

SESN2		MIOS		ATP6/1H		IRS1		TTII	
Nannospalax galili	L S S	Myotis myotis	C T T	Trichechus manatus	N V I	Nannospalax galili	N T T	Myotis brandtii	S T C
Homo sapiens	L S S	Eptesicus fuscus	C T T	Heterocephalus glaber	N V I	Eptesicus fuscus	N T T	Myotis myotis	S T C
Gorilla gorilla	L S S	Myotis brandtii	C T T	Panthera tigris	N I I	Myotis brandtii	N T T	Eptesicus fuscus	S T C
Pan paniscus	L S S	Homo sapiens	C T T	Microcebus murinus	N I I	Myotis myotis	N T T	Heterocephalus glaber	S T C
Pan troglodytes	L S S	Pan paniscus	C T T	Otolemur garnettii	N I I	Myotis lucifugus	N T T	Myotis lucifugus	S T C
Saimiri boliviensis	L S S	Pan troglodytes	C T T	Castor canadensis	N I I	Miniopterus natalensis	N S S	Bos indicus	S A C
Nomascus leucogenys	L S S	Gorilla gorilla	C T T	Meriones unguiculatus	N I I	Sorex araneus	N S S	Sus scrofa	S A C
Callithrix jacchus	L S S	Myotis lucifugus	C T T	Ailuropoda melanoleuca	N I I	Ochotona princeps	N S S	Octodon degus	S A C
Cebus capucinus	L S S	Mandrillus leucophaeus	C T T	Rhinolophus sinicus	N I I	Dasypris novemcinctus	N S S	Phascolarctos cinereus	S A C
Macaca nemestrina	L S S	Cebus capucinus	C T T	Canis familiaris	N I I	Ptilocolobus tephrosceles	N S S	Saimiri boliviensis	S A C
Macaca fascicularis	L S S	Macaca nemestrina	C T T	Orycteropus afer	N I I	Chrysochloris asiatica	N S S	Pongo abelii	S A C
Macaca mulatta	L S S	Colobus angolensis	C T T	Equus caballus	N I I	Sarcophilus harrisii	N S S	Microcebus murinus	S A C
Capra hircus	L A S	Macaca fascicularis	C T T	Mustela putorius	N I I	Monodelphis domestica	N S S	Choleopus hoffmanni	S A C
Loxodonta africana	L A S	Callithrix jacchus	C T T	Ursus maritimus	N I I	Mus pahari	N S S	Loxodonta africana	S A C
Procavia capensis	L A S	Saimiri boliviensis	C T T	Enhydra lutris	N I I	Callithrix jacchus	N S S	Orycteropus afer	S A C
Lipotes vexillifer	L A S	Nomascus leucogenys	C T T	Equus asinus	N I I	Aotus nancymaeae	N S S	Tupaia chinensis	S A C
Orycteropus afer	L A S	Macaca mulatta	C T T	Rousettus aegyptiacus	N I I	Lipotes vexillifer	N S S	Tupaia belangeri	S A C
Cavia aepaea	L A S	Oryctolagus cuniculus	C T T	Miniopterus natalensis	N I I	Orcinus orca	N S S	Bubalus bubalis	S A C
Chinchilla lanigera	L A S	Erinaceus europaeus	C T T	Neomonachus schauinslandi	N I I	Balaenoptera acutorostrata	N S S	Chrysochloris asiatica	S A C
Hipposideros armiger	L A S	Sarcophilus harrisii	C T T	Odobenus rosmarus	N I I	Phascolarctos cinereus	N S S	Dipodomys ordii	S A C
Mus caroli	L A S	Phascolarctos cinereus	C T T	Dasypris novemcinctus	N I I	Notamacropus eugenii	N S S	Cricetulus griseus	S A C
Myotis davidii	L A S	Notamacropus eugenii	C T T	Loxodonta africana	N I I	Ovis aries	N S S	Mesocricetus auratus	S A C
Monodelphis domestica	L A S	Ailuropoda melanoleuca	C A A	Sus scrofa	N I I	Otolemur garnettii	N S S	Cavia porcellus	S A C
Notamacropus eugenii	L A S	Canis familiaris	C A A	Balaenoptera acutorostrata	N I I	Dipodomys ordii	N S S	Fukomys damarensis	S A C
Phascolarctos cinereus	L A S	Ictidomys tridecemlineatus	C A A	Pteropus alecto	N I I	Elephantulus edwardii	N S S	Monodelphis domestica	S A C
Ailuropoda melanoleuca	L A S	Odobenus rosmarus	C A A	Eptesicus fuscus	N I I	Mustela putorius	N S S	Sarcophilus harrisii	S A C
Ursus maritimus	L A S	Ursus maritimus	C A A	Physeter catodon	N I I	Mus caroli	N S S	Notamacropus eugenii	S A C
Enhydra lutris	L A S	Marmota marmota	C A A	Myotis davidii	N I I	Mus spretus	N S S	Trichechus manatus	S A C
