

**Table S2. Sequences of MBD proteins in the 7 tested species.**

**>PhMBD1**

MVKDTPKTPKTFKPAANSSVSIWAAQCGNCFKWRMISTQEEFEEIRSRFIEEPFYCNNKPN  
VSCEDPADIEYDSSRTWAIDKPNQPKTPNGFKRELCLRKDYSKMDAYYTTPTGKRLRSSTE  
VATFLQQNPEFSDLVSDFTFKSPKIMEDTIPSSVLANSNKKSAK

**>PhMBD2**

MEGDHPDVTPTGKMDQNNNHGSDPANLNNVNTEPHALRVSSPDIMETPTQKPAEVTSPA  
REQANQISEDKENHNKNAQSQLVLYDPAVSGNIEPFRARRKSFPNSTSRVLPVGAFTVQC  
ANCFKWRLIPTKEKYEEIRGHILEHPFYCETAREWRPEVSCDDPPDITQDRTRLWAIDKPN  
PHPPSGWERILRIRAEAGGTFADVYYVSPSGKMRSMVEVQKHLDEHPEYVAQGVQLNQ  
FSFLSPRPLQEDYVKKRRPAPSRDVPDVTPISWVAPDGTSSQLLGAPGSPGSDTAPPDV  
PVEKSPKKPKLMDDNDSVAK

**>PhMBD3**

MNVCYSDPSKGLKFFSKADVLRYLSSVGSNCSGSSNTKEMKKKDTGKFSTEKTSEGLPPG  
WTKEIRVRRKGHKIRKDPYYIDHVSGQSFRSMKEVYRPLETRESGRFESKPGDQCPSTSEL  
GESISSITTDREASGKVVNSNQKLKLGAEHMHSSCLEGSVSSFEGGAVTENAREEDDGK  
VASVSVSGEHQEKVDDGKVSESARGELQEKEDDCKVGSDPVKGENQKGEDDCNIVSDR  
VSGEDQEKPSRDGVEKHDQKTIQRKRKKGMNLPRRMSKRLAGVKADTSLELQTNNQAY  
LATVRQEEETEAASTDNPVKFIKTSRHVATAVAGITISENVEAGSQTSKRQQDLVSLPLKER  
ELPSAEPAAKTGLASCEADKKGETALESSLDIWTDPCIEFAIKTLTGTIPLINEKKVDSTPGP  
CLGMPSVNTPPSVGLPSDDIWADPCFMFAVKTLTGEIPIGDDFCSQKIVQQECISSQFQGN  
GLALANMRFQEFQGSNLSQFGVPEKAMYKKQPAVAPNTYQNSWFTKFGSHQSSPLC

**>PhMBD4**

MLLSLVSLVDRNPTTPKIPSQLRFRRRWSSEIHRPIGLLRALKKISKQLTIYTHVETGKKFY  
KKEVSRYMNSKDTCLGVTQVDYQDNKCEDKVSEMNYQEKSFSDNNVSQVNDQDKSCF  
EDNVSQMNNQDKSSSGNNVSQIVEGTKISHEWLPPGWIVELRTRKSGSNAGMTYKYVIDP  
STGSKFYSKPEVSKYLKTMKQNNIAGEEQIHGTAEVSSSNQKASDNSKDIGNSRISKRRK  
SDTDQSSNGIEEGSKQKTSQDSEENGERSKSKRKKSGANRPSTKTFPAHGAGDDFSNEKA  
SQDSKENGPHSPLSKRKKPGTDSPSAKTLYTDPVHGYVFRSKKDVFRYLETGDTSRCARR  
SAKSNVASTPTTDDASLKKSECSVTGKQLFATDEPKAGKSLVTCSPAQVEKSKKQPECSVA  
DANTIITSILAEINENHFDENINEDAEIGLAGATESVGLKRLSPVSTPQSDLRPAKQLPENEQ  
EKRSCKAATEQSSKSRNTKSLKPGVRVSKRLAGHSPEVEADLDLGERALPAVVEKSASPSP  
PLDVGGQELLKQPVPKLETGDSAQASPSAAPSDDLPPGWKKEIKITKKASGIRKDPLYID  
PVHGYVFRSKKDVFRYLQTDGINSCTRPGKKDLDTTLKESSPTTLNTSSKNSGCSVTERQ  
PFASRGGKRSGTYSPVVQAKSSKKQPGSSASNPNTIITSSAADINAKHSYENGIENAEISLD  
TEPEIRDNTGDRKVIVSESVDVKRVSAVSARKSDVLTKEKLPENEQEKQTNEETVEQSKRS  
RKKKLLTPGHRTSKRLVGQNPEPVADLDIGERALRAVVKKSTSSGLPLKVNSQEIPAQNKY  
PTVGTGNSDQASLSRETSAEIPPGREKEILAQNKDPTVGTGNSDQAYLSRDAPVDKISSLS  
RDPPVGKISPRRKKKTPAQNKDPAVPAQNKYPTEGTGNSDQASLSRETSAEIPPGREKEIL  
ALNKDPTVGTGNSDQASLSRDAPVDKVSSLSRDPPVGKISPRRKKKTPAQNKDPAVPAQN

