Additional file #2 for:

Research Article

Functional evolution of ADAMTS genes: Evidence from analyses of phylogeny and gene organization

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* These authors contributed equally to this work

[§] Corresponding author

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SBM: banoo-malik@uiowa.edu
JML: john-logsdon@uiowa.edu
EGVM: evanmei@emory.edu

Additonal File 2 **– (NMLVadamtsalign2.pdf) Alignment used for phylogenetic analyses of animal ADAMTS homologs.** Unambiguously aligned amino acid sites, indicated by the "mask" line in the alignment, were used for phylogenetic analyses (**Figure 2**). Accession (GI) numbers for sequences are provided. Intron positions in the corresponding genomic sequence are indicated, with color-coding for intron phases (**Table 1**).

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#NEXUS
[AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence from]
[analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]


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Homo ADAMTS16 (21265061)                      ------------------------------------------------------------   [0]
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Ciona 16 (0100138085)                         ------------------------------------------------------------   [0]
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Homo ADAMTS7 (11131377)                       ------------------------------------------------------------   [0]
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Homo ADAMTS19 (19525737)                      ------------------------------------------------------------   [0]
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Homo ADAMTS3 (2224673)                        ------------------------------------------------------------   [0]
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Ciona 3 (0100146117)                          ------------------------------------------------------------   [0]
Homo ADAMTS2 (7656867)                        ------------------------------------------------------------   [0]
Mus 2 (28204840)                              ------------------------------------------------------------   [0]
Fugu 2                                        ------------------------------------------------------------   [0]
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Fugu 13                                       ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                        ------------------------------------------------------------   [0]
Mus 1 (1813340)                               ------------------------------------------------------------   [0]
Homo ADAMTS4 (12643637)                       ------------------------------------------------------------   [0]
Mus 4 (26350615)                              ------------------------------------------------------------   [0]
Fugu 4                                        ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                       ------------------------------------------------------------   [0]
Mus 8 (6708110)                               ------------------------------------------------------------   [0]
Fugu 8                                        ------------------------------------------------------------   [0]
Homo ADAMTS5 (7768707)                        ------------------------------------------------------------   [0]
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Fugu 5                                        ------------------------------------------------------------   [0]
Ciona 15 (0100137065)                         ------------------------------------------------------------   [0]
Homo ADAMTS15 (19171175)                      ------------------------------------------------------------   [0]
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Homo ADAMTS9 (27463365)                       ------------------------------------------------------------   [0]
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Homo ADAMTS20 (28460690)                      ------------------------------------------------------------   [0]
Mus 20 (29500513)                             ------------------------------------------------------------   [0]
Fugu 20                                       ------------------------------------------------------------   [0]
Ciona 9 (0100132719)                          ------------------------------------------------------------   [0]
Apis 9                                        ------------------------------------------------------------   [0]
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Caenorhabditis gon-1 CEt13h10 (3879882)       ------------------------------------------------------------   [0]
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Mus 10 (27502095)                                  ------------------------------------------------------------   [0]
Fugu 10                                            ------------------------------------------------------------   [0]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------MKPRA   [5]
Mus 16 (21961374)                                  ------------------------------------------------------------   [0]
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Ciona 16 (0100138085)                              ------------------------------------------------------------   [0]
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Fugu 18                                            ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [0]
Mus 12 (27817773)                                  ------------------------------------------------------------   [0]
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Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [0]
Fugu 7                                             ------------------------------------------------------------   [0]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [0]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [0]
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Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [0]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [0]
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Ciona 3 (0100146117)                               ------------------------------------------------------------   [0]
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Fugu 13                                            ------------------------------------------------------------   [0]
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Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [0]
Mus 4 (26350615)                                   ------------------------------------------------------------   [0]
Fugu 4                                             ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [0]
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Fugu 8                                             ------------------------------------------------------------   [0]
Homo ADAMTS5 (7768707)                             -------------------------------------------------------------ML   [2]
Mus 5 (5923784)                                    ------------------------------------------------------------   [0]
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Fugu 15                                            ------------------------------------------------------------   [0]
Homo ADAMTS9 (27463365)                            ----------------------------------------------------------MQF   [3]
Fugu 9                                             ------------------------------------------------------------   [0]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [0]
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Fugu 20                                            ------------------------------------------------------------   [0]
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Apis 9                                             ------------------------------------------------------------   [0]
Drosophila CG6107 (20151419)                       STTLRSTTSGHSTGTNSTTVCESPGARDRTSFACSSSCVSSACSATASDDDEDERALERC   [93]
Caenorhabditis gon-1 CEt13h10 (3879882)            ------------------------------------------------------------   [0]
introns                                            ------------------------------------------------------------   [0]
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mask                                               ------------------------------------------------------------   [0]
Homo ADAMTS6 (11131380)                            --MEILWKTL-TWILSLI-MAS----------------------SEFHSDHRLSYSSQEE   [34]
Fugu 6                                             --MEILWKTL-TWILSLVVMAA----------------------SEFQSFNRLSHNSQEE   [35]
Ciona 6 (0100146470)                               --MYLRRV-----------------------------------SINKTELLLRNFEELS   [22]
Homo ADAMTS10 (17432918)                           --MAPACQIL-RWALALGLG------------------------LMFEVTH--AFRSQDE   [31]
Mus 10 (27502095)                                  ------------------------------------------------------------   [0]
Fugu 10                                            ------------------------------------------------------------A   [1]
Homo ADAMTS16 (21265061)                           RGWRGLAALW-MLLAQVAEQAPACAM---------GPA---AAAPGSPSVPRPPPPAERP   [52]
Mus 16 (21961374)                                  ------------------------------------------------------------   [0]
Fugu 16                                            ------------------------------------------------------------   [0]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [0]
Homo ADAMTS18 (21265067)                           FPAAGSGPPRGLAGLGRVAKA--------------LQL---CCLCCASVAAALASDSSSG   [53]
Fugu 18                                            ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                           --MPCAQRSW-LANLSVVAQLLNFGA-LCYG---------------------RQPQPGPV   [35]
Mus 12 (27817773)                                  ------------------------------------------------------------   [0]
Fugu 12                                            -------------------------------MVGLFLH---SSGSTCLHHIRSLRFHPAG   [26]
Homo ADAMTS7 (11131377)                            --MPGGPSPR-SPAPLLRPLLLLLCA-LAPG---------------------APGPAPGR   [35]
Fugu 7                                             ------------------------------------------------------------R   [1]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [0]
Homo ADAMTS17 (21265064)                           ----------------------------MCDGALLPP---LVLPVLLLLVWGLDPGTAY   [28]
Homo ADAMTS19 (19525737)                           SNGIVSELQFAPDREEWEVVFPALWRREPVDPAGGSGG---SADPGWVRGVGGGGSARAQ   [75]
Drosophila dCG4096 (22831757)                      ------MWIR-SRWLGLLLHYWLVVV-TQGGGVRPLYG---LHSDELVAGEGQLVVPRRV   [49]
Homo ADAMTS14 (29337086)                           -------MAP-LRALLSYLLPLHCAL-CA------------------AAGSRTPE---L   [29]
Fugu 14                                            ----------------------------------------KLSGKLSEYGLIVPFSTD   [18]
Homo ADAMTS3 (2224673)                             -----MVLLS-LWLIAAALVEVRTSA-DG----------------QAGNEEMVQID---L   [34]
Fugu 3                                             ------------------------------------------------------------   [0]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [0]
Homo ADAMTS2 (7656867)                             AARRLLCPAL-LLLLLLLPPPLLPPP-PP-------------PANARLAAAADPPG---G   [48]
Mus 2 (28204840)                                   AARRLLCPAL-LLLLLPPPPLLLLPP-P--------------PASVRLVAATEPPG---G   [47]
Fugu 2                                             ------------------------------------------------------------   [0]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [0]
Fugu 13                                            ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                             MQRAVPEGFG-RRKLGSDMGNAERAP-GS----------------RSFGPVPTLLLLAAA   [42]
Mus 1 (1813340)                                    ------------------------------------------------------------   [0]
Homo ADAMTS4 (12643637)                            -MSQTGSHPG-RGLAGRWLWGAQPCL-LLP--------------IVPLSWLVWLLLLLLA   [43]
Mus 4 (26350615)                                   ------------------------------------------------------------   [0]
Fugu 4                                             ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                            ------------------MFPAPAAP-------------------RWLPFLLLLLLLLLP   [23]
Mus 8 (6708110)                                    ------------------------------------------------------------   [0]
Fugu 8                                             ----------------------------------------------------MRSWPLV   [7]
Homo ADAMTS5 (7768707)                             LGWASLLLCA-FRLPLAAVGPAATPA-QDK--------------AGQPPTAAAAAQPRRR   [46]
Mus 5 (5923784)                                    ------------------------------------------------------------   [0]
Fugu 5                                             -------------------------------------------------------------F   [1]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [0]
Homo ADAMTS15 (19171175)                           ----------------------------------------------------MLLLGIL   [7]
Fugu 15                                            ---------------------------------------------------------QPAAG   [5]
Homo ADAMTS9 (27463365)                            VSWATLLTLL-VRDLAEMGSPDAAAA-VRKDR---------------------LHPRQVK   [40]
Fugu 9                                             ------------------------------------------------------------   [0]
Homo ADAMTS20 (28460690)                           -----------MRNAWELTGPVAVVA-EA--------------------LVRTLTSYEVV   [28]
Mus 20 (29500513)                                  ------------------------------------------------------------   [0]
Fugu 20                                            -------------------------------------------------------------S   [1]
Ciona 9 (0100132719)                               LFTKNQHREDQNRNTRKITSKVEENL--AHGFDEN----------------------EVV   [96]
Apis 9                                             ------------------------------------------------------------   [0]
Drosophila CG6107 (20151419)                       LRGTTDDLGESGLRYSLKGPPPELYSAKKDF-ISKGPL---LGRQLEVKKRCEWWCHKYI   [149]
Caenorhabditis gon-1 CEt13h10 (3879882)            -----------------------MRS-IGGSFHLLQPV---VAALILLVVCLVYALQSGS   [33]
introns                                            -------1------------2---3----------------4-----------------5   [2]
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mask                                               ------------------------------------------------------------   [0]
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Fugu 6                                             FLSYLQHYQLTVPVRVDENGHFLSYTVKHHRPGRRRRGAGDPVVGP--------------   [81]
Ciona 6 (0100146470)                               KASSEATIHTIRPQRIDRNGGFIEFATLDPISSRSGGKLRKRRSVEATNVLDTLDAAA--   [80]
Homo ADAMTS10 (17432918)                           FLSSLESYEIAFPTRVDHNGALLAFSPPP---PRRQRRG---------------------   [67]
Mus 10 (27502095)                                  ------------------------------------------------------------   [0]
Fugu 10                                            FLSSLGQYEIAIPVRIGPHGETLDAE--------------------------------   [27]
Homo ADAMTS16 (21265061)                           GWMEKGEYDLVSAYEVDHRGDYVSHEIMH---HQRRRRAV--------------------   [89]
Mus 16 (21961374)                                  ------------------------------------------------------------   [0]
Fugu 16                                            -YEIVSPYEVTHQGHYISHEVGHHHRRRRRSVTPGAFSTIN-------------------   [40]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [0]
Homo ADAMTS18 (21265067)                           ASGLNDDYVFVTPVEVDSAGSYISHDILH-NGRKKRS-----------------------   [89]
Fugu 18                                            ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                           RFPDRRQEHFIKGLPEYHVVGPVRVDASGHFLSYGLHYPITSSRRKRD------------   [83]
Mus 12 (27817773)                                  ------------------------------------------------------------   [0]
Fugu 12                                            HFQPGSDLSIVHPVKTTADGSFISHSVSHRFKGGRFRRDLQ-------------------   [67]
Homo ADAMTS7 (11131377)                            ATEGRAALDIVHPVRVDAGGSFLSYELWP---RALRKRD---------------------   [71]
Fugu 7                                             LLLDLPQYDVVHPTRVDARGHFLSNFLSHHARRVQRREAPE-------------------   [42]
Ciona 7 (genewise.34.12.1)                         ----------------------------------------------------PVQVDTH   [7]
Homo ADAMTS17 (21265064)                           GDAAADVEVVLPWRVRPDDVHLPPLPAAPGPRRRRRPRTPPAAPRA-RPG----------   [77]
Homo ADAMTS19 (19525737)                           AAGSSREVRSVAPVPLEEPVEGRSESRLRPPPPPSEGEEDEELESQELPRGSSGAAALSP   [135]
Drosophila dCG4096 (22831757)                      HPDGAFMTHQLEYAHE---------LDHRRHRQRRSLNSEHDTQAA-DLHLL--------   [91]
Homo ADAMTS14 (29337086)                           HLSGKLSDYGVTVPCSTDFRGRFLSHVVSGPAAASAGSMVVDTPPT-LPRHS--------   [80]
Fugu 14                                            SRGRYLSHVVSAGSGSKGDDAAAAESDGATAPGSRRRVARSAPEMP--------------   [64]
Homo ADAMTS3 (2224673)                             PIKRYREYELVTPVSTNLEGRYLSHTLSASHKKRSARDVSSNP-----------------   [77]
Fugu 3                                             ------------------------------------------------------------   [0]
Ciona 3 (0100146117)                               -----------RFVEFEIIEPTVVTATGQYISHDVTNARRNTT-----------------   [32]
Homo ADAMTS2 (7656867)                             PLGHGAERILAVPVRTDAQGRLVSHVVSAATSRAGVRARRAAP-----------------   [91]
Mus 2 (28204840)                                   PPGQGAERILAVPVRTDAQGRLVSHVVSLETAGAGVRARRAAL-----------------   [90]
Fugu 2                                             ------------------------------------------------------------   [0]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [0]
Fugu 13                                            ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                             LLAVSDALGRPSEEDEELVVPELER-----------APG---------------------   [70]
Mus 1 (1813340)                                    ------------------------------------------------------------   [0]
Homo ADAMTS4 (12643637)                            SLLPSARLASPLPREEEIVFPEKLNGSV--------LPG---------------------   [74]
Mus 4 (26350615)                                   ------------------------------------------------------------   [0]
Fugu 4                                             ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                            LARGAPARPAAGGQASELVVPTRLP-----------------------------------   [48]
Mus 8 (6708110)                                    ------------------------------------------------------------   [0]
Fugu 8                                             LLLCVTDAALCAPFDSEDVLPVRTRKGGGGRLWK--------------------------   [41]
Homo ADAMTS5 (7768707)                             QGEEVQERAEPPGHPHPLAQRRRSKGLVQN-----IDQL---------------------   [80]
Mus 5 (5923784)                                    -MRLEWASLLLLLLLLSASCLSLAADSPAAAPAQDKTRQPQAAAAAAEPDQPQGEETRER   [59]
Fugu 5                                             FLPPANGSLLAPARRTDGVVRTIDRIYHG-------------------------------   [30]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [0]
Homo ADAMTS15 (19171175)                           TLAFAGRTAGGSEPEREVVVPIRLDPDINGRRYYWRGPE---------------------   [46]
Fugu 15                                            RRASAGARGAAG------------------------------------------------   [17]
Homo ADAMTS9 (27463365)                            LLETLGEYEIVSPIRVNALGEPFPTNVHFKRTRRSINSATDPWPAF-ASSS---------   [90]
Fugu 9                                             ------------------------------------------------------------   [0]
Homo ADAMTS20 (28460690)                           IPERVNEFGEVFPQSHHFSRQKRSS-EALEPMP---------------------------   [60]
Mus 20 (29500513)                                  ------------------------------------------------------------   [0]
Fugu 20                                            LVKQLSSYEIITPLRVNDFGESFPLQLHYRRRRRSLSDHLS-------------------   [42]
Ciona 9 (0100132719)                               VPIRVHHVTGH-PVHHGRHFRTRKKEERDSPKDRRRRDVEEDERETILRDRLEHGIAN--   [153]
Apis 9                                             ------------------------------------------------------------   [0]
Drosophila CG6107 (20151419)                       QKMSTHWRQNACLYACCIAFLLGMLIMFHLGLRSAHKGQEELPQSTHPLANSPPATPATL   [209]
Caenorhabditis gon-1 CEt13h10 (3879882)            GTISEFSSDVLFSRAKYSG---VPVHHSRWRQDAGIHVIDSHHIVRRDSYGR--------   [82]
introns                                            -6-----7------------8-9----------------10---------11--------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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Fugu 6                                             -------------------SPSLDPLESRLFYSLSAYGKHFHLNLTLNPHLVSRHFAVEY  [122]
Ciona 6 (0100146470)                               ---------------------ATADGNHEVFYDLGEAPGSPLSGAKLRLTRNYKLVSKNF  [119]
Homo ADAMTS10 (17432918)                           ---------------------TGATAESRLFYKVASPSTHFLLNLTRSSRLLAGHVSVEY  [106]
Mus 10 (27502095)                                  ------------------------------------------------------------  [0]
Fugu 10                                            --------------------------KSQHHQRRRRSAEDRLPDSVLSSPFISSSCWPSA  [61]
Homo ADAMTS16 (21265061)                           ----------------------AVSEVESLHLRLKGPRHDFHMDLRTSSSLVAPGFIVQT  [127]
Mus 16 (21961374)                                  -----------MESRGCAALWVLLLAQVSEQQTPACALGLAAAASGSPEDPQPPPFSGSS  [49]
Fugu 16                                            ------------------------GGGETVHFRLSGLGQDFHLELQETSDGLIAPGFTIQ  [76]
Ciona 16 (0100138085)                              ------------------------------------------------------------  [0]
Homo ADAMTS18 (21265067)                           ----------------------AQNARSSLHYRFSAFGQELHLELKP-SAILSSHFIVQV  [126]
Fugu 18                                            ------------------------------------------------------------  [0]
Homo ADAMTS12 (13569928)                           ---------------------LDGS-EDWVYYRISHEEKDLFFNLTVNQGFLSNSYIMEK  [121]
Mus 12 (27817773)                                  --MPCARGSWLAKLSIVAQLINFGAFCHGRQTQPWPVRFPDPRQEHFIKSLPEYHIVSPV  [58]
Fugu 12                                            ----------------------PSGLEELVYYKVNYKGRSLTFNLTVNHHLVSSGYVLER  [105]
Homo ADAMTS7 (11131377)                            ---------------------VSVRRDAPAFYELQYRGRELRFNLTANQHLLAPGFVSET  [110]
Fugu 7                                             ----------------------GSANMDRVFYQLWHSNHSLRFNLTLNTHLLAPGFLTER  [80]
Ciona 7 (genewise.34.12.1)                         GRFITNNVKFSYPKFKSRSRKKRSISEDDHIYFKMMIENKEVLLNLSRNHNLVHSNFIVE  [67]
Homo ADAMTS17 (21265064)                           --------------------------ERALLLHLPAFGRDLYLQLRRDLRFLSRGFEVEE  [111]
Homo ADAMTS19 (19525737)                           GAPASWQPPPPPQPPSPPPAQHAEPDGDEVLLRIPAFSRDLYLLLRRDGRFLAPRFAVEQ  [195]
Drosophila dCG4096 (22831757)                      ---------------------------------LPLANETLHLELMAHSYFLAPNLVVER  [118]
Homo ADAMTS14 (29337086)                           ----SHLRVARSPLHPGGTLWPGRVGRHSLYFNVTVFGKELHLRLRPNRRLVVPGSSVEW  [136]
Fugu 14                                            ----------------------KVAPSQHLFFNVTVFGKELHLRLRANRRLVAPGAFVEW  [102]
Homo ADAMTS3 (2224673)                             ---------------------------EQLFFNITAFGKDFHLRLKPNTQLVAPGAVVEW  [110]
Fugu 3                                             ------------------------------------------------------------  [0]
Ciona 3 (0100146117)                               -------------------------SQEHLHFNLTVFGESLKLRVRSKSHLISPRAKSVL  [67]
Homo ADAMTS2 (7656867)                             ---------VRTPSFPGGN--E-EEPGSHLFYNVTVFGRDLHLRLRPNARLVAPGATMEW  [139]
Mus 2 (28204840)                                   ---------DQTSGLPGGA--A-QDPGGRLFYNLTVFGRDLHLRLRPNARLVAPGATVEW  [138]
Fugu 2                                             ------------------------------------------------------------  [0]
Homo ADAMTS13 (16306598)                           ------------------------------------MHQRHPRARCPPLCVAGILACGF  [23]
Fugu 13                                            ------------------------------------------------------------  [0]
Homo ADAMTS1 (6525075)                             ----------------------HGTTR----LRLHAFDQQLDLELRPDSSFLAPGFTLQN  [104]
Mus 1 (1813340)                                    ------------------------------------------MGDVQRAARSRGSLSAHML  [19]
Homo ADAMTS4 (12643637)                            ----------------------SGAPAR-LLCRLQAFGETLLLELEQDSGVQVEGLTVQY  [111]
Mus 4 (26350615)                                   ------------------------------------------------------------  [0]
Fugu 4                                             ------------------------------------------------------------  [0]
Homo ADAMTS8 (21536392)                            ----------------------GSAGE-LALHLSAFGKGFVLRLAPDDSFLAPEFKIER  [84]
Mus 8 (6708110)                                    ------------------------------------------------------------  [0]
Fugu 8                                             ------------------------RSEEQPSFLLSAFGKDMTLNLVPDTSFLAPSFSIQR  [77]
Homo ADAMTS5 (7768707)                             ----------------------YSGGGK-VGYLVYAGGRRFLLDLERDGSVGIAGF-VPA  [116]
Mus 5 (5923784)                                    GHLQPLAGQRRSGGLVHNIDQLYSGGGK-VGYLVYAGGRRFLLDLERDDTVGAAGSIVTA  [118]
Fugu 5                                             --------------------------GGKVGYLLYLDGSRFLLDMERDESALSHPFSPQY  [64]
Ciona 15 (0100137065)                              ------------------------------------------------------------  [0]
Homo ADAMTS15 (19171175)                           ----------------------DSGDQG-LIFQITAFQEDFYLHLTPDAQFLAPAFSTEH  [83]
Fugu 15                                            --------------------------DGGVVFKLRAFTRDLYLRLTPDSGFLAPPESRAA  [51]
Homo ADAMTS9 (27463365)                            ----------------------SSSTSSQAHYRLSAFGQQFLFNLTANAGFIAPLFTVTL  [128]
Fugu 9                                             -----------------------------LGTFRSPEGEYFVEPLHNYQGEHYEEEHTKP  [31]
Homo ADAMTS20 (28460690)                           -------------------------FR--THYRFTAYGQLFQLNLTADASFLAAGYTEVH  [93]
Mus 20 (29500513)                                  ------------------------------------------------------MRVAK  [5]
Fugu 20                                            --------------------------SLRLLYRIDAFGERFHLNLTAHSDFIAPSYTVVH  [76]
Ciona 9 (0100132719)                               -------------------------------YSLDAFGERFLLHLMPFDGFLAPNYTLHY  [182]
Apis 9                                             ------------------------------------------------------------  [0]
Drosophila CG6107 (20151419)                       HPRRLDNDTSTDHEPPDGLDDLDEEEHSAFVMPTKVYNYSLSEADLIYESKRNSDINSFL  [269]
Caenorhabditis gon-1 CEt13h10 (3879882)            ---------------RGKRDVTSTDRRRRLQGVARDCGHACHLRLRSDDAVYIVHLHRWN  [127]
introns                                            ------------------------------------------------------------  [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                  310       320       330       340       350       360]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [0]
Homo ADAMTS6 (11131380)                            W-----------------------------------------------------------   [116]
Fugu 6                                             W-----------------------------------------------------------   [123]
Ciona 6 (0100146470)                               VVEER-------------------------------------------------------   [124]
Homo ADAMTS10 (17432918)                           W-----------------------------------------------------------   [107]
Mus 10 (27502095)                                  ----------------------------------------MSSCPVWRAMRLPSQLEWTT   [20]
Fugu 10                                            GCDN--------------------------------------------------------   [65]
Homo ADAMTS16 (21265061)                           L-----------------------------------------------------------   [128]
Mus 16 (21961374)                                  WLETGEYDLVSAYEVDHRGDYVSHDIMHYQRRRRRRAVTQPGGDALHLRLKGPRHDLHLD   [109]
Fugu 16                                            VLGTN-------------------------------------------------------   [81]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [0]
Homo ADAMTS18 (21265067)                           L-----------------------------------------------------------   [127]
Fugu 18                                            ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                           R-----------------------------------------------------------   [122]
Mus 12 (27817773)                                  QVDAGGHVLSYGLHHPVTSSRKKRAAGGSGDQLYYRISHEEKDLFFNLTVNWEFLSNGYV   [118]
Fugu 12                                            RNGG--------------------------------------------------------   [109]
Homo ADAMTS7 (11131377)                            R-----------------------------------------------------------   [111]
Fugu 7                                             RYGG--------------------------------------------------------   [84]
Ciona 7 (genewise.34.12.1)                         RLRDDASNAKRNPGVKNK------------------------------------------   [85]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [111]
Homo ADAMTS19 (19525737)                           RPNPGPGPGPT-------------------------------------------------   [204]
Drosophila dCG4096 (22831757)                      HRRDLRTRSPLTTRHL--------------------------------------------   [134]
Homo ADAMTS14 (29337086)                           QE---------D------------------------------------------------   [139]
Fugu 14                                            QED---------------------------------------------------------   [105]
Homo ADAMTS3 (2224673)                             HETSLVPGNITDPINNHQ------------------------------------------   [128]
Fugu 3                                             ------------------------------------------------------------   [0]
Ciona 3 (0100146117)                               FTSG--------------------------------------------------------   [71]
Homo ADAMTS2 (7656867)                             QG---------E------------------------------------------------   [142]
Mus 2 (28204840)                                   QG---------E------------------------------------------------   [141]
Fugu 2                                             ------------------------------------------------------------   [0]
Homo ADAMTS13 (16306598)                           LLGCW-------------------------------------------------------   [28]
Fugu 13                                            ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                             VGRK--------------------------------------------------------   [108]
Mus 1 (1813340)                                    LLLLASITMLLCARGAHGRPTEEDEELVLPSLERAPGHDSTTTRLRLDAFGQQLHLKLQP   [79]
Homo ADAMTS4 (12643637)                            LG----------------------------------------------------------   [113]
Mus 4 (26350615)                                   ------------MASIHPSCSPGTMSQMGLHPRRGLTGHWLQRFQPCLPLHTVQWRRLLL   [48]
Fugu 4                                             ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                            LG----------------------------------------------------------   [86]
Mus 8 (6708110)                                    ----MLRDPTTTGWPPLLLLLLQLPPPPLVCGAPAGPGTGAQASELVVPTRLPGSASELA   [56]
Fugu 8                                             LRASGAAVP---------------------------------------------------   [86]
Homo ADAMTS5 (7768707)                             GGG---------------------------------------------------------   [119]
Mus 5 (5923784)                                    GGG---------------------------------------------------------   [121]
Fugu 5                                             VFAMMG------------------------------------------------------   [70]
Ciona 15 (0100137065)                              ----MSMLKIVFLFVFLSTV----------------------------------------   [16]
Homo ADAMTS15 (19171175)                           LG-V--------------------------------------------------------   [86]
Fugu 15                                            AS----------------------------------------------------------   [53]
Homo ADAMTS9 (27463365)                            LGTPGV------------------------------------------------------   [134]
Fugu 9                                             HVVYR-------------------------------------------------------   [36]
Homo ADAMTS20 (28460690)                           LGTP--------------------------------------------------------   [97]
Mus 20 (29500513)                                  WLTGLLCPISLLLTGSWEVRFHPRQEALVKTLASYEVVTPTRVNEFGDVFPQNRHFSRKK   [65]
Fugu 20                                            LG----------------------------------------------------------   [78]
Ciona 9 (0100132719)                               MGDAATD-----------------------------------------------------   [189]
Apis 9                                             ------------------------------------------------------------   [0]
Drosophila CG6107 (20151419)                       KESASAFAMTGTYRNMSNEIWDPHPQYNLNVFGRQLHLVLRQDASF-VHNHSMTHIRILK   [328]
Caenorhabditis gon-1 CEt13h10 (3879882)            QIPDSHNKSVPHFSNSNFAPMVLYLDSE--------------------------------   [155]
introns                                            --12----13--------------------------------------------------   [2]
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[                                                   370       380       390       400       410       420]
[                                                   .         .         .         .         .         .]

