

Supplementary Materials: Molecular Evolution of the TET Gene Family in Mammals

Hirohichi Akahori, Stéphane Guindon, Sumio Yoshizaki and Yoshinori Muto

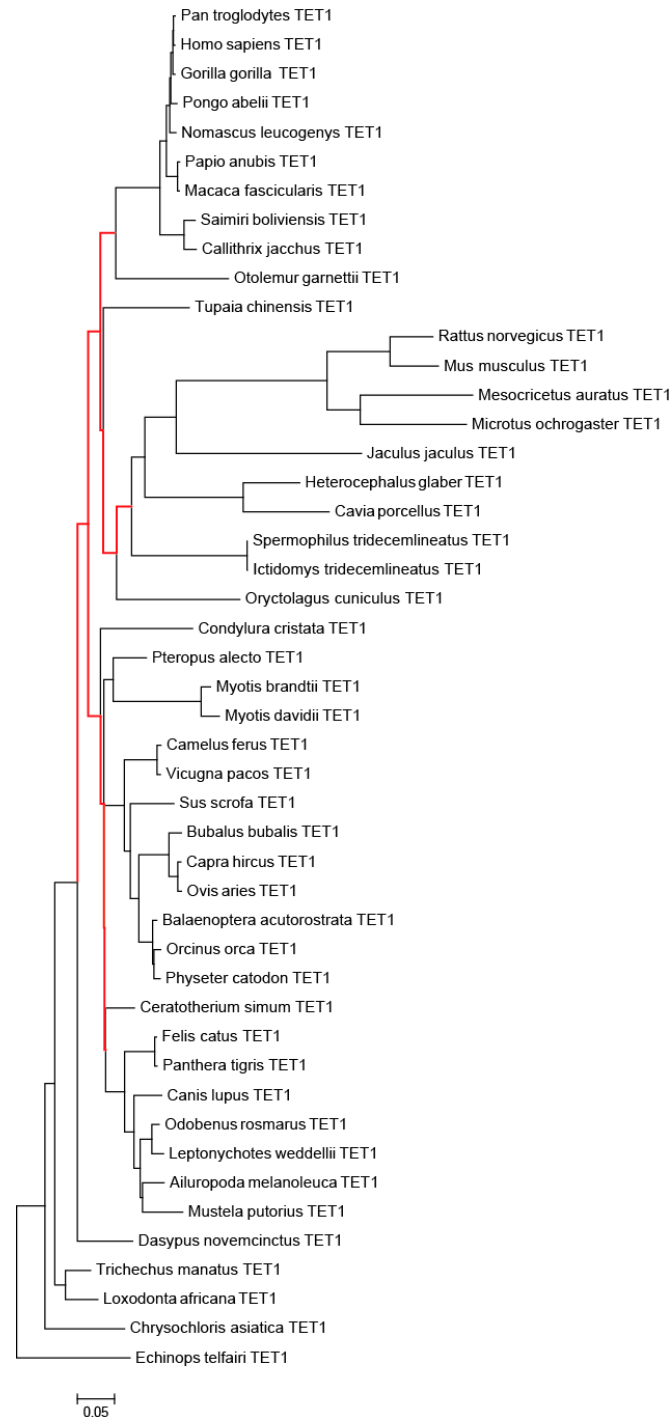


Figure S1. Maximum-likelihood tree of the TET1 genes. The tree was constructed using PhyML v3.0 software, based on the nucleotide-coding sequences. Branches with the number of sites under positive selection ($\omega_3 = 1.34$) greater than the 90th percentile in the Fitmodel analysis (Figure S4) are shown in red.

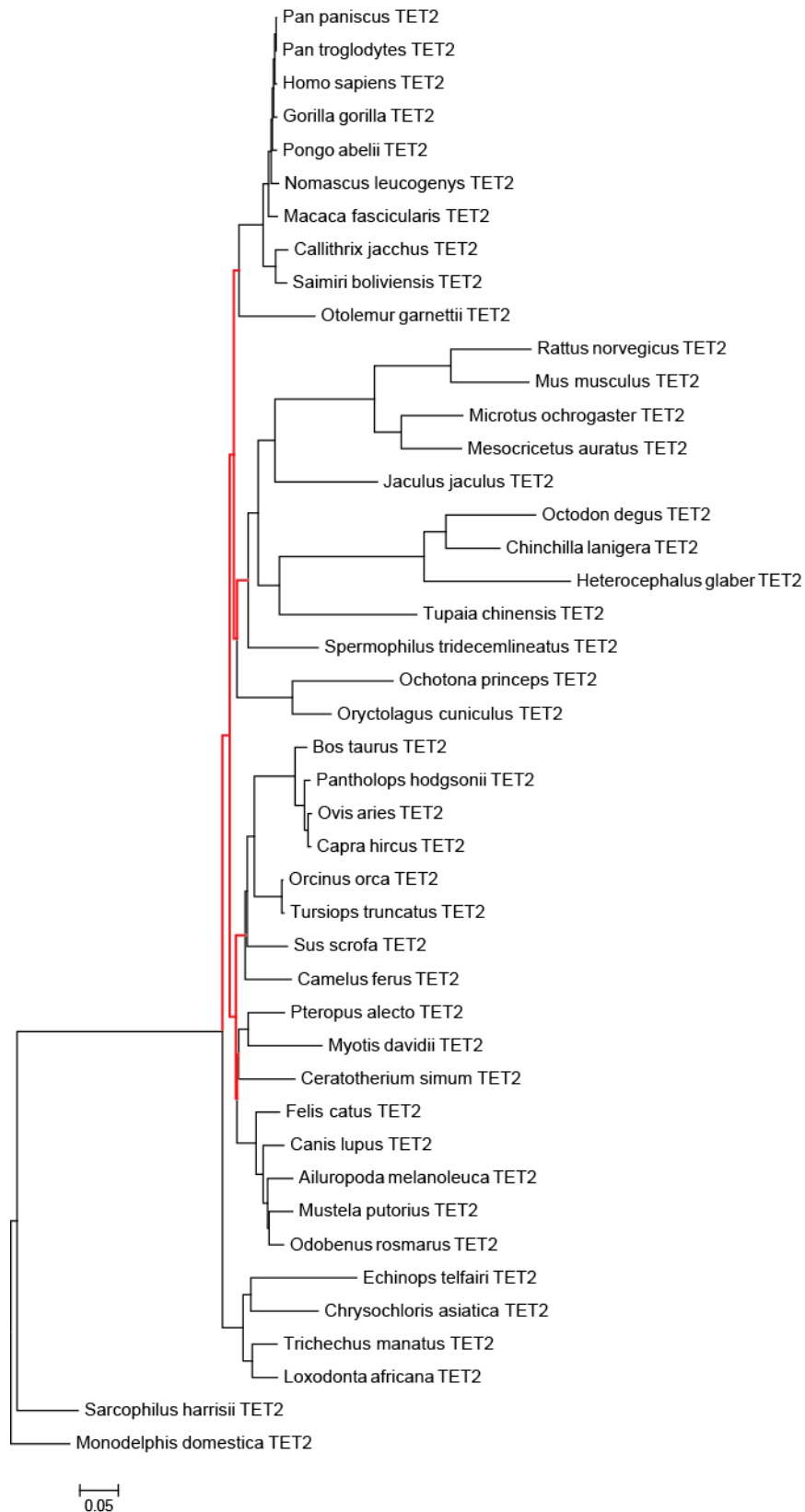


Figure S2. Maximum-likelihood tree of the TET2 genes. The tree was constructed using PhyML v3.0 software, based on the nucleotide-coding sequences. Branches with the number of sites under positive selection ($\omega_3 = 1.54$) greater than 90th percentile in the Fitmodel analysis (Figure S4) are shown in red.

