDDRCKSKYGKYWKLYCEKVPYRVIPGIY

>Nb 7-DR2

MAESQLVHPPLVTYLSMMALLT LAPPFVILMWYTNVLADG SVLQTFNYLRENGLQGLVD
IWPRPSAVAGKIIICYALFEAALQ LLLPGKTVQGPISPTGHRPVYKGHVAPSSTDHGSS
GNI IIDFYWGMELYPRVGKHFDIKVFTNCRFGMISWGVLPITYCIKQYEEYGSLSDSML
VNTILTLVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWLPCIYTSPGMYLVKQPV
NLGLQLAIYILVAGVLCVYINYDCDRQREEWGLARHFHYVPEILASFFWSVPALFNHFI
PYFYVIYLTILLFDRAKRDDDRCKSKYGKYWKLYCEKVPYRVIPGIY

>Sm 7-DR2

MAESQLVHPPWFTYISMLTLLTIVPPFVILMWYTNVHADG SVLQTYNYLKDNGLQGLID
IWPRPTAIAGKIIICYALFEAALQ LLLPGKRVQGPISPTGHI PVYKANGMLAYTVTLVT
YLSLWWFGIFNPTIVYDHLGEILSTLNFGSLVFCFLYIKGHVAPSSTDHGSSGNI IVD
FYWGMELYPRIGKHFDIKVFTNCRFGMISWGVLPITYCIKQYEEYGHLSDSMLVHSIIT
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVFLPCIYTSPGMYLVKHPVNLGHEL
AAILVAGILCVYINYDCDRQRQEFRRRTNGKALVWGKAPSKIVASYTTTGETKTSLLL
TSGWWGLARHFHYVPEILASFFWSVPALFNHVRFI PYFYVIYLTVLLFDRAKRDDDERCK
SKYGKYWKKYCEKVPYRVIPGIY

>Sm 7-DR 1

MAETKLVHSPLITYASMLTLLSFTPPFVILMWYTNVHADGSILKTFNHLRENGLQGLID
IWPKPTAIAGKLIICFALFEAALQ LLLPGKRVEGPISPTGHVPVYKANGMAAYAVTLIT
YISLWWFGVFNPAIVYDHLGEILSTLIFGSLVFCVFLYIKGLVAPSSTDGSSGNI IVD
FYWGMELYPRIGKDFDIKVFTNCRFGMMSWAVLAVTYCIKQHEEYGRVSDSMLVNTILM
LVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSIYTSPGMYLVKQPVNLGLQC
SSSILITKKSPRAGRGTVP HSM DNKLSLVSFPLNYQAFVHGRKKPILELSTEA EKAGLL
CIYINYDCDRQRQEFRRRTNGKCTVWGKAPSKSMQIVATYTTTSGEKKTSLLL TSGWWGL
ARHFHYVPEILAAFFWSVPALFNHFIPYFYVIFLTILLFDRAKRDDDRCKAK

>At DWARF5

MAETVHSPIVTYASMLSLLAFCPFFVILLWYTMVHQDGSVTQTFGFFWENGVOGLINIW
PRPTLIAWKIIFCYGAFAEAILQLLLPGKRVEGPISPAGNRPVYKANGLAAYFVTLATYL
GLWWFGIFNPAIVYDHLGEIFSALIFGSFIFCVLLYIKGHVAPSSSDSGSCGNLIIDFY
WGMELYPRIGKSFDIKVFTNCRFGMMSWAVLAVTYCIKQYEINGKVSDSMLVNTILMLV
YVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSVYTSPPGMYLVNHPVELGTQLAI
YILVAGILCIYINYDCDRQRQEFRRRTNGKCLVWGRAPSKIVASYTTTSGETKTSLLLTS
GWWGLARHFHYVPEILSAFFWTVPALFDNFLAYFYVIFLTLLLFDRAKRDDDRCRSKYG
KYWKLYCEKVYRIIPGIY

>Mt 7-DR1

MVESKKTETVHSPLVTYASMISLLTLAPPFVNLLWYTMTTAMDGSILKTFDYLNNGLO
GFLNLWPKPTLLSFQIIVVYAAFEALLQLLLPGGETVYGPISPTGNRPFYKANGVAAYLV
TLVTYVALWRFGIFNPTIVYDHLGEIYSTLSFGSFIFCIFYIKGHLAPSSTDGSSGN
I I IDFYWGMELYPRIGKYFDIKVFTNCRFGMMSWAVLALTYCIKQYEENGKVADSMLVN
TTLMLVYVTKFFWWEAGYWNTMDIAHDRAGFYICWGCLVWVPSVYTSPPGMYLVNHPVNL
GTQIEASYTTSSGETKRSLLLTSWWRLARHFHYVPEILAAFFWTVPALFNHFLPYLYV
IFLIILLFDRAKRDDDRCRSKYGKYWKLYCDRVAYRIIPGIY

>Os 7-DR1

MAKPRASAAAAPASTPPKTVHSALVTYASMLSLLSLCFFVILLWYTMVHADGSVVR
AYEHLREHGVLEGLKAIWPMPTMAAWKIIFGFGLFEEALQLLLPGKRFEGPVSPSGNVP
VYKANGLAAYAVTLITYLSLWWFGIFNPAIVYDHLGEIYSALVFGSFVFCIFYIKGHL
APSSSDSGSSGNV I IDFYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIKQYE
MNGRVADSMLVNTALMLIYVTKFFWWEESGYWCTMDIAHDRAGFYICWGCLVWVPSIYTS
PGMYLVNHPVNLGPQLALSILLAGILCIYINYDCDRQRQEFRRRTNGKCSIWGKAPSKIV
ASYQTTNGETKSSLLLTSWWGLSRHFHYVPEILSAFFWTVPALFDHFLPYFYVIFLTI
LLFDRAKRDDDRCSSKYWKMYCNKVPCRVIIPGIY

>*Homo sapiens*

MAAKSQPNIPKAKSLDGVTDNRTASQGQWGRAWEVDWFSLASVIFLLLAFPIVYFIM
ACDQYSCALTGPVVDIVTG HARLS DIWAKTPPITRKAAQLYTLWVTFQVLLYTSLPDFC
HKFLPGYVGGIQEGAVTPAGVVNKYQINGLQAWLLTHLLWFANAHLWSFSPTIIFDNW
IPLLWCANILGYAVSTFAMVKGYFFPTSARDCKFTGNFFYNMGGIEFNPRIGKWFDFK
LFFNGRPGIVAWTLINLSFAAKQRELHSHVTNAMVLVNVLQAIYVIDFFWNETWYLKTI
DICHDFHGWYLGWGDVWLPYLYTLQGLYLVYHPVQLSTPHAVGVLLLGLVGYIIFRVA
NHQKDLFRRTDGRCLIWGRKPKVIECSYTSADGQRHHSKLLVSGFWGVARHFNIVGDLM
GSLAYCLACGGHLLPYFYIIYMAILLTHRCLRDEHRCASKYGRDWERYTAAVPYRLLP
GIF

>*Danio rerio*

MMASDRVRKRHKGSANGAQTVKEKEPSKEPAQWGRAWEVDWFSLSGVILLLLCFAPFLVSF
FIMACDQYQCSISHPLLDLYNGDATLFTIWNRAPSF TWAAAKIYAIWVTFQVVLYMCVP
DFLHKILPGYVGGVQDGARTPAGLINKYEVNGLQCWLITHVLWVLNAQHFWFSPTIIII
DNWIPLWCTNILGYAVSTFAFIKAYLFPTNPEDCKFTGNMFYNYMMGIEFNPRIGKWF
DFKLFFNGRPGIVAWTLINLSYAAKQQELYGYVTNSMILVNVLQAVYVVDFFWNEAWYL
KTIDICHDFHGWYLGWDCVWLPFLYTLQGLYLVYNPIQLSTPHAAGVLILGLVGYYIF
RVTNHQKDLFRRTGNC SIWGKKPTFIECSYQSADGAIHKSCLMTSGFWGVARHMNYTG
DLMGSLAYCLACGGNHLLPYFYIIYMTILLVHRCIRDEHRC SNKYGKD WERYTAAVSyr
LLPNIF

>Pp 7-DR1-1

MGAQGDQKLTRSQYAKEPISVH SKMVTYVSMTALITLCPAFVMFLWHTMVNLDGSTTKY
LELYKVEGIDGVLKTPMPTMNALKIIILSFAAFEAFLLQLYIPGEVHVGPVSPAGNRPVY
KNNGFSCYIITLVSYGYLYKSGYFNPAVVYDHLGEIYFTLVVGSFFVCILLYIKGHVAP
SSSDCGSSGNVLVDIFYWGMELYPRIGQNF DIKVFTNCRFGMMSWAVLVVTYAIKQIELY
GKLSDSMTVSATLMLVYITKFFWWEAGYWNSMDIAHDRAGFYIVWGCLVWVPSVYTSPA
LYLVNHPVELGMPLAAAITAAGLLCIWINYDADLQRQTFRKTDGKAKVWGKVPNKIVAT
YVTEKGEKKQSLLLVSGWWAMARHFHYLPEISAAFFWTVPALF SHPLPYFYVVF LTILL
VDRAERDDKRCQTKYKKFWDEYKRTVPCKIIPHI F

>Pp 7-DR1-2

MGTRCTQSWPPQPPSATLLATLSWYTMVRADGSVEKACRHHFFQFGIRGIKDVWPFPSQR
ACKLVGA FVLFEAILQALLPGERVMGPSTPVGNRPLYTRNGIPCF LITLGVYYLLWRER
LFNPAMVYDIIIGEISV LICATYITTTLLYVKGHMAPC SSDWGSSGNVLG DFFWGMELC
PRLSSVFDIKVFMNYRLGIMGWAILVISFAIKQYEVQGRVSDSLMVSSLLMLMYIAKFF
WMEAAFGCSMDIAHDRAGWFMTYTCVTWI PVVNSSVNLYLVTHPIQLGRMASTIFLLG
MLCIYVVWDCDRQRQLFRNSHGKCQIWGRIPTKIQARHQTERGERKSLLLTAGWHIHYA
PEIGA AFFWTLPALFRHAMPYFYVTFLTALLIDRANRDDKYCRVKYHKHWEAYSKKVRY
KVVP RVF