mask                                                -------------------111111111----------1111----------------11   [15]
Homo ADAMTS6 (11131380)                             ----GKDGPQWKH--DFLDNCHYTGYLQDQRSTT---KVALSNCVG------LHGVIATE   [161]
Fugu 6                                              ----GKDGLQWRH--NTADNCHYVGVLQNQHGTTR---VALSNCKG------LHGVITTE   [168]
Ciona 6 (0100146470)                                -SRAGK--IRSRH--TKLEECHYVGVIHNHNSFS---KVALSLCNG------MQGLITKD   [170]
Homo ADAMTS10 (17432918)                            ----TREGLAWQR--AARPHCLYAGHLQGQASSS---HVAISTCGG------LHGLIVAD   [152]
Mus 10 (27502095)                                   TGQCWPSLHLPSGGSVGVQGLQLSPAYSTSTHFLL--NLTRSPRLLAG---HVSVEYWTR   [75]
Fugu 10                                             ------SLPLVFVLVALLPAVHITQQLPAQPHVAG--RPAVETVQGGILEERAQGVIVAG   [117]
Homo ADAMTS16 (21265061)                            ----GKTGTKSVQTLPPEDFCFYQGSLRSHRNSS----VALSTCQG------LSGMIRTE   [174]
Mus 16 (21961374)                                   LKAASNLMAPGFMVQTLGKGGTKSVQMFPPEENCF--YQGSLRSQGNS---SVALSTCQG   [164]
Fugu 16                                             -------GTKSLRAYQKHDLCFYQGSLRSRVNSS----VALSTCTG------MVSLIRTP   [124]
Ciona 16 (0100138085)                               --------------------------MTSHGKRR----VAMSTCEG------LTGLLRTS   [24]
Homo ADAMTS18 (21265067)                            ----GKDGASETQ-KPEVQQCFYQGFIRNDSSSS----VAVSTCAG------LSGLIRTR   [172]
Fugu 18                                             ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                            ----YGNLSHVKMMASSAPLCHLSGTVLQQGTRVG--TAALSACHG------LTGFFQLP   [170]
Mus 12 (27817773)                                   VEKRYGNLSHVKMVASSGQPCHLRGTVLQQGTTVGIGTAALSACQG------LTGFFHLP   [172]
Fugu 12                                             -------SNRTEHPLSEGNSCHLLGTVEGSDGRG---TAAVSTCRG------LRGFFSLP   [153]
Homo ADAMTS7 (11131377)                             ----RRGGLGRAHIRAHTPACHLLGEVQDPELEGG--LAAISACDG------LKGVFQLS   [159]
Fugu 7                                              -------LEGAKMQTAASSQCHFLGEVWDEDSVKG--SAAISTCDG------LTGLFRLS   [129]
Ciona 7 (genewise.34.12.1)                          ---FESAPLRSSIKLGNGRQCYFRGHVTGHPNS----QVAISTCNG------LTGFVRLN   [132]
Homo ADAMTS17 (21265064)                            -------AGAARRRGRPAELCFYSGRVLGHPGSL----VSLSACGAAG---GLVGLIQLG   [157]
Homo ADAMTS19 (19525737)                            -----GAASAPQPPAPPDAGCFYTGAVLRHPGSL----ASFSTCGG-----GLMGFIQLN   [250]
Drosophila dCG4096 (22831757)                       --NCHFHGKVRGQPATNVAISTCAGLVSCPNFC-V-LPELITLCQ--------VGHIRTA   [182]
Homo ADAMTS14 (29337086)                            --------FRELFRQPLRQECVYTGGVTGMPGAA----VAISNCDG------LAGLIRTD   [181]
Fugu 14                                             --------FVEKAKERIYGDCVFTGDVSDMPEAS----VAISNCDG------LSGLIRTD   [147]
Homo ADAMTS3 (2224673)                              ---PGSATYRIRKTEPLQTNCAYVGDIVDIPGTS----VAISNCDG------LAGMIKSD   [175]
Fugu 3                                              -------VNDTVKRR--------------------------------------------   [8]
Ciona 3 (0100146117)                                ---------GGRVERKLDPGCVFTGEIPQLPHSN----VAISNCDG------LAGLIRTP   [112]
Homo ADAMTS2 (7656867)                              --------KGTTRVEPLLGSCLYVGDVAGLAEASS---VALSNCDG------LAGLIRME   [185]
Mus 2 (28204840)                                    --------TGDTRVEPLLGSCLYVGDVADLPKASS---VALSNCDG------LAGLIRME   [184]
Fugu 2                                              ----------ADLGGLMDLESLYRGVEQSINHTR--------------------------   [24]
Homo ADAMTS13 (16306598)                            ------------GPSHFQQSCLQALEPQ----------AVSS------------------   [48]
Fugu 13                                             ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                              ------SGSETPLPETDLAHCFYSGTVNGDPSSA----AALSLCEG------VRGAFYLL   [152]
Mus 1 (1813340)                                     DSGFLAPGFTLQTVGRSPGSEAQHLDPTGDLAHCF-YSGTVNGDPGS----AAALSLCEG   [134]
Homo ADAMTS4 (12643637)                             --------QAPELLGGAEPGTYLTGTINGDPESV----ASLHWDGGA-----LLGVLQYR   [156]
Mus 4 (26350615)                                    LAFLLSLAWPASPLPREEEIVFPEKLNGSSILPGS--GVPARLLYRLP---AFGEMLLLE   [103]
Fugu 4                                              ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                             ------GSGRATGGERGLRGCFFSGTVNGEPESL----AAVSLCRG------LSGSFLLD   [130]
Mus 8 (6708110)                                     FHLSAFGQGFVLRLAPDASFLAPEFKIERLGGSSAAAGGEPGLRGC-----FFSGTVNGE   [111]
Fugu 8                                              ----RSSVNRTEESAEQLRGCFYSGTVDEEQDSL----VSVSLCSG------IHGSFITG   [132]
Homo ADAMTS5 (7768707)                              ----------TSAPWRHRSHCFYRGTVDASPRSL----AVFDLCGGLD---GFFAVKHAR   [162]
Mus 5 (5923784)                                     ----------LSASSGHRGHCFYRGTVDGSPRSL----AVFDLCGGLD---GFFAVKHAR   [164]
Fugu 5                                              ------------ESPAPLQRECVYRGTVDSNPESL----AVFNLCGGG-----LQGFFALN   [110]
Ciona 15 (0100137065)                               ------G-----AGDVGKDVDFVIP-VRMEEDLSRV--AGSKHFKSRHTVTHETTSKHTV   [62]
Homo ADAMTS15 (19171175)                            ------PLQGLTGGSSDLRRCFYSGDVNAEPDSF----AAVSLCGG------LRGAFGYR   [130]
Fugu 15                                             -------------AASDLRDCFYSGDVNADPDSF----AALSLCGG------LSGGFSYD   [90]
Homo ADAMTS9 (27463365)                             ----NQTKFYSEE-EAELKHCFYKGYVNTNSEHT----AVISLCSG------MLGTFRSH   [179]
Fugu 9                                              ------KKAPKQQTSGEGSACDTSGHQRRHKRHKP--RRRLMPAAS------LLPHAPPL   [82]
Homo ADAMTS20 (28460690)                            ----ERGAWESDAGPSDLRHCFYRGQVNSQEDYK----AVVSLCGG------LTGTFKGQ   [143]
Mus 20 (29500513)                                   RSSGVPEPPPFRTHYRISAYGQLFQLNLSADAAFL--AAGYTEVHLGT---PVPGPGGRS   [120]
Fugu 20                                             ------AEQGNGTERSDMRHCFFRGHVNGRSDFP----AVFSLCTG------LVGTFTTQ   [122]
Ciona 9 (0100132719)                                ------GFAGASLGVP--RHCFYSGYVNERPEHT----AVLSVCSG------LFGAFRTD   [231]
Apis 9                                              ------------MAVKRPPMCRNTLTDQRNATP--------DIETG--------TRKQAA   [32]
Drosophila CG6107 (20151419)                        EGEEHPGPETEAEAEQRHLGCFYSGYVEDDPHSM----VSVSLCGG------MTGYIKTS   [378]
Caenorhabditis gon-1 CEt13h10 (3879882)             -------EEVRGGMSRTDPDCIYRAHVKGVHQHSI--VNLCDSEDG------LYGMLALP   [200]
introns                                             ------14-15-------16----17--------------------------18------   [2]
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[                                                   430       440       450       460       470       480]
[                                                   .         .         .         .         .         .]