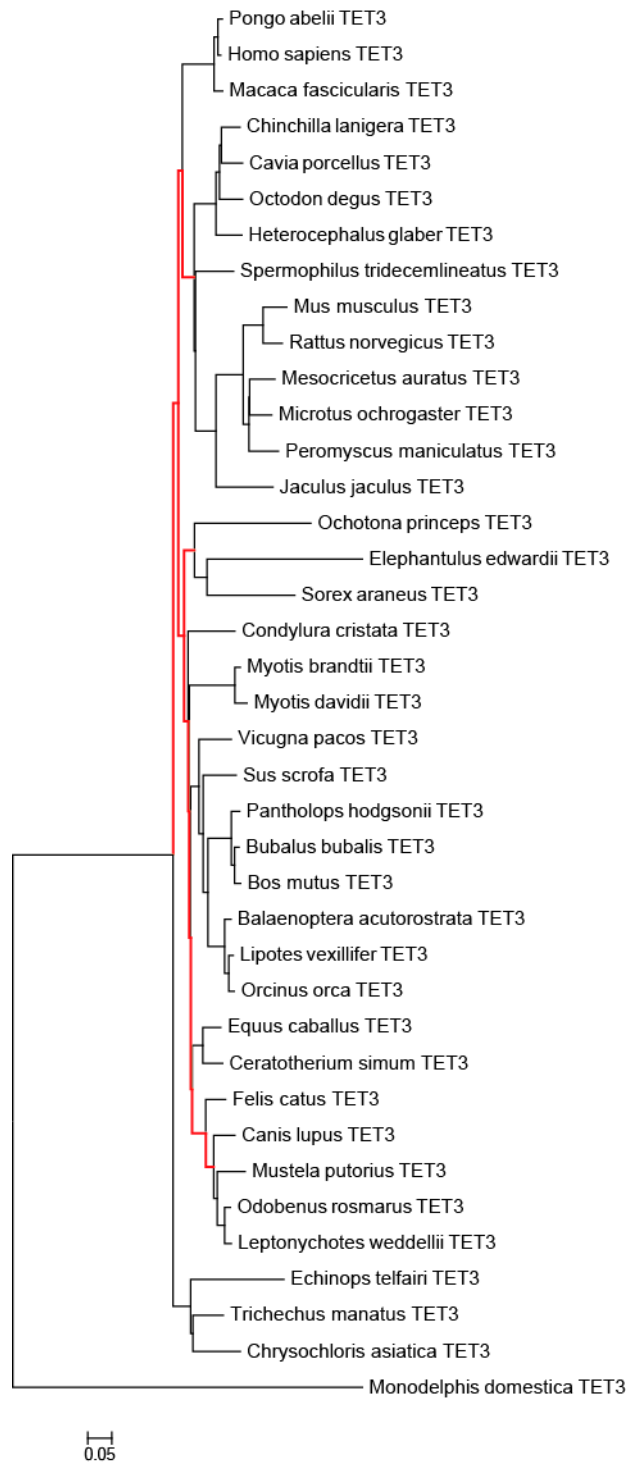


Figure S3. Maximum-likelihood tree of the TET3 genes. The tree was constructed using PhyML v3.0 software, based on the nucleotide-coding sequences. Branches with the number of sites under relaxed selection ($\omega_3 = 1.07$) greater than the 90th percentile in the Fitmodel analysis (Figure S4) are shown in red.

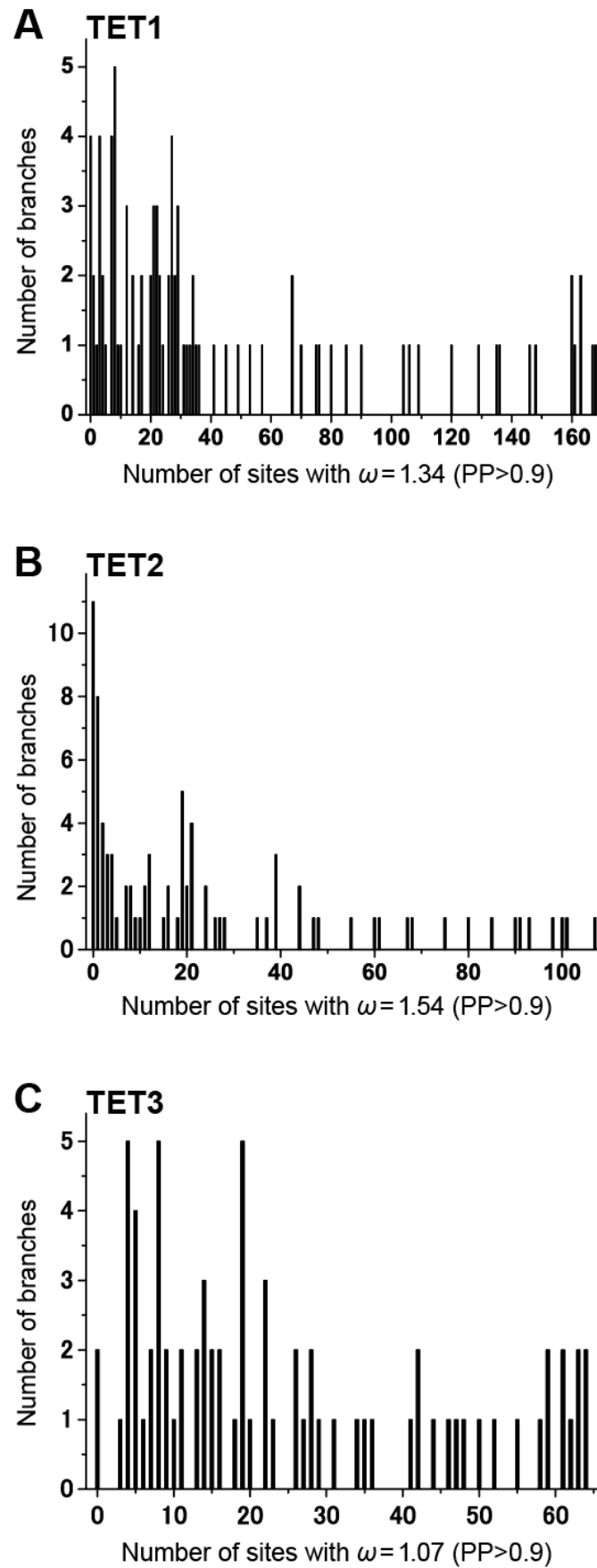


Figure S4. Distribution of branches with different numbers of sites under the ω_3 rate ratio class across TET1 (A), TET2 (B) and TET3 (C) gene trees. The x -axis represents the number of sites with the ω_3 rate ratio class; the y -axis represents the number of branches.