>*S. moellendorffii* 7-DR1

MASSIGGKDARKIKGGGAGGAKASSEFGTVAGHSASVTYVSMLG LLLLFCPPFVIVLWYTL
VHGHGAVSSFWDLAQAKGFQALVEIWPRPTLTACKIIAAFG LFEAFLLLALPGKKFIGP
VSPSGNRPVYKANGMAAYVTTLVVYTAMWRFGWFNPALVYDHLGEIFSTLIFGSIVFCV
LLYIKARQGHVAPSSSDSGSTGNFIADIFYWGMELYPRIGSSFDIKTFANCRFGMMSWAV
LAITYCIKQHELYGKVSDSMLVSTCLMLVYITKFFWWESGYWCTMDIAHDRAGFYICWG
CLVWVPSVYTSPALYLV RHSNELGTQLALAILVAGLACIYINYDCDRQRQHFRSTNGKC

TIWGKAPGKIEATYVTEKGETKKSLLLTSGWWGLARHFHYVPEISAAFFWSVPALFEHF
LPYFYVVFLLTILLLDRAVRDDQRCRTKYKKFWDLYCREVPYKVLPGVY

>Bd 7-DR1-1

MGKPKPSSAAPPPTRPSAASAPKTVHSALLTYTSMLSLLSLCPPFVILLWYTMVHADGS
VVRTYEHRLRDHGLLEGLKAIWPMPTMAAWKIIIFGFALFEAVLQLLLPGKRFEGPISPSG
NVPVYKANGLQAYAVTLVTYLSMWWFGLFNPAIVYDHLGEIYSALVFGSFVFCIFLYIK
GHVAPSSSDSGSSGNAIIDFYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIK
QYEMNGRVADSMVLNTALMLIYVTKFFWWESGYWCTMDIAHDRAGFYICWGCLVWVPSI
YTSPGMYLVNHPVNLGPQLAVSILLAGILCIYINYDCDRQRQEFRRRTNGKCSIWGKAPS
KIVASYQTTAGETKTSLLLTSGWWGLSRHFHYVPEILSAFFWTVPALFDHFLPYFYVIF
LTILLLDRAKRDDDDRCSSKYGKYWKMYCNKVPYRVVPGIY

>Bd 7-DR1-2

MGKPKPSSAAPPPTRPSAASAPKTVHSALLTYTSMLSLLSLCPPFVILLWYTMVHADGS
VVRTYEHRLRDHGLLEGLKAIWPMPTMAAWKIIIFGFALFEAVLQLLLPGKRFEGPISPSG
NVPVYKANGLQAYAVTLVTYLSMWWFGLFNPAIVYDHLGEIYSALVFGSFVFCIFLYIK
GHVAPSSSDSGSSGNAIIDFYWGMELYPRIGKHFDIKVFTNCRFGMMSWAVLAVTYCIK
QYEMNGRVADSMVLNTALMLIYVTKFFWWESGYWCTMDIAHDRAGFYICWGCLVWVPSI
YTSPGMYLVNHPVNLGPQLAVSILLAGILCIYINYDCDRQRQEFRRRTNGKCSIWGKAPS
KIVASYQTTAGETKTSLLLTSGWWGLSRHFHYVPEILSAFFWTVPALFDHFLPYFYVIF
LTILLLDRAKRDDDDRCSSKYVRKVLEDVLQQSTIQGCSWYLLKILSG

>Sb 7-DR1

MAKPKPSSAGAKSAAAAAAPAPPATVHSALVTYTSMLALLSLCPPFVILLWYTMVHADG
SVVRTYEHRLREHGVLEGLKAIWPMPTLVAWKIIIFGFGLFEAVLQLLLPGKRFEGPISPA
GNVPVYKANGLQAYAVTLITYLGLWWFGIFNPAIVYDHLGEIYSALVFGSFVFCILLYI
KGHVAPSSSDSGSSGNVIIDFYWGMELYPRIGKYFDIKVFTNCRFGMMSWAVLAVTYCI
KQYEMNGRVADSMVLNTALMLIYITKFFWWESGYWCTMDIAHDRAGFYICWGCLVWVPS
IYTSPGMYLVNHPVNLGPQLALSILLAGMLCIYINYDCDRQRQEFRRRTNGKCSVWGKAP
SKIIVASYQTTKGETKTSLLLTSGWWGLSRHFHYVPEILSAFFWTVPALFNHFLPYFYVI
FLTILLFDRAKRDDDDRCSSKYGKYWKTYCNKVPYRVIPGIY

>Zm 7-DR1

MAKPKPSSAGAKPTAAAPPVTVHSALVTYTSMLALLSLCPPFVILLWYTMVHADGSVVR
TYEHLRDHGVLEGLKAIWPMPTLVAWKIIIFGFGLFEAVLQLLLPGKRFEGPISPAGNPV
VYKANGLQAYAVTLITYLGLWWFGIFNPAIVYDHLGEIYSALVFGSFVFCIFLYIKGHV
FPSSSDSGSSGNVIIDFYWGMELYPRIGKYFDIKVFTNCRFGMMSWAVLAVTYCIKQYE
MNGRVADSMVLNTALMLIYITKFFWWESGYWCTMDIAHDRAGFYICWGCLVWVPSIYTS
PGMYLVNHPLNLGPQLALSILLAGMLCIYINYDCDRQRQEFRRRTNGKCSVWGKAPSKIV

ASYQTTKGETKTSLLLLTSGWWGLSRHFHYVPEILSAFFWTVPALFNHFLPYFYVIFLTI
LLFDRAKRDDDDRCSSKYGKYWKIYCNKVPYRVIPGIY

>Vv 7-DR1

MISLLTLCPPFVILLWYTMVHADGSVLQTDWDLKQHGVSQGFIDIWPRPTAIAWKLIACY
AAFEAALQLFLPGKTVEGPISPCGNRPVYKANGMQAYAVTLITYLSLWWFGIFNPATVY
DHLGEIYSALIFGSLIFCIFYIKGHVAPSSSTDGSSGNIIDFYWGMELYPRIGKNFD
IKVFTNCRFGMMSWAVLAVTYCIKQYEENGKVADSMVNTILMLVYVTKFFWWEAGYWN
TMDIAHDRAGFYICWGCLVWVPSIYTSPGMYLVNHPVNLGTQLAIYILAAGITCIYINY
DCDRQRQEFRRNTGKCLVWGKAPSKIVASYTTTSGETKSSLLLLTSGWWGLSRHFHYVPE
ILAAFFWTVPALFGHFLPYFYVFLTILLFDRAKRDDDDRCRSKYGKYWKYCEKVRYRI
IPGIY

>*Ostreococcus lucimarinus* sterol reductase

MPASARRAPSTRARGSSRGVAERATTTTRAASSEKARARDAPTTTHYEFGGPIGALAITV
ALPLVCYFLAYACNEDGCAEVSKLARGGAFPGFPHMPLWSVDGAVAAYGWMAFTVVAH
AVIPGQKKQGVLPDGTRLTYKLNFRVLAATAVAGAIGTKAGWFDLASVHDNFLSMLT
AMVVLAYALSAYLYASSFAKGKTLAKGGNSGNAAYDFFIGRELNPRI LNGAFDLKVFCE
LTPGLIGWLLLDLGFAAKQYARVGAVSAPMIMVCVFQGAYVIDALWNEPAILTTMDITT
DGFGLMFAFGDLVWVPFTYSLQCRYILEHAVELSNAHLVAIFAVQCVGYWVFRGANSQK
NLFRTPNDPRVKHLKTLQTKRGTKLIVSGWWGVCRHVNYLGDWIMAWAWCLPCGFSLH
VPYFYVIYFGILLVHRDGRDGEACEEKYGDDWKKYCAIVKYRLIPYIY

>*Chlamydomonas reinhardtii* sterol reductase

MKGGGTQHFEFFGPHGPAVLVLVLPVAVCYALIIGCNKESCLKLWPEFKLPSLPQTVSFY
SNEAMLVYLAWFFGVALLVHVLPGQKAEGVVL PNGKRLTYKLNAFRIFLITYGAALYFG
FVSRQLDLGWLYDNFAQLLTAAIIFSSALSVYLYASSFRKGALLSGHGATGYPAYDFWM
GRELNPRLLGGAFDLKEFCELYPGMMGWALINLGMMAHKQWAATGSLTTSMLLVNVFQLY
YVVDALWCEKAILTTMDITTDGFGFMLAFGDLAWVPFTFTSCARYLVDYPQHLSVAATC
LVLA VKLLGYAVFRGANSQKDMFRANPSDPRVAHLRTLKTERGTQLIISGWWGTARHIN
YFGDWIMGVAWCMPAGLQGLASVVPYFYCIYFASLLIHRERRDEHACRLKYGKDWDKYC
ALVRYRIVPYLY

>*Volvox carteri* sterol reductase

MVDKARKIAKEEHHFEFFGPYPALLVIVLPVAVCYALILGCNKNSCLQLWPMLKLSSFD
VSIKWYSWDALLIYLAWFFGLAFLHVVLPGQRTGVL PNGKRLAYKLNAFRFLVFLVYG
AAFYFGFFTEYLN LGWLYDQFAPLLTASII FSSSLSVYLYVSSFQKGLLLSSHGNTGYP
VYDFWMGRELNPRLLGGRFDLKEFCELYPGLIGWALLNLGMMAHKQLANHGSISNSMVLV
NAFQLYYIIDALWCERAILTTMDITTDGFGFMLAFGDLAWVPFTFTSAARYLVDHPQHL
SVLGLVLVLAVKALGYIFRGANSQKDMFRSNPNDRVAHLRTLKTERGTSLIVSGWWG