mask                                                11-1111----------------------------111111111-----------------   [30]
Homo ADAMTS6 (11131380)                             DE-EYFIEPLKN--------TTEDSKHFSYENG-HPHVIYKKSALQQRHLYDHSHCGVSD   [211]
Fugu 6                                              EE-QYLIEPLKN--------TSSTTSSEWNLEEAQQHVIYKMSAIPSPQEPSQEFSCG--   [217]
Ciona 6 (0100146470)                                DD-TFFIEPKWNHTSNSTSSEFSTTASPQEVEEGHPHVIVKRSAIRRSHHHKKQFEDL--   [227]
Homo ADAMTS10 (17432918)                            EE-EYLIEPLHG---------GPKGSR-SPEE-SGPHVVYKRSSLRHPHLDTACGVRD--   [198]
Mus 10 (27502095)                                   EG-LAWQRAARAH-------CLYAGHLQGQAGSSHVAVSTCGGLHGLIVADDEEYLIEPL   [127]
Fugu 10                                             GE-EYLIEPLVSP-------DNQTRMEKGERAEGRPHVVYKRSSLRHQYKGQSCGVID--   [167]
Homo ADAMTS16 (21265061)                            EA-DYFLRPLPSH--------LSWKLGRAAQGSSPSHVLYKRSTEPHAPGASEVLVTSR-   [224]
Mus 16 (21961374)                                   LL-GMIRTKDTDY-------FLKPLPPHLTSKLNRSAQGDSPSHVLYKRSTERQAPRENE   [216]
Fugu 16                                             DA-DYFLRPVSRD--------LAQRENFTAPSSHQPHILYRRTEPRGPDPRARDGEDQEY   [175]
Ciona 16 (0100138085)                               ED-DFLVEPLPHH----------INHTFPDRQHPHIIYKRRHLYKHRLHYCGKKKRYI    [71]
Homo ADAMTS18 (21265067)                            KN-EFLISPLPQL--------LAQEHNYSSPAGHHPHVLYKRTAEEKIQRYRGYPGSGRN   [223]
Fugu 18                                             ------------------------------------------------------------   [0]
Homo ADAMTS12 (13569928)                            HG-DFFIEPVKK---------HPLVEG-----GYHPHIVYRRQKVPETKEPTCGLKD---   [212]
Mus 12 (27817773)                                   HG-DFFIEPVKK---------HPLTEE-----GSYPHVVYRRQSIRAPETKEPICGLKD-   [216]
Fugu 12                                             EG-QYFIEPIQSS-------------PHDATDAPEPHVVYPRVTETHRKKRNVDPGATPG   [199]
Homo ADAMTS7 (11131377)                             NE-DYFIEPLDS---------APARPG-----HAQPHVVYKRQAPERLAQRGDSSAPSTC   [204]
Fugu 7                                              KE-EFFIQPLQKS--------TLETSAPQAHAIYKRHVTSPSWNPVLQPLPGKQTLNGTC   [180]
Ciona 7 (genewise.34.12.1)                          NTAEYLIEPTAI--------------HSLSKNSRMPHRLYKRGAERRQAADFLRARRTDE   [178]
Homo ADAMTS17 (21265064)                            QE-QVLIQPLNN---------SQGPFS-----G-REHLIRRKWSLTPSPSAEAQRPEQLC   [201]
Homo ADAMTS19 (19525737)                            ED-FIFIEPLND---------------TMAITG-HPHRVYRQKRSMEEKVTEKSALHSHY   [293]
Drosophila dCG4096 (22831757)                       GN-EYFIEPSKEH-------EPHP------VNG-HPHVVFQRSSVKPKHSLRKRNKRKRG   [227]
Homo ADAMTS14 (29337086)                            ST-DFFIEPLER---------GQQEKEA-S--G-RTHVVYRREAVQQEWAEPDGDLHNEA   [227]
Fugu 14                                             NG-EFFIEPLEKG-------QQDVEVKG------RVHVVYRRSAIKKETGQQRQDLRN--   [191]
Homo ADAMTS3 (2224673)                              NE-EYFIEPLER---------GKQMEEE-K--G-RIHVVYKRSAVEQAPI----------   [211]
Fugu 3                                              ------------------------------------------------------------   [8]
Ciona 3 (0100146117)                                DD-EIFIEPIED---------RHVT-------GPQKHVIYRRSAT-KNSANHGQRKLRHS   [154]
Homo ADAMTS2 (7656867)                              EE-EFFIEPLEK---------GLAAQEAEQ--G-RVHVVYRRPPT--SPPLGGPQALDTG   [230]
Mus 2 (28204840)                                    EE-EFFIEPLEK---------GQTDQEAEQ--G-RVHVVYRRPPTPKPPPVSEPQALDTG   [231]
Fugu 2                                              ------------------------------------------------------------   [24]
Homo ADAMTS13 (16306598)                            -Y-LSPGAPLK----------------------GRPPSPGFQRQRQ----------------   [70]
Fugu 13                                             ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                              GE-AYFIQPLPAA-------SERLATAAPGEKPPAPLQFHLLRRNRQGDVGG--TCGVVD   [202]
Mus 1 (1813340)                                     VR-GAFYLQGEEF-------FIQPAPGVATERLAPAVPEEESSARPQFHILRRRRRGSGG   [186]
Homo ADAMTS4 (12643637)                             GA-ELHLQPLEGG-------TPNSAGGP------GAHILRRKSP----------------   [186]
Mus 4 (26350615)                                    LE-QDPGVQVEGL-------TVQYLGQAPEMLGGAEPGTYLTGTINGDPESVASLHWDGG   [155]
Fugu 4                                              ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                             GE-EFTIQPQGA---------GGSLA--------QPHRLQRWGPAGARPLPR--------   [164]
Mus 8 (6708110)                                     RE-SLAAMSCVAG-------WSGSFLLAGEEFTIQPQGAGDSLDQPHRLQRWGPGQRRED   [163]
Fugu 8                                              GT-EYLIEP-----------------------------------------------------   [140]
Homo ADAMTS5 (7768707)                              YT-LKPLLRGPWA-------EEEKGRVYGDGSARILHVYTREGFSFEALPPRASCE---T   [211]
Mus 5 (5923784)                                     YT-LKPLLRGSWA-------EYER--IYGDGSSRILHVYNREGFSFEALPPRASCE---T   [211]
Fugu 5                                              HS-RYSITPIVRA-------KGHEHDVRTLQDKDAESALHAFTRESFSFEATREGRESCG   [162]
Ciona 15 (0100137065)                               HE-DEFTRPVYKI-------PAFGKDLLVR-------LEKDNSLVAPSFTTSYSYSNETV   [107]
Homo ADAMTS15 (19171175)                            GA-EYVISPLPN---------ASA--PAAQRNSQGAHLLQRRGVPG--------------   [164]
Fugu 15                                             GM-EYFISPGGSA-------RAAPGDPAERTHVISRRGRVDPGGSATRRCGVAPGGN---   [139]
Homo ADAMTS9 (27463365)                             DG-DYFIEPLQS---------MDEQEDEEEQN--KPHIIYRRSAPQREPSTGR-------   [220]
Fugu 9                                              VG-ARIFSDLESL-------GAGVVSESLRRTASSPGGRPSNDSSSDSGPHR--------   [126]
Homo ADAMTS20 (28460690)                            NG-EYFLEPIMK---------ADGNEYED--GHNKPHLIYRQDLNNSFLQT---------   [182]
Mus 20 (29500513)                                   TE-SPDLRHCFYR-------GQVNAREDHTAVFSLCGGLMGTFKANDGEYFLEPVLRADG   [172]
Fugu 20                                             HG-EYFLEPLLNA-------AGEEYDEQHNKPHLVYRHERHKNTSKSANATVPCAASEDS   [174]
Ciona 9 (0100132719)                                TS-DYLIQPEHKS--------SGSEHDEAEEEGAKRHRIFRRSTRAAGSTGKSLCGYTGE   [282]
Apis 9                                              KL-KYDNTPTPI------------------VENSSKGKIYFDGRRRKRR-----------   [62]
Drosophila CG6107 (20151419)                        FG-ALLIQPVNR---------TSSDE--------VLHRVFRKSQRNARHAVSKFEL----   [416]
Caenorhabditis gon-1 CEt13h10 (3879882)             SG-IHTVEPIIS---------GNGTEHD----GASRHRQHLVRKFDPMHFKSF-------   [239]
introns                                             -------------------------19-----20-------------21-22------23   [2]
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[                                                  490       500       510       520       530       540]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [30]
Homo ADAMTS6 (11131380)                            ------------------------------------FTR-SGKPWWLNDTSTVSYSL-P   [232]
Fugu 6                                             ----------------------------ISDLIKTSSPCQ-LSTPSPLHPSAEPKNGS-E   [247]
Ciona 6 (0100146470)                               -----------------------------------DFESL-SNHRTSAGRRRGLEEDSTE   [251]
Homo ADAMTS10 (17432918)                           -------------------------------------EKP-WKGRPWWLRTLKPPPAR-P   [219]
Mus 10 (27502095)                                  QGGPKGHRGPEESGPHVVYKRSSLRHPHLDTACGVRDEKP-WKGRPWWLRTLKPPPAR-P   [185]
Fugu 10                                            -------------------------------------EKP-MKSASWWQRTLKTPPHH-V   [188]
Homo ADAMTS16 (21265061)                           ------TWELAHQPLHSSDLRLGLPQKQHFCGRRKKYMPQ-PPKEDLFILPDEYKS----   [273]
Mus 16 (21961374)                                  VLMITRKRDLARPHLHHDNFHLGPSQKQHFCGRRKKYMPQ-PPNDDLYILPDEYKP----   [271]
Fugu 16                                            RQQGRGDILNDRTEHRGDGHHHGNHHSDYRHGGRQRQHFC-GRRKKYMPKPPEDDTFILP   [234]
Ciona 16 (0100138085)                              YKDQREVLSQIVLRNVTRVHCYAVKGYINVSLGNERYPVT-IPDTENHQII-KLLSNGEI   [129]
Homo ADAMTS18 (21265067)                           YPGYSPSHIPHASQSRETEYHHRRLQKQHFCGRRKKYAPK-PPTEDTYLRFDEYGS----   [278]
Fugu 18                                            -------------------------------------APK-PPTDDRFIMPDEFATPA-T   [21]
Homo ADAMTS12 (13569928)                           -------------------------------------SVN-ISQKQELWREKWERHNL-P   [233]
Mus 12 (27817773)                                  -------------------------------------SLD-NSVKQELQREKWERKTL-R   [237]
Fugu 12                                            PCGVQDAP---------------------------IDSVH-VEREREEWEREQQRDGG-Q   [230]
Homo ADAMTS7 (11131377)                            GVQV--------------------------------YPE-LESRR----ERWEQRQQ-W   [225]
Fugu 7                                             G---------------------------------NKNSHQ-SLADFERHRERWE------   [200]
Ciona 7 (genewise.34.12.1)                         ANARQK-----------------------------------------WED---------   [187]
Homo ADAMTS17 (21265064)                           KVLT-----E---------------------------KKK-PTW--------GRPSRD-W   [219]
Homo ADAMTS19 (19525737)                           CGIISD------------------------------KGR-PRSRKIA------------   [309]
Drosophila dCG4096 (22831757)                      GKSGSGAEVSNCGTREPRRRMETRLEWQARGKVKVQGGRQ-IRRHHHHHHHHHHKHKY-R   [285]
Homo ADAMTS14 (29337086)                           -------------------------------------FGL-GDLPNLLGLVGDQLG----   [245]
Fugu 14                                            -----------------------------------EVADF-GIANLPVALDIVEHKL--S   [213]
Homo ADAMTS3 (2224673)                             DMSKDFHYRE---------------------------SDL-EGLDDLGTVYGNIHQQL-N   [242]
Fugu 3                                             ------------------------------------------------------------   [8]
Ciona 3 (0100146117)                               TTR---------------------------------RTFRD-DTRDSMQGSLEVILEQTK-   [180]
Homo ADAMTS2 (7656867)                             -------------------------------------ASL-DSLDSLSRALGVLEEHA-N   [251]
Mus 2 (28204840)                                   -------------------------------------VSQ-GNLDSLSRALGVLEERI-N   [252]
Fugu 2                                             ------------------------------------------------------------   [24]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [70]
Fugu 13                                            ------------------------------------------------------------   [0]
Homo ADAMTS1 (6525075)                             DEPRP-TGKAETEDEDEGTE--------GEDEGPQWS------PQDPALQGVGQPTG--H   [245]
Mus 1 (1813340)                                    AKCGVMDDETLPTSDSRPE---------SQNTRNQW-------PVRDPTPQDAGKPSG-P   [229]
Homo ADAMTS4 (12643637)                            ----------------------------ASGQGPMCN------VKAP----LGSPS---P   [205]
Mus 4 (26350615)                                   ALLGVLQYRGAELHLQPLEGGALNSAGGPGAHILRRKSPA-SSQGPMCTVKAPSGSPS-P   [213]
Fugu 4                                             ------------------------------------------------------------   [0]
Homo ADAMTS8 (21536392)                            ---GP-EWEVETGEGQRQER-------GDHQEDSEEE-----SQEEEAEGASEPPPPL-G   [207]
Mus 8 (6708110)                                    PGLAAAEVFPLPQGLEWEVEMGNGQGQERSDNEEDRKQDK-EGLLKETEDSRKVPPPF-G   [221]
Fugu 8                                             ------------------------------------------------------------   [140]
Homo ADAMTS5 (7768707)                             PAS-TPEAHEHAPAHSNP-------SGRAALASQL------LDQSALSPAGGSGP-QT-W   [255]
Mus 5 (5923784)                                    PAS-PSGPQESPSVHSRS-------RRRSALAPQL------LDHSAFSPSGNAGP-QT-W   [255]
Fugu 5                                             TRDGRRGRRLRRHRKG--------------ARDGEGLAGE-SGRHGSRGRRWRSRPAA-A   [206]
Ciona 15 (0100137065)                              NDMNTFKQPLLRHCFYKGTVLGEPESQVALSICDSLTGSI-YTDSAHYMIKPTKNAHLPN   [166]
Homo ADAMTS15 (19171175)                           ---GP-SGDPTSRCGVASGW--------NPAILRALD------PYKPRRAGFGESRSR-R   [205]
Fugu 15                                            ----------------------------------------FSASLERYRHLSETVL-G   [156]
Homo ADAMTS9 (27463365)                            ----------------------------HACDTSEHKN-RHSKDKKKTRARKWGER-I   [248]
Fugu 9                                             ------------------------------------------------------------   [126]
Homo ADAMTS20 (28460690)                           ----------------------------LKYCSVSESQI-KETSLPFHTYSNMNEDL-N   [211]
Mus 20 (29500513)                                  SAHDDDHNKPHLIYRQELKRNSFARSHKPCEVSENQMEKT-ALPSQSSRNTTGDVDIE-E   [230]
Fugu 20                                            KMSDVFESGKNMG--------------------DELESLR-ATIEERHISAHDADGAQ-P   [212]
Ciona 9 (0100132719)                               KMSCQLYTNQSYRP-------------------SVTLNNL-TAQSSLKPTIEKQQEES--   [320]
Apis 9                                             -------------------------------SLTEKKELERSEEDEMYKQFVGQAEGHR   [90]
Drosophila CG6107 (20151419)                       -GLDDFMSKLEQVQEEEQKSKSRKLN---------------------------------   [441]
Caenorhabditis gon-1 CEt13h10 (3879882)            ----------DHLNSTSVNETETTVATWQDQWEDVIERKA--------------------   [269]
introns                                            ------------------------------24---25,26---27-28----------29   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                   550       560       570       580       590       600]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                                          R  R                E  ]
mask                                                ------------------------------------1111--------11111111111   [45]
Homo ADAMTS6 (11131380)                             INNTHI--HH----------------------------RQKR--------SVSIERFVETL   [255]
Fugu 6                                              QSGDG-------------------------------HRRRR--------SVSSERFVETL   [268]
Ciona 6 (0100146470)                                EVTNEEDIAKS-------------------------RGKR--------SISTERNVETM   [277]
Homo ADAMTS10 (17432918)                            LGNETE--RGQP------------------------GLKR--------SVSRERYVETL   [244]
Mus 10 (27502095)                                   LGNESE--RGQL------------------------GLKR--------SVSRERYVETL   [210]
Fugu 10                                             GRGQ----------------------------WPLKR--------SVNRERYVETL   [208]
Homo ADAMTS16 (21265061)                            -CL---------------------------------RHKRSLLRS---HRNEELNVETL   [295]
Mus 16 (21961374)                                   -SS---------------------------------RHKRSLLKS---HRNEELNVETL   [293]
Fugu 16                                             DEYKFIP-----------------------------RNKRAVLMKT--QHSRKLNVEML   [262]
Ciona 16 (0100138085)                               ELESDE------------------------------------------Q--TPVT?KNVETL   [147]
Homo ADAMTS18 (21265067)                            -SG---------------------------------RPRRSAG-----KSQKGLNVETL   [298]
Fugu 18                                             DESG--------------------------------RAKRSPINS---NRVGGLNVETL   [45]
Homo ADAMTS12 (13569928)                            SRS---------------------------------LSRR--------SISKERWVETL   [251]
Mus 12 (27817773)                                   SRS---------------------------------LSRR--------SISKERWVETL   [255]
Fugu 12                                             ARP---------------------------------RSQR--------SVSKERWVESM   [248]
Homo ADAMTS7 (11131377)                             RRP---------------------------------RLRRLHQR----SVSKEKWVETL   [247]
Fugu 7                                              RRR--------------------------------LRKRRRIRQR---SVSKEKWVETL   [224]
Ciona 7 (genewise.34.12.1)                          ------------------------------------RRIKRNPFQRSRRSISLEHWIELM   [211]
Homo ADAMTS17 (21265064)                            ------------------------------------RERRNAI-----RLTSEHTVETL   [237]
Homo ADAMTS19 (19525737)                            ----------------------------------ESGRGKRYSY-----KLPQEYNIETV   [330]
Drosophila dCG4096 (22831757)                       HHQQKISRVPHT-KFKYETQF-QTE-----PDHAEIPRRRR--------SISSPRHVETL   [330]
Homo ADAMTS14 (29337086)                            DTE---------------------------------RKRRH-------AKPGSYSIEVL   [264]
Fugu 14                                             ESE---------------------------------RKRR-----H--AKTEDYNIEVL   [232]
Homo ADAMTS3 (2224673)                              ETM---------------------------------RRRRH-------AGENDYNIEVL   [261]
Fugu 3                                              ------------------------------------RRRRD-------AGEDDYNIEIL   [24]
Ciona 3 (0100146117)                                ----------------------------------RERSKRH-------AKRNDYNMEIL   [198]
Homo ADAMTS2 (7656867)                              SS--------------------------------RRRARRH-------AADDDYNIEVL   [271]
Mus 2 (28204840)                                    SS--------------------------------RRRVRRH-------ATDDDYNIEVL   [272]
Fugu 2                                              ----------------------------------AGRMRRQ-------SLERSYNIEVL   [42]
Homo ADAMTS13 (16306598)                            ------------------------------------RQRR--------AAGGILHLELL   [85]
Fugu 13                                             ------------------------------------GRARRS----V--LMPDVTHLELL   [18]
Homo ADAMTS1 (6525075)                              GSI---------------------------------RKKR--------FVSSHRYVETM   [263]
Mus 1 (1813340)                                     GSI---------------------------------RKKR--------FVSSPRYVETM   [247]
Homo ADAMTS4 (12643637)                             RPR---------------------------------RAKR--------FASLSRFVETL   [223]
Mus 4 (26350615)                                    ISR---------------------------------RTKR--------FASLSRFVETL   [231]
Fugu 4                                              ----------------------------------HHRTRR--------FVSTPRYLEIM   [17]
Homo ADAMTS8 (21536392)                             ATS---------------------------------RTKR--------FVSEARFVETL   [225]
Mus 8 (6708110)                                     SKT---------------------------------RSKR--------FVSEARFVETL   [239]
Fugu 8                                              ------------------------------------------------KVVETL   [146]
Homo ADAMTS5 (7768707)                              WR----------------------------------RRRR--------SISRARQVELL   [272]
Mus 5 (5923784)                                     WR----------------------------------RRRR--------SISRARQVELL   [272]
Fugu 5                                              PVR---------------------------------RRER--------SVSRARYVELL   [224]
Ciona 15 (0100137065)                               KAYHSVSKITNRVRRSISTSE-NFKEPVVAEGVRAKSRSKRA-------FDSQQHYIETL   [218]
Homo ADAMTS15 (19171175)                            RSG---------------------------------RAKR--------FVSIPRYVETL   [223]
Fugu 15                                             GAG---------------------------------RSRR--------FASIPRFVEVL   [174]
Homo ADAMTS9 (27463365)                             NLAGDVAALNSG-LATEAFSA-YGNKTDNTREKRTHRRTKR--------FLSYPRFVEVL   [298]
Fugu 9                                              ------------------------------------RSKR--------FLSYPRFVEVM   [141]
Homo ADAMTS20 (28460690)                            VMKERVLGHTSK-NV-------------PLKDERRHSRKKR--------LISYPRYIEIM   [249]
Mus 20 (29500513)                                   EAVFRLEGERSQ-L----------------------HSRNKR--------FLSYPRYVEVM   [260]
Fugu 20                                             RSP---------------------------------HRRKR--------FLSYPRYVELM   [231]
Ciona 9 (0100132719)                                -------------NT-------------P-----R-SRKKR--------YLSYPRNVEVM   [340]
Apis 9                                              NFLRNDARYYSVERRRNDLSEEYGQDSEMESDPSVTWRPRR--------ALSSEYFIEIM   [142]
Drosophila CG6107 (20151419)                        ------------------------------------RKKR--HYAD--VDNQVYTLEVL   [460]
Caenorhabditis gon-1 CEt13h10 (3879882)             ------------------------------------RSRR-----A--ANSWDHYVEVL   [285]
introns                                             ----------------------------------30,31,32,33--------34,35--   [2]
[                                                                furin prodomain cleavage motif                   ]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                    610       620       630       640       650       660]
[                                                    .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                D      HG        Y LT             S                 ]
mask                                                 111111111111--1111--1111111-1111111111111111111111111111111111   [100]
Homo ADAMTS6 (11131380)                              VVADKMMVGYHGRKDIEH--YILSVMN-IVAKLYRDSSLGNVVNIIVARLIVLTEDQPNL   [312]
Fugu 6                                               VVADKMMVGYHGRKDIEH--YILSVMN-I??????????---------????????PNL   [316]
Ciona 6 (0100146470)                                 VVADKMMMVTHGKQELEK--YILTIMN-IVASFYHDASIGNAINIIITRVIILTEDQPNL   [334]
Homo ADAMTS10 (17432918)                             VVADKMMVAYHGRRDVEQ--YVLAIMN-IVAKLFQDSSLGSTVNILVTRLILLTEDQPTL   [301]
Mus 10 (27502095)                                    VVADKMMVAYHGRRDVEQ--YVLAIMN-IVAKLFQDSSLGNIVNILVTRLILLTEDQPTL   [267]
Fugu 10                                              VVADKMMVGYHGRRDIEQ--YILAVMNIQVAKLFQDSSLGNAVNIVVTRLILLMEDQPTL   [266]
Homo ADAMTS16 (21265061)                             VVVDKKMMQNHGHENITT--YVLTILN-MVSALFKDGTIGGNINIAIVGLILLEDEQPGL   [352]
Mus 16 (21961374)                                    VVVDRKMMQSHGHENITT--YVLTILN-MVSALFKDGTIGGNINIVIVGLILLEDEQPGL   [350]
Fugu 16                                              VVVDRKMMDNHGHENITT--YVLTVLN-MVSSLFKDGTIGGNINIVIVGLVLLDEEQEGL   [319]
Ciona 16 (0100138085)                                VVADAQMIRNHERDHRDITTYILTVMN-MVSGLFSDRSMDGTIN--VV-LVGIMLLEDNG   [203]
Homo ADAMTS18 (21265067)                             VVADKKMVEKHGKGNVTT--YILTVMN-MVSGLFKDGTIGSDINVVVVSLILLEQEPGGL   [355]
Fugu 18                                              VVADRKMLEKHGRDNVTT--YVLTVMN-MVSSLFKDGTIGSDINIVVVSLLLLEEDPLGL   [102]
Homo ADAMTS12 (13569928)                             VVADTKMIEYHGSENVES--YILTIMN-MVTGLFHNPSIGNAIHIVVVRLILLEEEEQGL   [308]
Mus 12 (27817773)                                    VVADTKTVEYHGSENVES--YILTIMN-MVTGLFHSPSIGNLVHIVVVRLILLEEEEQGL   [312]
Fugu 12                                              VVADSKLIDYHGSDNVES--YIFTIMN-MVAGIFHDASIGNAIHVILVRLILLHGEEKGL   [305]
Homo ADAMTS7 (11131377)                              VVADAKMVEYHGQPQVES--YVLTIMN-MVAGLFHDPSIGNPIHITIVRLVLLEDEEEDL   [304]
Fugu 7                                               VVADPKMVEYHGSTAVEN--YILAVMN-IVAGLFGDASIGNAINVVVVRLILLEQDEDDL   [281]
Ciona 7 (genewise.34.12.1)                           LVVDNKMVHYHGK-NIET--YVLTIVN-MVSELFHDVSIGNSLHVTLIRLVLLEGDEKGL   [267]
Homo ADAMTS17 (21265064)                             VVADADMVQYHGAEAAQR--FILTVMN-MVYNMFQHQSLGIKINIQVTKLVLLRQRPAKL   [294]
Homo ADAMTS19 (19525737)                             VVADPAMVSYHGADAARR--FILTILN-MVFNLFQHKSLGVQVNLRVIKLILLHETPPEL   [387]
Drosophila dCG4096 (22831757)                        IVADATMSAFHR--DLNG--YLLTIMN-MVSALYKDPSIGNSIEIVVVRIIQLDEEESQL   [385]
Homo ADAMTS14 (29337086)                             LVVDDSVVRFHGKEHVQN--YVLTLMN-IVDEIYHDESLGVHINIALVRLIMVGYRQSLS   [321]
Fugu 14                                              LAVDDSVVRFHGKEHVQN--YVLTLMN-IVDEIYHDESLGTNINIVLVRMIMVGYRQSIS   [289]
Homo ADAMTS3 (2224673)                               LGVDDSVVRFHGKEHVQN--YLLTLMN-IVNEIYHDESLGVHINVVLVRMIMLGYAKSIS   [318]
Fugu 3                                               LGVDDSVVRFHGKEHVQN--YLLTLMN-IVNEIYHEESLGVHINVVLVRMIMLGYAKSIS   [81]
Ciona 3 (0100146117)                                 LTVGHEIVRVHGRHHVEN--YLVTLMN-IVDEIYHDDSLGEHINIILTRIYQLDAVRTNN   [255]
Homo ADAMTS2 (7656867)                               LGVDDSVVQFHGKEHVQK--YLLTLMN-IVNEIYHDESLGAHINVVLVRIILLSYGKSMS   [328]
Mus 2 (28204840)                                     LGVDDSVVQFHGKEHVQK--YLLTLMN-IVNEIYHDESLGAHINVVLVRIILLSHAKSMS   [329]
Fugu 2                                               LGVDDSVVQFHRKENVQK--YLLTLMN-IVNEIYHDKSLGAKINVVLVRIIMLGQGKSTS   [99]
Homo ADAMTS13 (16306598)                             VAVGPDVFQAHQE-DTER--YVLTNLN-IGAELLRDPSLGAQFRVHLVKMVILTEPEGAP   [141]
Fugu 13                                              VVVGPDVHQVHKQ-DTER--YILTNLN-IASELLRDISLGGNMRVHLVRMIILSEPEPEI   [74]
Homo ADAMTS1 (6525075)                               LVADQSMAEFHGS-GLKH--YLLTLFS-VAARLYKHPSIRNSVSLVVVKILVIHDEQKGP   [319]
Mus 1 (1813340)                                      LVADQSMADFHGS-GLKH--YLLTLFS-VAARFYKHPSIRNSISLVVVKILVIYEEQKGP   [303]
Homo ADAMTS4 (12643637)                              VVADDKMAAFHGA-GLKR--YLLTVMA-AAAKAFKHPSIRNPVSLVVTRLVILGSGEEGP   [279]
Mus 4 (26350615)                                     VVADDKMAAFHGT-GLKR--YLLTVMA-AAAKAFKHPSIRNPVNLVVTRLVILGSGQEGP   [287]
Fugu 4                                               IVADQSMAEFHGA-GLKP--YLLTIMA-VASRLYRHPSIHNSISLAVVKLLVVYEEEYGP   [73]
Homo ADAMTS8 (21536392)                              LVADASMAAFYGA-DLQN--HILTLMS-VAARIYKHPSIKNSINLMVVKVLIVEDEKWGP   [281]
Mus 8 (6708110)                                      LVADASMAAFYGT-DLQN--HILTVMS-MAARIYKHPSIRNSVNLVVVKVLIVEKERWGP   [295]
Fugu 8                                               VVADPSMTHFYGD-EIKH--YILTLMS-MAAQLYKHPSIKNSVNLVLVKMLVVEDEEVGP   [202]
Homo ADAMTS5 (7768707)                               LVADASMARLYGR-GLQH--YLLTLAS-IANRLYSHASIENHIRLAVVKVVVLGDKDKSL   [328]
Mus 5 (5923784)                                      LVADSSMARMYGR-GLQH--YLLTLAS-IANRLYSHASIENHIRLAVVKVVVLTDKDTSL   [328]
Fugu 5                                               LVADDTMTKKYGK-DLNH--YLLTLAS-IASKLYGHASIENPIRLSVVKVTTVGEKEKGL   [280]
Ciona 15 (0100137065)                                VVADASMVEEHGD-DLEH--YILTLMM-VANRVFSHPSLGSAISISVVKVRIMVLHEDSD   [274]
Homo ADAMTS15 (19171175)                             VVADESMVKFHGA-DLEH--YLLTLLA-TAARLYRHPSILNPINIVVVKVLLLRDRDSGP   [279]
Fugu 15                                              VVADESMASAHGE-DLQH--YLLTLMS-VVARLYKHPSILNPISVVVVGVMVLGGADKGP   [230]
Homo ADAMTS9 (27463365)                              VVADNRMVSYHGE-NLQH--YILTLMS-IVASIYKDPSIGNLINIVIVNLIVIHNEQDGP   [354]
Fugu 9                                               LVADSKMVEHHGS-NLQH--YILTLMS-IVSSIYKDPSIGNLINIVVVKLVIINNELEGP   [197]
Homo ADAMTS20 (28460690)                             VTADAKVVSAHGS-NLQN--YILTLMS-IVATIYKDPSIGNLIHIVVVKLVMIHREEEGP   [305]
Mus 20 (29500513)                                    VTADAKMVHHHGQ-NLQH--YVLTLMS-IVAAIYKDSSIGNLINIVIVKLVVIHSEQEGP   [316]
Fugu 20                                              VTADAKMARHHGP-NLEH--YILTIMS-VVAAVYRDPSVGNLINIMIVKLIVVHNEQEGP   [287]
Ciona 9 (0100132719)                                 VTADNAMLRSHDD--VEH--YVLTLMA-IVNHVYRDPSIENLVNIVLVKLIVIGDSQNGP   [395]
Apis 9                                               VAADAEMVRYHGK-GLLG--YILGLMS-TVSRIYKDPSIGNPISISVMSIVPIDKI-FGV   [197]
Drosophila CG6107 (20151419)                         IAVDNSMKQFHGE-DLQP--YILILMS-IVSSIFADASIGNSIRILLVRLISLPNIN---   [513]
Caenorhabditis gon-1 CEt13h10 (3879882)              VVADTKMYEYHGR-SLED--YVLTLFS-TVASIYRHQSLRASINVVVVKLIVLKTENAGP   [341]
introns                                              ------------------36-------37---------------------38---39--   [2]
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[                                                   670       680       690       700       710       720]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                 L   C W                         D A   T        ]
mask                                                1--111-1-1111111111111111111----------1111111111--1111   [139]
Homo ADAMTS6 (11131380)                             E--INH-H-ADKSLDSFCKWQKSILSHQSDGNTIPENG----IAHHDNAVLITR--YDIC   [362]
Fugu 6                                              E--INH-H-ADKSLDSFCKWQRTVLSHHSGGNSIPENG----MAHHDNAVLITR--YDIC   [366]
Ciona 6 (0100146470)                                E--IST-H-AGNTLNSFCEWQAGVNINSTGDSSDSG------LAHHDNAVLLTG--NNIC   [382]
Homo ADAMTS10 (17432918)                            E--ITH-H-AGKSLDSFCKWQKSIVNHSGHGNAIPENG----VANHDTAVLITR--YDIC   [351]
Mus 10 (27502095)                                   E--ITH-H-AGKSLDSFCKWQKSIVSHSGHGNAIPENG----VANHDTAVLITR--YDIC   [317]
Fugu 10                                             E--INH-H-AGKSLDSFCKWQKTIQHRNSYGNAIPDNG----IAHHDTAVLIT?------   [312]
Homo ADAMTS16 (21265061)                            V--ISH-H-ADHTLSSFCQWQSGLMGKDG--------------TRHDHAILLTG--LDIC   [392]
Mus 16 (21961374)                                   A--ISH-H-ADHTLTSFCQWQSGLMGKDG--------------TRHDHAILLTG--LDIC   [390]
Fugu 16                                             V--INH-H-ADHTLNSFCHWQSTLRGREG--------------RHHDHAILLTG--LDIC   [359]
Ciona 16 (0100138085)                               AL-HLDHK-ADEALSSFCHWQANLNNTNGGKP--------------DHSILLTG--IDIC   [245]
Homo ADAMTS18 (21265067)                            L--INH-H-ADQSLNSFCQWQSALIGKNG--------------KRHDHAILLTG--FDIC   [395]
Fugu 18                                             T--ISH-H-ADQSLNSFCQWQSGLLGKGG--------------KRHDHAVLLTG--LDIC   [142]
Homo ADAMTS12 (13569928)                            K--IVH-H-AEKTLSSFCKWQKSINPKSDLNP-----------VHHDVAVLLTR--KDIC   [351]
Mus 12 (27817773)                                   K--IVH-H-AEKTLSSFCKWQKSINPKSDLNP-----------VHHDVAVLITR--KDIC   [355]
Fugu 12                                             K--IAH-H-ADTTLSSFCAWQKNLNPQSDTHP-----------AHHDVAVLITR--KDIC   [348]
Homo ADAMTS7 (11131377)                             K--ITH-H-ADNTLKSFCKWQKSINMKGDAHP-----------LHHDTAILLTR--KDLC   [347]
Fugu 7                                              K--ITH-H-ADNSLHSFCKWQKKLNMKGDNHP-----------LHHDVSVLLTR--KDIC   [324]
Ciona 7 (genewise.34.12.1)                          K--ITQ-H-AERTLDSFCRWAKRMNPKSDNHA-----------NHHDVAVLLTR--RNIC   [310]
Homo ADAMTS17 (21265064)                            S--IGH-H-GERSLESFCHWQNEEYGGARYLGNNQVPGGKDDPPLVDAAVFVTR--TDFC   [348]
Homo ADAMTS19 (19525737)                            Y--IGH-H-GEKMLESFCKWQHEEFGKKNDIHLEMSTNWGEDMTSVDAAILITR--KDFC   [441]
Drosophila dCG4096 (22831757)                       QL-NLTQN-AQKNLDRFCSWQHKLNKGSEKDP-----------HHHDVAILITR--KNIC   [430]
Homo ADAMTS14 (29337086)                            L--IERGN-PSRSLEQVCRWAHSQQRQDPSHA-----------EHHDHVVFLTR--QDFG   [365]
Fugu 14                                             L--IERGN-PSRSLEQVCRWANTQQRRDPEHS-----------EYHDHAIFLTR--QDFG   [333]
Homo ADAMTS3 (2224673)                              L--IERGN-PSRSLENVCRWASQQQRSDLNHS-----------EHHDHAIFLTR--QDFG   [362]
Fugu 3                                              L--IERGN-PSRSLENVCRWAFVQQKSDPDHA-----------EHHDHAIFLTR--QGFG   [125]
Ciona 3 (0100146117)                                L--IVENE-PKTSLNNVCHWAKDIQVTDPAPNG----------RTYDAAIFLTR--IRFG   [300]
Homo ADAMTS2 (7656867)                              L--IEIGN-PSQSLENVCRWAYLQQKPDTGHD-----------EYHDHAIFLTR--QDFG   [372]
Mus 2 (28204840)                                    L--IEIGN-PSQSLENVCRWAYLQQKPDTDHD-----------EYHDHAIFLTR--QDFG   [373]
Fugu 2                                              L--IEIGN-PSQSLENVCRWAFLQQKQDTGDA-----------EYHDHAIFLTR--QEFG   [143]
Homo ADAMTS13 (16306598)                            N--ITA-N-LTSSLLSVCGWSQTINPEDDTDP-----------GHADLVLYITR--FDLE   [184]
Fugu 13                                             Q--LST-N-ITSSLTSVCEWGRKINPANDSDP-----------LHADLLLYITR--YDLV   [117]
Homo ADAMTS1 (6525075)                              E--VTS-N-AALTLRNFCNWQKQHNPPSDRDA-----------EHYDTAILFTR--QDLC   [362]
Mus 1 (1813340)                                     E--VTS-N-AALTLRNFCSWQKQHNSPSDRDP-----------EHYDTAILFTR--QDLC   [346]
Homo ADAMTS4 (12643637)                             Q--VGP-S-AAQTLRSFCAWQRGLNTPEDSDP-----------DHFDTAILFTR--QDLC   [322]
Mus 4 (26350615)                                    Q--VGP-S-AAQTLRSFCTWQRGLNTPNDSDP-----------DHFDTAILFTR--QDLC   [330]
Fugu 4                                              Q--VSS-N-AAMTLRNFCQWQRQHNPTSDRHA-----------EHYDTAVLFTR--TDLC   [116]
Homo ADAMTS8 (21536392)                             E--VSD-N-GGLTLRNFCNWQRRFNQPSDRHP-----------EHYDTAILLTR--QNFC   [324]
Mus 8 (6708110)                                     E--VSD-N-GGLTLRNFCSWQRRFNKPSDRHP-----------EHYDTAILFTR--QNFC   [338]
Fugu 8                                              E--VSS-N-GGVALRNFCSWQQLFNSPSQRHP-----------EHYDTAMLFTR--EDIC   [245]
Homo ADAMTS5 (7768707)                              E--VSK-N-AATTLKNFCKWQHQHNQLGDDHE-----------EHYDAAILFTR--EDLC   [371]
Mus 5 (5923784)                                     E--VSK-N-AATTLKNFCKWQHQHNQLGDDHE-----------EHYDAAILFTR--EDLC   [371]
Fugu 5                                              E--VSKN--AAATLKSFCKWQNQQNSLDDDHQ-----------HHHDAAILFTR--QDLC   [323]
Ciona 15 (0100137065)                               GP-RITQH-AQHTLREFCSWQKRHNTPDDSDP-----------QHYDLAILLTR--TNLC   [319]
Homo ADAMTS15 (19171175)                            K--VTG-N-AALTLRNFCAWQKKLNKVSDKHP-----------EYWDTAILFTR--QDLC   [322]
Fugu 15                                             K--VSS-N-AALTLRNFCSWQKKLNKHSDKHP-----------DYWDTAVLFTK--QDLC   [273]
Homo ADAMTS9 (27463365)                             S--ISF-N-AQTTLKNLCQWQHSKNSPGGI--------------HHDTAVLLTR--QDIC   [394]
Fugu 9                                              V--ISF-N-AQATLKNFCIWQQSQNILDDNHH-----------SHHDTAILITR--QDIC   [240]
Homo ADAMTS20 (28460690)                            V--INF-D-GATTLKNFCSWQQTQNDLDDVHP-----------SHHDTAVLITR--EDIC   [348]
Mus 20 (29500513)                                   V--ISF-N-AATTLRNFCLWQQSQNVPDDAHP-----------SHHDTAVLITR--EDIC   [359]
Fugu 20                                             A--VSF-N-AATTLHNFCVWQQGQNVQDDSHP-----------SHHDTALLITR--EDIC   [330]
Ciona 9 (0100132719)                                R--VAR-D-AHTCLRNFCEWQFTQNDPDDSHPD-----------HHDTSVLITG--QDIC   [438]
Apis 9                                              RRTKGEGIAAADMLNKFCRWQQSNNPNEYSPG------------HYDTALLLTR--ENLC   [243]
Drosophila CG6107 (20151419)                        ---DQTHS-SNEMLKHFCQFINQ----SG--------------YERDTAMLITR--EPIC   [549]
Caenorhabditis gon-1 CEt13h10 (3879882)             R--ITQ-N-AQQTLQDFCRWQQYYNDPDDSSV-----------QHHDVAILLTR--KDIC   [384]
introns                                             40----------------41----------------------------------42,43-   [2]
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[                                                   730       740       750       760       770       780]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                               G A     C    SC      G   AFT AHE GH     HD      C]
mask                                              -------1111111111111111111111111111111111111111111111--1   [190]
Homo ADAMTS6 (11131380)                           TYKNKP-CGTLGLASVAGMCEPERSCSINEDIGLGSAFTIAHEIGHNFGMNHDGIGNS-C   [420]
Fugu 6                                            TYKNKP-CGTLGLASVAGMCEPERSCSINEDIGLGSAFTIAHEIGHNFGMNHDGIGNS-C   [424]
Ciona 6 (0100146470)                              ANDFAP-CATLGMANVGGICENERSCNINQDTGLASAFTIAHEIGHNFDMEHDGTNND-C   [440]
Homo ADAMTS10 (17432918)                          IYKNKP-CGTLGLAPVGGMCERERSCSVNEDIGLPQAFTIAHEIGHTFGMNHDGVGNS-C   [409]
Mus 10 (27502095)                                 IYKNKP-CGTLGLAPVGGMCERERSCSINEDIGLATAFTIAHEIGHTFGMNHDGVGNG-C   [375]
Fugu 10                                           ---------??????VGGMCVSERSCSINEDIGLGTAFTIAHEIGHTFGMNHDGMGNA-C   [362]
Homo ADAMTS16 (21265061)                          SWKNEP-CDTLGFAPISGMCSKYRSCTINEDTGLGLAFTIAHESGHNFGMIHDGEGNM-C   [450]
Mus 16 (21961374)                                 SWKNEP-CDTLGFAPISGMCSKYRSCTVNEDSGLGLAFTIAHESGHNFGMVHDGEGNM-C   [448]
Fugu 16                                           SWKNEP-CDTLGFAPISGMCSRYRSCTINEDTGLGLAFTIAHESGHNFGMVHDGEGNV-C   [417]
Ciona 16 (0100138085)                             VDKNKP-CETLGLAQIGGMCSERNSCTINEDMGLGLAFTVAHESGHSFGMKHDGEGNL-C   [303]
Homo ADAMTS18 (21265067)                          SWKNEP-CDTLGFAPISGMCSKYRSCTINEDTGLGLAFTIAHESGHNFGMIHDGEGNP-C   [453]
Fugu 18                                           SWKNEP-CDTLGFAPISGMCSKYRSCTINEDTGLGLAFTIAHESGHNFGMIHDGEGNP-C   [200]
Homo ADAMTS12 (13569928)                          AGFNRP-CETLGLSHLSGMCQPHRSCNINEDSGLPLAFTIAHELGHSFGIQHDGKEND-C   [409]
Mus 12 (27817773)                                 AGVNRP-CETLGLSQLSGMCQPHRSCNINEDSGLPLAFTIAHELGHSFGIQHDGKEND-C   [413]
Fugu 12                                           AGMNQP-CETLGLSHLSGMCQPHRSCNINEDSGLPVAFTVAHEMGHSFGIHHDGQGND-C   [406]
Homo ADAMTS7 (11131377)                           AAMNRP-CETLGLSHVAGMCQPHRSCSINEDTGLPLAFTVAHELGHSFGIQHDGSGND-C   [405]
Fugu 7                                            AAINMP-CETLGLSHVAGMCQAHRSCSISEDTGLPVAFTVAHELGHNFGIQHDGNGND-C   [382]
Ciona 7 (genewise.34.12.1)                        SRSNKS-CETLGLAHVAGMCQSHRSCNVNQDTGLSLAFTVAHELGHNFAMHHDGQLNH-C   [368]
Homo ADAMTS17 (21265064)                          VHKDEP-CDTVGLAYLGGVCSAKRKCVLAEDNGLNLAFTIAHELGHNLGMNHDDHSS-C   [406]
Homo ADAMTS19 (19525737)                          VHKDEP-CDTVGLAYLSGMCSEKRKCIIAEDNGLNLAFTIAHEMGHNMGINHDNDHPS-C   [499]
Drosophila dCG4096 (22831757)                     ANN----CMTLGLANVGGMCKPKQSCSVNEDNGIMLSHTITHELGHNFGMFHDTAKIG-C   [485]
Homo ADAMTS14 (29337086)                          P------SGMQGYAPVTGMCHPLRSCALNHEDGFSSAFVIAHETGHVLGMEHDGQGNG-C   [418]
Fugu 14                                           P------AGMQGYAPVTGMCHPLRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [386]
Homo ADAMTS3 (2224673)                            P------AGMQGYAPVTGMCHPVRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [415]
Fugu 3                                            P------TGMQGYAPVTGMCHPVRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [178]
Ciona 3 (0100146117)                              TAGM---GIKEGYAHVDGLCQPLRSCSLTYEDGFSSAFVVAHETGHILGMKHDGDFNR-C   [356]
Homo ADAMTS2 (7656867)                            P------SGMQGYAPVTGMCHPVRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [425]
Mus 2 (28204840)                                  P------SGMQGYAPVTGMCHPVRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [426]
Fugu 2                                            P------TGMQGYAPVTGMCHPVRSCTLNHEDGFSSAFVVAHETGHVLGMEHDGQGNR-C   [196]
Homo ADAMTS13 (16306598)                          LPDGN--RQVRGVTQLGGACSPTWSCLITEDTGFDLGVTIAHEIGHSFGLEHDGAPGSGC   [242]
Fugu 13                                           LPDGN--NQVRGVAQLGGACSSEWSCVITEDTGFDLGITITHEIGHSFGINHDGVRNT-C   [174]
Homo ADAMTS1 (6525075)                            -GSQT--CDTLGMADVGTVCDPSRSCSVIEDDGLQAAFTTAHELGHVFNMPHDDAKQ--C   [417]
Mus 1 (1813340)                                   -GSHT--CDTLGMADVGTVCDPSRSCSVIEDDGLQAAFTTAHELGHVFNMPHDDAKH--C   [401]
Homo ADAMTS4 (12643637)                           -GVST--CDTLGMADVGTVCDPARSCAIVEDDGLQSAFTAAHELGHVFNMLHDNSKP--C   [377]
Mus 4 (26350615)                                  -GVST--CDTLGMADVGTVCDPARSCAIVEDDGLQSAFTAAHELGHVFNMLHDNSKP--C   [385]
Fugu 4                                            -GAHS--CDTLGMADVGTVCDPDRSCSIIEDDGLQAAFTVAHELGHVFNMPHDDAQL--C   [171]
Homo ADAMTS8 (21536392)                           -GQEGL-CDTLGVADIGTICDPNKSCSVIEDEGLQAAHTLAHELGHVLSMPHDDSKP--C   [380]
Mus 8 (6708110)                                   -GKGEQ-CDTLGMADVGTICDPDKSCSVIKDEGLQAAYTLAHELGHVLSMPHDDSKP--C   [394]
Fugu 8                                            -GQKS--CDTLGVADVGTMCDPKRSCSVIEDNGLQAAFTAAHELGHVLSMPHDDSKT--C   [300]
Homo ADAMTS5 (7768707)                            -GHHS--CDTLGMADVGTICSPERSCAVIEDDGLHAAFTVAHEIGHLLGLSHDDSKF--C   [426]
Mus 5 (5923784)                                   -GHHS--CDTLGMADVGTICSPERSCAVIEDDGLHAAFTVAHEIGHLLGLSHDDSKF--C   [426]
Fugu 5                                            -GHHS--CDTLGMADVGTICSPERSCAVIEDDGLHAAFTVAHEIGHLLGLSHDDSKF--C   [378]
Ciona 15 (0100137065)                             -GDT---CATLGLAEVGTMCSRRHSCAVIEDDGLSASYTIAHEVGHVLNMMHDDNRL--C   [373]
Homo ADAMTS15 (19171175)                          -GATT--CDTLGMADVGTMCDPKRSCSVIEDDGLPSAFTTAHELGHVFNMPHDNVKV--C   [377]
Fugu 15                                           -GATT--CDTLGMADVGTMCDPKRSCSVIEDDGLPTAFTAAHELGHVFNMPHDNVKA--C   [328]
Homo ADAMTS9 (27463365)                           -RAHDK-CDTLGLAELGTICDPYRSCSISEDSGLSTAFTIAHELGHVFNMPHDDNNK--C   [450]
Fugu 9                                            -RARDK-CDTLGLAELGTVCDPYRSCSIIEDNGLSTAFTIAHELGHVFNMPHDDSNK--C   [296]
Homo ADAMTS20 (28460690)                          -SSKEK-CNMLGLSYLGTICDPLQSCFINEEKGLISAFTIAHELGHTLGVQHDDNPR--C   [404]
Mus 20 (29500513)                                 -GAKEK-CDTLGLAELGTLCDPSRSCSISEENGLSAAFTIAHELGHVFNVPHDDSFK--C   [415]
Fugu 20                                           -RAKDK-CDTLGLAELGTMCDQYRSCSISEENGISASFTIAHELGHVFNMPHDDNPK--C   [386]
Ciona 9 (0100132719)                              -RSNSV-CDTLGLAELGTMCDLRKSCSINEDNGLSTAFTIAHEIGHEFNAPHDNNDK--C   [494]
Apis 9                                            HNSDQRNCDTLGLAELGRMCSPRSSCAIVQDNGLAAAFTIAHEIGHVLDMPHDDDVK--C   [301]
Drosophila CG6107 (20151419)                      GSVPGKICHMLGLAELGTVCS-SSSCSIVQDTGLPTAFTMAHELGHILNMNHDDDDK--C   [606]
Caenorhabditis gon-1 CEt13h10 (3879882)           -RSQGK-CDTLGLAELGTMCDMQKSCAIIEDNGLSAAFTIAHELGHVFSIPHDDERK--C   [440]
introns                                           --------44,45-----------------------------46,47,48----------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                  790       800       810       820       830       840]
[                                                  .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                                M              WS CS       L    ]
mask                                       --------------------------111111111--1111111111111111111111--   [220]
Homo ADAMTS6 (11131380)                    -GTKG-----------------HEAAKLMAAHITA--NTNPFSWSACSRDYITSFLDSGR   [460]
Fugu 6                                     -GTKG-----------------HETAKLMAAHITA--NTNPFSWSACSKDYITSFLDSGR   [464]
Ciona 6 (0100146470)                       -GPRN-----------------GEPSQIMSPQLTK--YTSPFSWSSCSKKYITDYLDSGS   [480]
Homo ADAMTS10 (17432918)                   -GARG-----------------QDPAKLMAAHITM--KTNPFVWSSCNRDYITSFLDSGL   [449]
Mus 10 (27502095)                          -GARG-----------------QDPAKLMAAHITM--KTNPFVWSSCSRDYITSFLDSGL   [415]
Fugu 10                                    -GPHS-----------------QETAKLMADHITM--KTNPFIWSACSRDYITSFLDSGM   [402]
Homo ADAMTS16 (21265061)                   KKSEG---------------------NIMSPTLAG--RNGVFSWSPCSRQYLHKFLSTAQ   [487]
Mus 16 (21961374)                          KKSEG---------------------NIMSPTLAG--RNGVFSWSSCSRQYLHKFLSTAQ   [485]
Fugu 16                                    KKSEG---------------------NIMSPTLAG--HNGIFSWSACSRQYLSRFLNSAQ   [454]
Ciona 16 (0100138085)                      SKRDG---------------------HIMSPTLNG--LNGVFTWSTCSRNAIGDFLQNVE   [340]
Homo ADAMTS18 (21265067)                   RKAEG---------------------NIMSPTLTG--NNGVFSWSSCSRQYLKKFLSTPQ   [490]
Fugu 18                                    RKTEG---------------------NIMSPTLAG--NNGVFFWSTCSRQYLSRFLGTTQ   [237]
Homo ADAMTS12 (13569928)                   -EPVG------------------RHPYIMSRQLQY--DPTPLTWSKCSEEYITRFLDRGW   [448]
Mus 12 (27817773)                          -EPVG------------------RHPYIMSQQIQY--DPTPLTWSKCSKEYITRFLDRGR   [452]
Fugu 12                                    -ELEG------------------RHPFIMSRQLMY--DSSPLTWSSCSKEYITRFLDRGW   [445]
Homo ADAMTS7 (11131377)                    -EPVG------------------KRPFIMSPQLLY--DAAPLTWSRCSRQYITRFLDRGW   [444]
Fugu 7                                     -EPVG------------------KRPFVMSPQLLY--GTSLPQWSRCSREYITRFLDRGW   [421]
Ciona 7 (genewise.34.12.1)                 -TPDE------------------ANPRVMTPHLTS--NNLPMRWSTCSRKYITRFLDRNW   [407]
Homo ADAMTS17 (21265064)                   ----------------------AGRSHIMSGEWVKGRNPSDLSWSSCSRDDLENFLKSKV   [444]
Homo ADAMTS19 (19525737)                   ----------------------ADGLHIMSGEWIKGQNLGDVSWSRCSKEDLERFLRSKA   [537]
Drosophila dCG4096 (22831757)              HPRVGP------------------IVHIMTPTFGA--DTLQVCWSNCSRKYITHFLDQGL   [525]
Homo ADAMTS14 (29337086)                   -----D---------------ETSLGSVMAPLVQA--AFHRFHWSRCSKLELSRYLPS--   [454]
Fugu 14                                    ----AD---------------ETSMGSIMAPLVQA--AFHRYHWSRCSKQELNRYIHS--   [423]
Homo ADAMTS3 (2224673)                     ----GD---------------ETAMGSVMAPLVQA--AFHRYHWSRCSGQELKRYIHS--   [452]
Fugu 3                                     ----GD---------------ETAMGSVMAPLVQA--AFHRYHWSMCSGQELKRYIHT--   [215]
Ciona 3 (0100146117)                       ----GD---------------ETTMGSIMAPLVQA--AFHRYHWSRCSQEELRSSLGS--   [393]
Homo ADAMTS2 (7656867)                     ----GD---------------EVRLGSIMAPLVQA--AFHRFHWSRCSQQELSRYLHS--   [462]
Mus 2 (28204840)                           ----GD---------------EVRLGSIMAPLVQA--AFHRFHWSRCSQQELSRYLHS--   [463]
Fugu 2                                     ----GD---------------EVHMGSIMAPLVQA--AFHRFHWSRCSMQELGRYLHS--   [233]
Homo ADAMTS13 (16306598)                   ----------------------GPSGHVMASDGAA--PRAGLAWSPCSRRQLLSLLSAGR   [278]
Fugu 13                                    ----------------------SRSGFIMASDGGY--NSVDLTWSPCSRQQLLAFFSDGK   [210]
Homo ADAMTS1 (6525075)                     ASLNG----------------VNQDSHMMASMLSN--LDHSQPWSPCSAYMITSFLDNGH   [459]
Mus 1 (1813340)                            ASLNG----------------VSGDSHLMASMLSS--LDHSQPWSPCSAYMVTSFLDNGH   [443]
Homo ADAMTS4 (12643637)                    ISLNGP---------------LSTSRHVMAPVMAH--VDPEEPWSPCSARFITDFLDNGY   [420]
Mus 4 (26350615)                           TNLNGQ---------------GGSSRHVMAPVMAH--VDPEEPWSPCSARFITDFLDNGY   [428]
Fugu 4                                     SEVNG----------------AHWGSHMMASTLSN--LDQQQPWSPCSALMVTTFLDNGH   [213]
Homo ADAMTS8 (21536392)                    TRLFG----------------PMGKHHVMAPLFVH--LNQTLPWSPCSAMYLTELLDGGH   [422]
Mus 8 (6708110)                            VRLFG----------------PMGKYHMMAPFFIH--VNKTLPWSPCSAVYLTELLDDGH   [436]
Fugu 8                                     QRLFG----------------DLGGHFLMAPVLVS--LNKTAPWSPCSALYVTEFFDNGH   [342]
Homo ADAMTS5 (7768707)                     EETFG----------------STEDKRLMSSILTS--IDASKPWSKCTSATITEFLDDGH   [468]
Mus 5 (5923784)                            EENFG----------------TTEDKRLMSSILTS--IDASKPWSKCTSATITEFLDDGH   [468]
Fugu 5                                     EERFG----------------VNSDKRLMSSILTS--IDASKPWSRCTSATITDFFDDGN   [420]
Ciona 15 (0100137065)                      RANFA---------------NIDSTSHVMSPTMDR--VDSEQPWSLCSKQALTDFLEDGG   [416]
Homo ADAMTS15 (19171175)                   EEVFG----------------KLRANHMMSPTLIQ--IDRANPWSACSAAIITDFLDSGH   [419]
Fugu 15                                    EEVFG----------------KLKDNHMMSPTLIQ--IDRSRPWSVCSAAIITEFLDRGH   [370]
Homo ADAMTS9 (27463365)                    -KEEG----------------VKSPQHVMAPTLNF--YTNPWMWSKCSRKYITEFLDTGY   [491]
Fugu 9                                     -KEDG----------------VKLQQHVMAPTLNY--NTNPWMWSKCSRKYITEFLDTGY   [337]
Homo ADAMTS20 (28460690)                   -KEM-----------------KVTKYHVMAPALSF--HMSPWSWSNCSRKYVTEFLDTGY   [444]
Mus 20 (29500513)                          -KEAG----------------IKHQYHVMAPTLNY--HTSPWTWSACSQKHITEFLDTGH   [456]
Fugu 20                                    -WEGG----------------VKRQYHVMASTLNY--DTNPWTWSKCSRKYITEFLDTGY   [427]
Ciona 9 (0100132719)                       LDARGAT---------------VGL-NVMSPTLDNN--AHPWSWSKCSAKYITSFLDNGN   [536]
Apis 9                                     AAYKNRS----------------GMHNIMSRMLDDN--TFPWEWSKCSRHYVTEFLEAGK   [343]
Drosophila CG6107 (20151419)               MPYVTRQN-------------NNKVLHIMSSVMGI--HMHPWSWSKCSRHFVSEFLEKTD   [651]
Caenorhabditis gon-1 CEt13h10 (3879882)    STYMPVNKVCKFQSTKFDKTQFQNNFHIMAPTLEY--NTHPWSWSPCSAGMLERFLENNR   [498]
introns                                    ------------------------------49----------------------50,51   [2]
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[                                                   850       860       870       880       890       900]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                        CL    P          P   PG    Y    QC    G     C          ]
mask                                           11--11111-1----1111111-1111--11111111111111111111111-------1---   [261]
Homo ADAMTS6 (11131380)                        GT--CLDNE-P---PKRDFLYPAVAPG--QVYDADEQCRFQYGATSRQCK----YG-E---   [505]
Fugu 6                                         GT--CLDNE-P---LKRDFLYPTVAPG--QVYEADEQCRFQYGASSRQCK----YG-E---   [509]
Ciona 6 (0100146470)                           GD--CLLNT-P---PQRDFDFPSELPG--QLHDADEQCRLQYGASSRQCK----YG-D---   [525]
Homo ADAMTS10 (17432918)                       GL--CLNNR-P---PRQDFVYPTVAPG--QAYDADEQCRFQHGVKSRQCK----YG-E---   [494]
Mus 10 (27502095)                              GL--CLNNR-P---PRQDFVYPTVAPG--QAYDADEQCRFQHGVKSRQCK----YG-E---   [460]
Fugu 10                                        GS--CLNNI-P---PKQEFVYPTTAPG--QAYDADEQCRFQYGVRSRQCK----YA-E---   [447]
Homo ADAMTS16 (21265061)                       AI--CLADQ-P--KPVKEYKYPEKLPG--ELYDANTQCKWQFGEKAKLCMLDFKKA-D---   [537]
Mus 16 (21961374)                              AI--CLADQ-P--KPVKEYKYPEKLPG--QLYDANTQCKWQFGEKAKLCMLDFRK--D---   [534]
Fugu 16                                        SL--CLSDE-P--RAAKEYRYPEKLPG--ELYDADTQCKWQFGEKAKLCTLDFKK--D---   [503]
Ciona 16 (0100138085)                          SQ--CLDDH-P--SPMANLNFPDQLPG--EIYDAASQCKWQFGADAITCIFRYEHKQA---   [391]
Homo ADAMTS18 (21265067)                       AG--CLVDE-P--KQAGQYKYPDKLPG--QIYDADTQCKWQFGAKAKLCSLGFVK--D---   [539]
Fugu 18                                        AS--CLVDE-P--KQIGQYKYPEKLPG--QLYDADTQCKWQFGSKAKLCSLDFVK--D---   [286]
Homo ADAMTS12 (13569928)                       GF--CLDDI-P---KKKGLKSKVIAPG--VIYDVHHQCQLQYGPNATFCQ---EVE-N---   [494]
Mus 12 (27817773)                              GF--CLDDI-P---SKKGLKSNVIAPG--VIYDVHHQCQLQYGPNATFCQ---EVE-N---   [498]
Fugu 12                                        GF--CLDDR-P---SKRDLTTPLARLG--VRYTTHHQCQLQYGPNATFCN---EVD-N---   [491]
Homo ADAMTS7 (11131377)                        GL--CLDDP-P---AKDIIDFPSVPPG--VLYDVSHQCRLQYGAYSAFCE---DMD-N---   [490]
Fugu 7                                         GW--CLDDA-P---VKDKHSWNSVLPG--VVYTAVHQCRLQYGPSSRLCD---DMD-N---   [467]
Ciona 7 (genewise.34.12.1)                     GF--CLMDT-P-SSELTPFPYPSELPG--VLYDADHQCRLMFGAKSRHCK---GLD-D---   [454]
Homo ADAMTS17 (21265064)                       ST--CLLVTDP--RSQHTVRLPHKLPG--MHYSANEQCQILFGMNATFCR---NME-HL--   [493]
Homo ADAMTS19 (19525737)                       SN--CLLQTNP--QSVNSVMVPSKLPG--MTYTADEQCQILFGPLASFCQ---EMQ-HV--   [586]
Drosophila dCG4096 (22831757)                  GE--CLDDP-P--TPLDEYNYTGELPG--MRYNARGQCRLQFNLTTDSEV---GAC-SAPH   [575]
Homo ADAMTS14 (29337086)                       YD--CLLDD-P--FDPAWPQPP-ELPG--INYSMDEQCRFDFGSGYQTCL-----A-FRTF   [501]
Fugu 14                                        YD--CLLDD-P--FEHKWPKLP-ELPG--INYSMDEQCRFDFGIGYKMCT-----A-FRTY   [470]
Homo ADAMTS3 (2224673)                         YD--CLLDD-P--FDHDWPKLP-ELPG--INYSMDEQCRFDFGVGYKMCT-----A-FRTF   [499]
Fugu 3                                         YD--CLLDD-P--FKHDWPQLP-ELPG--INYSMDEQCRFDFGVGYKICT-----S-FRTF   [262]
Ciona 3 (0100146117)                           YT--CLSDD-P--HLQDWGPTP-LYPG--VAYSVDDQCRFDFGRGYKRCT-----S-LQNI   [440]
Homo ADAMTS2 (7656867)                         YD--CLLDD-P--FAHDWPALP-QLPG--LHYSMNEQCRFDFGLGYMMCT-----A-FRTF   [509]
Mus 2 (28204840)                               YD--CLRDD-P--FAHDWPALP-QLPG--LHYSMNEQCRFDFGLGYMMCT-----A-FRTF   [510]
Fugu 2                                         YD--CLRDD-P--FDHNWPSLP-QLPG--LHYSMNEQCRFDFGTGYTMCT-----A-YRTF   [280]
Homo ADAMTS13 (16306598)                       AR--CVWDP-PRPQPGSAGHPPDAQPG--LYYSANEQCRVAFGPKAVACTFAREHL-D---   [329]
Fugu 13                                        AE--CVKDL-P----VLEGSLQDWKPG--LYYGVDDQCRIAFGSAARACSFTNSDL-P---   [257]
Homo ADAMTS1 (6525075)                         GE--CLMDK-P----HNPIQLPGDLPG--TSYDANRQCQFTFGEDSKHCP----DA-AS--   [504]
Mus 1 (1813340)                                GE--CLMDK-P----QNPIKLPSDLPG--TLYDANRQCQFTFGEESKHCP----DA-AS--   [488]
Homo ADAMTS4 (12643637)                        GH--CLLDK-P----EAPLHLPVTFPG--KDYDADRQCQLTFGPDSRHCP----QL-PP--   [465]
Mus 4 (26350615)                               GH--CLLDK-P----EAPLHLPATFPG--KDYDADRQCQLTFGPDSSHCP----QL-PP--   [473]
Fugu 4                                         GQ--CLLDK-P----VRPQALPQPLPG--TVYDADHQCRLTFGEDSQHCP----DL-ST--   [258]
Homo ADAMTS8 (21536392)                        GD--CLLDA-P----GAALPLPTGLPGRMALYQLDQQCRQIFGPDFRHCP--NTSA-QD--   [471]
Mus 8 (6708110)                                GD--CLLDA-P----TSVLPLPTGLPGHSTLYELDQQCKQIFGPDFRHCP--NTSV-ED--   [485]
Fugu 8                                         GD--CLLDV-P----DNTMSLPRELPG--ATYSLDQQCQQVFGEDFLHCP--NNSD-ND--   [389]
Homo ADAMTS5 (7768707)                         GN--CLLDL-P----RKQILGPEELPG--QTYDATQQCNLTFGPEYSVCP-----G-MD--   [512]
Mus 5 (5923784)                                GN--CLLDL-P----RKQILGPEELPG--QTYDATQQCNLTFGPEYSVCP-----G-MD--   [512]
Fugu 5                                         AE--CLLDS-P----RQPLLGSEELPG--QSYDAVRQCRLAFGPEYTVCP-----G-MD--   [464]
Ciona 15 (0100137065)                          GA--CLLDR-P----QEPRVYPSQYPG--AMYDVNAQCKMAFGEGAVECP-----Y-MR--   [460]
Homo ADAMTS15 (19171175)                       GD--CLLDQ-P----SKPISLPEDLPG--ASYTLSQQCELAFGVGSKPCP-----Y-MQ--   [463]
Fugu 15                                        GE--CLLDP-P----QKQLSLPNNLPG--FSYNLHRQCQLAFGPGSKPCP-----F-MQ--   [414]
Homo ADAMTS9 (27463365)                        GE--CLLNE-P---ESRPYPLPVQLPG--ILYNVNKQCELIFGPGSQVCP-----Y-MM--   [536]
Fugu 9                                         GE--CLLDE-P---ISRPYTLPQQLPG--QIYNVNKQCELIFGPETQVCP-----Y-MM--   [382]
Homo ADAMTS20 (28460690)                       GE--CLLDK-P---DEEIYNLPSELPG--SRYDGNKQCELAFGPGSQMCP----HI-EN--   [490]
Mus 20 (29500513)                              GE--CLLDK-P---NGRTYDLSPQLPG--SVYDGNRQCELMFGPGSQVCP----YL-K---   [501]
Fugu 20                                        GE--CLLDE-P---VGRTYELPTLLPG--QIYNANRQCELMFGPGSQICP----YL-K---   [472]
Ciona 9 (0100132719)                           GQ--CLLDE-P---PQRVLSLPTTEPG--QVFDANAQCSFVYGSGVRHCD----FM-FQN-   [583]
Apis 9                                         GD--CLLDT-P--DKIMERTDPRRLPG--EDYSVNKQCELVFGNGSRICN----HM-VGDG   [392]
Drosophila CG6107 (20151419)                   KS--CLETS-V---GAHIPYGTERLPG--EIYSLDAQCQLSFGNDFGYCP----TD-E---   [696]
Caenorhabditis gon-1 CEt13h10 (3879882)        GQTQCLFDQ-PVERRYYEDVFVRDEPG--KKYDAHQQCKFVFGPASELCP----YM-P---   [548]
introns                                        -----------------52-------------------------------------53--   [2]
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[                                                   910       920       930       940       950       960]
[                                                    .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                C  LWC          C T     P   GT C         C  G C         ]
mask                                               ---111111111--------11111--11111111111----111111111111------   [298]
Homo ADAMTS6 (11131380)                            ---VCRELWCLSK--SNR--CVTNS--IPAAEGTLCQTGNIEKGWCYQGDCVPFGTW-PQ   [555]
Fugu 6                                             ---VCRELWCLSK--SNR--CVTNS--IPAAEGTLCQTGSIDKGWCYQGECVAFGTF-PQ   [559]
Ciona 6 (0100146470)                               ---VCRELWCISK--LGY--CVTNS--MPAATGTNCSEVN--RGWCYRGHCVPYGYR-AD   [573]
Homo ADAMTS10 (17432918)                           ---VCSELWCLSK--SNR--CITNS--IPAAEGTLCQTHTIDKGWCYKRVCVPFGSR-PE   [544]
Mus 10 (27502095)                                  ---VCSELWCLSK--SNR--CITNS--IPAAEGTLCQTHTIDKGWCYKRVCVPFGSR-PE   [510]
Fugu 10                                            ---VCSELWCMSK--SNR--CITSS--IPAAEGTICQTNTIEKGWCYKRMCVAYGTR-PE   [497]
Homo ADAMTS16 (21265061)                           ---ICKALWCHRI--GRK--CETKF--MPAAEGTICGH----DMWCRGGQCVKYGDEGPK   [584]
Mus 16 (21961374)                                  ---ICKALWCHRI--GRK--CETKF--MPAAEGTLCGQ----DMWCRGGQCVKYGDEGPK   [581]
Fugu 16                                            ---ICKALWCHRV--GRK--CETKF--MPAAEGSACGP----DMWCRRGQCVKRGDEGPR   [550]
Ciona 16 (0100138085)                              --SVCKVLWCQRS-ESSR--CETKY--MPAAEGTNCGN----NMWCRRGVCVTYGDPGPD   [440]
Homo ADAMTS18 (21265067)                           ---ICKSLWCHRV--GHR--CETKF--MPAAEGTVCGL----SMWCRQGQCVKFGELGPR   [586]
Fugu 18                                            ---ICKSLWCHRT--GHR--CETKF--MPAAEGTTCGP----DMWCRRGQCVKFGEHGPK   [333]
Homo ADAMTS12 (13569928)                           ---VCQTLWCSV---KGF--CRSKL--DAAADGTQCGE----KKWCMAGKCITVGKK-PE   [539]
Mus 12 (27817773)                                  ---VCQTLWCSV---KGF--CRSKL--DAAADGTRCGE----KKWCMAGKCITVGKK-PE   [543]
Fugu 12                                            ---VCQILWCSV---NGS--CRSKL--DSPIDGTRCGP----EKWCISGECVIVGKL-PE   [536]
Homo ADAMTS7 (11131377)                            ---VCHTLWCSV---GTT--CHSKL--DAAVDGTRCGE----NKWCLSGECVPVGFR-PE   [535]
Fugu 7                                             ---VCSTLWCTV---GTT--CHSKL--DGAVDGTSCGE----DKWCFRGECLHVGHQ-PA   [512]
Ciona 7 (genewise.34.12.1)                         ---MCNRLWCLY---RGS--CRSRL--HSAVQGTKCGR----GRWCYGGKCVRVGKR-AA   [500]
Homo ADAMTS17 (21265064)                           ---MCAGLWCLVE--GDTS-CKTKL--DPPLDGTECGA----DKWCRAGECVSKTPI-PE   [540]
Homo ADAMTS19 (19525737)                           ---ICTGLWCKVE--GEKE-CRTKL--DPPMDGTDCDL----GKWCKAGECTSRTSA-P-   [632]
Drosophila dCG4096 (22831757)                      --EFCSTLWCKVN--GE---CVTHM--RPTAPGTLCGR----NKWCQNGKCVRREEL---   [619]
Homo ADAMTS14 (29337086)                           --EPCKQLWCSHPD-NPYF-CKTKK--GPPLDGTECAP----GKWCFKGHCIWKS--PEQ   [549]
Fugu 14                                            --DPCKQLWCSHPD-NQYF-CKTKK--GPPVDGTECAP----GKWCFKGHCIWRSSQEPQ   [520]
Homo ADAMTS3 (2224673)                             --DPCKQLWCSHPD-NPYF-CKTKK--GPPLDGTECAA----GKWCYKGHCMWK---NAN   [546]
Fugu 3                                             --DPCKQLWCSHPD-NPYF-CKTKK--GPPLDGTECAP----GKWCYKGHCMWK---NPN   [309]
Ciona 3 (0100146117)                               --DVCKTLWCSNDE-NPDI-CKTKK--GPAVDGTECGD----NMWCFKGHCVWRD---QR   [487]
Homo ADAMTS2 (7656867)                             --DPCKQLWCSHPD-NPYF-CKTKK--GPPLDGTMCAP----GKHCFKGHCIWLT---PD   [556]
Mus 2 (28204840)                                   --DPCKQLWCSHPD-NPYF-CKTKK--GPPLDGTMCAP----GKHCFKGHCIWLT---PD   [557]
Fugu 2                                             --DPCKQLWCSHPE-NPFF-CKTKK--GPPIDGTTCGN----GKHCFKGHCVWLT---AD   [327]
Homo ADAMTS13 (16306598)                           ---MCQALSCHTDPLDQSS-CSRLL--VPLLDGTECGV----EKWCSKGRCRSLVELTP-   [379]
Fugu 13                                            ---ACRTLSCHVNPGDDSS-CKRLL--VPLLDGTECAP----HRWCLRGHCVSTEELSS-   [307]
Homo ADAMTS1 (6525075)                             ---TCSTLWCTGTSGGVLV-CQTKH--FPWADGTSCGE----GKWCINGKCVNKTDRKHF   [554]
Mus 1 (1813340)                                    ---TCTTLWCTGTSGGLLV-CQTKH--FPWADGTSCGE----GKWCVSGKCVNKTDMKHF   [538]
Homo ADAMTS4 (12643637)                            ---PCAALWCSGHLNGHAM-CQTKH--SPWADGTPCGP----AQACMGGRCLHMDQLQDF   [515]
Mus 4 (26350615)                                   ---PCAALWCSGHLNGHAM-CQTKH--SPWADGTPCGS----SQACMGGRCLHVDQLKDF   [523]
Fugu 4                                             ---TCAALWCTVTTSNGLLVCQTKN--FPWADGTPCGH----DSYCLAGQCLTKSQAAKH   [309]
Homo ADAMTS8 (21536392)                            ---VCAQLWCHTDGAEPL--CHTKNGSLPWADGTPCGP----GHLCSEGSCLPEEEVERP   [522]
Mus 8 (6708110)                                    ---ICVQL-CARHRDSDEPICHTKNGSLLWADGTPCGP----GHLCLDGSCVLKEDVENP   [537]
Fugu 8                                             ---ACGQLWCQEDGTLQ---CLTRNGSLPWADGTPCGP----NRTCLHGACTPTQEVMQP   [439]
Homo ADAMTS5 (7768707)                             ---VCARLWCAVVRQGQMV-CLTKK--LPAVEGTPCGK----GRICLQGKCVDKTKKKYY   [562]
Mus 5 (5923784)                                    ---VCARLWCAVVRQGQMV-CLTKK--LPAVEGTPCGK----GRVCLQGKCVDKTKKKYY   [562]
Fugu 5                                             ---VCSRLWCAVIRQGQMV-CLTKK--LPAVEGTPCGK----GRICLQGKCVDKTRKRHY   [514]
Ciona 15 (0100137065)                              ---ECGRLWCQFPTGSRANRCHTRS--FPRADGSDCAA----GMHCMQGRCVAKVAAV--   [509]
Homo ADAMTS15 (19171175)                           ---YCTKLWCTGKAKGQMV-CQTRH--FPWADGTSCGE----GKLCLKGACVERHNLNKH   [512]
Fugu 15                                            ---PCSKLWCTGKAQGQLV-CQTRH--FPWADGTGCGD----GRVCHRGSCTAKNSTAQA   [463]
Homo ADAMTS9 (27463365)                            ---QCRRLWCNNVNGVHKG-CRTQH--TPWADGTECEP----GKHCKYGFCVPKEMDV--   [584]
Fugu 9                                             ---QCRRLWCTSPEGAQRG-CRTQH--MPWADGTDCSP----GKHCKHGLCITKESD---   [429]
Homo ADAMTS20 (28460690)                           ---ICMHLWCTSTEKLHKG-CFTQH--VPPADGTDCGP---GMVHCRHGLCVNKETE---   [538]
Mus 20 (29500513)                                  ---HCRRLWCTSAEGVHKG-CRTQH--MPLADGTSCGP----GMHCHRGLCVTRDME---   [548]
Fugu 20                                            ---QCKRLWCTSAEGDHKG-CRTQH--MPLADGTDCGH----GMYCKHGMCVNKELD---   [519]
Ciona 9 (0100132719)                               ---TCQRLWCINQNRSH-G-CRTPH--VPWADGTSCGDGK-QKMWCQRGHCVPEDRHRV-   [634]
Apis 9                                             KSAVCRRLWCTTPNEDHYDHCRTQH--MPWADGTSCGRD----KWCYRGECVSRSLNLQ-   [445]
Drosophila CG6107 (20151419)                       ---ECKRLWCNRTSGNSNEQCASSN--LPWADGTPCGSS---GHWCQRGKCVSNKHGYG-   [747]
Caenorhabditis gon-1 CEt13h10 (3879882)            ---TCRRLWCATFYGSQMG-CRTQH--MPWADGTPCDESR--SMFCHHGACVRLAPESL-   [599]
introns                                            ---------------54--------------------------55---------------   [2]
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[                                                   970       980       990       1000      1010      1020]
[                                                    .         .         .         .         .         .]
[Modal, ≥80%, full maj.                           G W  W     CSR CG G     R C  P                          ]
mask                                             ----11111111111111111111111111111111------------------------   [329]
Homo ADAMTS6 (11131380)                          SI--DGGWGPWSLWGECSRTCGGGVSSSLRHCDSP------------------------   [588]
Fugu 6                                           SL--NGNWGPWSMWGECSRTCGGGVSSSMRHCDSP------------------------   [592]
Ciona 6 (0100146470)                             SV--DGQWGEWTSWGECSRTCGTGVSSSHRSCDSP------------------------   [606]
Homo ADAMTS10 (17432918)                         GV--DGAWGPWTPWGDCSRTCGGGVSSSSRHCDSP------------------------   [577]
Mus 10 (27502095)                                GV--DGAWGPWTPWGDCSRSCGGGVSSSSRHCDSP------------------------   [543]
Fugu 10                                          GV--DGGWGLWSTWGECSRTCGGGVSSSIRHCDSP------------------------   [530]
Homo ADAMTS16 (21265061)                         PT--HGHWSDWSSWSPCSRTCGGGVSHRSRLCTNP------------------------   [617]
Mus 16 (21961374)                                PT--HGHWSDWSPWSPCSRTCGGGISHRDRLCTNP------------------------   [614]
Fugu 16                                          PQ--HGQWSDWSSWSACSRSCESGVTYRERHCNNP------------------------   [583]
Ciona 16 (0100138085)                            AI--DGGWGDYASWSPCTRTCGGGVQHRMRACNNP------------------------   [473]
Homo ADAMTS18 (21265067)                         PI--HGQWSAWSKWSECSRTCGGGVKFQERHCNNP------------------------   [619]
Fugu 18                                          AV--HGQWSAWSQWSDCSRTCGGGVMYRERSCTSP------------------------   [366]
Homo ADAMTS12 (13569928)                         SI--PGGWGRWSPWSHCSRTCGAGVQSAERLCNNP------------------------   [572]
Mus 12 (27817773)                                SI--PGGWGRWSPWSHCSRTCGAGAQSAERLCNNP------------------------   [576]
Fugu 12                                          TV--NGGWGQWTTWSHCSRTCGTGVQSAERECNNP------------------------   [569]
Homo ADAMTS7 (11131377)                          AV--DGGWSGWSAWSICSRSCGMGVQSAERQCTQP------------------------   [568]
Fugu 7                                           MI--NGGWGSWSEWSACSRTCGAGVQNAHRDCDNP------------------------   [545]
Ciona 7 (genewise.34.12.1)                       AF--DGAWSAWTTWSRCSRSCGVGITFSERRCDQP------------------------   [533]
Homo ADAMTS17 (21265064)                         HV--DGDWSPWGAWSMCSRTCGTGARFRQRKCDNP------------------------   [573]
Homo ADAMTS19 (19525737)                         ----EHLAGEWSLWSPCSRTCSAGISSRERKC--P------------------------   [661]
Drosophila dCG4096 (22831757)                    -AAVNGGWGDWSEWSECSRSCGGGVSTQQRECDNP------------------------   [653]
Homo ADAMTS14 (29337086)                         TYGQDGGWSSWTKFGSCSRSCGGGVRSRSRSCNNP------------------------   [584]
Fugu 14                                          GH--DGSWGSWSKFGSCSRTCGGGIRSRSRQCNNP------------------------   [553]
Homo ADAMTS3 (2224673)                           QQKQDGNWGSWTKFGSCSRTCGTGVRFRTRQCNNP------------------------   [581]
Fugu 3                                           QVKQDGAWGSWSKYGSCSRSCGTGIRFRTRQCNNP------------------------   [344]
Ciona 3 (0100146117)                             QTAVDGNWGSWNTYGQCSRSCGTGVWYRTRMCNNP------------------------   [522]
Homo ADAMTS2 (7656867)                           ILKRDGSWGAWSPFGSCSRTCGTGVKFRTRQCDNP------------------------   [591]
Mus 2 (28204840)                                 ILKRDGNWGAWTPFGSCSRTCGTGVKFRTRQCDNP------------------------   [592]
Fugu 2                                           IKKQDGNWGAWSKFGQCSRTCGGGVKFRTRECDSP------------------------   [362]
Homo ADAMTS13 (16306598)                         IAAVHGRWSSWGPRSPCSRSCGGGVVTRRRQCNNP------------------------   [414]
Fugu 13                                          SVVVHGAWSSWSGFSPCSRTCGGGISHRTRKCTNP------------------------   [342]
Homo ADAMTS1 (6525075)                           DTPFHGNWGMWGPWGDCSRTCGGGVQYTMRECDNP------------------------   [589]
Mus 1 (1813340)                                  ATPVHGSWGPWGPWGDCSRTCGGGVQYTMRECDNP------------------------   [573]
Homo ADAMTS4 (12643637)                          NIPQAGGWGPWGPWGDCSRTCGGGVQFSSRDCTRP------------------------   [550]
Mus 4 (26350615)                                 NVPQAGGWGPWGPWGDCSRTCGGGVQFSSRDCTRP------------------------   [558]
Fugu 4                                           QIPVNGGWGTWGPWGDCSRTCGGGVQYSFRSCDNP------------------------   [344]
Homo ADAMTS8 (21536392)                          KPVVDGGWAPWGPWGECSRTCGGGVQFSHRECKDP------------------------   [557]
Mus 8 (6708110)                                  KAVVDGDWGPWRPWGQCSRTCGGGIQFSNRECDNP------------------------   [572]
Fugu 8                                           LVVVDGGWSLWGPWRRCSRTCGGGVEFSYRECTDP------------------------   [474]
Homo ADAMTS5 (7768707)                           STSSHGNWGSWGSWGQCSRSCGGGVQFAYRHCNNP------------------------   [597]
Mus 5 (5923784)                                  STSSHGNWGSWGPWGQCSRSCGGGVQFAYRHCNNP------------------------   [597]
Fugu 5                                           SASNHGSWSSWGPWGSCSRSCGGGVQFAQRLCNNP------------------------   [549]
Ciona 15 (0100137065)                            -RPVDGHWGRWGHFGACSRSCGGGVQMSSRQCNNP------------------------   [543]
Homo ADAMTS15 (19171175)                         RV--DGSWAKWDPYGPCSRTCGGGVQLARRQCTNP------------------------   [546]
Fugu 15                                          KV--NGRWGAWSPYAGCSRSCGGGVELAKRECNSP------------------------   [497]
Homo ADAMTS9 (27463365)                          -PVTDGSWGSWSPFGTCSRTCGGGIKTAIRECNRP------------------------   [618]
Fugu 9                                           ATPVDGAWGVWSPFGTCSRTCGGGIKIAMRECNRP------------------------   [464]
Homo ADAMTS20 (28460690)                         TRPVNGEWGPWEPYSSCSRTCGGGIESATRRCNRP------------------------   [573]
Mus 20 (29500513)                                TRPVDGEWGPWGPYSSCSRTCGGGIKSTARLCDRP------------------------   [583]
Fugu 20                                          LQPVHGEWGPWGPYSVCSRSCGGGTRSTSRDCNKP------------------------   [554]
Ciona 9 (0100132719)                             --PVDGNWGEWSRFGECSRRCGGGIKSATRKCDSPNNAANSGGFSNLLLKDLSFIEIRVR   [692]
Apis 9                                           --PVDGQWGEWGRYGKCSRTCGGGVKKKYRECDNP------------------------   [478]
Drosophila CG6107 (20151419)                     -RQVNGGWGPWTPFTPCSLTCGGGVQESRRECNQP------------------------   [781]
Caenorhabditis gon-1 CEt13h10 (3879882)          -TKIDGQWGDWRSWGECSRTCGGGVQKGLRDCDSP------------------------   [633]
introns                                          56----------------57----------------58-----------------------   [2]
[                                                         thrombospondin                                        ]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                   1030      1040      1050      1060      1070      1080]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                        P  GG  C G       C    C          FR  QC ]
mask                                          ----------1---------1111111111111111111111-11-1111--1111111   [365]
Homo ADAMTS6 (11131380)                       ----------A---------PSGGGKYCLGERKRYRSCNTDPC-PL-GSRD--FREKQCA   [625]
Fugu 6                                        ----------A---------PSGGGKYCLGERKRYRSCNIDAC-PA-GSRN--FREKQCA   [629]
Ciona 6 (0100146470)                          ----------A---------PEHGGKYCLGGRKRYRSCNTQEC-PN-PKSD--FRQEQCA   [643]
Homo ADAMTS10 (17432918)                      ----------R---------PTIGGKYCLGERRRHRSCNTDDC-PP-GSQD--FREVQCS   [614]
Mus 10 (27502095)                             ----------R---------PTIGGKYCLGERRRHRSCNTNDC-PP-GSQD--FREMQCS   [580]
Fugu 10                                       ----------R---------PTIGGKYCLGERKRFRSCNIDDC-PA-GSRD--FREIQCS   [567]
Homo ADAMTS16 (21265061)                      ----------K---------PSHGGKFCEGSTRTLKLCNSQKC-PR-DSVD--FRAAQCA   [654]
Mus 16 (21961374)                             ----------R---------PSHGGKFCQGSTRTLKLCNSQRC-PL-DSVD--FRAAQCA   [651]
Fugu 16                                       ----------R---------PAYGGKFCEGSARSYKLCNTVDC-PP-NTTD--YRAQQCA   [620]
Ciona 16 (0100138085)                         ----------T---------PRYGGRHCEGEEKIYKLCNTEPC-AP-NQVS--FREQQCA   [510]
Homo ADAMTS18 (21265067)                      ----------K---------PQYGGLFCPGSSRIYQLCNINPC-NE-NSLD--FRAQQCA   [656]
Fugu 18                                       ----------R---------PQNNGKFCPGSSRFNQLCNTRPC-PP-NTVD--FRAQQCA   [403]
Homo ADAMTS12 (13569928)                      ----------E---------PKFGGKYCTGERKRYRLCNVHPC-RS-EAPT--FRQMQCS   [609]
Mus 12 (27817773)                             ----------E---------PKFGGKYCTGERKRYRLCNVHPC-RS-DTPT--FRQMQCS   [613]
Fugu 12                                       ----------K---------PEFGGKYCTGERKRYRTCNTKPC-QK-NKPT--FREMQCS   [606]
Homo ADAMTS7 (11131377)                       ----------T---------PKYKGRYCVGERKRFRLCNLQAC-PA-GRPS--FRHVQCS   [605]
Fugu 7                                        ----------V---------PKYRGTYCLGERRRYKICNITPC-PQ-EVPT--FRDVQCG   [582]
Ciona 7 (genewise.34.12.1)                    ----------E---------PRHGGRYCLGERKRYRTCNKWAC-EA-TNTTSTFREQQCA   [572]
Homo ADAMTS17 (21265064)                      ----------P---------PGPGGTHCPGASVEHAVCENLPC-PK-GLPS--FRDQQCQ   [610]
Homo ADAMTS19 (19525737)                      ----------G---------LDSEARDCNGPRKQYRICENPPC-PA-GLPG--FRDWQCQ   [698]
Drosophila dCG4096 (22831757)                 ----------V---------PANGGVFCIGERKRYKICRKRPC-PA-EEPS--FRAQQCA   [690]
Homo ADAMTS14 (29337086)                      ----------S---------PAYGGRLCLGPMFEYQVCNSEEC-PG-TYED--FRAQQCA   [621]
Fugu 14                                       ----------P---------PAYGGRDCPGSSFDYQMCNTEEC-AG-PYED--FRAQQCV   [590]
Homo ADAMTS3 (2224673)                        ----------M---------PINGGQDCPGVNFEYQLCNTEEC-QK-HFED--FRAQQCQ   [618]
Fugu 3                                        ----------A---------PSNGGQDCPGVNFEYQLCNTDDC-PK-HFED--FRAQQCQ   [381]
Ciona 3 (0100146117)                          ----------M---------PSHGGVDCIGQNIDFDLCSKRPC-P--NGRD--FREEQCQ   [558]
Homo ADAMTS2 (7656867)                        ----------H---------PANGGRTCSGLAYDFQLCSRQDC-PD-SLAD--FREEQCR   [628]
Mus 2 (28204840)                              ----------H---------PANGGRTCSGLAYDFQLCNPQDC-PN-SLAD--FREEQCQ   [629]
Fugu 2                                        ----------R---------PLNGGRTCLGATYQFQMCNTNEC-ED-IYND--PREEQCR   [399]
Homo ADAMTS13 (16306598)                      ----------R---------PAFGGRACVGADLQAEMCNTQAC-EK-TQLE--FMSQQCA   [451]
Fugu 13                                       ----------R---------PAFGGSDCEGADVEAELCHQQRC-ENRTQLD--FIAEQCS   [380]
Homo ADAMTS1 (6525075)                        ----------V---------PKNGGKYCEGKRVRYRSCNLEDC-PDNNGKT--FREEQCE   [627]
Mus 1 (1813340)                               ----------V---------PKNGGKYCEGKRVRYRSCNIEDC-PDNNGKT--FREEQCE   [611]
Homo ADAMTS4 (12643637)                       ----------V---------PRNGGKYCEGRRTRFRSCNTEDC-PTGSALT--FREEQCA   [588]
Mus 4 (26350615)                              ----------V---------PRNGGKYCEGRRTRFRSCNTENC-PHGSALT--FREEQCA   [596]
Fugu 4                                        ----------L---------PRNGGKYCEGKRIQYHSCNTETC-PDTNGLT--FREEQCL   [382]
Homo ADAMTS8 (21536392)                       ----------E---------PQNGGRYCLGRRAKYQSCHTEEC-PP-DGKS--FREQQCE   [594]
Mus 8 (6708110)                               ----------M---------PQNGGRFCLGERVKYQSCNTEEC-PP-NGKS--FREQQCE   [609]
Fugu 8                                        ----------E---------PRNGGKYCEGQRVQYQSCNTQAC-PDHSAKS--FREEQCE   [512]
Homo ADAMTS5 (7768707)                        ----------A---------PRNNGRYCTGKRAIYRSCSLMPC-PP-NGKS--FRHEQCE   [634]
Mus 5 (5923784)                               ----------A---------PRNSGRYCTGKRAIYRSCSVTPC-PP-NGKS--FRHEQCE   [634]
Fugu 5                                        ----------P---------PRNNGRYCTGKRAIYRSCNVSPC-PP-STKS--FRAEQCE   [586]
Ciona 15 (0100137065)                         ----------E---------PRHGGKYCIGSRLKFSSCNTNPCQPVAGRPVRDYRSEQCA   [584]
Homo ADAMTS15 (19171175)                      ----------T---------PANGGKYCEGVRVKYRSCNLEPC-PS-SASGKSFREEQCE   [585]
Fugu 15                                       ----------T---------PENGGKYCYGLRVKYRSCNLNPC-PD-AGKS--FREQQCE   [534]
Homo ADAMTS9 (27463365)                       ----------E---------PKNGGKYCVGRRMKFKSCNTEPC-LK-QKRD--FRDEQCA   [655]
Fugu 9                                        ----------V---------PRNGGKYCVGRRMKFRSCNSEPC-SK-QKKD--FREEQCA   [501]
Homo ADAMTS20 (28460690)                      ----------E---------PRNGGNYCVGRRMKFRSCNTDSC-PK-GTQD--FREKQCS   [610]
Mus 20 (29500513)                             ----------E---------PRNGGRYCVGRRMKFRSCNTDSC-PK-GKRD--FREKQCS   [620]
Fugu 20                                       ----------E---------PRNGGRFCVGRRMKFRSCNTEPC-PR-GRKD--FREEQCS   [591]
Ciona 9 (0100132719)                          SQVNVHLQVFEIKRGIKPDMPRYGGRYCTGKRKKFRPCNFQEC-SV--DSD--FRAEQCA   [747]
Apis 9                                        ----------L---------PQNGGRYCIGEQVKYRSCGTREC-PP-GTPD--FRDQQCS   [515]
Drosophila CG6107 (20151419)                  ----------V---------PENGGKYCTGSRKKYRSCNTHQC-PP-GSMD--PREQQCY   [818]
Caenorhabditis gon-1 CEt13h10 (3879882)       ----------K---------PRNGGKYCVGQRERYRSCNTQEC-PW-DTQP--YREVQCS   [670]
introns                                       -------------------59--------------------60---61,62---------   [2]
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[                                                   1090      1100      1110      1120      1130      1140]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                        W P                 C L C                 ]
mask                                                11111----11-11111---11111111----------1111111111111--11----1   [401]
Homo ADAMTS6 (11131380)                             DFDNM----PF-RGKYY---NWKPYTGG-----GV---KPCALNCLAEGYN--FY----T   [663]
Fugu 6                                              DFDNM----PF-RGKYY---NWKPYAGG-----GV---KPCALNCLAEGYN--FY----T   [667]
Ciona 6 (0100146470)                                RFDTE----PF-QGRYL---NWIAFDGG-----YQV--KPCALNCKPEGYS--FY----A   [682]
Homo ADAMTS10 (17432918)                            EFDSI----PF-RGKFY---KWKTYRGG-----GV---KACSLTSLAEGFN--FY----T   [652]
Mus 10 (27502095)                                   EFDSV----PF-RGKFY---TWKTYRGG-----GV---KACSLTCLAEGFN--FY----T   [618]
Fugu 10                                             DFDGV----PF-RGKFY---TWKPYRGG-----GV---KPCSLNCLAEGYN--FY----T   [605]
Homo ADAMTS16 (21265061)                            EHNSR----RF-RGRHY---KWKPYTQVED---QD----LCKLYCIAEGFD--FF----F   [693]
Mus 16 (21961374)                                   EYNSK----RF-RGWLY---KWKPYTQLED---QD----LCKLYCIAEGFD--FF----F   [690]
Fugu 16                                             EFNSR----QF-RGWHY---TWRPYTKVDD---QD----ICKLYCFAEGYD--FF----F   [659]
Ciona 16 (0100138085)                               QYNRR----AY-RRQYF---HWTPFTKYSS---FD----QCELLCKAEGYD--FF----D   [549]
Homo ADAMTS18 (21265067)                            EYNSK----PF-RGWFY---QWKPYTKVEE---ED----RCKLYCKAENFE--FF----F   [695]
Fugu 18                                             EYNSK----LF-RGWYY---KWKPYTKVDD---ED----ICKLYCIAEDFD--FF----F   [442]
Homo ADAMTS12 (13569928)                            EFDTV----PY-KNELY---HWFPIFNP-----AH----PCELYCRPIDGQ--FS----E   [646]
Mus 12 (27817773)                                   EFDTV----PY-KNQFY---RWFPVFNA-----AH----PCELYCRPIDEQ--FS----E   [650]
Fugu 12                                             EFDTV----PY-NNELY---QWIPVSNPRKYSKIKSMVHPCELHCRPSTEY--FS----E   [652]
Homo ADAMTS7 (11131377)                             HFDAM----LY-KGQLH---TWVPVVND-----VN----PCELHCRPANEY--FA----K   [642]
Fugu 7                                              HFNVL----PY-KGTFY---KWETVFNKA----S-----PCELHCRPLNEN--FS----E   [619]
Ciona 7 (genewise.34.12.1)                          DFNNV----LY-KNKTY---TWLPVNSAV----Y-----PCELHCYTRAGKTPFA----D   [611]
Homo ADAMTS17 (21265064)                            AHDR-----LS-PKKKG---LLTAVVVDD----K-----PCELYCSPLGKE--SP----L   [646]
Homo ADAMTS19 (19525737)                            AYSVR---TSS-PKHIL---QWQAVLDEE----K-----PCALFCSPVGKE--QP----I   [736]
Drosophila dCG4096 (22831757)                       RFDNV----SY-QGATYK---WLPFFDKN----N-----PCKLFCSDVDDT--II----A   [727]
Homo ADAMTS14 (29337086)                            KRNSY---YVH-QNAKH---SWVPYEPDDD---AQ----KCELICQSADTG--DV----V   [661]
Fugu 14                                             QRSNK---Y-H-NNIKH---TWIPYEHPDE---AR----KCELSCRSKETG--EV----V   [629]
Homo ADAMTS3 (2224673)                              QRNSH---FEY-QNTKH---HWLPYEHPDP---KK----RCHLYCQSKETG--DV----A   [658]
Fugu 3                                              LRNSH---FEF-QNTKH---HWLPHEHPDA---NK----RCHLYCQSKETG--DV----T   [421]
Ciona 3 (0100146117)                                YQKE----VLY-KGQKH---KWFPYEPRDA---SL----KCELYCVSKRTH--DI----V   [597]
Homo ADAMTS2 (7656867)                              QWDLY---FEH-GDAQH---HWLPHEHRDA---KE----RCHLYCESRETG--EV----V   [668]
Mus 2 (28204840)                                    QWDLY---FEH-GDVQH---HWLPHEHRDA---KE----RCHLYCESKETG--EV----V   [669]
Fugu 2                                              TWEPE---FEL-HSNKH---HWLPYEHPDP---NK----RCNLHCQSKETR--SV----A   [439]
Homo ADAMTS13 (16306598)                            RTDGQP--LRS-SPGGASFYHWGAAVPHSQG--DA----LCRHMCRAIGES--FI----M   [496]
Fugu 13                                             RTDSQA--LYL-LPNAASFYTWIPAVGFTQG--EE----QCQYMCQSDGEN--FL----V   [425]
Homo ADAMTS1 (6525075)                              AHNEF---SKA-SFGSGPAVEWIPKYAGV----SPKD--RCKLICQAKGIG--YF----F   [671]
Mus 1 (1813340)                                     AHNEF---SKA-SFGNEPTVEWTPKYAGV----SPKD--RCKLTCEAKGIG--YF----F   [655]
Homo ADAMTS4 (12643637)                             AYNHR---TDL-FKSFPGPMDWVPRYTGV----APQD--QCKLTCQARALG--YY----Y   [632]
Mus 4 (26350615)                                    AYNHR---TDL-FKSFPGPMDWVPRYTGV----APRD--QCKLTCQARALG--YY----Y   [640]
Fugu 4                                              AHNDMS--AQV-SLGSGEGVEWVPKYAGI----SPKD--RCKLVCRAKGTG--YF----F   [427]
Homo ADAMTS8 (21536392)                             KYNAY---NYT-DMDGN-LLQWVPKYAGV----SPRD--RCKLFCRARGRS--EF----K   [637]
Mus 8 (6708110)                                     KYNAY---NHT-DLDGN-FLQWVPKYSGV----SPRD--RCKLFCRARGRS--EF----K   [652]
Fugu 8                                              KYNSP----NY-LDHNGHMKEWIPKYAGV----SPRD--RCKLFCRARGSS--EF----K   [555]
Homo ADAMTS5 (7768707)                              AKNGY---QSD-AKGVKTFVEWVPKYAGV----LPAD--VCKLTCRAKGTG--YY----V   [678]
Mus 5 (5923784)                                     AKNGY---QSD-AKGVKTFVEWVPKYAGV----LPAD--VCKLTCRAKGTG--YY----V   [678]
Fugu 5                                              VRNGP---QTD-PKGVKTFVEWVPKYAGV----LPKD--VCKLTCRAKGTG--YY----V   [630]
Ciona 15 (0100137065)                               TYDGQ---RFP-LLGVQTASTWMPKYTDI----HTRD--RCKLTCQSVQTG--AY----I   [628]
Homo ADAMTS15 (19171175)                            AFNGY---NHS-TNRLTLAVAWVPKYSGV----SPRD--KCKLICRANGTG--YF----Y   [629]
Fugu 15                                             EFNGM---NLN-TNRLGSSVVWVPKYSGI--- SHKD--QCKLICRANGTG--YF----Y   [578]
Homo ADAMTS9 (27463365)                             HFDGK---HFN-INGLLPNVRWVPKYSGI----LMKD--RCKLFCRVAGNT--AY----Y   [699]
Fugu 9                                              AFDGR---HFN-INGLPPNVRWVPKYSGI----LMKD--RCKLFCRVAGST--AY----Y   [545]
Homo ADAMTS20 (28460690)                            DFNGK---HLD-ISGIPSNVRWLPRYSGI----GTKD--RCKLYCQVAGTN--YF----Y   [654]
Mus 20 (29500513)                                   DFDGK---HFD-INGLPPNVRWLPKYSGI----AVKD--RCKLYCRVAGTT--SF----Y   [664]
Fugu 20                                             QFDGK---HFN-INGLPPSVRWIPKYIGI----LMKD--RCKLFCRVAGTT--AY----Y   [635]
Ciona 9 (0100132719)                                AYNNWARHHRHRIRGIAPNAEWIPKYDGI----LLQD--RCKLICQVKSDD--QYAVPWY   [799]
Apis 9                                              YFNNNNL---N-IKNLSRDVKWHAK---I----LPHE--RCKLYCETDSNQ--CY----P   [556]
Drosophila CG6107 (20151419)                        AMNGR---NMN-IPGVNPDTKWVPKYEK-----D-----ACKLFCRMDMKV--TY----F   [858]
Caenorhabditis gon-1 CEt13h10 (3879882)             EFNNKD--IGI-QGVASTNTHWVPKYANV----APNE--RCKLYCRLSGSA--AF----Y   [715]
introns                                             ---------------------------------63,64---------------------   [2]
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[                                                    1150      1160      1170      1180      1190      1200]
[                                                      .         .         .         .         .         .]
[Modal, ≥80%, full maj.                          V DGT C             C  G C   GCD    S    D CGVC G    C ]
mask                                             1111111111111-------111111111111111111111111111111111111111   [454]
Homo ADAMTS6 (11131380)                          ERAPAVIDGTQCNA------DSLDICINGECKHVGCDNILGSDAREDRCRVCGGDGSTCD   [717]
Fugu 6                                           ERSPAVVDGTRCQA------DSLDICINGECKHVGCDNILGSDAKEDRCRVCGGDGSTCE   [721]
Ciona 6 (0100146470)                             ERAGAVIDGTRCFS------NSLDMCINGECHHVGCDHVLHSDAVEDKCRVCGGDGSTCR   [736]
Homo ADAMTS10 (17432918)                         ERAAAVVDGTPCRP------DTVDICVSGECKHVGCDRVLGSDLREDKCRVCGGDGSACE   [706]
Mus 10 (27502095)                                ERAAAVVDGTPCRP------DTVDICVSGECKHVGCDRVLGSDLREDKCRVCGGDGSACE   [672]
Fugu 10                                          ERAPAVVDGTVCRD------DSVDVCVNGECKHVGCDRVLGSDVREDRCRTCGGDGSSCV   [659]
Homo ADAMTS16 (21265061)                         SLSNKVKDGTPCSE------DSRNVCIDGICERVGCDNVLGSDAVEDVCGVCNGNNSACT   [747]
Mus 16 (21961374)                                SLSNKVKDGTPCSE------DSRNVCIDGMCERVGCDNVLGSDATEDSCGVCKGNNSDCV   [744]
Fugu 16                                          ALASKVKDGTLCSQ------DSSNVCIDGLCERVGCDRILGSAAAPDACGICRGDNSTCK   [713]
Ciona 16 (0100138085)                            MLADKVIDGTPCDA------SSTDVCIQGKCKHVGCDFVLGSNATFDSCGVCNGDNSTCQ   [603]
Homo ADAMTS18 (21265067)                         AMSGKVKDGTPCSP------NKNDVCIDGVCELVGCDHELGSKAVSDACGVCKGDNSTCK   [749]
Fugu 18                                          AMSSKVKDGTPCSK------TETNVCIEGVCEEVGCDQILGSQASLDACGICKGDNSTCK   [496]
Homo ADAMTS12 (13569928)                         KMLDAVIDGTPCFEGG----NSRNVCINGICKMVGCDYEIDSNATEDRCGVCLGDGSSCQ   [702]
Mus 12 (27817773)                                RMLEAVIDGTPCFEGG----NSRNVCINGICKRVGCDYEIDSNATEDRCGVCLGDGSACQ   [706]
Fugu 12                                          KMLDAVSDGTPCFVNN----NSRSICVNGVCKDVGCDYGIDSNAVEDRCGVCLGDGKSCE   [708]
Homo ADAMTS7 (11131377)                          KLRDAVVDGTPCYQVR----ASRDLCINGICKNVGCDFEIDSGAMEDRCGVCHGNGSTCH   [698]
Fugu 7                                           KLRDAVTDGTLCYEGN----KSRDMCINGICMKVGCDYVVESSAVEDRCGVCNGDGSTCT   [675]
Ciona 7 (genewise.34.12.1)                       RLRDKVIDGTKCYN------RGKDICVDGICKSLGCDLMIDSPAQEDRCGVCRGDGTSCE   [665]
Homo ADAMTS17 (21265064)                         LVADRVLDGTPCGP------YETDLCVHGKCQKIGCDGIIGSAAKEDRCGVCSGDGKTCH   [700]
Homo ADAMTS19 (19525737)                         LLSEKVMDGTSCGY------QGLDICANGRCQKVGCDGLLGSLAREDHCGVCNGNGKSCK   [790]
Drosophila dCG4096 (22831757)                    NWGATVLDGTPCTL------GTNNMCIDGICKKVGCDWIVDSEVQDDRCGVCGGSGDQCQ   [781]
Homo ADAMTS14 (29337086)                         FMNQVVHDGTRCSYR-----DPYSVCARGECVPVGCDKEVGSMKADDKCGVCGGDNSHCR   [716]
Fugu 14                                          FMNQVMHDGTRCSYS-----DPFSVCARGECLDVGCDKEVGSYKQEDKCGVCEGDNSHCR   [684]
Homo ADAMTS3 (2224673)                           YMKQLVHDGTHCSYK-----DPYSICVRGECVKVGCDKEIGSNKVEDKCGVCGGDNSHCR   [713]
Fugu 3                                           YMKQLVHDGTRCSYK-----DAYSICVRGECVKVGCDREIGSTKVEDKCGVCGGDNSHCR   [476]
Ciona 3 (0100146117)                             SMGDIVGDGTRCSYE-----DPHGICVRGECVDIGCDKVIGSSMREDVCGVCGGNGQHCR   [652]
Homo ADAMTS2 (7656867)                           SMKRMVHDGTRCSYK-----DAFSLCVRGDCRKVGCDGVIGSSKQEDKCGVCGGDNSHCK   [723]
Mus 2 (28204840)                                 SMKRMVHDGTRCSYK-----DAFSLCVRGDCRKVGCDGVIGSRKQEDKCGVCGGDNTHCK   [724]
Fugu 2                                           STDQVVLDGTRCSYK-----DPHSVCVRGECEKVGCDGLFGSSKQEDKCGVCGGDNSSCK   [494]
Homo ADAMTS13 (16306598)                         KRGDSFLDGTRCMPSGPREDGTLSLCVSGSCRTFGCDGRMDSQQVWDRCQVCGGDNSTCS   [556]
Fugu 13                                          RRGSQFLDGTRCESDASPPFGSTAACLRGICQLFGCDGTLHSGKVKDVCGVCGGNASSCS   [485]
Homo ADAMTS1 (6525075)                           VLQPKVVDGTPCSP------DSTSVCVQGQCVKAGCDRIIDSKKKFDKCGVCGGNGSTCK   [725]
Mus 1 (1813340)                                  VLQPKVVDGTPCSP------DSTSVCVQGQCVKAGCDRIIDSKKKFDKCGVCGGNGSTCK   [709]
Homo ADAMTS4 (12643637)                          VLEPRVVDGTPCSP------DSSSVCVQGRCIHAGCDRIIGSKKKFDKCMVCGGDGSGCS   [686]
Mus 4 (26350615)                                 VLEPRVADGTPCSP------DTSSVCVQGRCIHAGCDRIIGSKKKFDKCMVCGGDGSRCS   [694]
Fugu 4                                           VLKSKVADGTPCSP------DSTTVCVQGQCVKAGCDRVIGSNRRFDKCGVCGGDGSTCK   [481]
Homo ADAMTS8 (21536392)                          VFEAKVIDGTLCGP------ETLAICVRGQCVKAGCDHVVDSPRKLDKCGVCGGKGNSCR   [691]
Mus 8 (6708110)                                  VFEAKVIDGTLCGP------DTLSICVRGQCVKAGCDHVVNSPKKLDKCGVCGGKGTACR   [706]
Fugu 8                                           VFESKVIDGTTCGP------DTTSVCVQGQCVKAGCDKVIGSNIRVDKCGECGGSGMSCR   [609]
Homo ADAMTS5 (7768707)                           VFSPKVTDGTECRP------YSNSVCVRGKCVRTGCDGIIGSKLQYDKCGVCGGDNSSCT   [732]
Mus 5 (5923784)                                  VFSPKVTDGTECRP------YSNSVCVRGRCVRTGCDGIIGSKLQYDKCGVCGGDNSSCT   [732]
Fugu 5                                           VFSQRVTDGTECRP------YSSSVCVKGKCVRTGCDGIIGSKLQYDKCGVCGGDSTGCI   [684]
Ciona 15 (0100137065)                            TLADRVVDGTRCGP------DTTNVCVHGQCMPAGCDGILGSKANFSKCGVCGGKNSDCK   [682]
Homo ADAMTS15 (19171175)                         VLAPKVVDGTLCSP------DSTSVCVQGKCIKAGCDGNLGSKKRFDKCGVCGGDNKSCK   [683]
Fugu 15                                          VLAPKVVDGTPCSP------DTPSVCVQGKCIKAGCEGKLNSRKKFDKCGVCGGNNQGCT   [632]
Homo ADAMTS9 (27463365)                          QLRDRVIDGTPCGQ------DTNDICVQGLCRQAGCDHVLNSKARRDKCGVCGGDNSSCK   [753]
Fugu 9                                           QLRDRVIDGTPCGP------DTNDICVQGLCRQAGCDHVLNSKARRDKCGVCGGDNSSCK   [599]
Homo ADAMTS20 (28460690)                         LLKDMVEDGTPCGT------ETHDICVQGQCMAAGCDHVLNSSAKIDKCGVCGGDNSSCK   [708]
Mus 20 (29500513)                                QLKDRVADGTPCGT------ETNDICVQGLCRQAGCDHVLNSKAKRDKCGVCGGDNSSCQ   [718]
Fugu 20                                          QLKDRVIDGTPCGT------DTYDICVQGLCRQAGCDHVLNSKARNDKCGVCGGDNSSCK   [689]
Ciona 9 (0100132719)                             VLKPKVINGTPCGP------DTNDICVEGVCKMAGCDHVLNSRTTVDECGICNGDNSACR   [853]
Apis 9                                           -LAEKVIDGTPCDQ------DTFHICVNGFCKPAGCDHVLNSTAELDICGVCKGDNSTCQ   [609]
Drosophila CG6107 (20151419)                     MLKSMVTDGTSCAV------DSFDKCVNGICRPAGCDNELNSIAKLDKCGVCEGRNDTCH   [912]
Caenorhabditis gon-1 CEt13h10 (3879882)          LLRDKVVDGTPCDR------NGDDICVAGACMPAGCDHQLHSTLRRDKCGVCGGDDSSCK   [769]
introns                                          ----65-----66------------------67--68---------69------------   [2]
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[                                                   1210      1220      1230      1240      1250      1260]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                G                 Y     IP G                   A     ]
mask                                                1111111111----------111111111111111111111111111-----111111--   [496]
Homo ADAMTS6 (11131380)                             AIEGFFNDSLPR---------GGYMEVVQIPRGSVHIEVREVAMSKN-----YIALKSE-   [762]
Fugu 6                                              TTEGLFNQSLPR---------GGYMEVVQIPKGSVHIEIKELAMSKN-----YIALKSE-   [766]
Ciona 6 (0100146470)                                TEAGVFNLPVTR---------TQYQEVITIPKGSVNIFIQELEISVQN----YIALRNT-   [782]
Homo ADAMTS10 (17432918)                            TIEGVFSPASPG---------AGYEDVVWIPKGSVHIFIQDLNLSLS-----HLALKGD-   [751]
Mus 10 (27502095)                                   TIEGVFSPALPG---------TGYEDVVWIPKGSVHIFIQDLNLSLS-----HLALKGD-   [717]
Fugu 10                                             SVEGLFNSSLPE---------GGYEEVVRIPKGSVFIHIQELNISLN-----YLVLKNK-   [704]
Homo ADAMTS16 (21265061)                            IHRGLYTKHHHT---------NQYYHMVTIPSGARSIRIYEMNVSTS-----YISVRNA-   [792]
Mus 16 (21961374)                                   THRGLYSKHHST---------NQYYHMVTIPSGARSIHIYETNISTS-----YISVRNS-   [789]
Fugu 16                                             IYKGQYTKQHYT---------NQYYGVVTIPAGARGIRVMELNTSSS-----YLAVRDT-   [758]
Ciona 16 (0100138085)                               SFNGSYDDNVRD---------SGYYDVIRIPRGARSVKIWENKCCTH---S-YIAVRSAS   [650]
Homo ADAMTS18 (21265067)                            FYKGLYLNQHKA---------NEYYPVVLIPAGARSIEIQELQVSSS-----YLAVRSL-   [794]
Fugu 18                                             FFKGQYTLQHRA---------NEYYTMVVIPAGARSIHVQEMAVSTS-----YLAVRSI-   [541]
Homo ADAMTS12 (13569928)                            TVRKMFKQKE-G---------SGYVDIGLIPKGARDIRVMEIEGAGN-----FLAIRSED   [747]
Mus 12 (27817773)                                   TVKKLFRQKE-G---------SGYVDIGLIPKGARDIRVMEIKAAGN-----FLAIRSED   [751]
Fugu 12                                             MVYKSFDEEE-G---------LGYTDVGVIPVGARDIVVKEVEEAGN-----FLALKSES   [753]
Homo ADAMTS7 (11131377)                             TVSGTFEEAE-G---------LGYVDVGLIPAGAREIRIQEVAEAAN-----FLALRSED   [743]
Fugu 7                                              TVRRTFEESE-G---------LGYVDIGLIPEGARDIRIEEVAEAGN-----FLALRSDN   [720]
Ciona 7 (genewise.34.12.1)                          PVDNIFDVKR-G---------EQYVQVGILPKGARNIEVSEVLPSRN-----FLALKGPG   [710]
Homo ADAMTS17 (21265064)                            LVKGDFSHAR-G---------TGYIEAAVIPAGARRIRVVEDKPAHS-----FLALKDS-   [744]
Homo ADAMTS19 (19525737)                            IIKGDFNHTR-G---------AGYVEVLVIPAGARRIKVVEEKPAHS-----YLALRDA-   [834]
Drosophila dCG4096 (22831757)                       PVRETYTDPFAA-------KDGAYVEIVTIPARARHILIRELANSPH-----FLAIATGD   [829]
Homo ADAMTS14 (29337086)                            TVKGTLGKASKQ---------AGALKLVQIPAGARHIQIEALEKSPH-----RIVVKNQV   [762]
Fugu 14                                             TVKLTLTKTPKK---------NGMFKMFDIPMGARHIVIEENETSPH-----VIAVKNQV   [730]
Homo ADAMTS3 (2224673)                              TVKGTFTRTPRK---------LGYLKMFDIPPGARHVLIQEDEASPH-----ILAIKNQA   [759]
Fugu 3                                              TVKGSFTRTPKK---------PGYLKMFYIPPGARHVVIQEHEASPQ-----ILAIKNQA   [522]
Ciona 3 (0100146117)                                NINGVLNKRANRKV-------NNYMRLYKIPAGARRINIRETSSSSF---NLLALKSRQ   [702]
Homo ADAMTS2 (7656867)                              VVKGTFTRSPKK---------HGYIKMFEIPAGARHLLIQEVDATSH-----HLAVKNLE   [769]
Mus 2 (28204840)                                    VVKGTFTRSPRK---------QDYIKMFEIPAGARHLLIQEADTTSH-----HLSVKNLE   [770]
Fugu 2                                              TFKDTITRTSKK---------QGFLKVLEIPRGARHLLIQELKATSH-----TLAVKNVA   [540]
Homo ADAMTS13 (16306598)                            PRKGSFTAGRA----------REYVTFLTVTPNLTSVYIANHRPLFT-----HLAVRI--   [599]
Fugu 13                                             LRSGSYTAGQA----------REYTTFLSLPVNATQVHVINRAPLFT-----HMAVVL--   [528]
Homo ADAMTS1 (6525075)                              KISGSVTSAK-----------PGYHDIITIPTGATNIEVKQRNQRGSRNNGSFLAIKAA-   [773]
Mus 1 (1813340)                                     KMSGIVTSTR-----------PGYHDIVTIPAGATNIEVKHRNQRGSRNNGSFLAIRAA-   [757]
Homo ADAMTS4 (12643637)                             KQSGSFRKFR-----------YGYNNVVTIPAGATHILVRQQGNPGHRS--IYLALKLP-   [732]
Mus 4 (26350615)                                    KQSGSFKKFR-----------YGYSDVVTIPAGATHILVRQQGGSGLKS--IYLALKLS-   [740]
Fugu 4                                              KVSGSLDRAR-----------PGYQDVVTIPAGATHVDVKQRATGNGRHDNSYLAVRRQ-   [529]
Homo ADAMTS8 (21536392)                             KVSGSLTPTN-----------YGYNDIVTIPAGATNIDVKQRSHPGVQNDGNYLALKTA-   [739]
Mus 8 (6708110)                                     KISGSFTPFS-----------YGYNDIVTIPAGATNIDVKQRSHPGVRNDGSYLALKTA-   [754]
Fugu 8                                              KITGLYNKEIS----------YGYSDIITIPVGATNIDIKQRSHRGLKHDGNYLAIKRE-   [658]
Homo ADAMTS5 (7768707)                              KIVGTFNKKS-----------KGYTDVVRIPEGATHIKVRQFKAKDQTRFTAYLALKKK-   [780]
Mus 5 (5923784)                                     KIIGTFNKKS-----------KGYTDVVRIPEGATHIKVRQFKAKDQTRFPAYLALKKK-   [780]
Fugu 5                                              RVVGNFTKKS-----------KGYTDVVKIPAGSTHLKVRQHKAKDQTRYSAYLALRRP-   [732]
Ciona 15 (0100137065)                               RIRGKYNKRV-----------AGYNNVITLPVGAASIKIEQRGFHNKVYDGNYLALKKP-   [730]
Homo ADAMTS15 (19171175)                            KVTGLFTKPM-----------HGYNFVVAIPAGASSIDIRQRGYKGLIGDDNYLALKNS-   [731]
Fugu 15                                             KVSGMFTKPI-----------HGYNFVVTLPVGAANIDVRQRGYQGMMSDENYLAVRNR-   [680]
Homo ADAMTS9 (27463365)                             TVAGTFNTVH-----------YGYNTVVRIPAGATNIDVRQHSFSGETDDDNYLALSSS-   [801]
Fugu 9                                              TVAGTFNIVH-----------YGYNEVVRIPSGATNIDVRQHSYSGRSDDDNYLALSNS-   [647]
Homo ADAMTS20 (28460690)                            TITGVFNSSH-----------YGYNVVVKIPAGATNVDIRQYSYSGQPDDS-YLALSDA-   [755]
Mus 20 (29500513)                                   TLAGVFNSAH-----------YGYNVVVKIPAGATNIEILQHSYSGRPEDDNYLALSDT-   [766]
Fugu 20                                             TMAGTFNDAQ-----------YGYNTVVRIPAGATNIDIKQVSYSGKPEDDNYLALSDS-   [737]
Ciona 9 (0100132719)                                TVQGSYNTGYN----------IGYNRVVIIPAGANNIVIMQRSYSGDADDFNYLALRDS-   [902]
Apis 9                                              WITGSYNSTQ-----------YGYTRIAKIPAGSNNIDIRQPGWKDMIDDGNYLALRLGE   [658]
Drosophila CG6107 (20151419)                        EVTGNLLVSNLLGLNDGNEPNKTLYYVTRIPKGASNIIITQRGYPDQ----NFIVLTDD-   [967]
Caenorhabditis gon-1 CEt13h10 (3879882)             VVKGTFNEQGT----------FGYNEVMKIPAGSANIDIRQKGYNNMKEDDNYLSLRAA-   [818]
introns                                             ---70--------------71,72---------73--------------------74---   [2]
[                                                                 matrix metalloprotease cleavage site            ]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                   1270      1280      1290      1300      1310      1320]
[                                                     .         .         .         .         .         .]
[Modal, ≥80%, full maj.                             NG                  G      Y       E                 ]
mask                                               --111111111-11111----1---11111---1111111-1111111-----1111111   [537]
Homo ADAMTS6 (11131380)                            -GDDYYINGAWTIDWPR----K---FDVAG--TAFHYKRPTDEPESLE-----ALGPTSE   [807]
Fugu 6                                             -GEEYYINGAWTIDWPR----K---FDIGG--TTFHYKRPSDEPESLE-----AMGPTTE   [811]
Ciona 6 (0100146470)                               -RGDEYINGGWAIDWPR----K---FDIAG--TTFSYKRPAGEPESLQ-----ALGPTTE   [827]
Homo ADAMTS10 (17432918)                           -QESLLLEGLPGTPQPH----R---LPLAG--TTFQLRQGPDQVQSLE-----ALGPINA   [796]
Mus 10 (27502095)                                  -QESLLLEGLPGTPQPH----R---LPLAG--TTFHLRQGPDQAQSLE-----ALGPINA   [762]
Fugu 10                                            -GDQYFINGNLSIDTPR----R---FNVAG--TTFHYRRPIDGPETLE-----ALGPTNM   [749]
Homo ADAMTS16 (21265061)                           -LRRYYLNGHWTVDWPG----R---YKFSG--TTFDYRRSYNEPENLI-----ATGPTNE   [837]
Mus 16 (21961374)                                  -LKRYYLNGHWSVDWPG----R---YKFSG--ATFNYKRSYKEPENLT-----SPGPTNE   [834]
Fugu 16                                            -QRRYYLNGHWTVDWPG----R---HAIAG--AIFEYKRPYNRPESLI-----SSGPTNE   [803]
Ciona 16 (0100138085)                              NSDRYYLNGNWEIDLYG----E---TTFAG--AKWFYNRKSFQSETLL-----TPGPLGE   [696]
Homo ADAMTS18 (21265067)                           -SQKYYLTGGWSIDWPG----E---FPFAG--TTFEYQRSFNRPERLY-----APGPTNE   [839]
Fugu 18                                            -KKKYYLTGDWTVDWPG----K---FHIGG--TMFDYQRSFNKPESLY-----AAGPTNE   [586]
Homo ADAMTS12 (13569928)                           -PEKYYLNGGFIIQWNG----N---YKLAG--TVFQYDRK-GDLEKLM-----ATGPTNE   [791]
Mus 12 (27817773)                                  -PEKYYLNGGFIIQWNG----N---YKLAG--TVFQYDRK-GDLEKLI-----APGPTNE   [795]
Fugu 12                                            -SEEYFLNGNYIIQWNG----E---YVAGG--TTFYYERS-GNMENLT-----APGPIKQ   [797]
Homo ADAMTS7 (11131377)                            -PEKYFLNGGWTIQWNG----D---YQVAG--TTFTYARR-GNWENLT-----SPGPTKE   [787]
Fugu 7                                             -PNKYFLNGGWTIQWNG----D---YKAAG--TIFTYERT-RHLENLT-----SPGPTTE   [764]
Ciona 7 (genewise.34.12.1)                         DSDKFYLNGGYMIQWNS----N---FELAG--STFSYERVNTTQDNIT-----AQGPITH   [756]
Homo ADAMTS17 (21265064)                           --GKGSINSDWKIELPG----E---FQIAG--TTVRYVRR-GLWEKIS-----AKGPTKL   [787]
Homo ADAMTS19 (19525737)                           --GKQSINSDWKIEHSG----A---FNLAG--TTVHYVRR-GLWEKIS-----AKGPTTA   [877]
Drosophila dCG4096 (22831757)                      GGDRFYLNGDSLISMPG----E---FEIAG--AESLYDRV-DEQETIT-----IPQPIQH   [874]
Homo ADAMTS14 (29337086)                           -TGSFILNPKG-KEATS----R--TFTAMG--LEWEDAVE-DAKESLK-----TSGPLPE   [806]
Fugu 14                                            -TGNFILNSKS-EDAET----K--TFIENG--LLWEYSND-GDKETLK-----TSGPLHE   [774]
Homo ADAMTS3 (2224673)                             -TGHYILNGKG-EEAKS----R--TFIDLG--VEWDYNIE-DDIESLH-----TDGPLHD   [803]
Fugu 3                                             -TGHYILNGKG-EELKS----R--SFIDLG--VEWHYIMD-RDVETLH-----TDGPLHD   [566]
Ciona 3 (0100146117)                               -GRRYTLNSRSYRIQTR-DTPH--KFVSAG--TLWHYDVI-NGLESIT-----AYGPTNS   [750]
Homo ADAMTS2 (7656867)                             -TGKFILNEENDVDASS----K--TFIAMG--VEWEYRDE-DGRETLQ-----TMGPLHG   [814]
Mus 2 (28204840)                                   -TGKFILNEENHLDPNS----R--SFIAMG--VEWEYRNE-DERETLQ-----TIGPLHG   [815]
Fugu 2                                             -SGLFFVNGEN-EYLES----R--SMIEKG--VEWEYEYD-DGKETLQ-----TTGPLRH   [584]
Homo ADAMTS13 (16306598)                           -GGRYVVAGKMSISPNT----TYPSLLEDG---RVEYRVALTEDRLPRLEEIRIWGPLQE   [651]
Fugu 13                                            -RSQYIVAGRGAMSLNV----TYPSVLDED---RLEYRLYLTPDLLPEMEELLLPGPLQE   [580]
Homo ADAMTS1 (6525075)                             -DGTYILNGDYTLSTLE----Q--DIMYKG--VVLRYSGSSAALERIR-----SFSPLKE   [819]
Mus 1 (1813340)                                    -DGTYILNGNFTLSTLE----Q--DLTYKG--TVLRYSGSSAALERIR-----SFSPLKE   [803]
Homo ADAMTS4 (12643637)                            -DGSYALNGEYTLMPSP----T--DVVLPGA-VSLRYSGATAASETLS-----GHGPLAQ   [779]
Mus 4 (26350615)                                   -DGSYALNGEYTLMPSP----T--DVVLPGA-VSLRYSGATAASETLS-----GHGPLAQ   [787]
Fugu 4                                             -DGTYLLNGDYKLMTME----T--DVALRG--ALLRYSGSSATLERIR-----SFSPLPE   [575]
Homo ADAMTS8 (21536392)                            -DGQYLLNGNLAISAIE----Q--DILVKG--TILKYSGSIATLERLQ-----SFRPLPE   [785]
Mus 8 (6708110)                                    -NGQYLLNGNLAISAIE----Q--DILVKG--TILKYSGSMATLERLQ-----SFQALPE   [800]
Fugu 8                                             -GGSYILNGNYSISTVE----Q--DIPVLG--AVLKYSGSSTTLERIQ-----SFRQLKE   [704]
Homo ADAMTS5 (7768707)                             -NGEYLINGKYMISTSE----T--IIDING--TVMNYSGWSHRDDFLHGM---GYSATKE   [828]
Mus 5 (5923784)                                    -TGEYLINGKYMISTSE----T--IIDING--TVMNYSGWSHRDDFLHGM---GYSATKE   [828]
Fugu 5                                             -NGDYLLNGKFMISTSE----T--IIPLNG--SVLNYSGWSQRDEWLHSM---GPGALQE   [780]
Ciona 15 (0100137065)                              -NGQYILNGALILSTIK----R--DIEVNG--IVLQYSGVDVPNERIH-----ATMPLKE   [776]
Homo ADAMTS15 (19171175)                           -QGKYLLNGHFVVSAVE----R--DLVVKG--SLLRYSGTGTAVESLQ-----ASRPILE   [777]
Fugu 15                                            -HGEYILNGNYVVSAAE----R--DLLVRG--SLVRYSGTSSSVETLQ-----AVMPLKE   [726]
Homo ADAMTS9 (27463365)                            -KGEFLLNGNFVVTMAK----R--EIRIGN--AVVEYSGSETAVERIN-----STDRIEQ   [847]
Fugu 9                                             -RGEFLFNGEFVVSMFK----R--EINVGN--AVIEYSGSDHVIERIN-----CTDRIEE   [693]
Homo ADAMTS20 (28460690)                           -EGNFLFNGNFLLSTSK----K--EINVQGTRTVIEYSGSNNAVERIN-----STNRQEK   [803]
Mus 20 (29500513)                                  -QGNFLLNGNFVVSMAK----K--EINIQG--AVFEYSGSNNSIERIN-----STDRLEA   [812]
Fugu 20                                            -QSNFVINGNLVVAMFK----K--EINFKG--TIIEYSGSGTEVERIN-----CTERIEE   [783]
Ciona 9 (0100132719)                               -RGNYILNGNRSVMKNKHKIHKRNNKNNRGPLYQCDYTGTDTAIEKIN-----CSKAIEI   [956]
Apis 9                                             -GGKYIVNGNFKV-MTQ----RV-IVDIGV---TIEYSGRDSRVERLN-----TSRPIET   [703]
Drosophila CG6107 (20151419)                       -RDNELLNGKFLKTYPL----K---FVYAG--VTMQYTGSSSVVEQVN---TTYSWKLSR   [1014]
Caenorhabditis gon-1 CEt13h10 (3879882)            -NGEFLLNGHFQVSLAR----Q--QIAFQD--TVLEYSGSDAIIERIN-----GTGPIRS   [864]
introns                                            -75----------76----------------77-------------------------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                   1330      1340      1350      1360      1370      1380]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                          Y                                       ]
mask                                                111111111-------111111111111111111-11-----------------------   [566]
Homo ADAMTS6 (11131380)                             NLIVMVLLQ-------EQNLGIRYKFNVPITRTGSGDNEVGFT------------------   [843]
Fugu 6                                              NLFVMVLLQ-------EQNQGIRYKFNVPIQRTGSGDNEVGFS-----------------   [847]
Ciona 6 (0100146470)                                DLVVMMLLQ-------EPNRGLRYEYNVRVEREGSAGAESAFL-----------------   [863]
Homo ADAMTS10 (17432918)                            SLIVMVLAR-------TELPALRYRFNAPIARDSLPPYS---------------------   [828]
Mus 10 (27502095)                                   SLIIMVLAQ-------AELPALHYRFNAPIARDALPPYS---------------------   [794]
Fugu 10                                             SLIIMVLVR-------EENPGVHYRFNPPLNRDPLTGFA---------------------   [781]
Homo ADAMTS16 (21265061)                            TLIVELLFQ-------GRNPGVAWEYSMPRLGTEKQPPAQPSYT----------------   [874]
Mus 16 (21961374)                                   TLIVELLFQ-------GRNPGVAWEFSLPRSGAKKTPAAQPSYS----------------   [871]
Fugu 16                                             TLVIEVLLQ-------GWNPGVRWEYTLMKADEKRKHNYT--------------------   [836]
Ciona 16 (0100138085)                               ELLIQVLVV-------AQNPGISYSYTTQVIDNRLPGLRTNSAIQVQPPSYN--------   [741]
Homo ADAMTS18 (21265067)                            TLVFEILMQ-------GKNPGIAWKYALPKVMNGTPPATKRPAYT---------------   [877]
Fugu 18                                             TLVFEILLQ-------GKNPGVVWEYTLPRTEKKPDYS----------------------   [617]
Homo ADAMTS12 (13569928)                            SVWIQLLFQ-------VTNPGIKYEYTIQKDGLDNDVE-QMYF-----------------   [826]
Mus 12 (27817773)                                   SVWLQLLFQ-------VTNPGIKYEYTVRKDGLDNDVEKLLYF-----------------   [831]
Fugu 12                                             PVMLQLLFQ-------ETNPGLKYEFSVRKTKVTGNEVMQPIYR----------------   [834]
Homo ADAMTS7 (11131377)                             PVWIQLLFQ-------ESNPGVHYEYTIHREAGGHDEVPPPVFS----------------   [824]
Fugu 7                                              PLWIQLLFQ-------EPNPGVRYEYTINRNTSGNNSLPTSSFS----------------   [801]
Ciona 7 (genewise.34.12.1)                          DIMIMILFV-------EENPGIRVSYMMPFNVTAVFEEERPKFE----------------   [793]
Homo ADAMTS17 (21265064)                            PLHLMVLLFH------DQDYGIHYEYTVPVNRTAENQSEPEKPQDSLFI-----------   [830]
Homo ADAMTS19 (19525737)                            PLHLLVLLFQ------DQNYGLHYEYTIPSDPLPENQSSKAPEPLFM-------------   [918]
Drosophila dCG4096 (22831757)                       SISLYAIVRGN-----ESNAGIFYEFTLPALNVTAGRQFQ--------------------   [909]
Homo ADAMTS14 (29337086)                            AIAILALPPTEG----GPRSSLAYKYVIHEDLLPLIGSNNVLLEEMDTYE----------   [852]
Fugu 14                                             GIVVLVIPQEE-----DTKISLTYKYIIHEDLLPLITNNNVLLAELDTYE----------   [819]
Homo ADAMTS3 (2224673)                              PVIVLIIPQEN-----DTRSSLTYKYIIHEDSVPTINSNNVIQEELDTFE----------   [848]
Fugu 3                                              PVVVLIIPKDN-----ETRTTLMYKYIIHEDSVPVNN-NNVIQE--DTYE----------   [608]
Ciona 3 (0100146117)                                DVILLISVQRR-----ASRVSVAYSYVMHVNSLPRSHE--------TFR-----------   [786]
Homo ADAMTS2 (7656867)                              TITVLVIPVG------DTRVSLTYKYMIHEDSLN-VDDNNVLEEDSVVYE----------   [857]
Mus 2 (28204840)                                    TITVLVIPEG------DTRISLTYKYMIHEDSLN-VDDNNVLEDDAVRHE----------   [858]
Fugu 2                                              GILIMMKLHG------DEDVNLSYKYMMNMDSDTAIQ-NNMLVEDSS-YE----------   [626]
Homo ADAMTS13 (16306598)                            DADIQVYRRYGEEYGNLTRPDITFTYFQPKPRQAWV------------------------   [687]
Fugu 13                                             EINVEVYRKYGKEYGEQTNPNISFQFYVPGPPKDVTNTKLKGK-----------------   [623]
Homo ADAMTS1 (6525075)                              PLTIQVLTVGN-----ALRPKIKYTYFVKKKKESFNAIPTFSA-----------------   [857]
Mus 1 (1813340)                                     PLTIQVLMVGH-----ALRPKIKFTYFMKKKTESFNAIPTFSE-----------------   [841]
Homo ADAMTS4 (12643637)                             PLTLQVLVAGN-----PQDTRLRYSFFVPRPTPSTPRPTPQDWLHRRAQILEILRRRP--   [832]
Mus 4 (26350615)                                    PLTLQVLVAGN-----PQNARLRYSFFVPRPVPSTPRPPPQDWLQRRAEILKILRKRP--   [840]
Fugu 4                                              PLTIQVLSVGE-----APRPRVKYSYFAPRPNNGASTSNNGGRRPSINAIREVG------   [624]
Homo ADAMTS8 (21536392)                             PLTVQLLTVPGE----VFPPKVKYTFFVPNDVDFSMQS-SKERATTNIIQPLLH-AQ---   [836]
Mus 8 (6708110)                                     PLTVQLLTVSGE----VFPPKVRYTFFVPNDMDFSVQN-SKERATTNIIQSLPSAE----   [851]
Fugu 8                                              AITIQLLTTAGD----VIPAKVKYTFFIPRDVTFSKSKEQKAPSPSLHVIHPFG------   [754]
Homo ADAMTS5 (7768707)                              ILIVQILATDP-----TKPLDVRYSFFVPKKSTPKVNS-VTSHGSNKVGSHTSQPQ----   [878]
Mus 5 (5923784)                                     ILIVQILATDP-----TKALGVRYSFFVPKKTTQKVNS-VISHGSNKVGPHSTQLQ----   [878]
Fugu 5                                              ALVVQILATDA-----KKPLDIRYSFFMPRRTAPQQPS-VP-------------------   [815]
Ciona 15 (0100137065)                               PITVQLLSVGVAGSK-LLPPRVKYSYYVSAPKRRASRKSKAKVPSSRSAVSDGSLVNRGI   [835]
Homo ADAMTS15 (19171175)                            PLTVEVLSVGK-----MTPPRVRYSFYLPKEPREDKSSHPKDPRGPSVLHNSVLSLSNQV   [832]
Fugu 15                                             PLTVEVLSVGK-----MTPPRVRYTFYVSKESKEEKVLRKEERSHNRILEGGNKVEPKMG   [781]
Homo ADAMTS9 (27463365)                             ELLLQVLSVGK-----LYNPDVRYSFNIPIEDKPQQFY----------------------   [880]
Fugu 9                                              EIIIQVLSVGK-----LYNPDVRYSFNIPIEDKPQQFF----------------------   [726]
Homo ADAMTS20 (28460690)                            ELILQVLCVGN-----LYNPDVHYSFNIPLEERSDMFT----------------------   [836]
Mus 20 (29500513)                                   ELVLQVLCVGN-----LYNPDVRYSFNIPIEERSNLFS----------------------   [845]
Fugu 20                                             ELILQVLCVGS-----LYNPDVRYSFNIPIEEHKEQFV----------------------   [816]
Ciona 9 (0100132719)                                DIIVEVLSAGD-----LMPPNINYRYNIPVRDRLSYR-----------------------   [988]
Apis 9                                              DLILEVLSVSE-----LNPPQISYKYTVPRKILESYE-----------------------   [735]
Drosophila CG6107 (20151419)                        DLIVQIISLDVSPSKRQDTVLLSYSYTIDKPPDYEAEVEIYR------------------   [1056]
Caenorhabditis gon-1 CEt13h10 (3879882)             DIYVHVLSVG------SHPPDISYEYMTAAVPNAVIRPISSALYL---------------   [903]
introns                                             ----78-------------------------------------79---------------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                   1390      1400      1410      1420      1430      1440]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                       W           C    C  G       C           ]
mask                                          ------------------11111-------------------------------------   [571]
Homo ADAMTS6 (11131380)                       ------------------WNHQP-W---SECSAT-CAGGVQRQEVVCKRLDDNSI--VQ   [877]
Fugu 6                                        ------------------WNHLP-W---SECSTT-CSGGSQKQEVVCKRLDDNSV--VQ   [881]
Ciona 6 (0100146470)                          ------------------WSHGD-W---SPCTAS-CAGGTQRRPIECRRVDDDTV--VQ   [897]
Homo ADAMTS10 (17432918)                      ------------------WHYAP-W---TKCSAQ-CAGGSQVQAVECRNQLDSSA--VA   [862]
Mus 10 (27502095)                             ------------------WHYAP-W---TKCSAQ-CAGGSQVQVVECRNQLDSSA--VA   [828]
Fugu 10                                       ------------------WHYTS-W---SRCSAL-CAGGVQTQQVVCMKHSDRTI--VY   [815]
Homo ADAMTS16 (21265061)                      ------------------WAIVR-----SECSVS-CGGGQMTVREGCYRDLKFQV--NM   [907]
Mus 16 (21961374)                             ------------------WAIVR-----SECSVS-CGGDRQCQTGRGHLEISS------   [900]
Fugu 16                                       ------------------WAIVR-----SQCSAT-CAAGLMNTKTACYKDMRVQV--NT   [869]
Ciona 16 (0100138085)                         ------------------WSSTS-----DSCSAT-CAGGTQTVHISCVMDGTTVV--DE   [774]
Homo ADAMTS18 (21265067)                      ------------------WSIVQ-----SECSVS-CGGGYINVKAICLRDQNTQV--NS   [910]
Fugu 18                                       ------------------WGVVR-----SDCSAP-CAGGRISTKAICLQDQKVQV--NS   [650]
Homo ADAMTS12 (13569928)                      ------------------WQYGH-W---TECSVT-CGTGIRRQTAHCIKKGRGMV--KA   [860]
Mus 12 (27817773)                             ------------------WQFGR-W---TECSVT-CGTGIRRQAAHCVKKGHGIV--KT   [865]
Fugu 12                                       ------------------WRHGA-W---TDCSTS-CGLGEQLQPVRCFEMDVGVV--DE   [868]
Homo ADAMTS7 (11131377)                       ------------------WHYGP-W---TKCTVT-CGRGVQRQNVYCLERQAGPV--DE   [858]
Fugu 7                                        ------------------WKFGS-W---TECSAT-CGAGVQRQIVHCVERTTGIV--EE   [835]
Ciona 7 (genewise.34.12.1)                    ------------------WMMQK-W---SSCSRT-CGRGLQLSLAICVERKAGFV--EE   [827]
Homo ADAMTS17 (21265064)                      ------------------WTHSG-W---EGCSVQ-CGGGERRTIVSCTRIVNKTT--TL   [864]
Homo ADAMTS19 (19525737)                      ------------------WTHTS-W---EDCDAT-CGGGERKTTVSCTKIMSKNI--SI   [952]
Drosophila dCG4096 (22831757)                 ------------------WRLSN-W---TACSAS-CGGGVQHREPICQENGKGES--NE   [943]
Homo ADAMTS14 (29337086)                      ------------------WALKS-W---APCSKA-CGGGIQFTKYGCRRRRDHHM--VQ   [886]
Fugu 14                                       ------------------WALKS-W---SQCSKP-CGGGIQYTKYGCRRKSDSRL--VH   [853]
Homo ADAMTS3 (2224673)                        ------------------WALKS-W---SQVSKP-CGGGEQYTKYGCRRKSDNKM--VH   [882]
Fugu 3                                        ------------------WALKS-W---SPCSKP-CAGGEQYTKYGCRKKGDTKM--LH   [642]
Ciona 3 (0100146117)                          ------------------YAVKR-W---TVCSVT-CGAGTKRARYGCRSSRNGGR--WV   [820]
Homo ADAMTS2 (7656867)                        ------------------WALKK-W---SPCSKP-CGGGSQFTKYGCRRRLDHKM--VH   [891]
Mus 2 (28204840)                              ------------------WALKK-W---SPCSKP-CGGGSQFTKYGCRRRLDSKM--VH   [892]
Fugu 2                                        ------------------WAPKK-W---SFCSRP-CGGGKQYLRYGCRRKVDSKM--VH   [660]
Homo ADAMTS13 (16306598)                      ------------------WAAVR-----GPCSVS-CGAGLRWVNYSCLDQARKEL--VE   [720]
Fugu 13                                       ------------------WTFVT-----TPCSVS-CGSGVQTHVHVCIDENTKKH--TE   [656]
Homo ADAMTS1 (6525075)                        ------------------WVIEE-W---GECSKS-CELGWQRRLVECRDINGQPA--SE   [891]
Mus 1 (1813340)                               ------------------WVIEE-W---GECSKT-CGSGWQRRVVQCRDINGHPA--SE   [875]
Homo ADAMTS4 (12643637)                       ------------------WAGRK-----------------------------------   [837]
Mus 4 (26350615)                              ------------------WAGRK-----------------------------------   [845]
Fugu 4                                        ----------------GAEWTLRE-W---GPCSQT-CGGGVQQREVVCLDAYGHPS--RD   [661]
Homo ADAMTS8 (21536392)                       ------------------WVLGD-W---SECSST-CGAGWQRRTVECRDPSGQAS--AT   [870]
Mus 8 (6708110)                               ------------------WVLGD-W---SECPST-CRGSWQRRTVECRDPSGQAS--DT   [885]
Fugu 8                                        ----------------VPDWVLGE-W---SECSKS-CGSGWSRRNVECKDSAGFSS--SH   [791]
Homo ADAMTS5 (7768707)                        ------------------WVTGP-W---LACSRT-CDTGWHTRTVQCQDGNRKLA--KG   [912]
Mus 5 (5923784)                               ------------------WVTGP-W---LACSRT-CDTGWHTRTVQCQDGNRKLA--KG   [912]
Fugu 5                                        -------------------------L---LPYPKP-TTAHSTTTLSTMVRTTSSRT--TS   [844]
Ciona 15 (0100137065)                         GRRIKSPSATPGSNHGPPRWVTGR-WRKCKAYGKRKCGSGWQKRSVTCKQGKRRAR----   [890]
Homo ADAMTS15 (19171175)                      EQP---------DDRPPARWVAGS-W---GPCSAS-CGSGLQKRAVDCRGSAGQRT--VP   [876]
Fugu 15                                       -------------KRPVSHWVAGG-W---ESCTVT-CGSGLQRRPVLCQSADKRAA--MD   [821]
Homo ADAMTS9 (27463365)                       ------------------WNSHGPW---QACSKP-CQ-GERRKRKLVCTRESDQLT--VS   [914]
Fugu 9                                        ------------------WDAYGPW---QECSSL-CQ-GVRKRKRKIVCSRESDRVV--VS   [760]
Homo ADAMTS20 (28460690)                      ------------------WDPYGPW---EGCTKM-CQ-GLQRRNITCIHKSDHSV--VS   [870]
Mus 20 (29500513)                             ------------------WDPYGPW---QDCTKM-CQ-GLHRRKIACVRKSDHAV--VS   [879]
Fugu 20                                       ------------------WDPSGSW---LECSRI-CQ-GERRRKVVCVRKSDHLE--VS   [850]
Ciona 9 (0100132719)                          ------------------WDPHGPW---SPCSRL-CD-GKTKGKIMCVR-SDQQI--VS   [1021]
Apis 9                                        ------------------WKLSG-W---SDCTRT-CQ-GIKYRKAECTNIEYKEV--VA   [768]
Drosophila CG6107 (20151419)                  ------------------WEMQA-P---SNCDSL-CE-GRSHRLPACISTTQGVK--VA   [1089]
Caenorhabditis gon-1 CEt13h10 (3879882)       ------------------WRVTDTW---TECDRA-CR-GQQSQKLMCLDMSTHRQ--SH   [937]
introns                                       ---------------------------------------80,81,82-------------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
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[Intron phases marked 0, 1, 2]