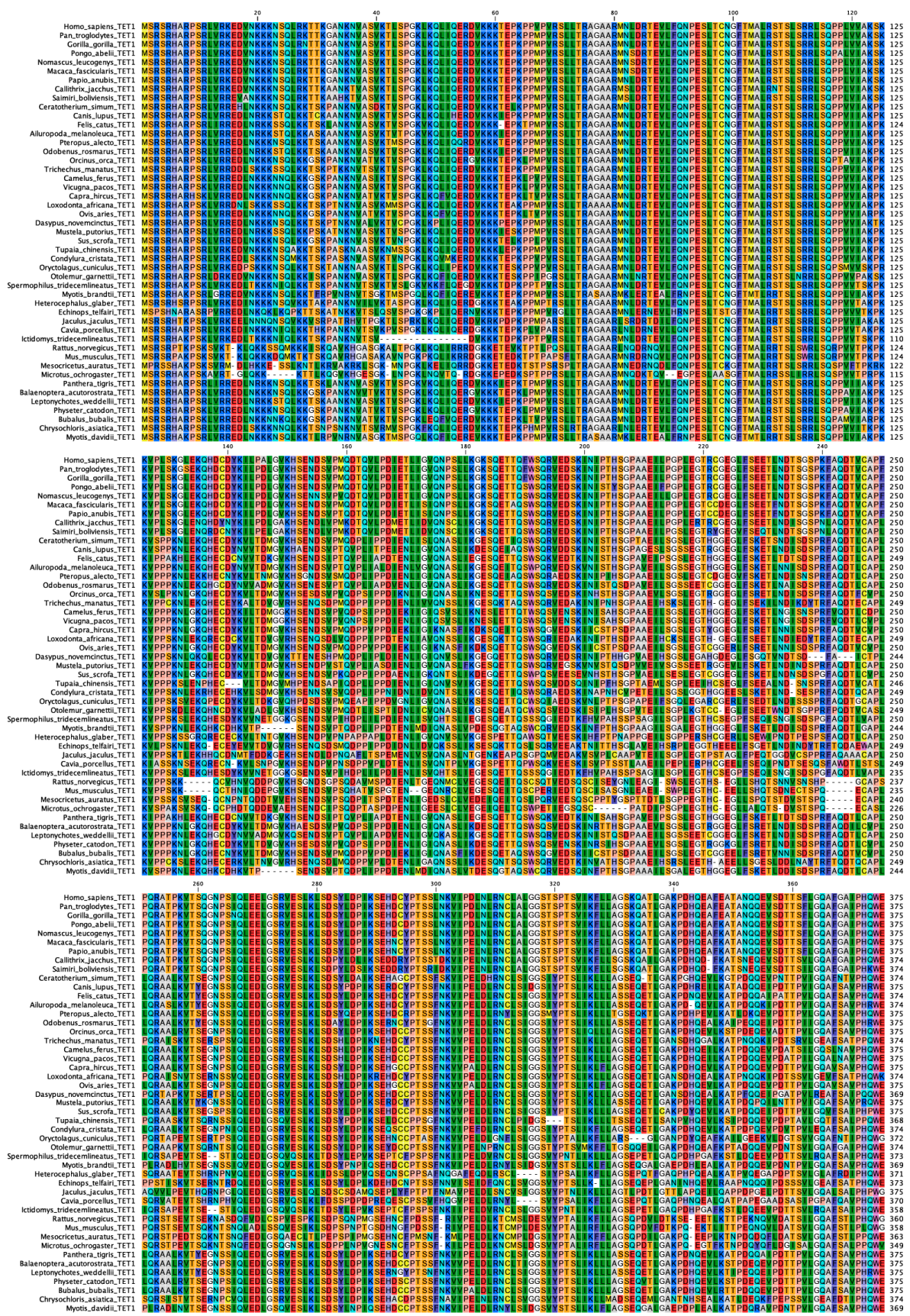


Figure S5. Cont.

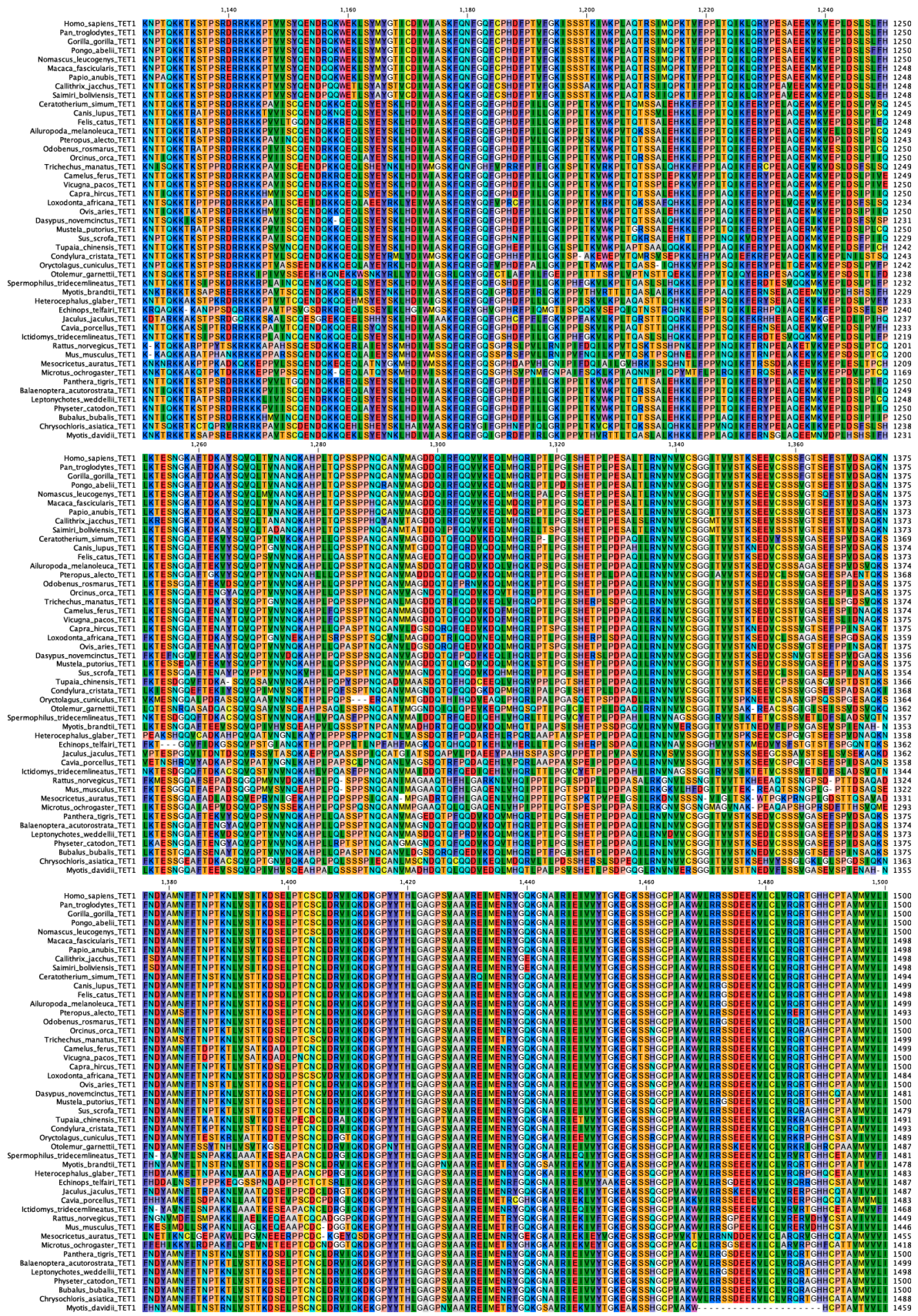


Figure S5. Cont.

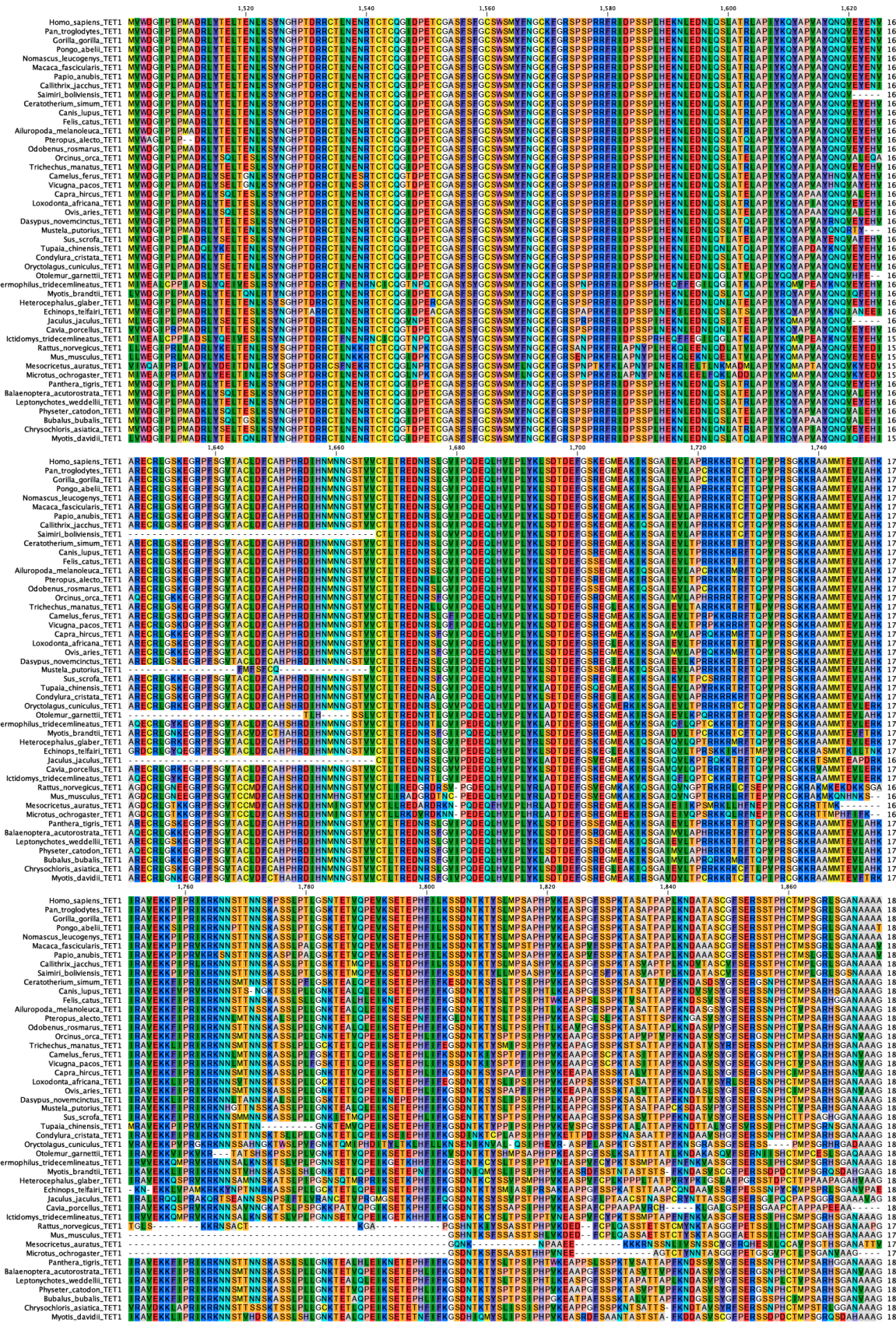


Figure S5. Cont.