TARHINYFGDWIMGVAWCMPAGLAGLSAVVPYFYCIYFAALLIHRERRDEHACRQKYGK
DWDKYCALVRYRIVPYVY

Sterol methyl oxidase sequences (SMOs)

>SI SMO4

MASMIESAWAFLLANFSDFQLTSLGGFIVHESAFFLSGIPFILFEKAGWFGKYKIQKKT
NTPEAQQKCITRLLIFHFVCVNLPIILIVTYPLFKFMGMRSTLPLPSWKVVSTQVLFYFIL
EDFVIFYWGHRLHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATVIGPAITG
PHLITLYLWISLRILETVEAHSGYHFPWSPSNFLPLYGGSDFDYHHRLLYTKSGNYSS
TFVYMDWFLGTDKGYRKLKMLKEQEGKAM

>SI SMO3

MLPFESIEEASMSLGRNLTYGETLWFNYTANKSDFYLYCHNTIFLIIFYTLVPLPMVMI
ELLRSKKFEIYKIQPKTTFTLSEMMECYRKVLITFVFAVGPLQLFSYPIIEWVGIRTSL
PLPSASEVFWQLVVYFLVEDYANYWLHRMLHXYKWGYDKIHRVHHEYVAPISFAAPYAH
WAEIIILGLASFLGPLLVPCHMFTFLLWFVLRQIEAETHSGYEFWSPSPKYIPFYGGA
IYHDYHHFVGESCHSNFASVFTYCDYIYGTDKGYRYQKEVFEEKRREKLKMEEKVNGSAP
VFKSE

>SI SMO2

MASMIESAWTYLITNFNDFQLACLGSFFLHESVFFLSGLPFILLERAGWLSKYKIQTKN
NTPAAQEKICITRLLLYHFCVNLPLMMASYPVFKLMGMRNTLPLPSWKVISTQVLFYFIL
EDFVIFYWGHRLHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPIITG
PHLITLWLWMIVRVLETVEAHCYHFPWSLSNFLPLYGGADFHDYHHRLLYTKSGNYSS
TFVYMDWFLGTDKGYRRLKVLKSDACEAEGKEM

>SI SMO1

MLPFKTLQEAESAIGRSLTTAETIWFNYSANKSDYYLYCHNILFLFLIFSCVPLYIIFL
EIFFRKSITQYKIQPKVNLSLSDVFRICYKVVMRMFILVVGPLQLVSYPVSKMIGIRTGL
PLPSLWVILLQLGTYFIVEDYTNYWIHRFLHCKWGYEKIHKVHHEYTAPIGFAAPYAHW
LEILILGIPSFLGPAIAPGHMITFWLWIAFRQIEAETHSGYDLPWSLTKYVPFYGGAD
YHDYHHYVGGQSQSNFASVFTYCDYIYGTDKGYRYQKKVLQQLKGASNANGGSATFAKD
D

>St SMO4

MASMIESAWAFLLANFSDFQLTSLGGFIVHESAFFLSGIPFILFERAGWFGKYKIQKKT
NTPEAQQKCITRLLMFHFVCVNLPIILIVTYPLFKFMGMRSTLPLPSWKVVSTQVLFYFIL

EDFVFYWGHRVLHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATVIGPAITG
PHLITLWLWISLRILETVEAHSGYHFPWSPSNFLPLYGGSDFDYHHRLLYTKSGNYSS
TFVYMDWLFGTDKGYRKLKMLKEQECNKAM

>St SMO3

MLPFESIEEASMSLGRNLTFGETLWFNYTADKSDFYLYCHNTIFLIIFYSLVPLPMVMI
ELLRSKKFEIYKIQPKTTTLSEMMECYRKVLMTFVFAVGPLQLFSYPIIEWVGIRTSL
PLPSASEVFWQLVVYFVVEDYANYWLHRMLHHYKWGYDKIHSVHHEYVAPISFAAPYAH
WAEIIILGLASFLGPLLVPCMHMTFLLWFVLRQIEAETHSGYEFWPSPSKYIPFYGGA
IYHDYHHFVGESCHSNFASVFTYCDYIYGTDKGFYQKEVFEKKQKRIREKCNILT

>St SMO2

MASVIESAWTYLITNFNDFQLACLSFFLHESVFFLSGLPFILLERAGWLSKYKIQTKN
NTPAAQEK CITRLLLYHFCVNLPLMMASYPVF KLMGMRNTLPLPSWKVISTQVLFYFIL
EDFVFYWGHRILHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPIITG
PHLITLWLWMILRVLETVEAHCGYHFPWSLSNFLPLYGGADFDYHHRLLYTKSGNYSS
TFVYMDWLFGTDKGYRRLKVLKSDACEAEGKEM

>St SMO1

MLPFKTLQEAE SAIGRSLTTAETIWFNYSANKSDYYLYCHNILFLFLIFSCVPLYLFL
EIFFRKS IQSYKIQPKVNLSLSDVFR CYKVVMMFILVVGPLQLVSYP SVKMIGIRTSL
PLPSLWVILLQLGTYFIVEDYTNWIHRFLHCKWGYEKIHKVHHEYTAPIGFAAPYAHW
LEVLILGIPSFLGPAIAPGHMITFWLWIAFRQIEAETHSGYDLPWSLTKYIPFYGGAD
YHDYHHYVGGQS QSNFASVFTYCDYIYGTDKGYRYQKKVLQQLSSIMKLISFFH MVQVD
ELKGASNANGEQN

>Ca SMO4

LTCLGGFIVHESVFFLSGLPFILFERAGWFGKYKIQKKNNTP EAQTKCITRLVMYHLCV
NLPILLVTYPVFKFMGTRSTLPLPSWKVVATQILFYFIIE DFVFYWGHRILHTKWLYKH
VHSVHHEYATPFGLTSEYAHPAEILFLGAATIVGPALTGPHLITIYLVSLRILETVEA
HSGYHFPWSPSNFLPLYGGSDFDYHHRLLYTKSGNYSSTFVYMDWIFGTDKGYRKLKS
LKESEREAEGKVM

>Ca SMO2

MFQYLITNFSDFQLACLSFFLHESVFFLSGLPFILLERAGWLSKYKIQTKNNTPAAQE
KCITRLLLYHFCVNLPLMMASYPVFR LMGMRSTLPLPSWKVISTQVLFYFILEDFVFYW
GHRILHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPAVTGPHLITLW
LWMVLRVLETVEAHCGYHFPWSLSNFLPLYGGADFDYHHRLLYTKSGNYSSTFVYMDW
LFGTDKGYRRLKVLKSDACEAERKEI

>Ca SMO1

MLPFSSIQEAEIAIGRSLTYAETIWFNYSANKSDYYLYCHNILFLFLIFSCVPLYYLFL
EFFFRKSIQSYKIQPKVNLGLSEVFRCYKSVMRMFILVVGPLQLVSYPVKMIGIRTSL
PLPSLWEILLQLGTYFIVEDYFNYWIHRFLHCKWGYENIHKVHHEYTAPIGFAAPYAHW
LEILILGIPSFLGPAIAPGHMITFWLWIAFRQIEAIETHSGYDLPWTITKYIPFYGGPD
YHDYHHYVGGQSQSNFASVFTYCDYIYGTDKGYRYQKKVLQQVLLL

>Ca SMO3

MQWVGIRTSLPLPSASEVFWQLLVYFLVEDYANYWLHRMLHHYKWGYDKIHRVHHEYVA
PISFAAPYAHWAEIIILGLASFLGPLIVPCHMFTFWLWFVLRQIEAIETHSGYEFPWSP
SKYIPFYGGAIYHDYHHFVGESCHSNFASVFTYCDYLYGTDKVSSTLTMYKYLIVNSK
TMRNYKSKGKFITHKL

>Os SMO1

MLPYATAAEAEAAALGRAMTAAESLWFRYSAGIPDYVLFWHNILFLFVFTLAPLPVALL
ELRAPAAVGPFKLQPKVRLSREEFFRCYRDVMRLFFLVIGPLQLVSYPTVKMVGIHTGL
PLPSLGEMAAQLLVYFLVEDYLNWIHRLLHGEWGYEKIHRVHHEFTAPIGFAAPYAHW
AEVLILGIPSFVGPALAPGHMITFWLWIVLRQMEAIETHSGFDFPFNLTKYIPFYGGAE
YHDYHHYVGRQSQSNFASVFTYCDYLYGTDKGYRYHKAYQAKMKALGQTEGEKADSNGL
SYAKLD

>Os SMO2

MAASALDSAWEGLTGSFTEFQLATVVTFLLHETVFFLSGLPSLLFERFGLFAKYKIQKK
SNTPSYQNRCVLRRLILYHVCVNLPMVLSYPAFKFMGLRSSLPLPHWTVIVSQVLFYFV
LEDFIFYWGHRAHHTKWLYKHVHSVHHEYVMLHLGLILLHFVIVPVLLNNNFLGRYATP
FGLTSEYAHPAEILFLGFATIVGPALTGPHLFTLWLWMVLRVLETVEAHSGYHFPWSPS
NFLPLYGGSDFDYHHRVLYTKSGNYASTFVYMDWLFGTDKDYRNAKAIEEKDGKHL