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[                                                   1450      1460      1470      1480      1490      1500]
[                                                    .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                C         C    C    W       C   C                 ]
mask                                                ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                             NNY--CDPDSK-PPENQRACNTEPCPPE-WFIGDWLECSKTCDGGMRT-RAVLCIRK---   [929]
Fugu 6                                              NNY--CDPDGK-PPENHRDCNTEPCPPE-WFIGDWSECGKTCDGGIRT-RSVLCIRK---   [933]
Ciona 6 (0100146470)                                HSY--CNSDTM-PSEQVQTCNAEPCPAR-WITGSWGQCSRSCDGGHHV-RTVVCMRA---   [949]
Homo ADAMTS10 (17432918)                            PHY--CSAHSK-LPKRQRACNTEPCPPD-WVVGNWSLCSRSCDAGVRS-RSVVCQRR---   [914]
Mus 10 (27502095)                                   PHY--CSGHSK-LPKRQRACNTEPCPPD-WVVGNWSRCSRSCDAGVRS-RSVVCQRR---   [880]
Fugu 10                                             NHF--CDKKNR-PKEKRRPCNTEPCSPS-WGTGEWSECSRSCNGGLRT-RQVLCKRR---   [867]
Homo ADAMTS16 (21265061)                            SF---CNPKTR-PVTGLVPCKVSACPPS-WSVGNWSACSRTCGGGAQS-RPVQC-TR---   [957]
Mus 16 (21961374)                                   ------------------------------------------------------------   [900]
Fugu 16                                             SY---CNPRSR-PVTGLVPCNTQPCPAS-WSVGEWGACSQSCGGGEHT-RLVQCIQR---   [920]
Ciona 16 (0100138085)                               SH---CDRPSR-PSL-TKECNTQACPAR-WHTTEWGQCSRTCGGGLQL-RQVTCKSK---   [824]
Homo ADAMTS18 (21265067)                            SF---CSAKTK-PVTEPKICNAFSCPAY-WMPGEWSTCSKACAGGQQS-RKIQCVQK---   [961]
Fugu 18                                             TM---CNPYTK-PILGYHLCNTQPCPAY-WAPGDWGLCSRSCGGGQQT-RPLRCLRK---   [701]
Homo ADAMTS12 (13569928)                            TF---CDPETQ-PNGRQKKCHEKACPPR-WWAGEWEACSATCGPHGEKKRTVLCIQT---   [912]
Mus 12 (27817773)                                   TF---CNPETQ-PSVRQKKCHEKDCPPR-WWAGEWEACSTTCGPYGEKKRTVLCIQT---   [917]
Fugu 12                                             SM---CDPESR-PDDRHRKCKTMDCPAR-WWVGGWQQCSATCGSDGTRKRTVLCVRT---   [920]
Homo ADAMTS7 (11131377)                             EH---CDPLGR-PDDQQRKCSEQPCPAR-WWAGEWQLCSSSCGPGGLSRRAVLCIRS---   [910]
Fugu 7                                              HW---CDPLTR-PDDNQTSCQKDPCPAV-WWIGEWQKCSASCGGLGQTKRTVLCIQA---   [887]
Ciona 7 (genewise.34.12.1)                          DF---CDPNTR-PDDNRRFCNTSACPPE-WLTGPWQSCSVTCGGQRSGRQSRNVLCI---   [879]
Homo ADAMTS17 (21265064)                            VNDSDCPQASR-PEPQVRRCNLHPCQSR-WVAGPWSPCSATCEKGF-QHREVTCVYQ---   [918]
Homo ADAMTS19 (19525737)                            VDNEKCKYLTK-PEPQIRKCNEQPCQTR-WMMTEWTPCSRTCGKGM-QSRQVACTQQ---   [1006]
Drosophila dCG4096 (22831757)                       PFQ--RIVSIK-RNLLIALGDTLPC----WTHAKN-KR-PARQSRG--------------   [980]
Homo ADAMTS14 (29337086)                            RHL--CDHKKR-PKPIRRRCNQHPCSQPVWVTEEWGACSRSCGKLGVQTRGIQCLLP---   [940]
Fugu 14                                             RNF--CETGKK-PKPIRKRCNVQDCSPPTWVAEEWGPCSKTCGKLGYQTRVVQCMQA---   [907]
Homo ADAMTS3 (2224673)                              RSF--CEANKK-PKPIRRMCNIQECTHPLWVAEEWEHCTKTCGSSGYQLRTVRCLQP---   [936]
Fugu 3                                              KGY--CDASKK-PKPIRRMCNLQDCTQPQWITDEWENCPRSCGSLGFQIRIVRCVQF---   [696]
Ciona 3 (0100146117)                                SKRN-CNGRP--PRPEKKICSTTCTVTTRWFATPWSACSKTCGNNGFHTRAVTCRQI---   [874]
Homo ADAMTS2 (7656867)                              RGF--CAALSK-PKAIRRACNPQECSQPVWVTGEWEPCSQTCGRTGMQVRSVRCIQP---   [945]
Mus 2 (28204840)                                    RAF--CSALAK-PKAIRRACNPQECSQPVWVTGEWEPCTQSCGRTGMQVRSVRCIQP---   [946]
Fugu 2                                              KSF--CNKSNMKPRGDVRDCNQKSCPPPIWVTGDWQNCSKACGKTGLQIRTVSCVQP---   [715]
Homo ADAMTS13 (16306598)                            TVQ--CQGSQQ-PPAWPEACVLEPCPPY-WAVGDFGPCSASCGGGLRE-RPVRCVEA---   [772]
Fugu 13                                             EDN--CGTPPS-ITTPPTPCQLPPCPPR-WDTGPFGPCSASCGGGERK-RLLKCVQV---   [708]
Homo ADAMTS1 (6525075)                              -----CAKEVK-PASTRP-CADHPCPQ--WQLGEWSSCSKTCGKGYKKRSLK-CLSH---   [938]
Mus 1 (1813340)                                     -----CAKEVK-PASTRP-CADLPCPH--WQVGDWSPCSKTCGKGYKKRTLK-CVSH---   [922]
Homo ADAMTS4 (12643637)                             ------------------------------------------------------------   [837]
Mus 4 (26350615)                                    ------------------------------------------------------------   [845]
Fugu 4                                              -----CPEELR--PLASRSCATQPCPT--WLLGDWSVCSKTCG-----------------   [695]
Homo ADAMTS8 (21536392)                             -----CNKALK-PEDAKP-CESQLCPL-------------------------------   [890]
Mus 8 (6708110)                                     -----CDEALK-PEDAKP-CGSQPCPL-------------------------------   [905]
Fugu 8                                              -----CDRGLK-PTDIKA-CGDLPCPI--WQMGPWSACSRTCGHGERHRSVF-CIDY---   [838]
Homo ADAMTS5 (7768707)                              -----CPLSQR-PSAFKQ-CLLKKC---------------------------------   [930]
Mus 5 (5923784)                                     -----CLLSQR-PSAFKQ-CLLKKC---------------------------------   [930]
Fugu 5                                              SSS---PTFLASEPPIGLVMSTSSPGP-QWVTGSWMTCSRTCDTGWQSRTVQ-CKNL---   [896]
Ciona 15 (0100137065)                               G----CTGS---KPFDRLPCFINACPTVSTNGRRNHSGRSRPSPT----------ER---   [930]
Homo ADAMTS15 (19171175)                            A----CDAAHR-PVETQA-CGEP-CPT--WELSAWSPCSKSCGRGFQRRSLK-CVGH---   [923]
Fugu 15                                             -----CDSAER-PQSERA-CGDP-CPM--WTIGTWSHCSKSCGRGFKRRQVR-CETG---   [867]
Homo ADAMTS9 (27463365)                             DQR--CDRLPQ-PGHITEPCGTD-CDLR-WHVASRSECSAQCGLGYRTLDIY-CAKY---   [965]
Fugu 9                                              DQR--CHGIPR-PSVIADRCNTE-CELR-WHVARKSECTAQCGLGYRTLEIY-CAKI---   [811]
Homo ADAMTS20 (28460690)                            DKE--CDHLPL-PSFVTQSCNTD-CELR-WHVIGKSECSSQCGQGYRTLDIH-CMKY---   [921]
Mus 20 (29500513)                                   DHN--CGHLPM-PLFVTEKCNMD-CELR-WHIIGKSDCSSQCGQGYRTLDVH-CMKY---   [930]
Fugu 20                                             DRR--CERLPQ-VVAVSEPCNMD-CEVR-WHVAGKSECSAKCGSGYRSLDVQ-CVKY---   [901]
Ciona 9 (0100132719)                                DRK--CNHLPK-PSTIIRPCNTR-CQFT-WHPKP-SECSVRCGRGTTHLEFE-CRKVT--   [1072]
Apis 9                                              DDY--CRESEK-PREESQMCNNH-CVLE-WNITV-SECSNHCGLGTRVVTSR-CIQKL--   [819]
Drosophila CG6107 (20151419)                        PQF--CDKSAM-PKIDDRACNTD-CRLN-LTVTSISECSAACGELGTREKTYACVQT---   [1141]
Caenorhabditis gon-1 CEt13h10 (3879882)             DRN--CQNVLK-PKQATRMCNID-CSTR-WITEDVSSCSAKCGSGQKRQRVS-CVKM---   [988]
introns                                             -----83----------------------84----------------------------   [2]
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[                                                   1510      1520      1530      1540      1550      1560]
[                                                   .         .         .         .         .         .]
[Modal, ≥80%, full maj.                                                   C                                ]
mask                                        ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                     --I-GPSEEETL--DYSG-CLTHRPVEKEP---CNNQS---CPPQ-WVALDWSECTPKCG   [976]
Fugu 6                                      --I-SAAVEETL--EDVH-CLTHRPIEQES---CNNQS---CPPK-WVTLDWSECTPKCG   [980]
Ciona 6 (0100146470)                        --I-TQTEDEVV--DDRY-CTDRKPWSTGS---CGTEA---CPAR-WHTGDWSRCNPSCG   [996]
Homo ADAMTS10 (17432918)                    --V-SAAEEKAL--DDSA-CPQPRPPVLEA---CHGPT---CPPE-WAALDWSECTPSCG   [961]
Mus 10 (27502095)                           --V-SAAEEKAL--DDSA-CPQPRPPVLEA---CQGPM---CPPE-WATLDWSECTPSCG   [927]
Fugu 10                                     --I-SVTEEKVL--DDSA-CSPLRPSLTEP---CNNHS---CPPE-WLALDWSECTPSCG   [914]
Homo ADAMTS16 (21265061)                    --R-VHYDSEPV--PASL-CPQPAPSSRQA---CNSQS---CPPA-WSAGPWAECSHTCG   [1004]
Mus 16 (21961374)                           ------------------------------------------------------------   [900]
Fugu 16                                     --T-SQTDAHNL--SDAQ-CVQPAPARRQA---CNTHS---CPPV-WSTGPWSQCSRKCG   [967]
Ciona 16 (0100138085)                       ----RMNGDVYV--GESH-CNNKRKPPRTQQ--CMQTE---CPAY-WHTGEWSKCSRACG   [871]
Homo ADAMTS18 (21265067)                    --K-PFQKEEAV--LHSL-CPVSTPTQVQA---CNSHA---CPPQ-WSLGPWSQCSKTCG   [1008]
Fugu 18                                     --V-TYQREEVV--AHSL-CPIISPAQVQP---CQTQT---CPPE-WSTGSWSQ------   [742]
Homo ADAMTS12 (13569928)                    --M-VSDEQ-AL--PPTD-CQHLLKPKTLLS--CNRDIL--CPSD-WTVGNWSECSVSCG   [960]
Mus 12 (27817773)                           --M-GSDEQ-AL--PATD-CQHLLKPKALVS--CNRDIL--CPSD-WTVGNWSECSVSCG   [965]
Fugu 12                                     --V-LGEER-VL--HPVE-CKHLLKPKPLVP--CNRDVA--CGQD-WAVGVWGQCPVTCG   [968]
Homo ADAMTS7 (11131377)                     --V-GLDEQSAL--EPPA-CEHLPRPPTETP--CNRHVP--CPAT-WAVGNWSQCSVTCG   [959]
Fugu 7                                      --V-SAEEQKAL--PSRE-CEHVPKPASLSS--CNTHIP--CPAD-WTAGNWSK------   [930]
Ciona 7 (genewise.34.12.1)                  -QSISDDEQVVL--DSSR-CVASAKPIPIRK--CPPDAQQPCPV--WRTGPWSNCSVNCG   [931]
Homo ADAMTS17 (21265064)                    --L-QNGTHVAT--RPLY-CPGPRPAAVQS---CEGQD---CLSI-WEASEWSQCSASCG   [965]
Homo ADAMTS19 (19525737)                    --L-SNGTLIRA--RERD-CIGPKPASAQR---CEGQD---CMTV-WEAGVWSECSVKCG   [1053]
Drosophila dCG4096 (22831757)               ---------------------------------CGDQP---CPAH-WWPGPWQFCPVTCR   [1003]
Homo ADAMTS14 (29337086)                    --L-SNGTHKVM--PAKA-CAGDRPEARRP---CLRVP---CPAQ-WRLGAWSQCSATCG   [987]
Fugu 14                                     --Q-HNGTNKPV--HSKH-CTEDRPDTRRS---CNHTL---CPAQ-WRTGAWSQCSVTCG   [954]
Homo ADAMTS3 (2224673)                      --L-LDGTNRSV--HSKY-CMGDRPESRRP---CNRVP---CPAQ-WKTGPWSECSVTCG   [983]
Fugu 3                                      --L-HDGTNRSV--HSKY-CSGEKPESRRP---CNRVP---CPAQ-WRTGAWSECSVTCG   [743]
Ciona 3 (0100146117)                        --NPDATTQLVS---AAM-CFGQVKLPTQKT--CTVSP---CPPK-WRTGAWTKCSKTCG   [922]
Homo ADAMTS2 (7656867)                      --L-HDNTTRSV--HAKH-CNDARPESRRA---CSREL---CPGR-WRAGPWSQCSVTCG   [992]
Mus 2 (28204840)                            --L-HNNTTRSV--HTKH-CNDHRPESRRA---CNREL---CPGR-WRAGSWSQCSVTCG   [993]
Fugu 2                                      --S-EDNTTRPI--HNKH-CNDNRPESRRA---CNRQP---CPTQ-WRVGPWSQCSVTCG   [762]
Homo ADAMTS13 (16306598)                    --Q-GSLLKTLP--PAR--CRAGAQQPAVALETCNPQP---CPAR-WEVSEPSSCTSAGG   [821]
Fugu 13                                     --L-GGTVTQVQ--NSD--CPADKAPTSVER--CNLQH---CPAR-WQVSEPGECSAVCG   [755]
Homo ADAMTS1 (6525075)                      --D-GGVLSHES-------CDPLKKPKHFIDF-CTMAE---CS-----------------   [967]
Mus 1 (1813340)                             --D-GGVLSNES-------CDPLKKPKHYIDF-CTLTQ---CS-----------------   [951]
Homo ADAMTS4 (12643637)                     ------------------------------------------------------------   [837]
Mus 4 (26350615)                            ------------------------------------------------------------   [845]
Fugu 4                                      ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                     ------------------------------------------------------------   [890]
Mus 8 (6708110)                             ------------------------------------------------------------   [905]
Fugu 8                                      --T-GKTVEPEK-------CDPNKKPQPVSTE-CHNNE---CL-----------------   [867]
Homo ADAMTS5 (7768707)                      ------------------------------------------------------------   [930]
Mus 5 (5923784)                             ------------------------------------------------------------   [930]
Fugu 5                                      --D-GKLSKG---------CILSFRPSAFRP--CVVKK---C------------------   [921]
Ciona 15 (0100137065)                       --P-----------------------------------------IWNSGSWGPCSRSCG   [946]
Homo ADAMTS15 (19171175)                    --G-GRLLARDQ-------CNLHRKPQELDF--CVLRP---C------------------   [950]
Fugu 15                                     --K-GVNLPREH-------CSWKRKPQELDL--CYL------------------------   [891]
Homo ADAMTS9 (27463365)                     --S-RLDGKTEK--VDDGFCSSHPKPSNREK--CSGE----CNTGGWRYSAWTECSKSCD   [1014]
Fugu 9                                      --S-HADGETEK--VDDRFCSGQHKPDNKEG--CHGD----CNPGGWEYSPWSECSKSCG   [860]
Homo ADAMTS20 (28460690)                    --S-IHEGQTVQ--VDDHYCGDQLKPPTQEL--CHGN----CVFTRWHYSEWSQCSRSCG   [970]
Mus 20 (29500513)                           --S-VHKGQAVP--VGDQYCGDQLKPPSREP--CHGS----CVLTRWHYSEWSQCSRSCG   [979]
Fugu 20                                     --S-LLKRQSER--VVASVCANAIKPRTRES--CHGD----CPLKSWQYGAWSECSKTCG   [950]
Ciona 9 (0100132719)                        --NRIHRSNHVVETVSDSLCP-QPKPGGVSS--CEGD----CLSTRWTYGEWGECSRSCG   [1123]
Apis 9                                      ----LNSNHPPRA-IPPHSCAHLERPNETES--CMGP----CEDAHWSYGKWSACNATCG   [868]
Drosophila CG6107 (20151419)                --F-TNMQRSNI--VDMSYCKLKFDVAYHEE--CREG----C----WVLSEWSTCSKSCG   [1186]
Caenorhabditis gon-1 CEt13h10 (3879882)     --E-GDRQTPAS--EHL--CDRNSKPSDIAS--CYID----CSGRKWNYGEWTSCSETCG   [1035]
introns                                     --85-------------------------------------------86------87----   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                  1570      1580      1590      1600      1610      1620]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            P-GFKHRI-----VLCKSSDLSKTFPAAQ----CPEESKPPVRIR---CSLGR--CPPPR   [1021]
Fugu 6                                             P-GFKHRI-----ALCKSSDLAKTFPPAQ----CSSHSKPPVRVR---CSLGR--CPPPR   [1025]
Ciona 6 (0100146470)                               A-GWKTRV-----VTCASANGDETYDDSQ----CDVNQKPTVKAH---CMGRA--CRAK-   [1040]
Homo ADAMTS10 (17432918)                           P-GLRHRV-----VLCKSADHRATLPPAH----CSPAAKPPATMR---CNLRR--CPPAR   [1006]
Mus 10 (27502095)                                  P-GLRHRV-----VLCKSADQRSTLPPGH----CLPAAKPPSTMR---CNLRR--CPPAR   [972]
Fugu 10                                            P-GYRHRV-----VVCKSGESGDTLPESK----CPKHSRPTSRVR---CNLKR--CPP--   [957]
Homo ADAMTS16 (21265061)                           K-GWRKRA-----VACKSTNPSARAQLLPDAV-CTSEPKPRMHEA---CLLQR--CHKPK   [1052]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            S-GLRKRT-----VLCTSTKPGVETRTLP-DSLCAGLPKPGSQES---CFIKR--CQKLR   [1015]
Ciona 16 (0100138085)                              R-GVRNRH-----VRCRS--GTRSLRNAR----CDRRVRPKSREP---CLVTY--CQRKY   [914]
Homo ADAMTS18 (21265067)                           R-GVRKRE-----LLCKGSAAETLPESQ-----CTSLPRPELQEG---CVLGR--CPKNS   [1052]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           G-GVRIRS-----VTCAKNHDEP----------CDVTRKPNSRAL---CGLQQ--CPSSR   [999]
Mus 12 (27817773)                                  G-GVRIRS-----VTCAKNLNEP----------CDKTRKPNSRAL---CGLQQ--CPFSR   [1004]
Fugu 12                                            G-GVRSRT-----VTCAVAPKKT----------CDPSTKPRSRSL---CALLS--CPNSG   [1007]
Homo ADAMTS7 (11131377)                            E-GTQRRN-----VLCTNDTGVP----------CDEAQQPASEVT---CSLPL--CR---   [995]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         N-GLRHRR-----VVCVEKESSIPNDT------CNVKLKPRMHKK---C-----------   [965]
Homo ADAMTS17 (21265064)                           K-GVWKRT-----VACTNSQGK-----------CDASTRPRAEEA---CEDYSG-CYE--   [1002]
Homo ADAMTS19 (19525737)                           K-GIRHRT-----VRCTNPRKK-----------CVLSTRPREAED---CEDYSK-CYV--   [1090]
Drosophila dCG4096 (22831757)                      PVGFVAPPQRRRSVVCLDEHDVVVADAE-----CGHLQKPAEMEP---CESSLPICRTK-   [1054]
Homo ADAMTS14 (29337086)                           E-GIQQRQ-----VVCRTNANSLGH--------CEGDRPDTVQV----CSLPA--CG---   [1024]
Fugu 14                                            E-GIQQRQ-----VVCKASDNTAAE--------CEGEKPETVII----CKLIS--CP---   [991]
Homo ADAMTS3 (2224673)                             E-GTEVRQ-----VLCRAGDH------------CDGEKPESVRA----CQLPP--CNDEP   [1019]
Fugu 3                                             E-GVERRL-----VTCRIGDQ------------CSREKPEAVRP----CRLGP--CHDEP   [779]
Ciona 3 (0100146117)                               E-GIQQRR-----VICRSSNHSLTSNHE-----CPQPQPPDVRE----CQLVA--CSVQS   [965]
Homo ADAMTS2 (7656867)                             N-GTQERP-----VPCRTADDSFGI--------CQEERPETART----CRLGP--CP-RN   [1031]
Mus 2 (28204840)                                   N-GTQERP-----VLCRTADDNFGV--------CREERPETARI----CRLAP--CP-RN   [1032]
Fugu 2                                             N-GTQQRK-----ALCHTRDNTIGL--------CLDSKPDTIRV----CRLDP--CP---   [799]
Homo ADAMTS13 (16306598)                           A-GLALEN-----ETCVPGADGLEAPVTEGPG-SVDEKLPAPEP----CVGMS--CPPGW   [868]
Fugu 13                                            P-GEAKQV-----VSCVRPENGQDVKVDERF--CQRLKRPADSV---PCVVNV--CPIGW   [802]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              L-GTKMRL-----VRCQTRSGHVLSESR-----CEAGTRPSEAHG---CRLRN--CT---   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            G-GTQRRR-----AICVNTRNDVLDDSK-----CTHQEKVTIQR----CSEFP--CPQ--   [1055]
Fugu 9                                             G-GTRRRG-----AACRKAAEADGDESK-----CSQRDKLTSQP----CNEFL--CPQ--   [901]
Homo ADAMTS20 (28460690)                           G-GERSRE-----SYCMNNFGHRLADNE-----CQELSRVTREN----CNEFS--CPS--   [1011]
Mus 20 (29500513)                                  G-GDKTRE-----SYCVNGFGHRLAESE-----CRELPRVVLEN----CNEFP--CPS--   [1020]
Fugu 20                                            R-GSRSRE-----SYCMNDQGRRLADRE-----CSERQRVVAES----CNDQP--CPK--   [991]
Ciona 9 (0100132719)                               G-GSQTRS-----SVCHDSRGIELNPTQ-----CEDNERVVSRT----CGNVA--CPQ--   [1164]
Apis 9                                             G-GIQYRT-----ATCIDSNQRTVSEEN-----CMGQRKVLENA----CANDP--CPK--   [909]
Drosophila CG6107 (20151419)                       T-GSQQRE-----AHCYLHNSRVSDDL------CNPRTKPHLNTLIGICNTES--CPTYT   [1232]
Caenorhabditis gon-1 CEt13h10 (3879882)            SNGKMHRK-----SYCVDDSNRRVDESL-----CGREQKEATERE---CNRIP--CPR--   [1078]
introns                                            ------------------------------------------------------------   [2]
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[                                                  1630      1640      1650      1660      1670      1680]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ----------------------WVTGDWGQ----CSAQCGLGQQMRTVQCLSYTGQASS   [1054]
Fugu 6                                             -----------------------WTPGEWGQ----CSAQCGLGQQMRTVQCLSYTGQPSN   [1058]
Ciona 6 (0100146470)                               ----------------------WVTYKWGQ----CSATCGRGTKRRRVVCIDPVTNRAS   [1073]
Homo ADAMTS10 (17432918)                           -----------------------WVAGEWGE----CSAQCGVGQRQRSVRCTSHTGQASH   [1039]
Mus 10 (27502095)                                  -----------------------WVTSEWGE----CSTQCGLGQQQRTVRCTSHTGQPSR   [1005]
Fugu 10                                            ------------------------PLWVTGPWGECSAKCGLGQEMRSVQCLTHTGQLSN   [992]
Homo ADAMTS16 (21265061)                           KLQ--------------------WLVSAWSQ----CSVTCERGTQKRFLKCAEKYVSGKY   [1088]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            KVQ--------------------WFVSTWQE----------------------DTAGKY   [1032]
Ciona 16 (0100138085)                              Q----------------------WFITAWDQ----CSVTCGEGIQRRELKCSFKGRNGRY   [948]
Homo ADAMTS18 (21265067)                           RLQ--------------------WVASSWSE----CSATCGLGVRKREMKCSEKGFQGKL   [1088]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           RVLKPNKGTISNGKNPPTLKPVPPPTSRPRMLTTPTGPESMSTSTPAISSPSPTTASKEG   [1059]
Mus 12 (27817773)                                  RVLKPHKDIAPSGKNQSTAEHDPFKPIPAPTSRPTPLSTPTVPESMSTSTPTINSLGSTI   [1064]
Fugu 12                                            -----------------------------------LQRRPGPLPKYRSIYPPRNQPTRQP   [1032]
Homo ADAMTS7 (11131377)                            -----------------------WPLGTLGPEGSGSGSSSHELFNEADFIPHHLAPRPSP   [1032]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           -----------------------WKTGDWST----CSSTCGKGLQSRVVQCMHKVTGRHG   [1035]
Homo ADAMTS19 (19525737)                           -----------------------WRMGDWSK----CSITCGKGMQSRVIQCMHKITGRHG   [1123]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           GNHQNSTVRADV-----------WELVTPEGQWVPQSGPLHPIYKISSTEPCTGDRSVFC   [1073]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------CLGDKSIF----------   [1027]
Fugu 3                                             ------------------------------------------CYGDKSIFCQMEVLARYC   [797]
Ciona 3 (0100146117)                               TETCVKER---------------WLFCRYGIQHCGIREYQKLCCLSC-------------   [997]
Homo ADAMTS2 (7656867)                             ISDPSKKSYVVQ-----------WLSRPDPDSPIRKISSKGHCQGDKSIFCRMEVLSRY-   [1079]
Mus 2 (28204840)                                   GSDPSKKSYVVQ-----------WLSRPDPDSPIQKISSKDQCQGDKSMFCRMEVLSRY-   [1080]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           GHLDATSAGEKAPSPWGSIRTGAQAAHVWTPAAGSCSVSCGRGLMELRFLCMDSALRVPV   [928]
Fugu 13                                            ESTGQSLPDTKQD-----------PVYVWSPIISKCSKTCGNGTLQLWFSCVDHQTRLGV   [851]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            -----------------------WKSGDWSE----CLVTCGKGHKHRQVWCQFGEDRLND   [1088]
Fugu 9                                             -----------------------WKTGDWSE----CLVTCGKGYKHRQTWCQFGEDRLDD   [934]
Homo ADAMTS20 (28460690)                           -----------------------WAASEWSE----CLVTCGKGTKQRQVWCQLNVDHLSD   [1044]
Mus 20 (29500513)                                  -----------------------WATSEWSE----CPVTCGKGMKQRQVWCQLSEDPMRD   [1053]
Fugu 20                                            -----------------------WSPGEWSE----CLVTCGKGVRHRQVSCSASTEEKLS   [1024]
Ciona 9 (0100132719)                               -----------------------WVVSAFSP----CMATCGSGVRHRRVWCAIRGVVRPN   [1197]
Apis 9                                             -----------------------WTFKNWSN----CSVTCGIGKQYSRYACHIENRVVPD   [942]
Drosophila CG6107 (20151419)                       KSPNALAVSN-------------WVIGEWGE----CNEWCEKTRSVS---CSHPYGIG--   [1270]
Caenorhabditis gon-1 CEt13h10 (3879882)            -----------------------WVYGHWSE----CSRSCDGGVKMRHAQCLDAADRETH   [1111]
introns                                            ------------------------------------------------------------   [2]
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[                                                  1690      1700      1710      1720      1730      1740]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            D-------CLETVRPPSMQQ--CESK-CDS---------TPISNTEECKDVNKVAYCPLV   [1095]
Fugu 6                                             E-------CSDTLRPAMMQQ--CESK-CDATPIS---------NGDECKDVNKVAYCPLV   [1099]
Ciona 6 (0100146470)                               NT------CSRNKKPKTTVS--CSSSSPSCVRS-----PVRAPAAGRCIDDPSVAYCPLV   [1120]
Homo ADAMTS10 (17432918)                           E-------CTEALRPPTTQQ--CEAK-CDS--------PTPGDGPEECKDVNKVAYCPLV   [1081]
Mus 10 (27502095)                                  E-------CTEALRPSTMQQ--CEAK-CDSV-------VPPGDGPEECKDVNKVAYCPLV   [1048]
Fugu 10                                            ECLEHQRPASMQQCKSKCDLSLPVGTDNSE----------------ECKDVNTVAYCPLV   [1036]
Homo ADAMTS16 (21265061)                           RELASKK-CSHLPKPSLELERACAPLPCPRHPPFAAAGPSRGSWFASPWSQCTASCGGGV   [1147]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            RELTDKK-CHHVPKPAVELQRPCVLKECPVR----------TTPALHRWSPYHHTFPQPL   [1081]
Ciona 16 (0100138085)                              RPVVARR-CRRARRPEVSLEKTCTLSTCPSPRPR---------WIVGTWQKCSVSCGGGL   [998]
Homo ADAMTS18 (21265067)                           ITFPERR-CRNIKKPNLDLEETCNRRACPAHPVYNMVAG----WYSLPWQQCTVTCGGGV   [1143]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           DLGGKQWQDSSTQPELSSRYLISTGSTSQPILTSQSLSIQPSEENVSSSDTGPTSEG---   [1116]
Mus 12 (27817773)                                  ASQEDANGMGWQNNSTQAEEGSHFPTSSGSTSQVPVTSWSLSIQPDDENVSSSAIGPTSE   [1124]
Fugu 12                                            PQSTRDPRSAATSATPTTSVTVMKTTAEE-------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ASSPKPG-TMGNAIEEEAPELDLPGPVFVDDFYYDYNFINFHEDLSYGPSEEPDLDLAGT   [1091]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           SE------CPALSKPAPYRQ--CYQEVCNDRINANTITSPRLAALTYKCTRDQWTVYCRV   [1087]
Homo ADAMTS19 (19525737)                           NE------CFSSEKPAAYRP--CHLQPCNEKINVN-------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           QMEVLDRYCSIPGYHRL-----CCVS-CIKKASGPNPGPDPGPTSLPP------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ---------------------------------------CQMEVLARYCSIPGYNKLCCE   [1048]
Fugu 3                                             SIPG----------------------------------------YNKLCCDSCSRRSGTLS   [818]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             --------CSIPGYNKL-----SCKS-CNLYNNLTNV-EGRIEPPPGKHNDIDVFMPTLP   [1124]
Mus 2 (28204840)                                   --------CSIPSYNKL-----CCKS-CNPPRNLSNTEDGGVEPPPGKHNDIDVFMPTLP   [1126]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           QEEL----CGLASKPGSRREV-CQAVPCPA------------RWQYKLA-ACSVSCGRGV   [970]
Fugu 13                                            EDLYCDASTKPPPQSESCSTSPCPPTWRFKQG------------------ACSVTCGGGL   [893]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            RM------CDPETKPTSMQT--CQQPECAS-------------WQAGPWGQCSVTCGQGY   [1127]
Fugu 9                                             RLCGSPKPESVQTCQQQECAS----------------------WQVGPWGQCTTSCGPGY   [972]
Homo ADAMTS20 (28460690)                           GF------CNSSTKPESLSP--CELHTCAS-------------WQVGPWGPCTTTCGHGY   [1083]
Mus 20 (29500513)                                  GF------CNASTKPESLRP--CELRACAS-------------WHVGPWGSCTATCGHGY   [1092]
Fugu 20                                            DR-------FCDPSRKPPTVGNCELPECAS-------------WKVGAWGECGVTCGHGF   [1064]
Ciona 9 (0100132719)                               NE------CSRQRKPPTTTL--CSNHDCPT-------------WSYDNWGPCSVTCGEGT   [1236]
Apis 9                                             NY------CGKPPLEITQA---CNSGPCEQ-------------WHKGDWSACSVTCGEGI   [980]
Drosophila CG6107 (20151419)                       --------CGSRKPKDVRK---CCHIKYTS-----------------DWTDCSVQCGEGV   [1302]
Caenorhabditis gon-1 CEt13h10 (3879882)            TSR-----CGPAQTQEH-----CNEHACTW-------------WQFGVWSDCSAKCGDGV   [1148]
introns                                            ------------------------------------------------------------   [2]
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[                                                  1750      1760      1770      1780      1790      1800]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            LKFKFCSRAYFRQMCCKTCQGH-------------------------------------   [1117]
Fugu 6                                             LKFKFCSRAYFRQMCCKTCQGH-------------------------------------   [1121]
Ciona 6 (0100146470)                               LQFHYCNRAYFRKACCATCSK--------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           LKFQFCSRAYFRQMCCKTCQGH-------------------------------------   [1103]
Mus 10 (27502095)                                  LKFQFCSRAYFRQMCCKTCQGR-------------------------------------   [1070]
Fugu 10                                            LRFKFCSRPYFRQMCCKTCQGH-------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           QTRSVQCLAGGRPASG--------CLLH-QK-PSASLACNTHF-CP--------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            PHPPPPAEWRSSPWSQ-------------------------------------------   [1097]
Ciona 16 (0100138085)                              QMRAVRCLQFGRPSHSCSISSKAPNKRA-CN-TYKCRKKIQTA-CEDTFKWCYLVP---Q   [1052]
Homo ADAMTS18 (21265067)                           QTRSVHCVQQGRPSSS--------CLLH-QK-PPVLRACNTNF-CP--------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           -GLVATTTSGSGLSSSRNPITWPVTPFY-NT-LTKGPEMEIHS-GSGEEREQPEDK---D   [1169]
Mus 12 (27817773)                                  GDFWATTTSDSGLSSSDA-MTWQVTPFY-ST-MTTDPEVEIHS-GSGEDSDQPLNK---D   [1177]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            GDRTPPPHSRPAAPSTGSPVPATEPPAA-KE-EGVLGPWSPSP-WPSQAGRSPPPP---S   [1145]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           IREKNLCQDMRWYQRCCQTCRDFYANKM-RQ-PPPSS-----------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             SCSKRSSTLPPPYLLEAAETHDDVISNP-SD-LPRSLVMPTSL-VPYHSETPAKKM---S   [1102]
Fugu 3                                             MFAEAAETEEDLRFGSASQLLETLTAS---------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             VPTVAMEVRPSPSTPLEVPLNASSTNAT-ED-HPETNAVDEPY-KIHGLEDEVQPP---N   [1178]
Mus 2 (28204840)                                   GPTVATQVQPSPGPPLEAPLNVSSTNAT-ED-HPETNAVDVPY-KIHGVDEEVPSP---N   [1180]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           VRRILYCARAHGEDDGEEILLDTQCQGL-PR-PEPQEACSLEP-CPPRWKVMSLGP---C   [1024]
Fugu 13                                            ANRVLYCGREAGGEEEEVLE-DSDCSHS-VK-PTAVVSCNGHS-CPARWKVSRTSP---C   [946]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            QLRAVKCIIGTYMSVVDDND----CNAA-TR-PTDTQ-CSAT--CGKGTRMRYVSCRDEN   [1178]
Fugu 9                                             QMRAVKCVVGPYGSVVDDTE----CNAA-TR-PTETQ-CSAS--CGKGTRMRYVSCRD-N   [1022]
Homo ADAMTS20 (28460690)                           QMRDVKCVNELASAVLEDTE----CHEA-SR-PSDRQ-CSVS--CGRGTQARYVSCRDAL   [1134]
Mus 20 (29500513)                                  QMRAVKCISEIFGTMLDDRE----CPQA-SR-PSDRQDCILAP-CLAIPEVGATSL----   [1141]
Fugu 20                                            QMRAVRCVSGSYGDRVDDRE----CNAA-VR-PRDSQ-CSVS--CGKGKRARYVSCRDAR   [1115]
Ciona 9 (0100132719)                               SVRLYRCVDHASTAVDDGL-----CNTALLR-PDTRA-CYAQRACDVSRISRTYDNDGFP   [1289]
Apis 9                                             KRRKVICKTLDGITSNK-------CSA--SNKPDNITACILKS-CPTVNVTPIKYSSDPP   [1030]
Drosophila CG6107 (20151419)                       KRKKQSCTRVYKPDVPGTRKRRVYV----DE-S-YCISRKVHR-PKLRTTTKS-CR---I   [1351]
Caenorhabditis gon-1 CEt13h10 (3879882)            QYRDANCTDRHRSVLPEHR-----CLKM-EK-IIT-KPCHRES-CPKYKLGEWSQ----C   [1195]
introns                                            ------------------------------------------------------------   [2]
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[                                                   1810      1820      1830      1840      1850      1860]
[                                                   .         .         .         .         .         .]