KYPTVGTGNSDQASLSRGTSVAEIPPGREKEILALNKDPTVGTGNSDQASLSRDAPVDKVS  
SLSRDPPVGKILPRRKRKTPAQNKDPAVGTGISDQASQSRVASEDELPPGWTKEILVRNGDP  
TVRTGNAGQASLSRELSDELPPGWTREMLVQNRDPTVRTGNAEQVLSREFSDELPPG  
WTREMLAHKKDPIVRTGNIEQASLSREYSDELPPGWTREMLAEKKDPIVRTGNIEQASL  
SREYSDELPPGWTREMLAQNKDSTRGNGNSHQASLSGEASVDELPPGWTKEMLAQNK  
APTKGTGSSGQASVDELPPGWKKEIRIRKNSSRIKKDPFNLALQFYTDPVHGYIFRSRRDV  
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LAYGGNCSITYSMAPQAESSNEQPGSSGFNLNTSISSIAAEITETRSCENVNKDTEVRLDIE  
AEIRDLFGEPKTIASEYVDVKRSSAVFPQSDILPEQKLPETEKEKHSNKGALAQSRKFRNK  
NSLAPVRRVSKKFSHHNPDVAANLDLGEHALRAVVKKTAPSGFPLNVSGQGFPQQIDLVT  
GSFDPAYLSKKASSQDDPLGEFTKCSKESQAFKEQKAAMELTSEKQDDEKRILQDSWPAEI  
LHGSRNVQLERQEVREWSAAELVKEEQGSQKRFLKDWQPEELAWESRRLPVEDQSASER  
STAPQVHKRRGNENMQWQDPQLAQPSQRRGELNVENQSVRGKQTGELVTENQDDQSRR  
LQTQLSSHPFGDYWSDPCLEFAFKTLTGAIPVEDTLPFQGSTQQEFGSYPQVYDGCDFLPV  
FNNYSFDMNEVPNPCPSEEHLPINQTLPTGNNSIPGSSSVSSQNPGLDTQAKDYQSNFKP  
RR

>PhMBD5

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DLAPPAEKGESTAEMQTAVTETVTPQRRVNKSVETTAERPSWLPENWKIEMRVRTSGATA  
GTVDRYYFEPVSGRKFRSKIEVLYFLETGSKRKKGSTDSEATPSETPKSQKQKKGSKTKK  
ITSFYFDSRNPPQSVCWVHTDSFADTWTASCHGVMVPERRKDEWDAVFSSVSQLRQRKE  
CINF

>PhMBD6

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REDHSTEDEDNHGEDSQKQLVLYDPAAVGAGDIELLPDPVSSQPSRRNSFPNNTSRILPAVG  
AFTVQCANCFKWRLIPTKEKYEEIREHILEEPFYCETAREWRAGVSCDDPPDLTQDGSRLW  
AIDKPNIQPPAGWERLLRIRGEGGTRYVAPSGKRLRSMIEIQKYLQEHDPDYVRQGVSMS  
QFSFQIPRPLQENYVKKRPYR PALAHGENDPVHPIAWVGPADDTDLRLGMPGMSSPSDKA  
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>PhMBD7

