

Supplementary Table 1. Alignment of 'MEKL' exon sequences identified in the UBE3A gene locus in mammals and non-mammalian vertebrates.

Order	Species	MEKL exon sequence BLAST result	ORF?
Primates	Human	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Bonobo	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Gorilla	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Macaque	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Olive Baboon	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GT</i>	yes
	Ugandan red colobus	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Bolivian squirrel monkey	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGA</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Marmoset	<i>CTAGAGAGTTACAGTGGAGGTTAGAAGGAGTGGCTTGCAGA</i> ATG GAGAAGCTGCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Tarsier	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	Bushbaby	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
Mouse lemur	<i>ATAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTACAGG</i> ATG GAGAACCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon	
Lagomorphs	Rabbit	<i>CTAGAGAGTTACAGTGGAGGTTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
Rodents	American beaver	AGTGGCTTaCAGa ATG GAGAAGtTataCTCAGTGTATTGGAA	no - Insertion, out of frame exon
	Arctic ground squirrel	<i>CTAGAGcGTTAtAGTGGAGGcAAAAG-AGTaGCTTaCAGG</i> ATa GAGAAGCTGCACCAtTgGaaATgatcc	no - mutated ATG codon
	Daurian ground squirrel	AAAAaAGTAGCTTACAGG ATa GAGAAGCTGCACCAtTgGaaATgatcc	no - mutated ATG codon
	Squirrel	<i>CTAGAGAGTTAtAGTGGAGGcAAAAG-AGTaGCTTaCAGG</i> ATa GAGAAGCTGCACCAtTgGaaATgatcc	no - mutated ATG codon
	Naked mole rat	<i>CTAGAGAGTTACAGTGAAGtTAAAAGGAGTGGCTTaCacG</i> ATG GAGAAGCTaCACCAGTGTATTGGAA <i>GTGA</i>	yes
	Galilee mountains blind mole rat	<i>CTAGAGAGTTACAGTGGAGtTAAAAGGAGTGGCTTaCAGG</i> ATG GAGAAGCTGCACCCTGTGTAAATGGAA <i>GTGA</i>	no - Insertion, out of frame exon
Ungulates	Damara mole rat	<i>CTAGAGAGTTACAGTGAAGtTAAAAGGAGTGGTTaCacA</i> gTG GAGAAGCTGCACCAGTGTACTGGGA <i>GTGA</i>	no - mutated ATG codon
	Mouse	<i>CTAGAGAGTTACAGTGGAGtTAAAAGTgcacctTTaCctc</i> cTt aAaAgG	no - mutated ATG codon
	Wild yak	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> cca GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	Domestic yak	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> cca GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	American bison	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> cca GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	Bos indicus	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> cca GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	Sheep	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> ccc GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	Sus scrofa	<i>CCAGAGAGTTACAGTGGaAGtTAAAGGAGgGcCTTGCAGT</i> ccc GAGAAGCTGCACCtcataaaaa	no - mutated ATG codon