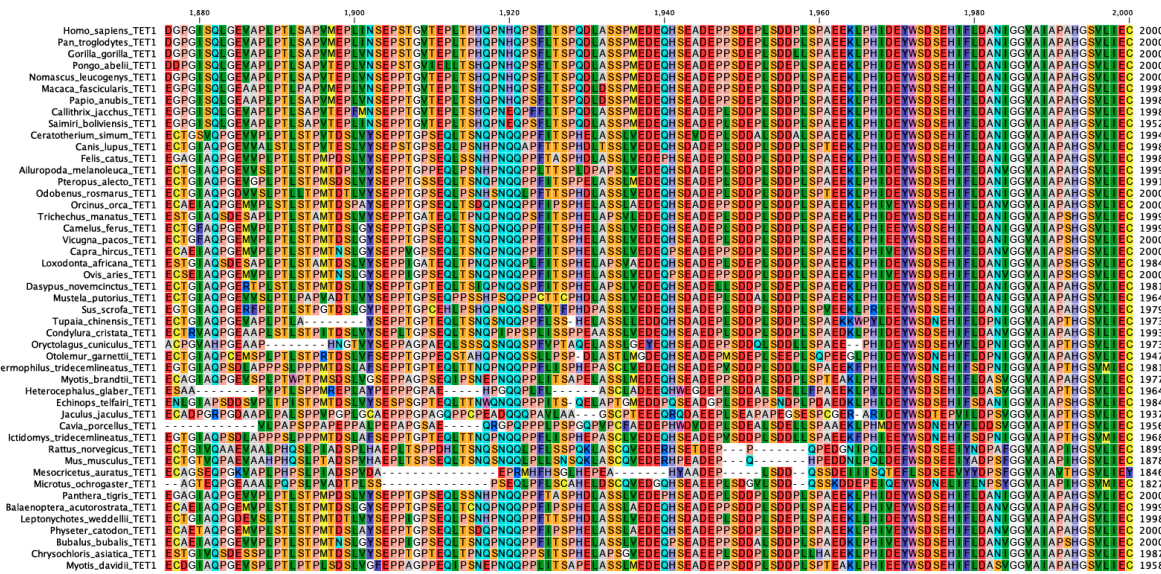


Figure S5. Multiple amino acid sequence alignment of mammalian TET1 genes. Amino acid sequences were aligned using MAFFT software with parameter settings optimized for the iterative refinement method (FFT-NS-i). The resulting multiple sequence alignment was trimmed by removing poorly aligned regions, using trimAl 1.2.

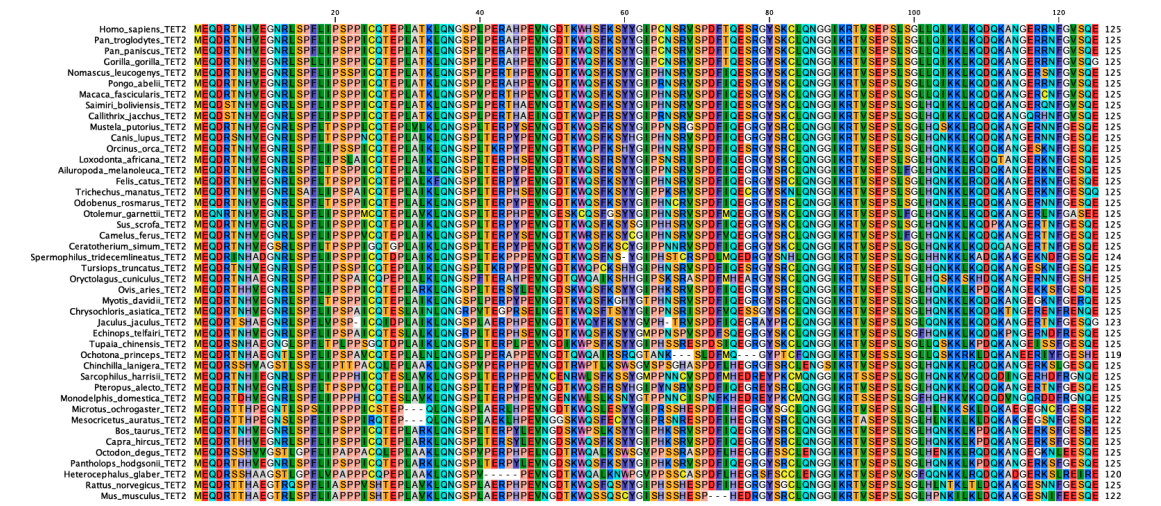


Figure S6. Cont.