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GVQEVPRPHGSRVDKYYYEPGTGLKFRSLREVERRLNGEIFASRSRSSLRKMVVYGGKV  
VRMDDEQLNHWAIVPSTSAANLPYDLPGWVIEEVPRRHKSFVDKFYYEPGTGQKFRSRI  
AAQRYLAEMREDAPLSATLEELKENKPLSKMFKLHHHVK

>PhMBD8

MASSNMEKATHDDEIVSFTPKQGGTPKKNEVTFIAPTGEEVKSRKQLEQYLKSHPGNPAIS  
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KEVESAKEENENLEKKDGEAEKVDDADDGKLDKSEDAKTEEKQASGEKLEPQNDQESS  
AADVNENKPEGMTAEYAADEEFKDAHENKPEAVTGEHAVDEEFKDAQENKPEEDQAVD  
EEFKDAQENHPEAATAEHAVDEEFKDAHGDDGESSLGEKKEAEGTDMVMENNKINQPG

MAHSQQQHQSAPISC

>PhMBD9

MEKTEVLPLELPAPPSWKKLLMPKKGGKIKKNEVVFVAPTGEEIRKRKELEKYLKAHDG  
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DKREMESGKEESESGKKENVGKNVMQDEGKDELGDQKEDTEHKKEMEVS DREVSGR  
MNEISDYTQVDAGKIAENGAHETMAIDTKVQNDSTFKDFNGLVADAELEKTNAAEAGA  
EVKEQQIDKGSSADVDNHDIPDNITPETIVAVEDINNIQEPAFIGETNDFHENLGEHRSLEEE  
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>PhMBD10

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KDDDMEEAEKHEDTVAMEAEKDVEHKQVENQDGETEVEKKEEAQATEKDLQKKDEIQS  
ENDVVKENPDEKKDEGQNADGKVEDVPSDEAQDEKDVKMADNVGHPEDVEVAPVDKA  
LDADSKVEDVPVAAEAEVEKDVKIADNVGHPEDVEEALVDKAAADGPEATKMNEEIDVQV  
QEKEENIPTEAEKVDSSADEGKKHQVVGGEQKDEQKTSATGSIEDQDNVMNSEISKVEGG  
VTENGSGNGNEAKP

>PhMBD11

MASVTLDPSSTITEGPPPPALQAESIPTVDLNLQSSELYSLSLCSPSAFNPRLRHDDVIIPKI  
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LLKQLFGSGQMNP SNLIPVRVDYSNFVPTVPPELDNVGGVKRKRGPGRPRKGEDVVMKD  
IVVYQNVVDDDRDKDKDKEIVNKDGEQVDLTGLGAMENPFGEELRKRTEGLVSAEELLG  
FLERLNGEWGSTRRKRIVDASEFGNVLPKGWKLLISVKKKEGRVWLHCRRYISPNGRRF  
DTCKEVSSYLLSLHGERNENVPAYAKSSETVEITNTCALVSTSDLRVQDGAEKESAPSHNS  
SPAVGPGELQVLLNFGELSEVQVGDLLQCDKCNVTFNKNDDLLQHQLSSHRRKRSRNGQ  
SITDGVIKDKGFECQFCHKTFEERRRYNGHVGNHVKYQGKTAADGSLINVGKCVPEVV  
SSGAMLTEVIVQDSVASARDMTENV DVRADVGN NPAPPSKIEEDHMETDDKLEGRCEAM  
DTPV PNKTNLCLSSSEVVTLNKN DNNCCGTLADSLIVDNVTEGTN KDFHNQEGSSSESCFPISL  
TEKCTNKS NVIVCSIIIEPKQESLLCSNGIVDSCGVS MEDGKFPPTLDESKVVTDRFVDNE  
STNALCSNLGVLDENTLVSAEQVPCAEDYSGKNIDLLNGVSFLAETSRDTRGLKSSTGTPN  
CEEESTVDHVQGVLSGSIGEQKPNSTCDITNDECGSLVDPNDNKLTMKEDSCSFVLPPE  
HVNIADRDVSDVSVC FLEEPERRIGDKSGLPSPARENSSGVEAQFFDGSKTTSYEPKISELQ  
SVGSNKLGFPSGNNHAVQKVDECAIENEKGLALCSFFPATDKRVSHAQDHDSKVYQSTTE  
VNDQQSSASALFSSTYVPQASTKEYTMNRSYSNPLNFDGLENSRHRDQNVVFGNSHVDP  
NLNSTHNNRYITEKSTFQLSMDGTYAVQDNLHRRLETDRQGEVGVNLSESAFAKGTGDFE  
SNFMVVFHSQSCDGGKVDEVGNSGKKIVTGFGCGNAKTNEDAVAGSIWRTGVENVMQG  
GSVDNSTSAVQSSNCFQTYDVM SDKVQGLFGENEKYDGTGTFDGLRSDRNEPVEYSFMS  
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>SIMBD1