>Zm SMO2

MSAIDSAWQLLIANFTEFQLATVVTFLLHETVFFLSGLPSLLFERFGLFAKYKIQKSN
TSAYQNRCVLRRLILYHVCVNLPMIFSYPAFKFMGLRSSLPLPHWSVVVSQVLFYFVLE
DFIFYWGHRAHHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATVVGPAALTGP
HLFTLWLWMVLRVLETVEAHSGYHFPWSPSNFLPLYGGSDFDYHHRVLYTKSGNYAST
FVYMDWLFGTDKDYRKAKTIEEKEGKNL

>Zm SMO1

MVKKTNIGDLSASRDKRYIPPPPLPKARPPRLPLVSSPSAIKMAVPMSAIESAWQLLIA
NFTEFQLATVITFLLHETVFFLSGLPSLLFERFGLFAKYKIQKRSNTSAYQNRCVLRRLI
LYHVSVNLPVMILSYPAFKFMGLRSSLPLPHWTVVVSQVLFYFVLEDFIFYWGHRAHHT

KWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATVVGPAALTGPHLFTLWLWMVLRV
LETVEAHSGYHFPWSPSNFLPLYGGSDFDYHHRVLYTKSGNYASTFVYMDWLFRTDNG
YRKAKRPLRSKK

>At SMO1-1

MIPYATVEEASIALGRNLTRLETLWFDYSATKSDYYLYCHNILFLFLVFSLVPLPLVVFV
ELARSASGLFNRYKIQPKVNYSLSDMFKCYKDVMTMFILVVGPLQLVSYPsiQMIEIRS
GLPLPTITEMLSQLVVYFLIEEYTNYWVHRFFHskWGYDKIHRVHHEYTAPIGYAAPYA
HWAevLLLGIPTFMGPAIAPGHMITFWLWIALRQMEAIETHSGYDFPWSPTKYIPFYGG
AEYHDYHHYVGGQSQS NFASVFTYCDYIYGTDKGYRFQKKLLEQIKESSKKS NKHNGGI
KSD

>At SMO1-2

MIPYATIEEASIALSRNLTWLETLWFDYSATKSDYYLYCHNILFLFLIFSLVPLPLVFI
ESSQSTSDLFNRYKIQPKVKNSFSSMFKCYKDVmKMSILVVGPLQLVSYPsiQMIEIRS
GLPLPSCMEIVAQLVVYFLVEDYTNYWVHRFFHCKWGYEKFHhIHHEYTAPIGYAAPYA
HWAevLLLGIPTFLGPAIAPGHMITFWLWIALRQIEAIETHSGYDFPWSLTkyIPFYGG
AEYHDYHHYVGGQSQS NFASVFTYCDYIYGTDKGYRFQKKLLQQMKEKSKKS NKLVNGG
EKFD

>At SMO1-3

MIPYPTVEDASVALGRNLTWfETVWFDYSATKSNFHVYCHTILVLFLVFSLAPFPLVIV
EWTGWFDQFKIQKKVKYSLSDMFQCYKEVMKLfLLVVGTLQIVSYPSIQMVGIRSGPLPL
PSLMEIVAQLVVYFLIEDYTNyWIHRWMHCKWGYEKIHRIHHEYTSPIGYASPYAHWAE
ILILGIPTFLGPAIAPGHIMTFWLWISLRQFEAIETHSGYDFPWSVTKLIPFYGGPEYH
DYHHYVGGQSQS NFASVFTYCDYISYGTDKGYRIHKK

>At SMO2-1

MDSLVESGWKYLVTfHSDFQLACIGSFILHESVFFLSGLPYIFLERTGFLSNYKIQTks
NTPEAQGKCIARLLLYHCCVNLPLMMASYPVFRFMGMESSFPLPSWKVVSAQILFYFII
EDFVFYWGHRILHTKWLYKNVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPALTG
PHLITLWLWMMLRVIETVEAHCGYHFPWSPSNFLPLYGGADFDYHHRLLYTKSGNYSS
TFVYMDWIFGTDKGYRKLKALKET

>At SMO2-2

MASFVESGWQYLVtHSDFQLACIGSFLLHESVFFLSGLPFIFLERQGFLSKYKIQTkn
NTPAAQGKCITRLLLYHFSVNLPLMLASYPVFRAMGMRSSFPLPSWKEVSAQILFYFII
EDFVFYWGHRILHSKWLYKNVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPALTG

PHLITLWLWMVLRVLETVEAHCGYHFPWSLSNFLPLYGGADFHDYHHRLLYTKSGNYSS
TFVYMDWIFGTDKGYRRLKTLKENGDMKQT

>Nt SMO1

MLPFKTIQEAESAIGRSLTTLETIWFNYSATKSDYYLYCHNILFLFLIFSCVPLYYLFL
ELFFRNSIQSYKIQPKVNLSLSEVFNCYKSVMRMFILVVGPLQLVSYPSVKMVGIRTSL
PLPSLWEILLQLGTYFIVEDYFNYWIHRFLHCKWGYENIHKVHHEYTAFIGFAAPYAHW
LEILILGIPSAIGPAIAPGHMVTFWLWIALRQIEAIETHSGYDLPWTITKYIPFYGGPD
YHDYHHYVGGQSKSNFASVFTYCDYIYGTDKGYRYQKKVLQQLKGASNVNGEQNGVSAK
DLKDD

>Nt SMO2

MASIIESAWTYLITNFSDFQLTCLGGFVLHESVFFLSGLPFLFERAGWFGKYKIQKKN
NSPAAQEK CITRLLLYHFCVNL PILIGSYPVFKFMGTRSSLPLPSWKVISTQIIFYFIL
EDFAFYWGHRI LHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIIGPAITG
PHLITIYLWVSLRVLETVEAHSGYHFPWSPSNFLPLYGGADFHDYHHRLLYTKSGNYSS
TFVYMDWIFGTDKGYRKLKSLKDNERFEAEGKEM

>Nb SMO1

MLPFKTIQEAESAIGRSLTTLETIWFNYSANKSDYYLYCHNILFLFLIFSCVPLYYLFL
ELFFRNSIQSYKIQPKVNFSLSEVFHCYKSVMRMFILVVGPLQLVSYPSVKMVGIRTSL
PLPSLWEILLQLGTYFIVEDYFNYWIHRFLHCKWGYENIHKVHHEYTAFIGFAAPYAHW
LEILILGIPSAIGPAIAPGHMVTFWLWIALRQIEAIETHSGYDLPWTITKYIPFYGGPD
YHDYHHYVGGQSQSNFASVFTYCDYIYGTDKGYRYQKKVLQQLKGASNVNGEQNGVSAK
DCKDD

>Nb SMO2

MASMIESAWTFLITNFSDFQLACLGSFFLHESVFFLSGLPFILLERVGWLSKYKIQTKN
NSPAAQEK CITRLLLYHFCVNLPLMMASYPVFRMLGMRSTLPLPSWKVISTQVFFYFIL
EDFVIFYWGHRI LHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPAITG
PHLITLWLWMVLRVLETVEAHCGYHFTWSLSNFLPLYGGSVQIFTLRIAVIFVCIFPMM
FESLPLVPRADFHDYHHRLLYTKSGNYSSTFVYMDWLFGTDKGYRRLKELKNDACEIEG
KEM

>Nb SMO4

MASIIESAWTYLISNFSDFQLTCLGGFVLHESIFFLSGLPFILFERAGWFGKYKIQKKN
NSPEAQEK CITRLLMYHLCVNL PILLGSYPVFKFMGTRSSLPLPSWKVISTQIIFYFIL
EDFVIFYWGHRI LHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIIGPAITG

PHLITLYLWVSLRVLETVEAHSGYHFPWSPSNFLPLYGGADFHDYHHRLLYTKSGNYSS
TFVYMDWIFGTDKGYRKLKSLKENERFEAEGKEM

>Nb SMO3

MLPFESIQAEMSLGRNLTFAETLWFKYTADKSDLYLYCHNTIFLIIFYTLVPLPMVII
ELLRSKKLEIYKIQPKIRFSLSEMMECYRKVLTTFLFAVSPLQFFSYPIQWVGIRTSL
PLPSASEVFWQLLVYFLVEDYANYWLHRMLHHYKWGYDKIHRIHHEYVAPIGFAAPYAH
WAEIIILGLASFLGPLMVPCHMFTFWLWFVLRQIEATETHSGYEFPWSPSRYIPFYGGA
IYHDYHHFVGESCHSNFASVFTYCDYIYGTDKRREKLRSMEDNVNGSTTSFKSE

>*S. cerevisiae* ERG25

MSAVFNNATLSGLVQASTYSQTLQNVAHYQPQLNFMKEYWAAWYSYMNNDVLATGLMFF
LLHEFMYYFRCLPWFIIIDQIPYFRRWKLQPTKIPSAKEQLYCLKSVLLSHFLVEAIIPIW
TFHPMCEKLGITVEVPFPPLKTMALIEIGLFFVLEDTWHYWAHRLFHYGVFYKYIHKQHH
RYAAPFGLSAEYAHPAETLSLGFGTGVMPILYVMYTGKLHLFTLCVWITLRLFQAVDSH
SGYDFPWSLNKIMPFWAGAEHHDLHHHYFIGNYASSFRWWDYCLDTESGPEAKASREER
MKKRAENNAQKKTN

>Pp SMO1-1

MIPFASLPEAEEALGRSLTLWEELWWSKTHNVSDYTLYCMNIIIFLFVIFSVVPLPYVLL
DVLKVKSAEKYKVQAGVHNEPSATWRCYKVVMTFFTVVGPLQLCSFPAVRLIGVRFLG
PLPAVSEVLMQLTVYTIVEDFGNYWLHRWLHNGWWYDAIHSVHHEFSAPMSFAAPYAHW
AEVVILGVPTFAGPAMAPGHIITFWLWIAMRQLEALETHSGYDFPWNPTRLIPFYGGAE
YHDYHHFVGAKCSSNFASVFTYCDWLYGTDKGYRYMKEVHRKEAIAKSKEQEKREAGWL
RADDLKPIPSFLSNDIKSS