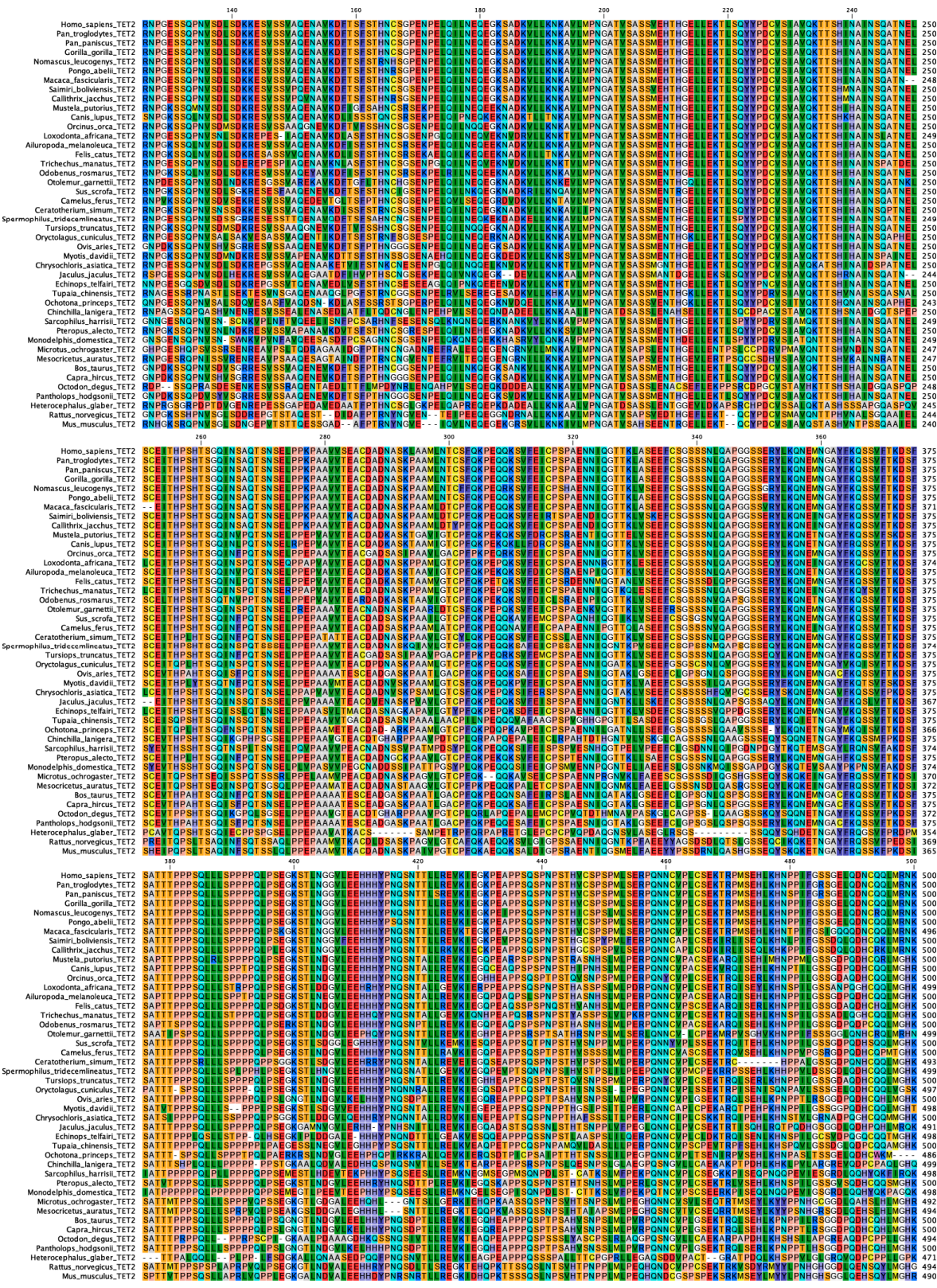


Figure S6. Cont.

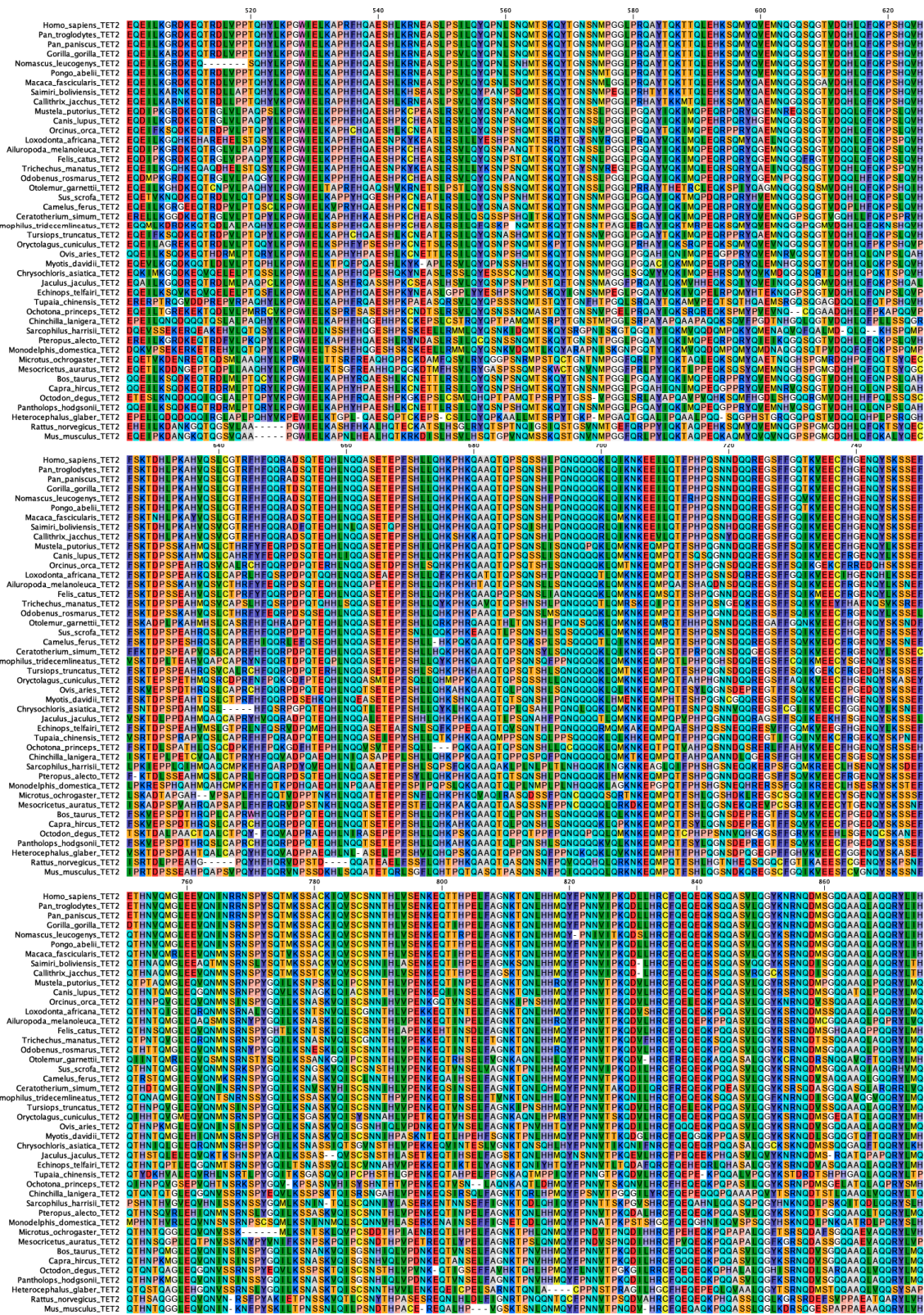


Figure S6. Cont.

	1,260	1,280	1,300	1,320	1,340	1,360																		
Homio_sapiens_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Pan_troglodytes_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Pan_paniscus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Gorilla_gorilla_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Nomascus_kuoyingensis_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Pongo_abelii_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Macaca_fascicularis_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1371
Saimiri_boliviensis_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Callithrix_jacchus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Mustela_putorius_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Canis_lupus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Orcinus_orca_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Loxodonta_africana_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Alloropoda_melanoleuca_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Felis_catus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Trichechus_manatus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Odobenus_rossmarus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Otlemur_garnettii_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1373
Sus_scrofa_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Camelus_ferus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Ceratherium_simum_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1368
Spermophilus_tridecemlineatus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1373
Tursiops_truncatus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Oryctolagus_cuniculus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1372
Ovis_aries_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Myotis_davidi_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1330
Chrysochloris_asiatia_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1370
Jaculus_jaculus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1360
Echinops_tefairi_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Tupaia_chinensis_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Ochotona_princeps_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1353
Chinchilla_lanigera_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1374
Sarcophilus_harrisii_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1369
Pteropus_allecto_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Monodelphis_domestica_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1373
Microtus_ochrogaster_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1356
Mesocricetus_auratus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1365
Bos_taurus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1365
Capra_hircus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Ocotodon_degus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1366
Pantliopsis_hodgsonii_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1375
Hetercephalus_glaber_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1337
Rattus_norvegicus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1333
Mus_musculus_TET2	PRRKEK	GDGPEEKK	ESHQNI	ST	MAPT	YKKA	APDAFNNQ	VEYHAP	CRGK	GRPS	SGT	ACD	FC	CAHARRD	HNMG	SGT	CT	ITREDR	GGP	PEDEQ	HP	PK	SDVE	1322

Figure S6. Cont.