MATVAPTCGPKLET LAHIDISKFSQSELHEL SLCSDSAYDLRRTNEVVIPQIDRSLFNESAGS  
RRQTY SRLRHQHHR SRVPGLHPSTS QPKPPCTSDPENHAILHFLKFFIHNPNSSQSPPPPITQ

PATSGVQEKTLMLMNEPDKKRKRGRKSKDNKCLKENGVEILNKNGEVVDLNNLENNGD  
KLYSGELEKRTVRLQTEEEVLGFVRDLDGQWCSRRKKRKYVDASGFGDILPIGWKLLLA  
LRRRDGRVWVYCRRIVSPTGQQFISCKEASSYLRSFLSGEANQPTQQVDDTVAKSMSNF  
HSDTSLVLSTDIQENPHSLQKGDMAKHNVVAHAVPSSSTLHLHLSDVCLMEMDNLPEV  
KVQDIFECYKCKLTFEEKNAYLQHLFSFHQRTTRRYRVGPSVGDGVIIRDGKYECQFCHK  
VFEERRSYNGHVGVHVRNNARGTVDIAAAVAADKGVQSPHHDGLLSRTCKMDALIEIAQ  
NAVETSSARPATKDSSMPSSSTSTDLDGNMSTNIDQVARSTTDIGLSDTKEFMTETCLEQG  
RNQPDYTCVQVTKDKSSEILANKFNLRVISTNDSEQPEGDDAKKAGSNKVQGPNGKQT  
KENDDVRPETMELTFQEIASQNALTSSSVSMVQSLHNNFEHSEEGVGKKDGTDNVAVGK  
GNSLTKANDVELETMELTFQDDATLDELTFNLSMVQPSHSAFEHPESDDMKKDGNNQQ  
AVCPGYSLTKANNDLESETMEFILQQNAIRDGLAGFSEPMVQSFHNSTGILSGSSKDNDEV  
SAIGQNLNNGTGFEELRLDEIDHFEYSFDGGHESSSLPATSIGLGNDARMKEAFASVGFDS  
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>SIMBD2

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KQVSRFLETREPGRFESKPDDKCPDTLELEEPSLFPAAEQISLDCDASCKEVNSNQKL  
KLGAEHMAHSSCVEGSMSSCEGLGDABAENAAEEKIDKVVSDDPAIEEHREKDDDGEVVS  
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NQDKPSLDGVEKHDQKTFQRKRKKGMNMPSRASKRLAGIKADTSLKLQTNQDTQLTSV  
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SKPSVNTPSSVGLPSDEIWADPCFMFAVKTLTGEIPIGDELCSQKIVQQQCTSSPNIRFEFEG  
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>SIMBD3