mask                                                ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                             ------------------------------------------------------------   [1117]
Fugu 6                                              ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                                ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                            ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                   ------------------------------------------------------------   [1070]
Fugu 10                                             ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                            ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                   ------------------------------------------------------------   [900]
Fugu 16                                             ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                               HGQCSHKYFGVACCK--TCKA-SS---GNR------------------------------   [1076]
Homo ADAMTS18 (21265067)                            ------------------------------------------------------------   [1178]
Fugu 18                                             ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                            ESNPVIWTKIRVPGN--DAPV-E----STEMPLAPPLTPDLSRESWWPPFSTVMEGLLPS   [1222]
Mus 12 (27817773)                                   KSNSVIWNKIGVPEH--DAPM-ET---DAELPLGPPPTSYMGEEPSWPPFSTKMEGSLPA   [1231]
Fugu 12                                             ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                             EQTPGNPLINFLPEE--DTPI-GA---PDLGLPSLSWPRVSTDGLQTPATPESQNDFPVG   [1199]
Fugu 7                                              ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                          ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                            ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                            ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                       ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                            ------------------------------------------------------------   [1115]
Fugu 14                                             ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                              LSSISSVGGPNAYAA--FRPN-SK---PDGANLRQRSAQQAGSKTVRLVTVPSSPPTKRV   [1156]
Fugu 3                                              ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                                ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                              LIPRRPSPYEKTRNQ--RIQE-LI---DEMRKKEMLGKF---------------------   [1211]
Mus 2 (28204840)                                    LIPRRPSLYVKTRNQ--RIQE-LI---NAVQRKEKPGKF---------------------   [1213]
Fugu 2                                              ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                            SASCGLGTARRSVAC--VQLD-QG---QDVEVDEAACAALVRPEASVPCLIADCTYRWHV   [1078]
Fugu 13                                             SASCDLGIAQRAVSC--VRFI-NG---TESAVAEEKCHAGVKPATSVPCLVQVCTFRWEV   [1000]
Homo ADAMTS1 (6525075)                              ------------------------------------------------------------   [967]
Mus 1 (1813340)                                     ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                             ------------------------------------------------------------   [837]
Mus 4 (26350615)                                    ------------------------------------------------------------   [845]
Fugu 4                                              ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                             ------------------------------------------------------------   [890]
Mus 8 (6708110)                                     ------------------------------------------------------------   [905]
Fugu 8                                              ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                              ------------------------------------------------------------   [930]
Mus 5 (5923784)                                     ------------------------------------------------------------   [930]
Fugu 5                                              ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                               ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                            ------------------------------------------------------------   [950]
Fugu 15                                             ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                             -GS---VADESAC-ATLPRPVAKEE-CSVTPCGQWKALDW--------------------   [1212]
Fugu 9                                              QGG---VADESAC-AHLPKPPAREV-CSVVACGQWKVLEW--------------------   [1057]
Homo ADAMTS20 (28460690)                            -DR---IADESYC-AHLPRPAEIWD-C-FTPCGEWQAGDW--------------------   [1167]
Mus 20 (29500513)                                   -----------------PAIPLGRA-------AQWRHGSWTPCSVSCGRGSQARYVSCRD   [1177]
Fugu 20                                             GGVA-----DESQCTHLPRPPELST-C-FSPCGKWRAGEWSPCSVTCGVGKMTRHVDCSN   [1168]
Ciona 9 (0100132719)                                SI-----------------------------NARWRTGSWTPCSSSCGSGVRERYVSCRL   [1320]
Apis 9                                              YEIPSQQDNEVHDIIFHYGYKWHTETQKCSKPCIKGYMNTTVKCVSIETGIVAPDRYCDN   [1090]
Drosophila CG6107 (20151419)                        NCK--WNASDWRRCPADCSEE-YQ---TRDVRCESFQGDGVEDKHCDAKKRPSKRRICNN   [1405]
Caenorhabditis gon-1 CEt13h10 (3879882)             SVSCEDGWSSRRVSC--VSGN-GT---EVDMSLC-GTASDRPASHQTCNLGTCPF--WRN   [1246]
introns                                             ------------------------------------------------------------   [2]
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[                                                  1870      1880      1890      1900      1910      1920]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           Q-RPTTSE-TGTPRVEGMVTEKPANTLLP-LGGDHQPEPSGKTANRNHLKLPNNMNQTKS   [1279]
Mus 12 (27817773)                                  W-SFKNET-PRDDGMIAEKSRKIPLPLAG-DH---HPATSEKLENHDKLALPNTTNPTQG   [1285]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            K-DSQSQL-PPPWRDRTNEVFKDDEEPKG-RGAPHLPPRPSSTLPPLSPVGSTHSSPSPD   [1256]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             H-LSSASQ-MAAASFFAASDSIGASSQAR-TSKKDGKIIDNRRPTRSSTLER--------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           G-TWMECS-VSCGDGIQRRRDTCLGPQAQ-APVPADFCQHLPKPVTVRGCWAGPCVGQGT   [1135]
Fugu 13                                            K-PWSQCS-VSCGYGIQSRAVSCMGPSHP-QPLSPMLCMHMPKPITIQSCSTGSCSEERP   [1057]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ----SSCS-VTCGQGRATRQVMCVNYSDH-VIDRSECDQDYIPETDQDCSMSPCPQRTPD   [1266]
Fugu 9                                             ----TACS-VTCGQGKTTRQVLCVNFSDQ-EVNASECDPDDRPATEQDCAMSQCPSRSSE   [1111]
Homo ADAMTS20 (28460690)                           ----SPCS-ASCGHGKTTRQVLCMNYHQP-IDENY-CDPEVRPLMEQECSLAACPPAHSH   [1220]
Mus 20 (29500513)                                  AHDEVADESNCAHLPRPAAVSLCFSPCGEWQAGYWSPCSASCGHGKTTRRVLCVNYHQLV   [1237]
Fugu 20                                            YHQSVDPSFCDPDEKPATEQECIAAPCPSVYRRQRINDQPY-------------------   [1209]
Ciona 9 (0100132719)                               IRSDVVAPEEECGSSESRPAARETCEDSPCHGTWRTGVWTECSVSCDGGTRTRYVRCLYN   [1380]
Apis 9                                             EKKPSTEIPCNRFHCPIWITSDWGQFGSNENVLQCSKSCGTGLQRRRVECTMRRGNHGPE   [1150]
Drosophila CG6107 (20151419)                       C-VRRQSR-VISQCNCEGVEKRRDFCFNS-HKGRIACPTRARVER-HSCTPPPHCRRRSA   [1461]
Caenorhabditis gon-1 CEt13h10 (3879882)            T-DWSACS-VSCGIGHRERTTECIYREQS-VDASF-CGDTKMPETSQTCHLLPCTS----   [1298]
introns                                            ------------------------------------------------------------   [2]
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AC Nicholson, SB Malik, JM Logsdon Jr, E van Meir, 2004. Functional evolution of ADAMTS genes: evidence]
[from analyses of phylogeny and gene organization. Contact: john-logsdon@uiowa.edu]
[Intron phases marked 0, 1, 2]