>Pp SMO1-2

MILLTNIGQAEVALGRSLTYWEGWLWEGTHNVSDYYLYCLNIIIFLFTIFTIAPLPYVLL
DVWKVKSAEKYKVQPGVHNAPSATWRCYKVVMTFFTVVGPLQLCSFPAVRSIGIRFGV
PLPSVGEVCMQLVLYTMVEDYGNWYLHRWLHNGWWYDKIHSVHHEFATPMSFAAPYAHW
AEVMILGVPTFVGPAAMAPGHIITFWLWIAIRQLEAIEITHSGYDFPWNPTRLIPFYGGAE
YHDYHHFVGAKCSSNFASVFTYCDWIYGTDKGYRYMKEMHKRGLVAKGQAQEQNGNGWL
QKNDLKGLPASLSEGIRAS

>Pp SMO2-1

MATALEKGWLVRPLSLSLFLALAWSIFLLWVLDLECSGVFTKDGVPCLQVWIALASFV
HIPPSIYLINNFTDFQLASIGSFIIHESVFFLSGLPFIVMERLGYQRQYKIQGKVNVA
AQEKCVMKLLIYHICVNLPLMIVSYPVFKYMGFTSQLPLPSWNVVCFQILSYFILEDFI
FYWGHRILHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATVFGPAITGPHLL

TLWIWMSLRVIETVEAHCGYDFPWLSRYLPIYGGADFHDYHHRLLYTKSGNYSSTFTY
MDWIFGTDKGYRKLKALKAAEHQY EYVEEKVPKAD

>Pp SMO2-2

MASALEKIWLYLINNFTDFQLASIGSFIIHESVFFLSGLPFIVMERLGYQRQYKIQQKV
NSVAAQEKCVMKLLLYHICVNLPLMIVSYPVFKYMGFTSQLPLPSWNIVCFQILSYFIL
EDFIFYWGHRLHHTKWLYKNVHSVHHEYATPFGLTSEYAHPAEILFLGFATIFGPAITG
PHLLTLWIWMSLRVIETVEAHCGYDFPWLSRYLPIYGGADFHDYHHRLLYTKSGNYS
TFTYMDWIFGTDKGYRKLKALKAADHEY EYVEEKVPKTD

>*S. moellendorffii* SMO1-1

MLPYSTAAEAQAALGRPLTFLETLWLQHTANRSDFLYCLNIVYLFVNFTVLPLPTVIL
DVLKVRAFERFKLQPGVHTTISDALRCYKSVIWSFCTVVGPLQLLSYPMVKMLGFRTSL
PLPSCGEIVSQLAVYFLIEDYGNWIHRWLHCGWGYKNIHYLHHEFTAPMSFAAPYAHW
AEILVLGIPSFVGPALVPGHMTLWLWIALRHIEAMETHSGYDFPWSFTKFIPFYGGAE
YHDYHHFVGGKSQSNFASVFTYCDYLYGTDKGYRYQKSLMKVKSSLSLSLSL

>*S. moellendorffii* SMO1-2

MLPYSTAVEAQAALGRPLTFLETLWLQHTANRSDFLYCLNIVYLFVNFTVLPLPTVIL
DVLKVRAFERFKLQPGVHTTISDALRCYKSVIWSFCTVVGPLQLLSYPMVKMLGFRTSL
PLPSCGEIVSQLAVYFLIEDYGNWIHRWLHCGWGYKNIHYLHHEFTAPMSFAAPYAHW
AEILVLGIPSFVGPALVPGHMTLWLWIALRHIEAMETHSGYDFPWSFTKFIPFYGGAE
YHDYHHFVGGKSQSNFASVFTYCDYLYGTDKGYRYQKSLMKITKNKLGEETGGWVGDS
DKKSS

>*S. moellendorffii* SMO2-1

MAAPSSWLES AWQYLIDNYSELQLVTIGSFVLHEFVFFSFGLPYLFMEIAGLRKYKIQN
KVNTYAAQVKCLVRLLFYHTCVNLPLMGASYPIFKYMGFTSKLPLPSWKT VVFQILSYF
ILEDIFYWGHRLHHTKWLYKHVHCVHHEYATPFGLTSEYAHPAEILFLGFATIFGPAI
TGPHLFTLWLWISLRVLETIEAHCGYDFPWSPSKFLPLYGGAEFHDYHHRLLYTKSGNY
SSTFTYMDWIFGTDIGYRKLKALKEMGDEIPEPVVAIDEHLTNGKCENDQSKQSLLCD

>*S. moellendorffii* SMO2-2

MASALETAWLYLINNFSDFQLASLGSFIIHESVFFLSGIPYLMMEKWGMTKYKIQQKM
TPAAQEKCILRLLLYHTCVNLPLMVVSYP AFKYMGRSTLPFP SWKT VLFQIVSYFILE
DFIFYWGHRLHHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIFGPAITG
HLITLWLWMSVRVLETVEAHCGYDFPWLSRFLPIYGGADFHDYHHRLLF TKSGNYAST
FTYMDWIFGTDKGYRKLKALKCEDAKKVE

>*S. moellendorffii* SMO2-3

MPFQCRRLFAKSDARSLLFLLQYLIDNYSELQLVTIGSFVLHEFVFFSFGLPYLFMEI
AGLRKYKIQNKVNTYAAQVKCLVRLLFYHTCVNLPLMGASYPIFKYMGFTSKLPLPSWK
TVVFQILSYFILEDFIFYWGHRLHTKWLYKHVHCVHHEYATPFGLTSEYAHPAEILFL
GFATIFGPAITGPHLFTLWLWISLRVLETIEAHCGYDFPWSPSKFLPLYGGAEFHDYHH
RLLYTKSGNYSSTFTYMDWIFGTDIGYRKLKALKEMGDEIPEPVVAIDEHLTNGKCEND
QSKQSLLCD

>Bd SMO1-1

MLPYATAGEAEAAALGRALTWAEAAWLRYSAAVPDRYLHWPNIATLVVYTTLAPLPLAIL
DLAAPRAAAPYKLQPKVQHPPSAFLRCYLDVAVKVSLLIIGPYQLISYPAAKIMDIRTGL
PLPSMGEILAQLTVYFLVEDYLNWHLRLLHTKWCEYEKIHHVHHEFTAPMAYAAWYGHW
AEMILILAVPSLAGPAMVPCHVTTLWIWFVARLVESLNIHSGFKLPFNLENYIPFYGGAE
HHDYHHYIGGQSHSNFAPVFTHCDYIYGTDKGYRYHKATLAKLKELAGNNVQKEDLSSG
KKD

>Bd SMO1-2

MLPWATAAEAEAAALGRAMTPAEALWFRYTAAAPDYLYCLNILFLLVVFTTLAPLPVALL
ELRAPRAVEPYKLQPRVRLSRAEFLKCYGDMRIFFLVIGPLQLVSYPVAVKMGVIHTGL
PLPSLGEMAAQLTVYFLVEDYLNWIHRLHGEWGYEKIHRHHEYTAPIGFAAPYAHW
AEVLILGIPSFAGPAIAPGHMITFWLWIMLRQMEAIDTHSGFDFPFSLTKYIPFYGGAE
YHDYHHYVGGQSQSASFVFTYCDYLYGTDKGYRFHKAYLAKLKD LAPSYSEKEGANGF
SYAKLD

>Bd SMO1-3

MLPYATAAEAAAAALGRAMTAAEAAWFGYSAAVPDRWLYCHNVPILLVVYTTLAPLPLALL
ELRSTGDANASSLIHKYKLQPRVRLSPAFLRCYLDTARVLLLSVGPLSLVSYPVAEMV
GIRTGLPLPSVGEMAAQLVVYLLVEDYLGWWMHRLHHTKWGYDKIHHVHHEFTAPMGYA
APYAHWAEVLILGVPAFAGPAIVPCHMTTFWLWFLVRHIEAIDTHSGFSFPLNPTKFIP
FYGGAEEHHDYHHRVGGQSQSNFSTIFTFCDYLYGTDKGYRYHKASLGKLQEMIE

>Bd SMO1-4

MLPYATAAEAEAAALGRVMTRAESA WFRYSAAVPDHLLFCHTVAILLLVYTTLAALPLSLL
ELTTSTPTYKLQPRTRPTPSILIRSYLHSARALLLSGGVLSLSYPTVKLLRIRAGLPL
PSAGELAAQLAVYQLVNDYAGYWFHRLHHTPWAYQHVRVHHRFNAPFALAAPYAHWTD
VLFLGVAAMAGPALVPCHMITLWLWFLVFLVLVETHCGFDFPFNPTKLIIPFYGGAEEH
DYHHLVGEKSRSNFAPVFTYCDYLYGTDKGYKYHKASQAKLTKESENNEVEKGRSSSKI
NSGKQK

>Bd SMO2

MAAASPLDSAWECCLIDNFSEFQLATVVTFLLHESVFFLSGIPSLLEFERFGLFAKYKIQK
KSNAPAYQNRCLRLILYHVGVNLPVMIFSYPAFKFMGLRSSLPLPHWTVIVSQILFYF
VLEDFIFYWGHRLHTKWLYKHVHSVHHEYATPFGLTSEYAHPAEILFLGFATIVGPAL
TGPHLITLWLWMVLRVLETVEAHSGYHFPWSPSNFLPLYGGSDFDYHHRVLETKSGNY
ASTFVYMDWLFGTDKGYRKIKAEIEGEEGKHL