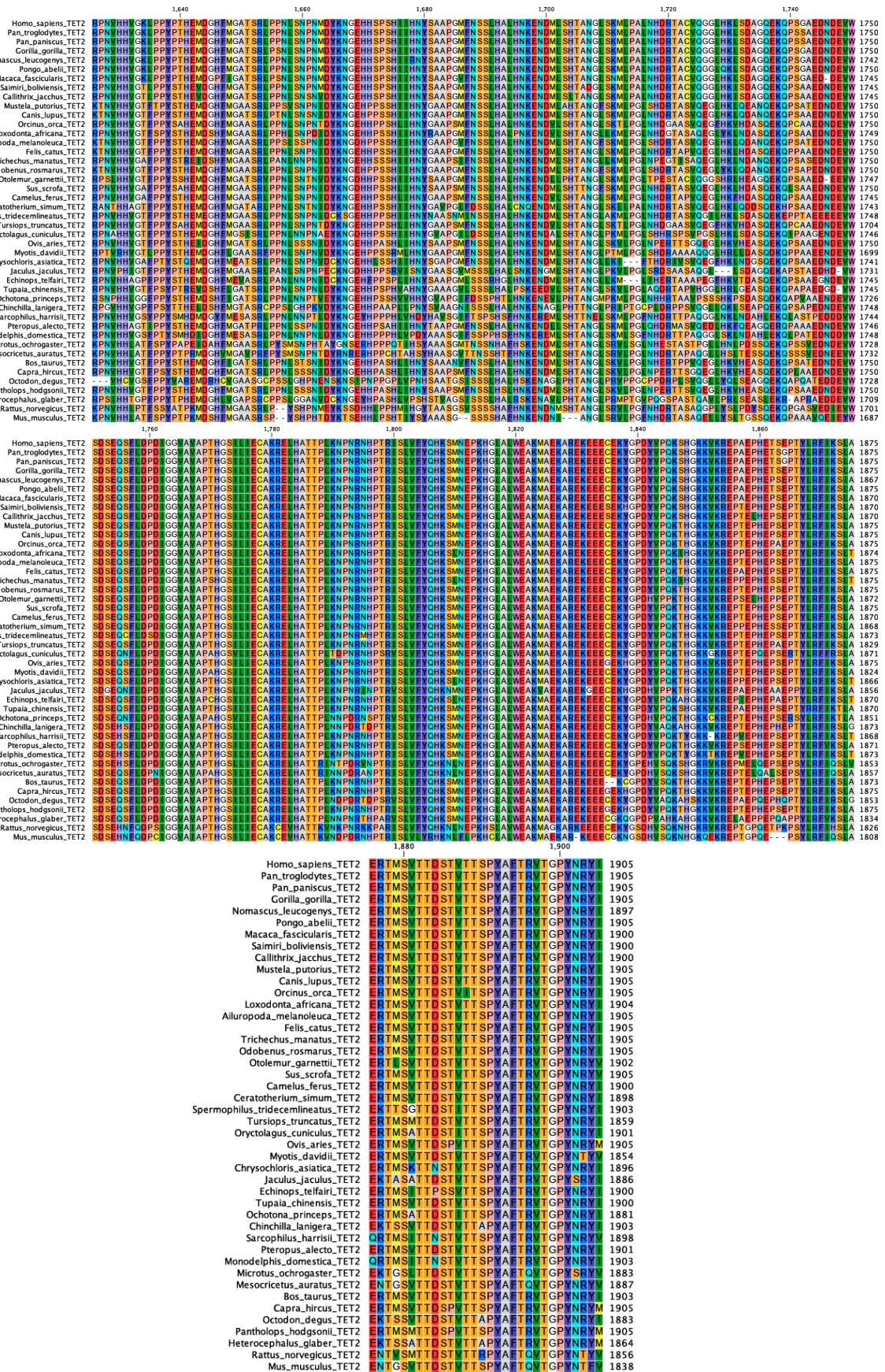


Figure S6. Multiple amino acid sequence alignment of mammalian TET2 genes. Amino acid sequences were aligned using MAFFT software with parameter settings optimized for FFT-NS-i. The resulting multiple sequence alignment was trimmed by removing poorly aligned regions, using trimAl 1.2.

	30	40	50	60	70	80	90	100	110	120
Homo_sapiens_TET3	M	S	D	F	P	L	A	P	P	G
Pongo_abelii_TET3	M	S	D	F	P	L	A	P	P	G
Macaca_fascicularis_TET3	M	S	D	F	P	L	A	P	P	G
Canis_lupus_TET3	M	S	D	F	P	L	A	P	P	G
Felis_catus_TET3	M	S	D	F	P	L	A	P	P	G
Odobenus_rossmarus_TET3	M	S	D	F	P	L	A	P	P	G
Equus_caballus_TET3	M	S	D	F	P	L	A	P	P	G
Trichechus_manatus_TET3	M	S	D	F	P	L	A	P	P	G
Chinchilla_lanigera_TET3	M	S	D	F	P	L	A	P	P	G
Spermophilus_tridecemlineatus_TET3	M	S	D	F	P	L	A	P	P	G
Lipotes_vexillifer_TET3	M	S	D	F	P	L	A	P	P	G
Mustela_putorius_TET3	M	S	D	F	P	L	A	P	P	G
Condylura_cristata_TET3	M	S	D	F	P	L	A	P	P	G
Orcinus_orca_TET3	M	S	D	F	P	L	A	P	P	G
Bubalus_bubalis_TET3	M	S	D	F	P	L	A	P	P	G
Panthera_tigris_TET3	M	S	D	F	P	L	A	P	P	G
Ceratotherium_simum_TET3	M	S	D	F	P	L	A	P	P	G
Leptonychotes_weddellii_TET3	M	S	D	F	P	L	A	P	P	G
Chrysochloris_asiatca_TET3	M	S	D	F	P	L	A	P	P	G
Balaenoptera_acutorostrata_TET3	M	S	D	F	P	L	A	P	P	G
Bos_mutus_TET3	M	S	D	F	P	L	A	P	P	G
Sus_scrofa_TET3	M	S	D	F	P	L	A	P	P	G
Heterocephalus_glaber_TET3	M	S	D	F	P	L	A	P	P	G
Octodon_degus_TET3	M	S	D	F	P	L	A	P	P	G
Rattus_norvegicus_TET3	M	S	D	F	P	L	A	P	P	G
Myotis_brandtii_TET3	M	S	D	F	P	L	A	P	P	G
Microtus_ochrogaster_TET3	M	S	D	F	P	L	A	P	P	G
Vicugna_pacos_TET3	M	S	D	F	P	L	A	P	P	G
Mus_musculus_TET3	M	S	D	F	P	L	A	P	P	G
Mesocricetus_auratus_TET3	M	S	D	F	P	L	A	P	P	G
Myotis_davidii_TET3	M	S	D	F	P	L	A	P	P	G
Peromyscus_maniculatus_TET3	M	S	D	F	P	L	A	P	P	G
Jaculus_jaculus_TET3	M	S	D	F	P	L	A	P	P	G
Echinops_telfairi_TET3	M	S	D	F	P	L	A	P	P	G
Ochotona_princeps_TET3	M	S	D	F	P	L	A	P	P	G
Sorex_aramanus_TET3	M	S	D	F	P	L	A	P	P	G
Elephantulus_edwardii_TET3	M	S	D	F	P	L	A	P	P	G
Monodelphis_domestica_TET3	M	S	D	F	P	L	A	P	P	G

Figure S7. Cont.