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[                                                  1930      1940      1950      1960      1970      1980]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           SEPVLTEEDATSLITEGFLLNASN-------YKQLTNGHGSAHWI--VGNWSECSTTCGL   [1330]
Mus 12 (27817773)                                  FGPVLTEEDASNLIAEGFLLNASD-------YKHLMKDHSPAYWI--VGNWSKCSTTCGL   [1336]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            VAELWTGGTVAWEPALEGGLGPVD-------SELWPTVGVASLLP--PPIAPLPEMKVRD   [1307]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           PSLVPHEEAAAPGRTTATPAGASL-------EWSQARGLLFSPAP--QPRRLLPGPQENS   [1186]
Fugu 13                                            SHAGTPLQPTARTAPPGPTEASTV-------LQNLTTPIPVTKMS--QCPESTFGNRTVL   [1108]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            SGLAQHPFQNEDYRPRSAS---------------PSRTHVLGGNQ--WRTGPWGACSSTC   [1309]
Fugu 9                                             PRPFPSSPNTSARNNLPHN-------------------------------------------   [1130]
Homo ADAMTS20 (28460690)                           FPSSPVQPSYYLSTNLPLTQKLED-------NENQVVHPSVRGNQ--WRTGPWGSCSSSC   [1271]
Mus 20 (29500513)                                  DESYCDPEGRPVTEQECSLAACPPLYSRAPSSSEQPSHVPSRNVPLTHKPGENQDQGAQL   [1297]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               GRYQDDGQHCLPQDKPSEDEICSSAPCPTTTTTTTSTTTTTSTTTSTTTSATTTTATTTT   [1440]
Apis 9                                             VTVRDEHCSRLGLRKPRSQRPCRRIACNYIWQEGPWSEKIVTHQQ---------------   [1195]
Drosophila CG6107 (20151419)                       IGSSISSRPRGTGVSSSRSLNSIG-------GSRNRGTPRSCADL--KEMHGYNKDGNYQ   [1512]
Caenorhabditis gon-1 CEt13h10 (3879882)            ------------------------------------------------WKPSHWSPCSVTC   [1311]
introns                                            ------------------------------------------------------------   [2]
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[                                                  1990      2000      2010      2020      2030      2040]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           GAYWKRVECTTQMDSDCAAIQRPDPAKRCHLRPCAGWKVGNWSKCSRNCSGGFKIREIQC   [1390]
Mus 12 (27817773)                                  GAYWRSVECSSGVDADCTTIQRPDPAKKCHLRPCAGWRVGNWSKCSRNCSGGFKIREVQC   [1396]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            SSLEPGTPSFPAPGPGSWDLQTVAVWGTFLPTTLTGLGHMPEPALNPGPKGQPESLSPEV   [1367]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           VQSSACGRQHLEPTGTIDMRGPGQADCAVAIGRPLGEVVTLRVLESSLNCSAGDMLLLWG   [1246]
Fugu 13                                            LRQNRFILLALGLTRSMWAPSPAAIRHCGPEG----------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            AGGSQRRVVVCQDENGYTAND---CVERIKPDEQRACESGPCPQ---------------W   [1351]
Fugu 9                                             -------------------------------------------------------QSHQW   [1135]
Homo ADAMTS20 (28460690)                           SGGLQHRAVVCQDENGQSASY---CDAASKPPELQQCGPGPCPQ---------------W   [1313]
Mus 20 (29500513)                                  SIRGNQWRTGPWGACSRSCAGGLQHRAVVCQDEDGRSATSCDGSSKPPESRHCGSGPCPH   [1357]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ATTTNEPTTIYESNRTRLGHWRTGPWSQCSSTCGGGTQKRAVVCYSPHSAKADCDSLDPP   [1500]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       LEVRSRMVHIYCHGMNSRTPQEYVNVDPQENYSIYYEYRTKQTNSCPPESRGHEYYNDQN   [1572]
Caenorhabditis gon-1 CEt13h10 (3879882)            GSGIQTRSVSCTRGSEGTIVDEYFCDRNTRPRLKKTCEKDTCDGPRVLQKLQADVPPIRW   [1371]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2050      2060      2070      2080      2090      2100]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           VDSRD-HRNLRPFHCQFLAGIPPPLSMSCNPEPCEAWQV-EPWSQCSRSCGGGVQERGVF   [1448]
Mus 12 (27817773)                                  MDSLDHHRSLRPFHCQFLAGAPPPLSMSCNLEPCGEWQV-EPWSQCSRSCGGGVQERGVS   [1455]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            PLSSRLLSTPAWDSPANSHRVPETQPLAPSLAEAGPPAD-PLVVRNASWQAGNWSECSTT   [1426]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           RLTWRKMCRKLLDMTFSSKTNTLVVRQRCGRPGGGVLLR-YGSQLAPETFYRECDMQLFG   [1305]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            AYGNWGECTKLCGGGIRTRLVVCQRSNGERFPDLSCEIL-DKPPDREQCNTHACPHDAAW   [1410]
Fugu 9                                             RTGPWGACTKPCGGGIKTRLVVCQRPNGERFNDLSCEIH-DKPPDREQCNTQPCPSNPHW   [1194]
Homo ADAMTS20 (28460690)                           NYGNWGECSQTCGGGIKSRLVICQFPNGQILEDHNCEIV-NKPPSVIQCHMHACPADVSW   [1372]
Mus 20 (29500513)                                  WNYGDWGECTQTCGGGVKSRFVICQFPNGQMTQEHSCELPKPPSMMQCHLHACPEDVSWY   [1417]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               PSIQLCNADACPRWKRGRWGKCSKTCNGGRRLRNVYCVMSDGRSTYKHRCNVILKPVEIE   [1560]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       SGRTHFRKLRLNITDLRIMDNDFKFADSRGLAQKLGSAG-DCYNRIGQCPQGDFSINMKD   [1631]
Caenorhabditis gon-1 CEt13h10 (3879882)            ATGPWTACSATCGNGTQRRLLKCRDHVRDLPDEY-CNHL-DKEVSTRNCRLRDCSY---W   [1426]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2110      2120      2130      2140      2150      2160]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           CPGGLCDWTKRPTSTMSCNEHLCCH-----------------------------------   [1473]
Mus 12 (27817773)                                  CPGGLCDWTKRPATTVPCNRHLCCH-----------------------------------   [1480]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            CGLGAVWRPVRCSSGRDEDCAPAGRPQPARRCHLRPCAT---------------------   [1465]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           PWGEIVSPSLSPATSNAGGCRLFINVAPHARIAIHALATNMGAGTEGANASY--ILIRDT   [1363]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            STGPWSSCSVSCGRGHKQRNVY-CMAKDGSHLESDY--CKHLA-KPHGHRKC--RGGRCP   [1464]
Fugu 9                                             SADTWSSCSASCGRGFRSRTVS-CVAASGLVISEEN--CQGLSPKPSRQRRC--RGGRCP   [1249]
Homo ADAMTS20 (28460690)                           HQEPWTSCSASCGKGRKYREVF-CIDQFQRKLEDTN--CSQVQ-KPPTHKAC--RSVRCP   [1426]
Mus 20 (29500513)                                  RGPWKSCSASCGKGVKYREVLCIDQFQRKLEEKYCSHLHKPRTHKACRSGRCPSWKANKW   [1477]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               PCRTMTCPGAHRWRKSAWSACSASCGRGTKNRNVNCLNANGETVADAKCLLHRTKPRVVR   [1620]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       TDFSIRPGTVWRMHGQYSVMKRISEFDTTTQMRRGFCGGYCGGCYIAPDSGL--YLDVL-   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            KMAEWEECPATCGTHVQQSRNVTCVSAEDGGRTILKDVDCDVQKRPTSARNC--RLEPCP   [1484]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2170      2180      2190      2200      2210      2220]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           --------WATGNWDLCSTSCGGGFQKRIVQCVPS---EGNK---TEDQDQCLCDHKPRP   [1519]
Mus 12 (27817773)                                  --------WATGNWELCNTSCGGGSQKRTIHCIPS---ENST---TEDQDQCLCDHQVKP   [1526]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            --------WHSGNWSKCSRSCGGGSSVRDVQCVDT---RDLR---PLRPFHCQPG-PAKP   [1510]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           HSLRTTAFHGQQVLYWESESSQAEMEFSEGFLKAQ---ASLR---GQYWTLQSWVPEMQD   [1417]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            K-------WKAGAWSQCSVSCGRGVQQRHVGCQIG---THKI---ARETECNPYTRPESE   [1511]
Fugu 9                                             -------KWKTGNWGECSASCGDGVQQREVFCQVG---DQRI---PEESGCSRRSRPPSS   [1296]
Homo ADAMTS20 (28460690)                           S-------WKANSWNECSVTCGSGVQQRDVYCRLK---GVGQ---VVEEMCDQSTRPCSQ   [1473]
Mus 20 (29500513)                                  KECSVTCGSGVQQREVYCRLRGTGRVSEDMCDPSTRP-QGQR---QCWRQDCMRYQWTTG   [1533]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               RCVKQRRCPRWRTGRWNQCSASCGVGIQLRRVNCRYK-RKVI---VDEL-CDVNSRPDDV   [1675]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            KGEEHIGSWIIGDWSKCSASCGGGWRRRSVSCTSS---SCDE---TRKPKMFDKCNEELC   [1538]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2230      2240      2250      2260      2270      2280]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           PEFKKC-NQQACKKSADLLCTKDKLSASFCQTLKAMKKCSVPTVRAECCFSCPQTHITHT   [1578]
Mus 12 (27817773)                                  PEFQTC-NQQACRKSADLTCLKDRLSISFCQTLKSMRKCSVPSVRAQCCLSCPQAPSIHT   [1585]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            PAHRPC-GAQPCLSWYTSSWRECSEACGGGEQQRLVTCPEPGLCEEALRPNTTRPCNTHP   [1569]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           PQSWKG-KEGT--------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            RDCQGP-RCPLYTWRAEEWQECTKTCGEGSRYRKVVCVDDNKNEVHGARCDVSKRPVDRE   [1570]
Fugu 9                                             QSCRVAGCPSRYRWREADWQRCSKTCGGGHRRRALKCEDHNRQEIHEMYCANLIRPPDVE   [1356]
Homo ADAMTS20 (28460690)                           RRC----------WSQDCVQHKGMERGRLNCANNCGFSYRQRITYCTEIPSTKKHKLHRL   [1523]
Mus 20 (29500513)                                  DWLDCSTSCKKKETYRLVKCVNEQNVQANESLCDPLTKPLSIKKCRNPHCKYSVVTGDSS   [1593]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               TRCNVT----------DCPSHKWHAERWRPCSVSCGEGTMTRVVTCRSLPHNIVVDPSLC   [1725]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            PPLTNN-S-----WQISPWTHCSVSCGGGVQRRKIWCEDVLSGRKQDDIECSEIKPREQR   [1592]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2290      2300      2310      2320      2330      2340]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1182]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1178]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           QRQRRQRLLQKSKEL-----------------------------------------------   [1593]
Mus 12 (27817773)                                  QRQRKQQLLQNHDML-----------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            CTQ-------WVVGPWGQCSAPCGGGVQRRLVKCVNTQTGLPEEDSDQCGHEAWPESSRP   [1622]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1150]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            SCSLHPCEYVWITGEWSECSVTCGKGYKQRLVSCSEIYTGKENYEYSSQTTINCPGTQPP   [1630]
Fugu 9                                             RCNDHACEVVWITGEWTECSASCGQGYRQRLISCSEVPVEGENYQYGHQSLSNCPGTPPE   [1416]
Homo ADAMTS20 (28460690)                           RPIVYQECPVVPSSQVYQCINSCLHLATWKVGKWSKCSVTCGIGIMKRQVKCITKHGLSS   [1583]
Mus 20 (29500513)                                  QCAGNCGFTSPQKITYCTKIQSSKKHTFHQLRPVVYGECPVIPSPQAYKCDLRSCLHVAT   [1653]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               NTELVTERPLA--SQ--QCNNGPCN-AFWRAGAWSECTKSCGPGIQRRPVKCSYVDPMTY   [1780]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            DCEMPPCRSHYHNKTSSASMTSLSSSNSNTTSSASASSLPILPPVVSWQTSAWSACSAKC   [1652]
introns                                            ------------------------------------------------------------   [2]
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[                                                 2350      2360      2370      2380      2390      2400]
[                                                 .         .         .         .         .         .]

