

Table S1. Sequences of C5-MTase proteins in the 15 tested species.

>SmelMET1

MGSLPALDKPDTDAGYKKNKTKQDSQSKRKTSATDKKEKKQPVSEIEELTAARKRPKRA
AACSDFKEKSLPLSKTSSVIETRKDHCVEEEDVAIRLTAGLQESQRPCRRLTDFVFHNSEGI
PQPFEMSEVDDLFIISGLILPLEDSLDEKAKGIRCEGFGRIEWAISGYEDGTPVIWISTETA
DYDCVKPSGSYKKFYDHFALAKAMACVEVYKKLSKSSGGNPNLSLDELLAGVVRAMNGI
KCFSGGVSIRDFVVTQGRFIYNQLIGLDETSKKTQDLFVELPVLASLRDESSKLETLAQPEP
ISFGKALHIGPKAVNGEDKIDESGLANCAASEDEDLKLAKLLHEEEYWRSLKQKKGRNTS
SSSSKIYIKINEDEIASDYPLPAYKTSNEETDEYIVFDSGVDYHIDELPRSM LHNWALYNS
DSRLISLELLPMKACADIDVTIFGSGVMTADDGSGYNFDT DANHSSSCGRPAEIDGMPIY
LSAIKEWMIEFGSSMIFISIRTDMAWYRLGKPSKQYAPWYEPVIKTARLAVSIITLLKEQSRV
ARLSFGDVIKRISEFKKDRPAYISSNVDVVERYVVVHGQIILQQFSEFPDVSIRNCAFAIGLS
RKMEERHHTKWLIKKKKVMQRHEQNLNPRASMAPSVKRKAMQATTTRLINRIWGEYY
NYSPEVSKEVVDCEVNDDEEADDEQEEENEEDDVPEMNLDVPEKTHTLSSARKHIKSHSDS
KEINWDGESTGKTASGELLFERARVHGHEIAVGDSVLVEHDEPDELPSIYFVEYMFELKLDG
SKMLHGRMMQRGSDTVLGNAANEREVFLINECMDLQLGDIKESIAVNIRIMPWGHQHRN
TNADKLDRAKAEDRKRKGLPTEFYCKSFYRPERGAFFRLPFDKMGLGNGLCYSCELQRT
DQEKESFKFDMSNSSFVYLGTEYSVDDFVYVSPDHFTEERGGTGTFKAGRNVGLMAYVV
CQLEIVGPKGSKQAKVDSTNAKVRFFRPEDISSDKAYSSDIREIYYSEEIHTVSVGTIKG
KCEVRKKYDISSEDVPAIFDHNFFCEYLYDPSNGSLKKLPAQIKLKFSKVKLDDATSRKRK
GKGKEGEDEAGGLNEASPQNRLATLDIFAGCGGLSEGLQHSGVTDTKWAIEYEPAADAF
RLNHPKTKVFIHNCNVILRAVMQKCGSDDCISTPEASELAAAMDENELNSLPLPGQVDFI
NGGPPCQGFSGMNRFNQSTWSKVQCEMILAFLSFADYYRPKFFLLENVRNFVSFNQKQTF
RLSVASLLEMGYQVRFGILEAGAFGVPQSRKRAFIWAASPEEVLPEWPEPMHVFSVPKELI
TLSETSHYAAVRSTASGAPFRSLTVRDTIGDLPVVGNGACKTCIEYQGDVSWFQKKIRGS
SITLSDHISKEMNELNLIRCQRIPKRPGADWRDLQDEKVKLSNGQLVDLIPWCLPNTAKRH
NQWKGLFGRLDWDGNFPTSITDPQPMGKVGMCFHPEQDRIVTVRECARSQGFSDSYQFA
GNILQKHRQIGNAVPPPLAYALGRKLKEAVESKKLT

>SmelDNMT2

MELEGRSPWRVLEFYSGIGGLRYSLLKAAVNATVVEAFDINDVANDVYQHNFAHRPFQ
NIQTLTAADLDGYNADAWLLSPPCQPYTRQGLQKGSSDARASSFLKILELVPQLLQPPSY
LFVENVVGFEVSDTHAILVEILKKNFVTQE FILSPLQFGLPYSRPRYYCLPPDFGVMVR
RQCVMYRLSVHVKFEHLGRPKEAEKGSVLVALSILSFENMHVLSYPYAKRKPLSFEP
FNNQLLRTPGPLLQGTESTMEKEQLLSPEYWDELLQACQPVDLFLVKTFHNGKDSSTYS
FHSNDSVKSRSDEENNVYFVPSSLIERWGSAMDIVYPHRSKRCCCFTKSYRYVKGTGSL
LASVQTLFSRNHFFVYFEELPKIGAIPAMACISHPSDNIIYYNAGFKSYKITRTAGTES
WFEWTEYSRNLMRKVQISLKV LKWLVSVLIEASKCRGNIKRWSLKDHFEEFYGT LKYN
SGRYVSFIAIQGKNRSIIITSKPSHGGGWSNIAHKIAGFIYETNCRTEEKNYGGRKANMS
YKQAVQRSRWSTEKVKTTDLQGIDTHIDVTNGATLGKSELLSRCLVRTVLKSTARKPNP