Canis familiaris	L A S	Panthera pardus	C A A	Chrysochloris asiatica	N I I	Rattus norvegicus	N S S	Jaculus jaculus	S A C
Odobenus rosmarus	L A S	Panthera tigris	C A A	Felis catus	N I I	Manis javanica	N S S	Nannospalax galili	S A C
Neomonachus schauinslandi	L A S	Hipposideros armiger	C A A	Panthera pardus	N I I	Jaculus jaculus	N S S	Ailuropoda melanoleuca	S A C
Leptomys weddellii	L A S	Condylura cristata	C A A	Tursiops truncatus	N I I	Echinops telfairi	N S S	Ursus maritimus	S A C
Mustela putorius	L A S	Cavia porcellus	C A A	Orcinus orca	N I I	Equus caballus	N S S	Neomonachus schauinslandi	S A C
Galeopterus variegatus	L A S	Rhinolophus sinicus	C A A	Lipotes vexillifer	N I I	Ceratotherium simum	N S S	Leptomys weddellii	S A C
Otolemur garnettii	L A S	Cricetulus griseus	C A A	Delphinapterus leucas	N I I	Sus scrofa	N S S	Odobenus rosmarus	S A C
Ictidomys tridecemlineatus	L A S	Microtus ochrogaster	C A A	Myotis lucifugus	N I I	Rhinolophus sinicus	N S S	Felis catus	S A C
Microcebus murinus	L A S	Peromyscus maniculatus	C A A	Myotis brandtii	N I I	Bos taurus	N S S	Panthera tigris	S A C
Propithecus coquereli	L A S	Rattus norvegicus	C A A	Condylura cristata	N I I	Bos mutus	N S S	Enhydra lutris	S A C
Carlito syrichta	L A S	Enhydra lutris kenyonii	C A A	Elephantulus edwardii	N I I	Bos indicus	N S S	Mustela putorius	S A C
Condylura cristata	L A S	Neomonachus schauinslandi	C A A	Ceratotherium simum	N I I	Bison bison bison	N S S	Aotus nancymaeae	S A C
Ceratotherium simum	L A S	Leptomys weddellii	C A A	Bos taurus	N I I	Bubalus bubalis	N S S	Callithrix jacchus	S A C
Equus caballus	L A S	Acinonyx jubatus	C A A	Bison bison bison	N I I	Pantholops hodgsonii	N S S	Cebus capucinus	S A C
Equus przewalskii	L A S	Miniopterus natalensis	C A A	Bos indicus	N I I	Capra hircus	N S S	Mandrillus leucophaeus	S A C
Equus asinus	L A S	Dipodomys ordii	C A A	Bubalus bubalis	N I I	Odocoileus virginianus	N S S	Macaca fascicularis	S A C
Acinonyx jubatus	L A S	Microcebus murinus	C A A	Pantholops hodgsonii	N I I	Equus asinus	N S S	Macaca mulatta	S A C
Panthera pardus	L A S	Orcinus orca	C A A	Ovis aries	N I I	Equus przewalskii	N S S	Macaca nemestrina	S A C
Panthera tigris	L A S	Balaenoptera acutorostrata	C A A	Capra hircus	N I I	Camelus bactrianus	N S S	Papio anubis	S A C
Felis catus	L A S	Delphinapterus leucas	C A A	Odocoileus virginianus	N I I	Camelus ferus	N S S	Ptilocolobus tephrosceles	S A C
Bos taurus	L A S	Lipotes vexillifer	C A A	Pteropus vampyrus	N I I	Camelus dromedarius	N S S	Rhinopithecus bieti	S A C
Bos indicus	L A S	Tursiops truncatus	C A A	Callithrix jacchus	N I I	Hipposideros armiger	N S S	Rhinopithecus roxellana	S A C
Bos mutus	L A S	Ceratotherium simum	C A A	Cebus capucinus	N I I	Choleopus hoffmanni	N S S	Colobus angolensis	S A C
Bison bison	L A S	Galeopterus variegatus	C A A	Saimiri boliviensis	N I I	Tupaia chinensis	N S S	Gorilla gorilla	S A C
Bubalus bubalis	L A S	Trichechus manatus latirostris	C A A	Carlito syrichta	N I I	Cercopithecus atys	N S S	Homo sapiens	S A C
Odocoileus virginianus	L A S	Camelus dromedarius	C A A	Fukomys damarensis	N I I	Mandrillus leucophaeus	N S S	Pan troglodytes	S A C
Ovis aries	L A S	Camelus bactrianus	C A A	Tupaia chinensis	N I I	Rhinopithecus bieti	N S S	Nomascus leucogenys	S A C
Pantholops hodgsonii	L A S	Camelus ferus	C A A	Oryctolagus cuniculus	N I I	Homo sapiens	N S S	Propithecus coquereli	S A C