mask                                              ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                           ------------------------------------------------------------   [1117]
Fugu 6                                            ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                              ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                          ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                 ------------------------------------------------------------   [1070]
Fugu 10                                           ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                          ---------------------------------------------------IAEKK-D   [1188]
Mus 16 (21961374)                                 ------------------------------------------------------------   [900]
Fugu 16                                           ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                             ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                          ---------------------------------------------------APEKRED   [1185]
Fugu 18                                           ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                          ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                 ------------------------------------------------------------   [1600]
Fugu 12                                           ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                           CGTEDCEPVEPPRCERDRLSFGFCETLRLLGRCQLPTIRTQCCRSCSPPSHGAPSRGHQR   [1682]
Fugu 7                                            ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                        ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                          ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                          ---------------------------------------------------TITSPRLAAL   [1160]
Drosophila dCG4096 (22831757)                     ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                          ------------------------------------------------------------   [1115]
Fugu 14                                           ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                            ------------------------------------------------------------   [1205]
Fugu 3                                            ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                              ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                            ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                  ------------------------------------------------------------   [1213]
Fugu 2                                            ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                          ------------------------------------------------------------   [1427]
Fugu 13                                           ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                            ------------------------------------------------------------   [967]
Mus 1 (1813340)                                   ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                           ------------------------------------------------------------   [837]
Mus 4 (26350615)                                  ------------------------------------------------------------   [845]
Fugu 4                                            ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                           ------------------------------------------------------------   [890]
Mus 8 (6708110)                                   ------------------------------------------------------------   [905]
Fugu 8                                            ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                            ------------------------------------------------------------   [930]
Mus 5 (5923784)                                   ------------------------------------------------------------   [930]
Fugu 5                                            ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                             ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                          ------------------------------------------------------------   [950]
Fugu 15                                           ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                           SVHPCYLRDCPVSATWRVGNWGSCSVSCGVGVMQRSVQCLNNAVQPSHLCRSDLKPEERK   [1690]
Fugu 9                                            SYMPCHLDPCPSPQAWRVGIWGPCSASCGEGVMERLVQCLAHGQESHGCSLDDKPEARKV   [1476]
Homo ADAMTS20 (28460690)                          DLCLNHLKPGAQKKCYANDCKS------------------------------FTTCKEI   [1612]
Mus 20 (29500513)                                 WKVGKWSKCSVTCGIGIMERRVACRTENGWPSDLCLKRLKPDAQKKCYANDCKLLTTCKE   [1713]
Fugu 20                                           ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                              KEKTVTSCRLTTRPYAVRDCDRGRCDSEVYWRVGSWSEVS--------------------   [1820]
Apis 9                                            ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                      ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)           GRGTKRRVVECVNPSLNVTVASTECDQTKKPVEEVRCRTKHCPRWKTTTWSSCSVTCGRG   [1712]
introns                                           ------------------------------------------------------------   [2]
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```
[                                                  2410      2420      2430      2440      2450      2460]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           AFCKDYFHWCYLVPQHGMCSHKFYGKQCCKTCSKSNL------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           PSCVDFFNWCHLVPQHGVCNHKFYGKQCCKSCTRKI------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            VARR--------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           TFKCLGDQWPVYCRVIREKNLCQDMRWYQRCCETCRDFYAQKLQQKS-------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            TCRNVYN-----------------------------------------------------   [1697]
Fugu 9                                             CRNPSCEFRHCFAPDVCFPTCLCFVATAARNHFLLSRPFIFRSFAS--------------   [1522]
Homo ADAMTS20 (28460690)                           QVKN-HIRKDGDYYLNIKGRIIKVL-----------------------------------   [1636]
Mus 20 (29500513)                                  LQVTNNVTKDGDYDLNVRGRILKIHCSGMQLENPREYLPLVKSEDNFSEIYGLRLQNPYE   [1773]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            IRRREVQCYRGRKNLVSDSECNPKTKLNSVANCFPVACPAYRWNVTPWSKCKDECARGQK   [1772]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2470      2480      2490      2500      2510      2520]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  CPFNGSRRPDCACENDYLPAGYTVFSKVRVDLESMQIKTADLLFSQTLSGKAVPFATAGD   [1833]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            QTRRVHCISTSGKRAAPRMCELARAPTSIRECDTSNCPYEWVPGDWQTCSKSCGEGVQTR   [1832]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2530      2540      2550      2560      2570      2580]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  CYSAARCPQGQFSINLAGTGMKISNTAKWLAQGRYASVIIHRSQDGTKVYGRCGGFCGKC   [1893]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            EVRCRRKINFNSTIPIIFMLEDEPAVPKEKCELFPKPNESQTCELNPCDSEFKWSFGPWG   [1892]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2590      2600      2610      2620      2630      2640]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  IPHMATGLSIQVL-------------------------------------------------   [1906]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            ECSKNCGQGIRRRRVKCVANDGRRVERVKCTTKKPRRTQYCFERNCLPSTCQELKSQNVK   [1952]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2650      2660      2670      2680      2690      2700]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  ------------------------------------------------------------   [1906]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            AKDGNYTILLDGFTIEIYCHRMNSTIPKAYLNVNPRTNFAEVYGKKLIYPHTCPFNGDRN   [2012]
introns                                            ------------------------------------------------------------   [2]
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[                                                  2710      2720      2730      2740      2750      2760]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  ------------------------------------------------------------   [1906]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            DSCHCSEDGDASAGLTRFNKVRIDLLNRKFHLADYTFAKREYGVHVPYGTAGDCYSMKDC   [2072]
introns                                            ------------------------------------------------------------   [2]
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```
[                                                  2770      2780      2790      2800      2810      2820]
[                                                  .         .         .         .         .         .]