>Sb SMO1-1

MLPYATAGEAEAAALGRAMTPAEALWFRYTAGVSDYHLYCCNILFLFVVFTVAPLPVALL
ELRAPAAVSPYKLQPRVRLSRAEFVRCYKDVLRIFFLVIGPLQLVSFPMVKLVGIHTRL
PLPSLGEIAAQLLVYFLVEDYLNWIHRLHGEWGYQKIHRVHHEFTAPIGFAAPYAHW
AEVLILGIPSFVGPAPGHMITFWLWIILRQVEAIETHSGFDFPFTPTKYIPFYGGAE
YHDYHHYVGGQSQSNFASVFTYCDYLYGTDRGYRFHKAYLAKLKDGLGQNDGEKGDGSGL
SYVKLD

>Sb SMO1-2

MI PYGTAAEAEAAALGRGLTPAEAAWFRYSAAMPDHWLLWHNTFILFLAHMVVPLPLALL
ERVAPAFAMRYKLQPRVRLSMAAVARYFGDTIRVFLVLVPYQLISYPVVKVGGIRMGL
PLPSVGEVAVQLVAYALVEDYLSYWIHRLHTEWGYHKIHHVHHQVTAPTSTFATSYSHW
AEVAVFGVPTFAGPTIAPCHVVTHWLWFAVSIFEAISAHCGYNFPFDPTKLIPYHGGAE
FHDYHHLVGRQSNNSNFSSIFTYCDYIYGTDKGYKYYKANVAKVKAKLARNSTEREGRNG
FSSTKLD

>Sb SMO1-3

MI PYATAAEAEAAALGRAMTWAEAAWYQYSAVMPDSWLHCHTTFILFVIYTIAPLPLLVL
EQFAPSVVLPYKLQPRVRLPPAASLSCYMDAACIFPLAVALQFVCYPALAKILRTRMGL
PLPSVRETIAQIVVYSLVEDYLSYWIHRLHTEWCYRKIHRVHHEFTAPTGFAMSYSHW
AENVVLSIPALAGPVLVPCHVTTQWLWFSIRLIEGINTHSGYHFPFSPSRLIPFYGGAA
YHDYHHYAGGRSQSNFAPLFTYCDYIYRTDKGYRYHKLKQEKLNLAECSTAEKGGDY

>Sb SMO1-4

MI PYGTAAEAEAAALGRGLTPAEAAWFRYSAAMPDHWLLWHNTFILFLAHMVVPLPLALL
ERVAPAFAMRYKLQPRVRLSMAAVARYFGDTIRVFLVLVPYQLISYPVVKVGGIRMGL
PLPSVGEVAVQLVAYALVEDYLSYWIHRLHTEWGYHKIHHVHHQVTAPTSTFATSYSHW
AEVAVFGVPTFAGPTIAPCHVVTHWLWFAVSIFEAISAHCGYNFPFDPTKLIPYHGGAE
FHDYHHLVGRQSNNSNFSSIFTYCDYIYGTDKGYKYYKANVAK

>Sb SMO1-5

MMPYATAAEAEAAALGRSMTWAEALWFRYSAAMPDLWLMWHIALVYLVVDALAPLPAMIL
QQ LAPGYALRHKLQPGVVAPQPSLVSTYLCYMRESTRVSLAILGPFPLVYTLTFLKLFV

RTGLPLPSVWETGMHLVVYTLVEDYLTWYWLHRFLHTKWGYEKIHHVHHEKTAPSGFAAV
YSHGAELSLLAVTIFAGPAMVPCHVTTHWLWFAIRLMEASDAHCGYNFPFSLAGLIPFF
VGAEFHDYHHYAGGKTRTNFGSVFTYCDYIYGTNKSYLHHRSLAKLKTMEVEHNMG
SSVKED

>Sb SMO2

MAAPMSAIESAWQVLIANFTEFQLATVVTFLLHETVFFLSGLPSLLFERFGLFAKYKIQ
KKSNTPAYQNRCLRLILYHVCVNLPMIFSYPAFRFMGLRSSLPPLHWTVVVSQVLFY
FVLEDFIFYWGHRLHTKWLYKHVHSHHHEYATPFGLTSEYAHPAEILFLGFATVVGPA
LTGPHLFTLWLWMVLRILETVEAHSGYHFPWSPSNFLPLYGGSDFHDYHHRVLYTKSGN
YASTFVYMDWLFGTDDKDYRKAKTIEEKEGKNL

>Vv SMO1

MLPYKTLQEAEAFGRNLTFPETVWLNYSANKSDYFLYCHNILFLFLIFSVVPLPLVFM
ELSRSSGLDKFKIQPKVRLSSADIFRCYKDVMSMFFFFVVGPLQLVSYPsikMIGIRTSL
PLPSGWEILMQLAVYFMVEDFTNYWIHRFLHCKWGYEKIHRVHHEYTAPIGFAAPYAHW
AEILILGIPSFLGPAMAPGHIITFWLWIALRQIEAIDTHSGYAC

>Vv SMO2-1

MASIIESGWLYLVTHFSDFQLASLGSFFIHESVFFLSGLPFIPLERAGWLKGYKIQRKM
NSSAAQERCIMRLILYHFGVNLPMIFSYPLFRYMGMQSSLPLPSWKVLTQIIFYFIL
EDFVIFYWGHRLHTKWLYKHVHCVHHEYATPFGLTSEYAHPAEILFLGFATIVGPAITG
PHLMTLWLWMVLRVLETVEAHCGYHFPWSLSNFIPLYGGADFHDYHHRLLYTKSGNYSS
TFVYMDWIFGTDKGYRRLKALKSNEVEVEAGSKQI

>Vv SMO2-2

MASILESAWQYLITHFSDFQLACLGSFFLHESVFFLSGLPFIYLERLGYSKYKIQTKN
NTPAAQNKCIITRLLLYHFGVNLPMIFSYPVFRYMGMQSSLPLPSWKVILTQILFYFIL
EDFVIFYWGHRLHTKWLYKHVHSIHHEYATPFGLTSEYAHPAEILFLGFATILGPAITG
PHLFTLWLWMVVRVLETVEAHCGYHFPFSLSNFIPLYGGANFHDYHHRVLYTKSGNYSS
TFVYMDWIFGTDKGYRKLQALKRYEAEASNNQTSREK

>*Ostreococcus tauri* SMO1

MFAKVVRVLDNFHFPFVIAGPLTFAYHEAVYFGAWTPWLAMDQFEYFKRWKIQPDKTPS
KEMVMKCLTKLLKSHVFIQLPMQMMFYFVAPYFGFSLAMEALPKSRDLLWQIPVFFAIE
DFYFYWVHRGLHHRVYKYVHKIHHEHKFPFGIAAEYAHVPVETFFLGIGTLLGPLFFAK
HMTLWVWVLFRLVETVEDHSGYDVPWNPTNLIPIFWGGAVHHDHFKTFEGPYSSVFTW
CDWMFGTDKEFRKHQLKLRGGSESLAYPAVFRGAPNERSLPSKKVD

>*Ostreococcus tauri* SMO2

MSTFTDLALSVERRVDGAIEKVWSEILERFHPFVIAGPLTFAYHELVYFGAWMPWLAMD
RFEYFQKWKIQREKRPSAEMVMKCVVKLLKSHVQVQLPMQMMFYFVAPYFGFSLALEAL
PKSRDFLWQIPVFFVIEDFYFYWIHRFLHHKRVYKYVHKVHHEHKYPFGIAAEYAHPVE
TFFLGIGTLLGPLFFAKHMTLWVWLFFRLLLETVEDHSGYDVPWNPTNLIPFWGGAVHH
DFHHKTFEGPYSSVFTWCDWMFGTDKEFRAHQPSFEVVRSRGRTRRCSEGHQTTRPWLR
RAPPQKSSTSLVFFQLKESR

>*Chlamydomonas reinhardtii*_FAH

MASLLSEWAANAQDLFANRLRPGHVEFAMLVYQPLAYWL VAGFYDILD TLKLPFTERYK
VVRDPGRPNTITRSQVIIRVLLQQAIQIALNLVLFVVDKDMCAVGPGPQSLALRASR
FVLGMYIMDTWQYWIHRWVHVNTFLYKHLHSVHHTLNIPYAYGALYNSILEGFLLDTLG
GVVSLYGAGLDCETSTALFVFGYIKTVLDHCNYRGPINPLHSLFPNSAAYHDVHHDVVRG
IKMNF SQPFFTHWDWLLGTFMDPNGIHLTVEELKAQQEEKAKTQKDKKKQ

>*Volvox carteri* FAH

MDISALWTQAVHVFSVKLKPGTPEFGLVFYLPVYVWVAGFYELLDWLRLPMTEKYKLN
RREPGRGNTITHGQVVIRVLLQQLIQTALT LVFLVLDADMCTRCADVGKTTLHRVSRFI
LGMFVMDTWQYWIHRMTHTSPFLYKHLHSVHHSMLIPYASGALYNSILEGLLLDSLGGV
VTHYAAGLDCQTALCLYIFATIKTVVDHSNYRGPFNPLHGLLPNCAAYHDIHHDVVRGIK
MNF SQPFFTHWDWLLDTFLDPAGMHVTVKEQAMQQQDARKAAAESQLKVTESKKS

SSR1 and SSR2 sequences

>SI SSR1

MTDVQAPPPRPKRKKNIMDLLVQFRWIVVIFVVLPLSFLYYFSIYLGDVRSECKSYKQR
QKEHDENVKKVVKRLKERNASKDGLVCTARKPWAVGMRNVDYKRARHFEVDLSPFRNV
LNIDTERMIKVEPLVNMGQISRVTVPLNVSLAVVAELDDLTVGGGLINGYGIEGSSHIY
GLFSDTVVSYEVVLADGQVVRATKDNEYSDLFYAIPWSQGTGLLVSAEIKLIPIKEYM
KLTYKPVVGNLKEIAQAYMDSFSPRDGDQDNHEKVPDFVETMVYTPTEAVCMTGRYASK
EEAKKKGNVINNVGWFWFKTWFYQHAQTALKKGEFVEYIPTREYYHRHTRCLYWEGKLIL
PFGDQWWFRFLFGWAMPPKVSLLKATQGEYIRNYYHENHVIQDMLVPLYKVGDALWVH
REMEVYPLWLCPHRLYRLPLKTMVYPEPGFELQKRQGDTKYAQMYTDVG VYYAPGPILR
GEVFDGIEAVRKLESWLIENHGFQPQYAVSELTEKNFWRMFDGSLYENCRKKYRAIGTF
MSVYYKSKKGKKTEKEVQEAEQETA EVETPEVDEPED