>SmelCMT3a

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KCHYTQAMVDSQIYKLGDDAYVKAADGEDDYICKIVEFFQAVDDMKYFTAQWFYRAKD

TVIKAHDQFIDNKRVLSEIKDDNPLDCLVSLQFKESLRSNSDYYYDMKYLVPFSSFVSLSS
DFRDSAVFADVSSPYSESDSTISTDGDVVEANEQKQEKKLLDLYSGCGGMSTGLCLGADV
CGVKLVTKWTVDLNRYACDSLKVNHHPETEVRNESASDYLLLLKEWEQLCASCSSLKSNT
PAHPLLKVGDEDEEDDDDDGGDEDEGSGDNEEGEIFEVEEILEVCYGDPNEIKKPGLYFKVR
WKGYPDEDTWEPIEGLEYEFQTKQHVVNPCFSFLTHLSNELIFAYSGCQKKIKDFVIKGF
QASLFPLPGEVDVICGGPPCQGISGFNRFRNSANPLQDPKNKQLEVFMGIVEFLKPRFVLM
ENVVDLLRFANGYLGRYALSRLVGMNYQARMGMMVAGAYGLPQFRMRVFMWGALPSE
KLPQYPLPTHNVIVRGGIPTEFELNAVEYEEGLQVKLKRELLLEDALSDLPPVENNEPRDE
MPYTGEPKSDFQC FIRSKRDGTLGTVLYDHRPLQLNDDDYQ RVCQIPKRKGGNFRDLPGV
RVRADNIVEWDPDVERVKLTSGKPLVPDYAMTFVRGTSQKPFGRLLWWDEIVSTVVTRAEP
HNQAILHPVQDRVLTIRENARLQGFPDYKLTGPIKERYIQVGNAVAVPVARALGYSLALA
LKGLSGDQPLLTLPNFPRLLEELVSNEEALDKL

>SmelCMT2

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SRKQVESSRKRKYKNNDDEPENPKTDGKKRRSDSVSAKLELLALPEADGAWGTRCGTKR
ELLALLTPEGSKNSKRGRSGSDSGNVGHDSRGSRRKNLVLAAASPGTSEKKSDDVNVSGEK
SLRSRRIQGSVDNEESDTKRKMNSSDSAEESGRKQKSNVFFIGEPIDAEAAQEKWQWRYE
LKSQNTQRKGWKLNSGEEDEIILNVECHYAQAKVAGFVFNIGDCAFVKGEGKKKHIGRIL
EFFKTTEGEDYFRVQWYFRAEDTVLKGAASFHDPKRIFYSTLENDNLLDCIVSKVNVIELP
TAHALNKKDVPPAHFYDMEYCVDYSTFRTLHNKSSISPSLVDAZYKPITTYPLEVSPSC
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RNEGVENFLELLKRWEKLIELYGCSDIKTSSNDAVDDRDEGEINGDSLGSASSGEYEV
RLVDICYGDPNNDKSGLHFKVRWKGYGPSEDTWEPIDNLENCGESIKDFVRRGQQLKIL
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DILRFDKASLGRYALSRLVHMKYQARLGTMAAGCYGLPQFRLRVFFWGALPSERLPPFPL
PSHDVIVKYWPSPEFERNTVAYEEGQPRDLEEALVLRDAISDLPAVTWHETREEMPYEMPP
ETAFQKYIRLSKHEIMSCSSTGVKEAKEPVLFDRPCQLNEDDYFRVCLVPHRKGANFRD
LPGVIVGGDNVARRDTKDPKVLPNGKPMVPDCAFNFEQGKSKRPFGRLLWWDET VATLVT
FPNHRAQAILHPEQDRVLT VREYARLQGFPDFYRFTGTPKERYCQVGNAVAVPVGRALGY
ALGLAYQRLAGNEPLIKLPPNFSFLTVPMDDIVVLQK

>SmelCMT3b

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VDSAAESDFVDEEDVDET VQGSLLKKSLSISPSKRKPKRAEKVKDEECTLP GDPVPDAEAR
LKWPHRYNKGKANGTKNTNGQDDSDQLIAKCHFGRKVDGQVYYLEDDAHVKAAD
GDDDYICKIVEFFEAVDGTQYFRAQWFYRAKDTVIKSHDQFIDNKRVLSEIKDDNPIDCL
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PETQVRNEYASDFLSLLKEWVQLCVSCSLIKGSVPPHPLKVTDEVEEDEENDEGEDSG
DDKDGENFEVEELLEVCYGDPKEINKSGLYFKVHWKGYGPEEDTWEPIDGLSDCPKKIKE
FVVKGFKANLLPLPGDVDVCGGPPCQGISGFNRFRNKENPMQDPKNKQLDVYMDIVDF