mask                                               ------------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                            ------------------------------------------------------------   [1117]
Fugu 6                                             ------------------------------------------------------------   [1121]
Ciona 6 (0100146470)                               ------------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                           ------------------------------------------------------------   [1103]
Mus 10 (27502095)                                  ------------------------------------------------------------   [1070]
Fugu 10                                            ------------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                           ------------------------------------------------------------   [1225]
Mus 16 (21961374)                                  ------------------------------------------------------------   [900]
Fugu 16                                            ------------------------------------------------------------   [1097]
Ciona 16 (0100138085)                              ------------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                           ------------------------------------------------------------   [1221]
Fugu 18                                            ------------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                           ------------------------------------------------------------   [1593]
Mus 12 (27817773)                                  ------------------------------------------------------------   [1600]
Fugu 12                                            ------------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                            ------------------------------------------------------------   [1686]
Fugu 7                                             ------------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                         ------------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                           ------------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                           ------------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)                      ------------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                           ------------------------------------------------------------   [1115]
Fugu 14                                            ------------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                             ------------------------------------------------------------   [1205]
Fugu 3                                             ------------------------------------------------------------   [845]
Ciona 3 (0100146117)                               ------------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                             ------------------------------------------------------------   [1211]
Mus 2 (28204840)                                   ------------------------------------------------------------   [1213]
Fugu 2                                             ------------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                           ------------------------------------------------------------   [1427]
Fugu 13                                            ------------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                             ------------------------------------------------------------   [967]
Mus 1 (1813340)                                    ------------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                            ------------------------------------------------------------   [837]
Mus 4 (26350615)                                   ------------------------------------------------------------   [845]
Fugu 4                                             ------------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                            ------------------------------------------------------------   [890]
Mus 8 (6708110)                                    ------------------------------------------------------------   [905]
Fugu 8                                             ------------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                             ------------------------------------------------------------   [930]
Mus 5 (5923784)                                    ------------------------------------------------------------   [930]
Fugu 5                                             ------------------------------------------------------------   [921]
Ciona 15 (0100137065)                              ------------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                           ------------------------------------------------------------   [950]
Fugu 15                                            ------------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                            ------------------------------------------------------------   [1697]
Fugu 9                                             ------------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                           ------------------------------------------------------------   [1636]
Mus 20 (29500513)                                  ------------------------------------------------------------   [1906]
Fugu 20                                            ------------------------------------------------------------   [1209]
Ciona 9 (0100132719)                               ------------------------------------------------------------   [1820]
Apis 9                                             ------------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                       ------------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)            PQGIFSIDLKSAGLKLVDDLNWEDQGHRTSSRIDRFYNNAKVIGHCGGFCGKCSPERYKG   [2132]
introns                                            ------------------------------------------------------------   [2]
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[                                                 2830      2840      2850      2860      2870  ]
[                                                 .         .         .         .         .    ]

mask                                        -------------------------------------------------------   [571]
Homo ADAMTS6 (11131380)                     -------------------------------------------------------   [1117]
Fugu 6                                      -------------------------------------------------------   [1121]
Ciona 6 (0100146470)                        -------------------------------------------------------   [1141]
Homo ADAMTS10 (17432918)                    -------------------------------------------------------   [1103]
Mus 10 (27502095)                           -------------------------------------------------------   [1070]
Fugu 10                                     -------------------------------------------------------   [1058]
Homo ADAMTS16 (21265061)                    -------------------------------------------------------   [1225]
Mus 16 (21961374)                           -------------------------------------------------------   [900]
Fugu 16                                     -------------------------------------------------------   [1097]
Ciona 16 (0100138085)                       -------------------------------------------------------   [1076]
Homo ADAMTS18 (21265067)                    -------------------------------------------------------   [1221]
Fugu 18                                     -------------------------------------------------------   [742]
Homo ADAMTS12 (13569928)                    -------------------------------------------------------   [1593]
Mus 12 (27817773)                           -------------------------------------------------------   [1600]
Fugu 12                                     -------------------------------------------------------   [1061]
Homo ADAMTS7 (11131377)                     -------------------------------------------------------   [1686]
Fugu 7                                      -------------------------------------------------------   [930]
Ciona 7 (genewise.34.12.1)                  -------------------------------------------------------   [965]
Homo ADAMTS17 (21265064)                    -------------------------------------------------------   [1122]
Homo ADAMTS19 (19525737)                    -------------------------------------------------------   [1207]
Drosophila dCG4096 (22831757)               -------------------------------------------------------   [1054]
Homo ADAMTS14 (29337086)                    -------------------------------------------------------   [1115]
Fugu 14                                     -------------------------------------------------------   [991]
Homo ADAMTS3 (2224673)                      -------------------------------------------------------   [1205]
Fugu 3                                      -------------------------------------------------------   [845]
Ciona 3 (0100146117)                        -------------------------------------------------------   [997]
Homo ADAMTS2 (7656867)                      -------------------------------------------------------   [1211]
Mus 2 (28204840)                            -------------------------------------------------------   [1213]
Fugu 2                                      -------------------------------------------------------   [799]
Homo ADAMTS13 (16306598)                    -------------------------------------------------------   [1427]
Fugu 13                                     -------------------------------------------------------   [1140]
Homo ADAMTS1 (6525075)                      -------------------------------------------------------   [967]
Mus 1 (1813340)                             -------------------------------------------------------   [951]
Homo ADAMTS4 (12643637)                     -------------------------------------------------------   [837]
Mus 4 (26350615)                            -------------------------------------------------------   [845]
Fugu 4                                      -------------------------------------------------------   [695]
Homo ADAMTS8 (21536392)                     -------------------------------------------------------   [890]
Mus 8 (6708110)                             -------------------------------------------------------   [905]
Fugu 8                                      -------------------------------------------------------   [867]
Homo ADAMTS5 (7768707)                      -------------------------------------------------------   [930]
Mus 5 (5923784)                             -------------------------------------------------------   [930]
Fugu 5                                      -------------------------------------------------------   [921]
Ciona 15 (0100137065)                       -------------------------------------------------------   [987]
Homo ADAMTS15 (19171175)                    -------------------------------------------------------   [950]
Fugu 15                                     -------------------------------------------------------   [891]
Homo ADAMTS9 (27463365)                     -------------------------------------------------------   [1697]
Fugu 9                                      -------------------------------------------------------   [1522]
Homo ADAMTS20 (28460690)                    -------------------------------------------------------   [1636]
Mus 20 (29500513)                           -------------------------------------------------------   [1906]
Fugu 20                                     -------------------------------------------------------   [1209]
Ciona 9 (0100132719)                        -------------------------------------------------------   [1820]
Apis 9                                      -------------------------------------------------------   [1195]
Drosophila CG6107 (20151419)                -------------------------------------------------------   [1688]
Caenorhabditis gon-1 CEt13h10 (3879882)     LIFEVNTKLLNHVKNGGHIDDELDDDGFSGDMD----------------------   [2165]
introns                                     -------------------------------------------------------   [2]
;
END;
```