>SI SSR2

MSDAKAPVATAYPKRKIQLVDFLLSFRWII VIFFVLPPSFLYYFSIYLGDVKSERKSYK
QRQMEHDENVKEVVKRLGQRNAEKDGLVCTARPPWVVVGMRNVDYKRARHFEVDLSKFR

NILDIDTERMVAKVEPLVNMGQMSRV TIPMNL SLAVLAELDDLT VGGLINGFGVEGSSH
IFGLFSDTVVALEVV LADGKVVRATKDNEYS DLFYAI PWSQGT LGLLVSAEIKLIPVDQ
YVKLTYKPVRGNLKE LAQAYADSFAPKDG DQDNPSKVPEMVEGMIYGPTEGVM MTGMYA
SRNEAKRRGNVINNYGWWFKPWFYQHAQTALKRGEFVEYI PTRDYYHRHTRS LYGWEGKL
ILPFGDQFWFRFLLGWLMP PKIALLKATQSEAIRNYYHDHVIQDLLVPLYKVGDCLEW
VHREMEVYPIWLCPHRIYKLPVRPMIYPEPGFEKHKRQGDTEYAQMYTDVGVVYVPGAV
LRGEPFDGSEKCRQLELWLIENHGFQAQYAVTELTEKNFWRMFDNGLYEQCR RKYKAIG
TFMSVYYKSKKGRKTEKEVQEAEQEKAQE TPELVSSMNFRLLNKQLH

>St SSR1

MADVQAPIRPKRKNIMDLLVQFRWIVVIFVVLPLSFLYYFSIYLG DVRSECKSYKQORQ
KEHDENVKKVVKRLKDRNASKDGLVCTARKPWVAVGMRNVDYKRARHFEVDLSPFRNVL
NIDTERMIKVEPLVNMGQISRVTVPMNVSLAVVAELDDLT VGGLINGYGIEGSSSHIYG
LFSDTVVSYEVVLADGQVVRATKDNEYS DLFYAI PWSQGT LGLLVSAEIKLIPKEYMK
LTYKPVVGNLKEIAQAYIDSFS PKDGDQDNREKVPDFVETMVYTPTEAVCMTGRYASKE
EAKKKGNVINNVGWWFKTWFYQHAQTALKKGEFVEYI PTREYYHRHTRCLYWEGKLILP
FGDQWWFRFFFFGWAMPPKVSL LKATQGEYIRNYYHENHVIQDMLVPLYKVGDALEWVNR
EMEVYPLWLCPHRLYRLPLKTMVYPEPGFELHKRQGDTKYAQMYTDVGVVYAPGPILRG
EVFDGIEAVRKLESWLIENHGFQPPYAVSELTEKNFWRMFDGSLYENCRKKYRAIGTFM
SVYYKSKKGKKTEKEVQDAEQETA EVETPEVDEPED

>St SSR2

MSDAKAPAATVHPRRKIQLVDFLLSFRWII VIFFVL PFSFLYYFSIYLGDLKSEKKS YK
QRQMEHDENVKEVVKRLEQRNAEKDGLVCTARPPWVVVGMRNVDYKRARHFEVDLSKFR
NILDIDTERMVAKVEPLVNMGQMSRVAIPMNL SLAVLAELDDLT VGGLINGFGVEGSSH
IFGLFSDTVVALEVV LADGKVVRATKDNEYS DLFYAI PWSQGT LGLLVSAEIKLIPVDQ
YVKLTYKPVRGNLKE LAQAYADSFAPKDG DQDNPSKVPEMVEGMIYGPTEGVM MTGMYA
SRNEAKRRGNVINNYGWWFKPWFYQHAQTALKRGEFVEYI PTRDYYHRHTRS LYGWEGKL
ILPFGDQFWFRFLLGWLMP PKIALLKATQSEAIRNYYHDHVIQDLLVPLYKVGDCLEW
VHREMEVYPIWLCPHRIYKLPVRPMIYPEPGFEKHKRQGDTEYAQMYTDIGVVYVPGAV
LRGEPFDGSEKCRQLELWLIENHGFQAQYAVTELTEKNFWRMFDNSLYEQCR RKYKAIG
TFMSVYYKSKKGRKTEKEVQEAEQEKAQE TPEADEPNYY

>Ca SSR2-1

MSDAKASPAPVHSKRKIQLVDFLLQFRWILVIFVVL PFSCLYYFSIYLGDIKSERKSFK
QRQMEHEENVKEVVKRLGQRDASKDGLVCTARPPWVVVGMRNVDYKRARHFEVDLSKFR
NILEIDTERMIKVEPLVNMAQISRVTVPMNL SLAVLAELDDLT VGGLINGFGVEGSSH
IFGLFSDTVVSLEVVLADGRVVRATKDNEYS DLFYAI PWSQGT LGLLVSAEIKLIPVKE
YVKLTYKPV TGNLKE LAQAYADSFAPRDGDQDNPSKVPEMVEGMIYSPTEGVM MTGEYA
SKKEAKQRGNVINNYGLWFKPWFYQHAQTALKRGEFVEYI PTRDYYHRHTRS LYGWEGKL

ILPFGDQFWFRFLLGWLMPPKIALLKATQSEAIRNYYHDHHVIQDLLVPLYKVGDCLEY
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LRGEPFDGTEKCRQLELWLIENHGFQAQYAVTELTEKNFWRMFDGGLYEKCRRKYKAVG
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>Ca SSR2-2

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EINKERMVAKVEPLVNMAQISRATIPMNLSLAVIGELDDLTVGGLINGFGIEGSSHIYG
LFSDTIVALEVVVLADGKVVRATKDNEYSDLFYAIPWSQGTLGLLVSAEIKLIHVKEYMR
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EAKQKGSVINSIGWWFKPWFYQHAETALKRGEFVEYIIPTRDYCHRHTRSIYWEGKLILP
FGDQFWFRYLFGWLMPPKVAVLKATQSDYIRNYYHDHHVIQDLLVPLHKVADTLEWVDR
EMEVYPVWLCPHRIYKLPVKPMIYPEPGFEAHGWQGDTKYAQMYTDVGVYYAPGAVFRG
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>Ca SSR1

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DIDKERMIAERVEPLVNMGQISRVTVPMNLSLAVVAELDDLTVGGLINGYGIEGSSHIYG
LFSDTVVSYEVI LADGQVVRATKDNEYSDLFYAIPWSQGTLGLLVSAEIKLIPVKEYMK
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EAKQKGNVINNVGWWFKTWFYQHAQTALKRGEFVEYIPTREYYHRHTRCLYWEGKLILP
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>Sm SSR2-1

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> Sm SSR2-2

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>Nb SSR2-1

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>Nb SSR2-2

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>Nb SSR1-1

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>Nb SSR1-2

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LFSDTVVSYEIIILADGQVVRATKDNEYSDLFYAIPWSQGTGLLLVSAEIKLIPIKEYMK
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FGDQWWFRYLLGWLMPKVSLLKATQGEAIRNYYHDMHVIQDLLVPLYKVGDALEWVHR
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>At DWARF1 (SSR1)

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>Bd SSR1

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>Os SSR1

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SVYYKSKGRKTEKEVQEAEEAILEPAYADEA

>Pp SSR1-1

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VTYKPARGDLQELAQAYNDSYIPRDGDQDNPEKVPDFVETMIYSETEGVTMTGRYASKD
EAKRKGKNCINQGWYKKWFYQHAQEALTRGEFVEYI PTRDYHRHTRCLYWEGKLILP
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>Pp SSR1-2

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>Zm SSR1

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>Sb SSR1

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GGLINGYGIEGSSHLYGFLFSDTVVAMEVVLADGRVVRATKDNEYSDLFYGIPWSQGTLG
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SLIYFNIFLGDMWSAMKSEKKRQKQHDENVQKVVKRLKQRNPKKDGLVCTARKPWIAVG
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SQGTLGFLVSAEIKLIPIKEYMKLTYIPVKGSLKEIAQAYADSFAPRDGDPKVPDFVE
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YAQMFTDVGVYYAPGAVLRGEEFNGAEAVHRLEQWLIENHSYQPQYAVSELNEKDFWRM
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>*S. moellendorffii* SSR1

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VTYIPVRGSLRDLAQAYIDSFCPADGDQDSADKVPDFVEAMIYNRNEGVMMTGRYASRE
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FADQFWFRWLMGWAMPPKVSFLKATQGDALRNYYHERHIIQDMLVPLHKVADALEFSDR
EFEVYPIWLCPHRLFRTPIKTMITPEPSFELYQRQGDTSYAQMYTDVGVIYTPPEPVFRG
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>Vv SSR1

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MIARCEPLVNMGQISRVTVCMTGRYASKEEAKKKGNVINSVGWWYKPFYQHAQTALKK
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RNYHEMHVIQDMLVPLYKVGDALEWVHHEMEVYPIWLCPHRLYKLPVKTMITYPEPGFE
LHRRQGDTHYAQMYTDVGVYYAPGPVLRGEQFDGAEAVRRMENWLIENHGFQPPYAVSE
LTEKNFWRMFDAGLYEHCRKKYGAVGTFMSVYYKCKKGKKTEKEVQEAQAEQAQLETPYAE
AD