	Arabian camel	<i>CAGGAGAGTTAgAGTGGAGaTgAAAGGAGTGGCTTGCAGG</i> cTa GAGAAGCTGCACC <i>TAGTaTTAcTGGAAGTGA</i>	no - mutated ATG codon
	Alpaca	<i>CAGGAGAGTTAgAGTGGAGGtTgAAAGGAGTGGCTTGCAGG</i> cTa GAGAAGCTgTACC <i>TAGTaTTAcTGGAAGTGA</i>	no - mutated ATG codon
Carnivores	Horse	<i>CTAGAGAGTTACACTGGAGGtCAAAAGGAGTGGCTCGCAGG</i> cTG GAGAAGCCTaCAttt	no - mutated ATG codon
	Donkey	<i>CTAGAGAGTTACAcTGGAGGtCAAAAGGAGTGGCTTGCAGG</i> cTG GAGAAGCCTaCAttt	no - mutated ATG codon
	Cat	<i>CTAGATAGTTAtcGTGGAGGtAgAAGGAGTGGCTTGCtGG</i> cTG GAcAAGCTGCACC <i>CAtTaTTATTGGAAGTGA</i>	no - mutated ATG codon
	Canada Lynx	<i>CTAGAtAGTTAtcGTGGAGGtAgAAGGAGTGGCTTGCtGG</i> cTG GAcAAGCTGCACC <i>CAtTaTTATTGGAAGTGA</i>	no - mutated ATG codon
	Tiger	<i>CTAGAtAGTTAtcGTGGAGGtAgAAGGAGTGGCTTGCtGG</i> cTG GAcAAGCTGCACC <i>CAtTaTTATTGGAAGTGA</i>	no - mutated ATG codon
	Leopard	<i>CTAGAtAGTTAtcGTGGAGGtAgAAGGAGTGGCTTGCtGG</i> cTG GAcAAGCTGCACC <i>CAtTaTTATTGGAAGTGA</i>	no - mutated ATG codon
	Dog	<i>GTAGAGAGTTACAGTGGAGGtTAAAAGGAGTGGCTTGCAtg</i> cTG GAtAAGCTaCACcTGT <i>TaTTATTGGAAGTGA</i>	no - mutated ATG codon
	Red fox	<i>GTAGAGCATTACAGTGGAGGtTAAAAGGAGTGGCTTGCAtg</i> cTG GAtAAGCTaCACcTGT <i>TaTTATTGGAAGTGA</i>	no - mutated ATG codon
Marsupials	Polar bear	<i>CTAAAGAGTTtCAGTGAAGTAAAAGGAGTGGCTTGCAGG</i> cTG GAcAAGCTGCACCcGTt <i>TtTTGGAAGTGA</i>	no - mutated ATG codon
	Asiatic black bear	<i>CTAAAGAGTTtCAGTGAAGTAAAAGGAGTGGCTTGCAGG</i> cTG GAcAAGCTGCACCcGTt <i>TtTTGGAAGTGA</i>	no - mutated ATG codon
	Koala	<i>CTAGAGAGTTACAGTGGAGGtAgAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
Other mammals	Wombat	<i>CTAGAGAGTTACAGTGGAGGtAgAAGGAGTGGCTTGCAGA</i> ATG GAGAAGCTGCACCAGTGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	Sloth	<i>CTAGAGAGTTACAGTGGAGGtTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	Hyrax	<i>TTAGAGAGTTACAGTGGAGGtAAAGAGGAGTGGCTTGCAGGATG</i> GAGAAGtTgTACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	Armadillo	<i>CTAGAGAGTTACAGTGGAGGtTAAAAGGAGTGGCTTGCAGG</i> ATG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	Tree shrew	<i>CTAGAGAGTTACAGTGAAGTAAATGGAGTGGCTTGCAGA</i> gTG GAGAAGCTGCACCAGTATTATTGGAA <i>GTGA</i>	no - mutated ATG codon
Non-mammal vertebrates	Chicken	<i>CTAGgGAGTTAgAGTGGAGGtTAAAAGGAGgGcCTTGCAGa</i> ATG GAGAAGtTgCtCCcTGTGTgTTGGAA <i>CGGA</i>	no - Insertion, out of frame exon
	Mallard	<i>CTAGgGAGTTACAGTGGAGGtTAAAAGGAGgGcCTTGCAGa</i> ATG GAGGAGtTgCtCCcTGTGTgTTGGAA <i>GTGA</i>	no - Insertion, out of frame exon
	West African turtle	<i>CTAGgGAGTTACAGTGGAGGtTAAAAGGAAATGGCTTGCAGA</i> ATG GAGAAGtTgCtCCcAGTGTgTTGGAA <i>GTGA</i>	no - Insertion, out of frame exon

Nucleotide change : small letter
Insertion : bold magenta letter
Gap : -
In frame ATG : red
Intronic sequence: italicized green letters