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QFGDGSKMAENVSVVTTAIDADFWNDSMDKDYFKGAFANAVIGDTNAAEAGIEVGEKP  
GYGENLESQIDIEISGADDMNHDMMPDMVASERNVAGGETFNIQDPAFVEGTGGFHEEHRP  
LEEEKNKNSTGLVMDNGQINQPERAHTPQHQSATISC

>SIMBD4

MASVTVDSSSATVPDGAQAEISPTVDLRLLSQSELYSLSLCSPAFAFNPCRDDDVIIPKIDRS  
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LLKQLFGSGTQKNPTDLVPIRVDYSDSLSVPSHVPVPGLELANVGSIGQKRKRGRPRKNEN  
GVRVAEVKVDEVVKDIVVYQNVDDSDKEIMNKDGIPVDLAVLGASVDPFGLLELRRRTEG  
LGSAEELLGFLGRLNGQWGSTRKKRRIVDADDFGSMLPKSWKLLLSIKRKEGRSWLHCR  
RYISPNGRQFGTCKEVSSYLLFLRGERNENLPTYVNGSGTVEITNACALTSDLRIQDGGKK  
ESSVFHNSSPAVGHGELQVLLNFGELSEVQVGDLLQCDKCNVTFNKNDDLLQHQLFSHQ  
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MEDGKFFPTVDESKVENGRSVDTDSTTVLCSNPSPGGNSLIKARQIPHTEDHSGKNIDD  
MNGVSFLAETSKGNRYLKSSTGTPSCDKEGSTVDYVGVLSGCIGEHRPSSIMSDIENKECG  
SLNSNDNKLIMKEDNNSIAQHLDKHKVDTAERDAVDVSACVLEELGQKKGDESSLSPAC  
DKNSEVESLIFNDLKTSAECPKISELQSVRSNIVGFTSSDNYAVKKVAASDTEKEKSLAFCP  
LFPAMNARASCAEDHDTKVYQSTLEGNDLQRSANALFSTTNVPEASTKEYTMHRSYNNS  
LKESKFDGLEHPRHDLNVVFGNSHVDLSANLNCTPFQLGMEETYGVQDNLQKRLETDK  
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DVMAGSIWRVGVENVMQGGSAGNSTSVAQSSNCFQTYDVLSDKVPNLYGENEKYNGNT  
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>SIMBD5

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>SIMBD6

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>SIMBD7

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EPESEEVHSADVGRHKSENAGIEEKQVSEEKLESQNKLEELAAEGTNVTVGGSAGQAEH  
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>SIMBD8

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>SIMBD9

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>SIMBD10

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>SIMBD11

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TGALPVEDTLTFQGSTHQEYNTSYTQADDGCFELPLFNTSSFYLNDAPNHCAPSVEHVVK  
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KFKSHR

>SIMBD12

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>SIMBD13

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>SIMBD14

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>SIMBD15

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>CaMBD1

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>CaMBD2

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>CaMBD3

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>CaMBD4

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>CaMBD5

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>CaMBD7

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>CaMBD8

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>CaMBD9

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>CaMBD10

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>CaMBD11

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>CaMBD12

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>AtMBD1

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>AtMBD2

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>AtMBD3

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>AtMBD4

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>AtMBD5

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>AtMBD7

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>AtMBD8

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>AtMBD9

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>AtMBD10

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>AtMBD11

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>AtMBD12

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>AtMBD13

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>StMBD1

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>StMBD2

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SRLWAIDKPNIAQPPPGWERLLRIRGEGGTRFADVYYVAPSGKRLRSMVEVEKYLQEHDP  
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>StMBD3

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>StMBD4

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>StMBD5

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>StMBD6

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>StMBD7

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>StMBD8

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>StMBD9

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NSD

>StMBD10

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>StMBD11

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>StMBD12

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>StMBD13

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>StMBD14

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>StMBD15

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>OsMBD701

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>OsMBD703

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>OsMBD704

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>OsMBD705

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>OsMBD706

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>OsMBD707

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>OsMBD708

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>OsMBD709

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>OsMBD710

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>OsMBD711

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>OsMBD713

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>OsMBD714

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>OsMBD715

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>OsMBD717

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>TaMBD4

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