>Mt SSR1

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FADQWWFRFLFGWLMPPKVSLLKATQGEAIRNYHEMHVIQDILVPLYKVGDALEWVDR
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> *S. cerevisiae* (ERG4)

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FMLIFWNIAGVPYTYCHCTLYLYYHDPSEYHWSTLYNVSLYVVLLCAYYFFDTANAQKN
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F

3 β HSD-1 and 3 β HSD-2 sequences

>At 3 β HSD-1

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GLLTCCIRPSSIFGPGDKLMVPSLVTAARAGKSKFIIIGDGSNFYDFTYVENVVHAHVCA
ERALASGGEVCAKAAGQAYFITNMEPIKFWEFMSQLLEGLGYERPSIKIPASLMMPIAY
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> At 3 β HSD-2

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CAERALASGGDVSTKAAGQAYFITNMEPIKFWEFMSQLLDGLGYERPSIKIPAFIMMPI
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>St 3 β HSD-2

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FDKSKKN

>SI 3 β HSD-2

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DKSKKN

>Ca 3 β HSD-2

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CMCEYERFSSPFSIAYLCEGTENIIDACVELKVKRLIYTSSPSVVFDDGVTGIVDGDDES

PYPAKHNDSYSATKAEGEALVLKSNGTNGLMTCCIRPSSIFGPGDRLLVPSLVSAARTG
KSKFIIIGDGNNVYDFTYVENVAHAHVCAERALASGGAAAEKASGNAYFITNMESIKFWD
FVSLVLEGLGYDRPSIKIPASVMMPIAHLVELTYKLLAPYGMKVPQLTPSRIRLLSRSR
TFSSSKASDQLGYSPIVTLQEGLRRTIESYPHLRAEHGSAKDGGSSKSSASLFRFFLMV
IINTYTLSCGSKKLIKTPYYLISEANAKPWSFSHMVMN

>Nb 3 β HSD-2

MGEGEEKWCVVTGGRGFAARHLVEMLIRYEIYHVRIADLGPSIKLEPAEEKGILGQALQ
SGRAVYVSMDLRNKSQVLKACEGAEVVFHMAAPDSSINNHQLHYSVNVQGTQNIIDACI
ALKVKRLIYTSSPSVVFDGVHGIINGDESLPYPKVVPPSSAVYSIQVKNKSSHNHTLVT
DKNFQHNDSYSATKAEGEALVIKSNGTNGLLTCCIRPSSLFGPGDRLLVPSLVAAAKAG
KSKFIIIGDGNNMYDFTYVENVAHAHVCAERALASGGVAAEKAAGNAYFVTNMEPIKFWE
FVSLILEGLGYDRPSIKIPASVMMPIAHLVELTYKLLAPYGMTVPQLTPSRIRLLSRSR
TFSCSRASDRIGYTPIVPLQEGLRRTIESYPHLRAERGPGKESPSKSSASLWMFFLMV
LSLLILSILGTVSPWSLFIIGIAAAFVVFLIYDKRKKK

>Nb 3 β HSD-1

MGEGERWCVVTGGRGFAARHLVEMLIRYEMFHVRIADLCPDIKLEPDEEEGTVGKALR
SGRAHYVSTDLRDKSQVLKACEGAEVVFHMAAPDSSINNHQLHHSVNVLGTKNIIDACV
ELKVKRLIYTSSPSVVFDGVHGIINGDESLPYPKHNDSYSATKAEGEALVIKSNGTKG
LLTCCIRPSSIFGPGDRLLVPSLVTAARAGKSKFIIIGDGNNMYDFTYVENVAHAHVCAE
RALASGGAVA EKAAGQ

>Ca 3 β HSD-1

MADVQERWCVVTGGRGFAARHLVEMLIRYEMFHVRIADLSPSIKLDPDEEEGTVGKALR
SGRAHYVSMDLLHKSQVLKACEGAEVVFHMAAPDSSINNHQLHHSVNVLGIKFDLLVNF
LVWLVPVSCMRVLHTSFLLIKYKGTKNIIDACVELKVKRLIYTSSPSVVFDGVHGIINGD
ESLPYPSKHNDSYSATKAEGEALVIKSNDTKGLLTCCIRPSSIFGPGDRLLVPSLVAAA
RAGKSKFIIIGDGNNMYDFTYVENVAHAHVCAERALASGGAVA EKAAGQAYFVTNMEPIK
FWEFVALILEGLGYERPRIKIPASVMMPIAHLVELAYKLLVAYGMKVPQLTPSRIRLLS
CSRTFSCSKANDRLGYTPIVLLQEGLRRTIESYPHLRTEQRPEKEGPSKSSLFLGSGRG
MHLTSFS

>St 3 β HSD-1

MLIRYEMFQVRIADLGPAIKLEPDEEEGTVGKAMRSGRANYVSMDLRDKSQVLKACEGA
EVIFHMAAPDSSVNNHQLHHSVNVLGTKNIIDACVELKVKRLIYTSSPSVVFDGVHGI
NGDESLPYPSKHNDSYSATKAEGEALVIKSNDTKGLLTCCIRPSSIFGPGDRLLVPSLV
AAARAGKSKFIIIGDGNNMYDFTYVENVAHALVCAERALASGGAVA EKAAGQAYFVTNME
PIKFWEFVALILEGLGYERPRIKIPASVMMPIAHLVELTYKLLAAYGMKVPQLTPSRIR
LLSRRTFSCSKANDRLGYTPIVPLQEGLRRTIESYPQLRAEQRLKKEGPSKASLFLGS

GRVADTLLWRNKKQTLTAALVLAAIYFNFIASGFTIITSISTILLVASVFLFIHGRLPQ
RIMGYKFDKVPVSCFHVSEETSHQVALSVVSGWNSAVKGLKSLCKGADCMFFLKVALSL
LILSILGTISLQSLFAIGIPGSFTLFFIYEKREEEIDHVLQDIVSFTWKLKSDISGKIF
SSAKDR

>SI 3 β HSD-1

MLIRYEMFQVRIADLGTAIKLEPDEEEGTVGKAMRSGRAKYVSMDLRDKSQVLKACEGA
EVVFHMAAPDSSVNNHQLHHSVNVLGTKNIIDACVELKVKRLIYTSSPSVVFDGVHGIT
NGDESLPYPSKHNDFYSATKAEGEALVIKSNDTKGLLTCCIRPSSIFGPGDRLLVPSLV
AAARAGKSKFIIIGDGNMYDFTYVENVAHAHVCAERALASGGAVAEEKASQAYFVTNME
PIKFWDFVALILEGLGYGRPRIKIPASVMMPIAYLVELTYKLLAAYGMKVPQLTPSRIR
LLSRRTFSCSKANDRLGYTPIIPLQEGLRRTIESYPHLRAEQRLKKEGPSKASLFLGS
GRVADTLLWRNKKQTLMAALVLAAIYFNFIASGSTIITSISTILLVASVFLFIHGRLPQ
RIMGYKFDKVPVSSCFHVSEETSHQFALS SVVSGWNSAVKGLKSLCKGADCMFFLKVALSL
LILSILGTISLQSLFAIGIPGAFTLFFIYEKKEEEIDHVLQDIVLFTWKLKSDISGKIF
SSTKKDR

>*C. albicans*

MSESLQSVLIIGGSGFLGLHLIEQFYRHCPNVAITVFDVRPLPEKLSKYFTFDPSKIQF
FKGDLTSDKDVSDAINQSKCDVIVHSASPMHGLPQEIYEKVVNVQGTKNLLSVAQKLHVK
ALVYTSSAGVIFNGQDVINADETWPYPPEVHMDGYNETKAAAEAEVMKANDNDQLRTVCL
RPAGIFGPGDRQLVPGLRASAKLGQSKYQLGDNNNLFWDWTYVGNVADAHVLAAQKILDK
STRDDISGQTFFITNDSPTYFWTLARTVWKNDGYIDKYYIKLPYPVALTLGYISEFVAK
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>*S. cerevisiae*

MSKIDSVLIIGGSGFLGLHLIQQFFDINPKPDIHIFDVRDLPEKLSKQFTFNVD DIKFH
KGDLTSPDDMENAINESKANVVVHCASPMHGQNPDIIYDIVNVKGRNVIDMCKKCGVNI
LVYTSSAGVIFNGQDVHNADETWP IPEVPMDAYNETKAIAEDMVLKANDPSSDFYTVAL
RPAGIFGPGDRQLVPGLRQVAKLGQSKFQIGDNNNLFWDWTYAGNVADAHVLAAQKLLDP
KTRTAVSGETFFITNDTPTYFWALARTVWKADGHIDKHVIVLKR PVAICAGYLSEWVSK
MLGKEPGLTPFRVKIVCAYRYHNIAKAKLLGYTPRVGIEEGINKTLAWMDEGL

>*H. sapiens*

MEPAVSEP MRDQVARTHLTEDTPKVNADIEKVNQNQAKRCTVIGGSGFLGQHMVEQLLA
RGYAVNVFDIQQGF DNPQVRFFLGDLCSRQDLYPALKGVNTVFHCASPPSPSSNNKELFY
RVNYIGTKNVIETCKEAGVQKLILTSSASVIFEGVDIKNGTEDLPYAMKPIDYYTETKI
LQERAVLGANDPEKNFLT TAIRPHGIFGPRDPQLVPILIEAARNGKMKFVIGNGNLVD
FTFVENVVHGHILAAEQLSRDSTLGGKAFHITNDEPIPFWTFLSRILTGLN YEAPKYHI

PYWVAYYLALLLSLLVMVISPVILQPTFTPMRVALAGTFHYSCERAKKAMGYQPLVT
MDDAMERTVQSFRHLRRVK