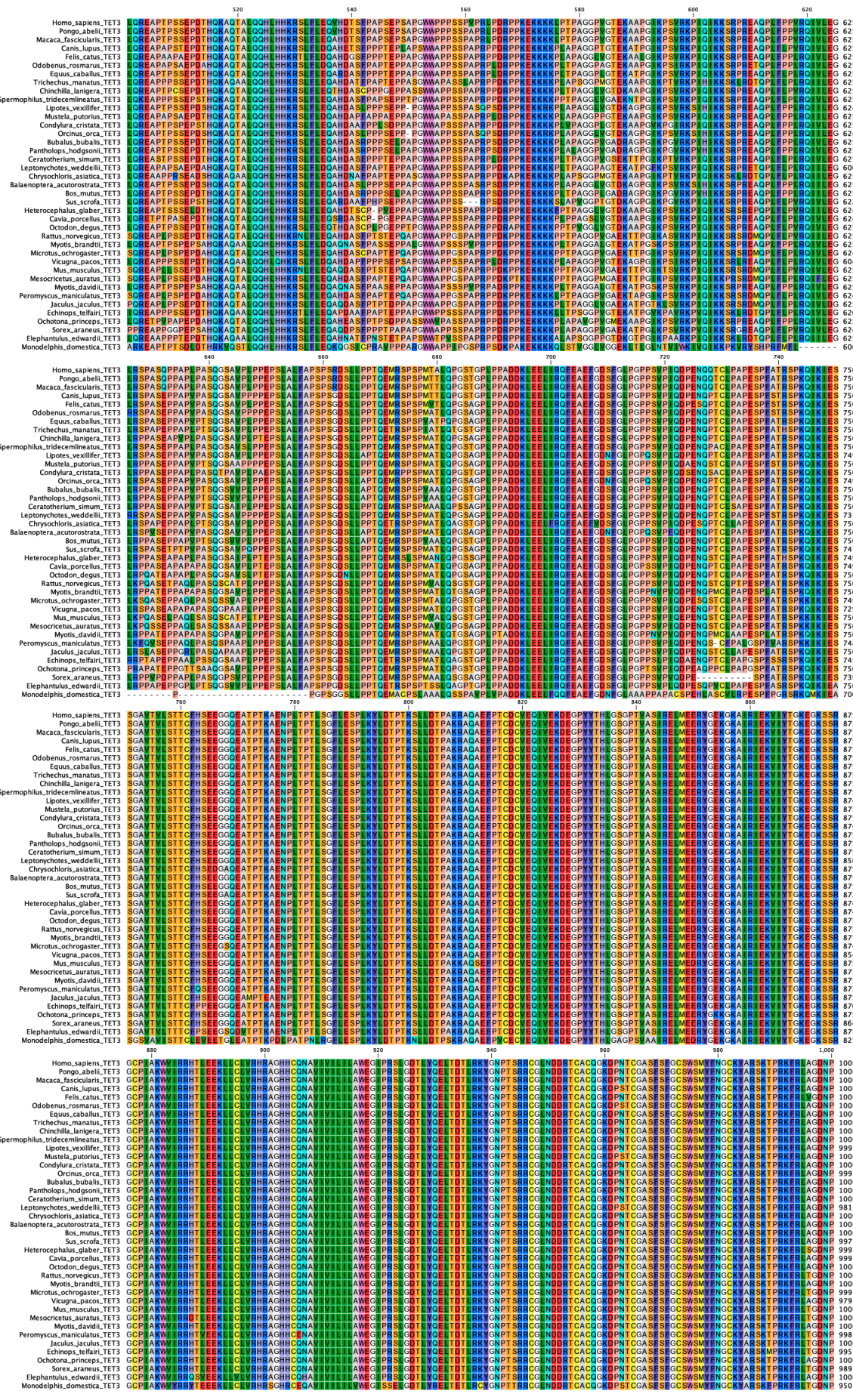


Figure S7. Cont.

	1,020	1,040	1,060	1,080	1,100	1,120
Homo_sapiens_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Pongo_abelii_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Macaca_fascicularis_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Canis_lupus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Felis_catus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Odobenus_rossmarus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Equus_caballus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Trichechus_manatus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Chinchilla_langera_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Spermophilus_tridecemlineatus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Lipotes_vexillifer_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Mustela_putorius_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Condylura_cristata_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Orcinus_orca_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1124
Bubalus_bubalis_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Pantholops_hodgsonii_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Ceratotherium_simum_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Leptonychotes_weddelii_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Chrysoloris_asiatia_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Balaenoptera_acutorostrata_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Bos_mustus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1122
Sus_scrofa_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1122
Heterocephalus_glaber_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1124
Cavia_porcellus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1124
Octodon_degus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1124
Rattus_norvegicus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Myotis_brandti_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Microtus_ochrogaster_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Viucugna_pacos_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1104
Mus_musculus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1104
Mesocricetus_aureatus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Myotis_davidi_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Peromyscus_maniculatus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1123
Jaculus_jaculus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Echinops_teffairi_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Ochotona_princeps_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1125
Sorex_araneus_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1114
Elephantulus_edwardi_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1075
Monodelphis_domestica_TET3	EEEEERKSFODIATEAPYKRRAPQAYQNTNEEAIDCRGKGRGPFAGTACMDGCAHARHKDHNLYNGCTCTIKEDNRGKPKPEDEQHPYKMASTDEGSEENAKTKGS					1075

Figure S7. Cont.

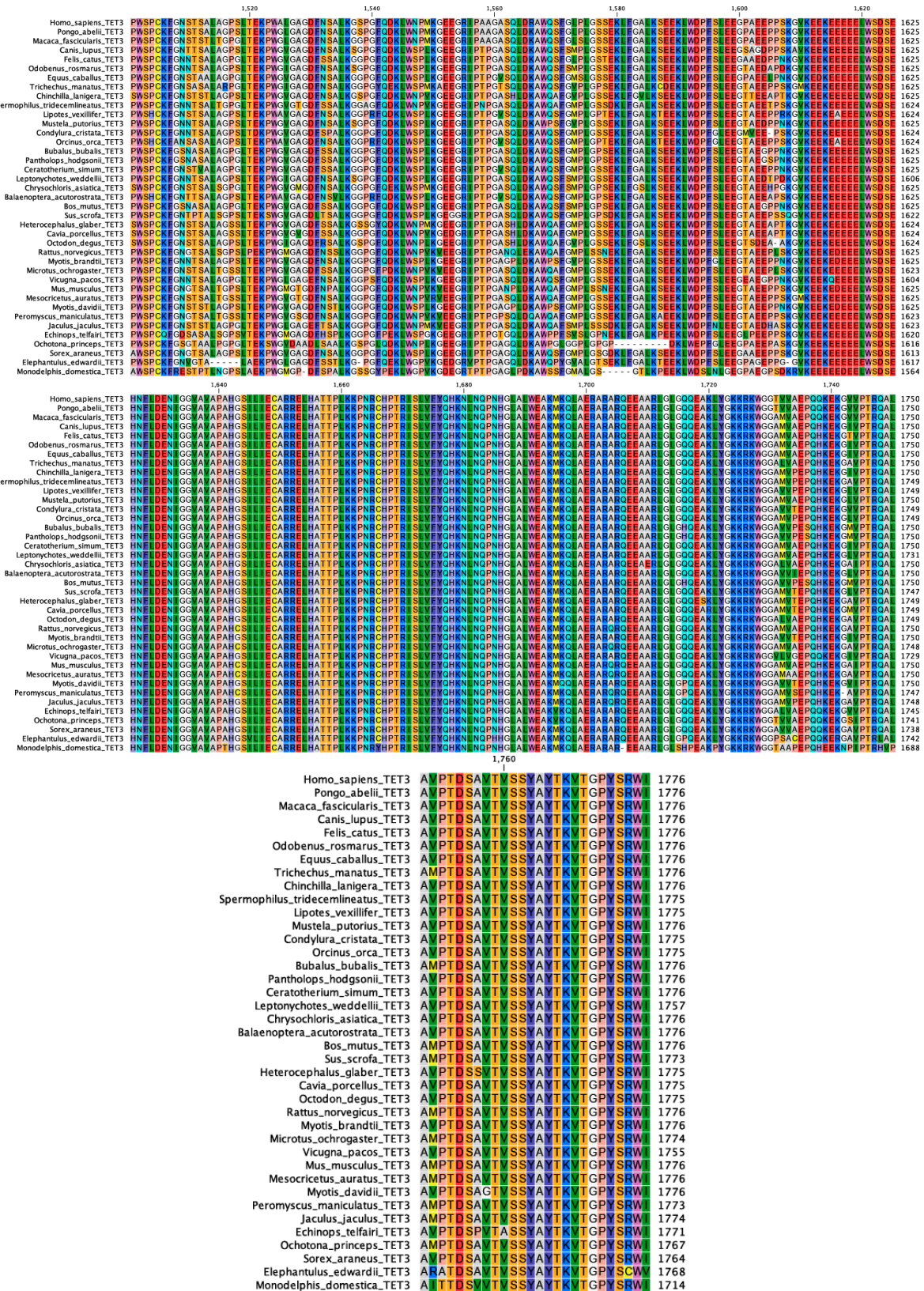


Figure S7. Multiple amino acid sequence alignment of mammalian TET3 genes. Amino acid sequences were aligned using MAFFT software with parameter settings optimized for FFT-NS-i. The resulting multiple sequence alignment was trimmed by removing poorly aligned regions, using trimAl 1.2.

Table S1. The TET genes used in this study.