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NFRDLPGVRVRPDKKVEWDPDVERVKLPSGKPLVPDYAMSFVGGSSSKPFGRLWWDETV
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LGYSLAMSMKGLSGETPLFSLPQNFPFHEEQNCNEVSQ

>SmelDRM2

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NENFLDDVYEEDSWSSSDFCLNSAKQCYLKEESSLSEKEQTLLFLQNMGYPVVEVSIA
MERCPEASVAELTDFICAAQMARAEOPYLPEDVKPKINGNGGFKRKMFNQLCKSKKP
RAIFDEETIRLPKMIGFGVPTPEVSAIVHRTLPEQAVGPPFFYYENVALAPKGVWDTISRFL
YDIEPEFVDSKYFCAAARKRGYIHNLPINRFPLPLPPRTINEALPLTKKWWPSWDPRTKL
NCLQTAIGSARLTDRIRKAVEAFDGEPPMRVQKYVLDQCRKWNLVWVGRNKAAPLEPDE
FEMLLGFKNHTRGGGISRTDRYKSLGNSFQVDTVAYHLSVLKDRFPNGMNVLSLFSGIG
GAEVALYRLGIQLNNVVSVEKSEVNINRVSWEQTNQRGNLIDFEDVQQLNGDRLEQLI
DSFGGFDLLIGGSPCNNLAGSNRVS RDGLEGKESSLFYDYVRILDLVKSIMARQR

>SmelDRM3

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EEDPCIGVCDDKRVSLLAMSFSLNEVEFAIGKLGEAAPVNELVDVIFAARIAGNHKKDDD
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>AtCMT1

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WYYRPEDTLIERFSLVQPKRVFLSNDENDNPLTCIWSKVNIKVPLPKITSRIEQRVIPPCD
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LVSSSTEPVESISELEDEEVEENDDIDEASTGAELEPGEFVEKFLGIMFGDPQGTGEKTLQL
MVRWKGYNSSYDTWEPYSGLGNCCKELKEYVIDGFKSHLLPLPGTVYTVCGPPCQGIS
GYNRYRNNEAPLEDQKNQQLLVFLDIIDFLKPNYVLMENVVDLLRFSKGFLARHAVASFV
AMNYQTRLGMMMAAGSYGLPQLRN RVFLWAAQPSEKLPPYPLPTHEVAKKFNTPKFKDL
QVGRIQMEFLKLDNALTLADAISDLPPVTNYVANDVMDYNDAAAPKTEFENFISLKRSETL

LPAFGGDPTRRLFDHQPLVLGDDDLERSYIPKQKGANYRDMPGVLVHNNKAEINPRFRA
KLKSGKNVVPAYAISFIKGSKKPFGRLWGDEIVNTVVTRAEPHNQCVIHPMQNRVLSVR
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YPECMQAKDQI

>AtCMT2

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VTKGGVSQRKFSRGKSQPLLTLTNGCQLRRSPRFRAVDGNFDSVCSVPVTGKFGSRKRKS
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>AtCMT3

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AQFRLRFFLWGALPSEIIPQFPLPTHDLVHRGNIVKEFQGNIVAYDEGHTVTKLADKLLKLD
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>AtDRM1

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>AtDRM2

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>AtDRM3

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MNHTNIGGGRLAERLKLFDYCFQTDTLGYHLSVLKSMFPQGLTVLSLFSGIGGAIEIALDRL
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>AtMET1

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QSRKRAFIWAAPEEVLPEWPEPMHVFVGP KLIKISLSQGLHYAAVRSTALGAPFRPITVRD
TIGDLPSVENGDSRTNKEYKEVAVSWFQKEIRGNTIALTDHICKAMNELNLIRCKLIPTRPG
ADWHDLPKRKVTLS DGRVEEMIPFCLPNTAERHNGWKGLYGRLDWQGNFPTSVTDPQP
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>AtMET2a

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EVFKSLSKNPDTSLDELLAAVSRSMGSKIFSSGGAIQEFVISQGEFIYNQLAGLDETAKNH
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EYRKSMERSRNKRSSTTSGGSSRFYIKISEDEIADDYPLPSYYKNTKEETDELVLFEAGYEV
DTRDLP CRTLHNWTLYNSDSRMISLEVLPMRCAEIDVTVFGSGVVAEDDGSGFCLDDSE
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LQLFEEYPDKDIKRCPFVTS LASKMQDIHHTKWIKKKKKILQKGKNLNPRAGIAPVVS
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>SIDRM6

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>SIDRM5

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>SICMT4

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>SICMT3

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>SICMT2

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>FaMET1b

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>StMET 1

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>StCMT4

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>StDRM6

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>StDRM7

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>SmMET1

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