Gene Name	Accession Number
<i>Homo_sapiens_TET1</i>	NM_030625
<i>Pan_troglodytes_TET1</i>	XM_507822
<i>Gorilla_gorilla_TET1</i>	XM_004049504
<i>Pongo_abelii_TET1</i>	XM_002820885
<i>Nomascus_leucogenys_TET1</i>	ENSNLEG00000011782
<i>Macaca_fascicularis_TET1</i>	XM_005565691
<i>Papio_anubis_TET1</i>	XM_003903859
<i>Callithrix_jacchus_TET1</i>	XM_002756304
<i>Saimiri_boliviensis_TET1</i>	XM_003928779
<i>Ceratotherium_simum_TET1</i>	XM_004427056
<i>Canis_lupus_TET1</i>	XM_536371
<i>Felis_catus_TET1</i>	ENSFCAG00000012673
<i>Ailuropoda_melanoleuca_TET1</i>	ENSAMEG00000018009
<i>Pteropus_alecto_TET1</i>	KB030800
<i>Odobenus_rosmarus_TET1</i>	XM_004393695
<i>Orcinus_orca_TET1</i>	XM_004280811
<i>Trichechus_manatus_TET1</i>	XM_004386395
<i>Camelus_ferus_TET1</i>	XM_006181184
<i>Vicugna_pacos_TET1</i>	XM_006212904
<i>Capra_hircus_TET1</i>	XM_005699119
<i>Loxodonta_africana_TET1</i>	XM_003409297
<i>Ovis_aries_TET1</i>	XM_004021627
<i>Dasypus_novemcinctus_TET1</i>	XM_004470524
<i>Mustela_putorius_TET1</i>	XM_004795559
<i>Sus_scrofa_TET1</i>	KC137683.1
<i>Tupaia_chinensis_TET1</i>	XM_006148936
<i>Condylura_cristata_TET1</i>	XM_004680833
<i>Oryctolagus_cuniculus_TET1</i>	XM_002718452
<i>Otolemur_garnettii_TET1</i>	XM_003783761
<i>Spermophilus_tridecemlineatus_TET1</i>	XM_005325968
<i>Myotis_brandtii_TET1</i>	XM_005876807
<i>Heterocephalus_glaber_TET1</i>	XM_004888511
<i>Echinops_telfairi_TET1</i>	XM_004701383
<i>Jaculus_jaculus_TET1</i>	XM_004657793
<i>Cavia_porcellus_TET1</i>	XM_003473584
<i>Ictidomys_tridecemlineatus_TET1</i>	ENSSTOG00000001527
<i>Rattus_norvegicus_TET1</i>	XM_006223879
<i>Mus_musculus_TET1</i>	NM_001253857
<i>Mesocricetus_auratus_TET1</i>	XM_005070904
<i>Microtus_ochrogaster_TET1</i>	XM_005360115
<i>Panthera_tigris_TET1</i>	XM_007095756
<i>Balaenoptera_acutorostrata_TET1</i>	XM_007167787
<i>Leptonychotes_weddellii_TET1</i>	XM_006728898
<i>Physeter_catodon_TET1</i>	XM_007121056
<i>Bubalus_bubalis_TET1</i>	XM_006070286
<i>Chrysochloris_asiatica_TET1</i>	XM_006835832
<i>Myotis_davidii_TET1</i>	XM_006760999
<i>Homo_sapiens_TET2</i>	NM_001127208
<i>Pan_troglodytes_TET2</i>	XM_003310400

Table S1. Cont.

Gene Name	Accession Number
<i>Pan_paniscus_TET2</i>	XM_003829967
<i>Gorilla_gorilla_TET2</i>	XM_004040224
<i>Nomascus_leucogenys_TET2</i>	ENSNLEG00000013289
<i>Pongo_abelii_TET2</i>	XM_002815025
<i>Macaca_fascicularis_TET2</i>	XM_005555594
<i>Saimiri_boliviensis_TET2</i>	XM_003929494
<i>Callithrix_jacchus_TET2</i>	XM_002745526
<i>Mustela_putorius_TET2</i>	XM_004748137
<i>Canis_lupus_TET2</i>	XM_535678
<i>Orcinus_orca_TET2</i>	XM_004269617
<i>Loxodonta_africana_TET2</i>	XM_003410366
<i>Ailuropoda_melanoleuca_TET2</i>	XM_002926670
<i>Felis_catus_TET2</i>	XM_006930937
<i>Trichechus_manatus_TET2</i>	XM_004380202
<i>Odobenus_rosmarus_TET2</i>	XM_004401875
<i>Otolemur_garnettii_TET2</i>	XM_003796334
<i>Sus_scrofa_TET2</i>	XM_003129278
<i>Camelus_ferus_TET2</i>	XM_006184616
<i>Ceratotherium_simum_TET2</i>	XM_004426613
<i>Spermophilus_tridecemlineatus_TET2</i>	XM_005339807
<i>Tursiops_truncatus_TET2</i>	XM_004319793
<i>Oryctolagus_cuniculus_TET2</i>	XM_002717196
<i>Ovis_aries_TET2</i>	XM_004009655
<i>Myotis_davidii_TET2</i>	XM_006778911
<i>Chrysochloris_asiatica_TET2</i>	XM_006874557
<i>Jaculus_jaculus_TET2</i>	XM_004662993
<i>Echinops_telfairi_TET2</i>	XM_004703292
<i>Tupaia_chinensis_TET2</i>	XM_006151157
<i>Ochotona_princeps_TET2</i>	XM_004594282
<i>Chinchilla_lanigera_TET2</i>	XM_005406228
<i>Sarcophilus_harrisii_TET2</i>	XM_003772926
<i>Pteropus_alecto_TET2</i>	KB031030
<i>Monodelphis_domestica_TET2</i>	XM_003341383
<i>Microtus_ochrogaster_TET2</i>	XM_005357312
<i>Mesocricetus_auratus_TET2</i>	XM_005081981
<i>Bos_taurus_TET2</i>	XM_001790146
<i>Capra_hircus_TET2</i>	XM_005681343
<i>Octodon_degus_TET2</i>	XM_004626707
<i>Pantholops_hodgsonii_TET2</i>	XM_005978869
<i>Heterocephalus_glaber_TET2</i>	XM_004866253
<i>Rattus_norvegicus_TET2</i>	XM_001077411
<i>Mus_musculus_TET2</i>	NM_001040400
<i>Homo_sapiens_TET3</i>	NM_001287491
<i>Pongo_abelii_TET3</i>	ENSPPYG00000012286
<i>Macaca_fascicularis_TET3</i>	XM_005575570
<i>Canis_lupus_TET3</i>	XM_005630554
<i>Felis_catus_TET3</i>	XM_003984133
<i>Odobenus_rosmarus_TET3</i>	XM_004398707
<i>Equus_caballus_TET3</i>	XM_001917114
<i>Trichechus_manatus_TET3</i>	XM_004369189

Table S1. Cont.

Gene Name	Accession Number
<i>Chinchilla lanigera_TET3</i>	XM_005385530
<i>Spermophilus tridecemlineatus_TET3</i>	XM_005329351
<i>Lipotes vexillifer_TET3</i>	XM_007459392
<i>Mustela putorius_TET3</i>	XM_004742217
<i>Condylura cristata_TET3</i>	XM_004691540
<i>Orcinus orca_TET3</i>	XM_004277087
<i>Bubalus bubalis_TET3</i>	XM_006045954
<i>Pantholops hodgsonii_TET3</i>	XM_005962644
<i>Ceratotherium simum_TET3</i>	XM_004435517
<i>Leptonychotes weddellii_TET3</i>	XM_006735303
<i>Chrysochloris asiatica_TET3</i>	XM_006872404
<i>Balaenoptera acutorostrata_TET3</i>	XM_007189011
<i>Bos mutus_TET3</i>	XM_005897644
<i>Sus scrofa_TET3</i>	XM_005662450
<i>Heterocephalus glaber_TET3</i>	XM_004844710
<i>Cavia porcellus_TET3</i>	XM_005003343
<i>Octodon degus_TET3</i>	XM_004634101
<i>Rattus norvegicus_TET3</i>	XM_006224966
<i>Myotis brandtii_TET3</i>	XM_005869422
<i>Microtus ochrogaster_TET3</i>	XM_005364657
<i>Vicugna pacos_TET3</i>	XM_006218996
<i>Mus musculus_TET3</i>	XM_006505773
<i>Mesocricetus auratus_TET3</i>	XM_005071053
<i>Myotis davidii_TET3</i>	XM_006760024
<i>Peromyscus maniculatus_TET3</i>	XM_006994349
<i>Jaculus jaculus_TET3</i>	XM_004668275
<i>Echinops telfairi_TET3</i>	XM_004696098
<i>Ochotona princeps_TET3</i>	XM_004590675
<i>Sorex araneus_TET3</i>	XM_004619988
<i>Elephantulus edwardii_TET3</i>	XM_006880851
<i>Monodelphis_TET3</i>	XM_007477889