Balaenoptera acutorostrata	L A S	Propithecus coquereli	C A A	Cavia porcellus	N I I	Pan paniscus	N S S	Galeopterus variegatus	S A C
Physeter catodon	L A S	Loxodonta africana	C A A	Chinchilla lanigera	N I I	Nomascus leucogenys	N S S	Carlito syrichta	S A C
Orcinus orca	L A S	Otolemur garnettii	C A A	Peromyscus maniculatus	N I I	Pan troglodytes	N S S	Equus przewalskii	S A C
Delphinapterus leucas	L A S	Mus caroli	C A A	Cricetulus griseus	N I I	Gorilla gorilla	N S S	Equus asinus	S A C
Tursiops truncatus	L A S	Mus musculus	C A A	Microtus ochrogaster	N I I	Macaca fascicularis	N S S	Ceratotherium simum	S A C
Sus scrofa	L A S	Mus spretus	C A A	Mus caroli	N I I	Macaca nemestrina	N S S	Miniopterus natalensis	S A C
Camelus bactrianus	L A S	Mus pahari	C A A	Mus musculus	N I I	Macaca mulatta	N S S	Eptesicus fuscus	S A C
Camelus dromedarius	L A S	Mustela putorius	C A A	Mus pahari	N I I	Colobus angolensis	N S S	Rousettus aegyptiacus	S A C
Camelus ferus	L A S	Physeter catodon	C A A	Mus spretus	N I I	Ursus maritimus	N S S	Pteropus vampyrus	S A C
Jaculus jaculus	L A S	Jaculus jaculus	C A A	Rattus norvegicus	N I I	Odobenus rosmarus	N S S	Pteropus alecto	S A C
Dipodomys ordii	L A S	Sus scrofa	C A A	Leptomys tridecemlineatus	N I I	Neomonachus schauinslandi	N S S	Camelus bactrianus	S A C
Castor canadensis	L A S	Manis javanica	C A A	Marmota marmota	N I I	Leptomys weddellii	N S S	Camelus dromedarius	S A C
Cavia porcellus	L A S	Bos taurus	C A A	Nannospalax galili	N I I	Physeter catodon	N S S	Camelus ferus	S A C
Octodon degus	L A S	Bison bison bison	C A A	Chlorocebus sabaeus	N I I	Canis familiaris	N S S	Vicugna pacos	S A C
Heterocephalus glaber	L A S	Bos indicus	C A A	Colobus angolensis	N I I	Condylura cristata	N S S	Castor canadensis	S A C
Fukomys damarensis	L A S	Bubalus bubalis	C A A	Macaca fascicularis	N I I	Galeopterus variegatus	N S S	Dasypris novemcinctus	S A C
Rousettus aegyptiacus	L A S	Odocoileus virginianus	C A A	Macaca nemestrina	N I I	Ictidomys tridecemlineatus	N S S	Erinaceus europaeus	S A C
Pteropus alecto	L A S	Bos mutus	C A A	Macaca nemestrina	N I I	Marmota marmota	N S S	Bos taurus	S A C
Pteropus vampyrus	L A S	Ovis aries	C A A	Papio anubis	N I I	Chinchilla lanigera	N S S	Bison bison	S A C
Miniopterus natalensis	L A S	Pantholops hodgsonii	C A A	Mandrillus leucophaeus	N I I	Fukomys damarensis	N S S	Bos mutus	S A C
Rhinolophus sinicus	L A S	Capra hircus	C A A	Rhinopithecus bieti	N I I	Heterocephalus glaber	N S S	Pantholops hodgsonii	S A C
Dasypris novemcinctus	L A S	Tupaia belangeri	C A A	Rhinopithecus roxellana	N I I	Pteropus alecto	N S S	Ovis aries	S A C
Chrysochloris asiatica	L A S	Tupaia chinensis	C A A	Ptilocolobus tephrosceles	N I I	Rousettus aegyptiacus	N S S	Capra hircus	S A C
Manis javanica	L A S	Felis catus	C A A	Macaca mulatta	N I I	Trichechus manatus	N S S	Odocoileus virginianus	S A C
Mesocricetus auratus	L A S	Meriones unguiculatus	C A A	Gorilla gorilla	N I I	Peromyscus maniculatus	N S S	Orcinus orca	S A C
Rattus norvegicus	L A S	Orycteropus afer	C A A	Homo sapiens	N I I	Microtus ochrogaster	N S S	Delphinapterus leucas	S A C
Cricetulus griseus	L A S	Elephantulus edwardii	C A A	Nomascus leucogenys	N I I	Meriones unguiculatus	N S S	Physeter catodon	S A C
Meriones unguiculatus	L A S	Pteropus alecto	C A A	Pan paniscus	N I I	Mus musculus	N S S	Balaenoptera acutorostrata	S A C
Microtus ochrogaster	L A S	Rousettus aegyptiacus	C A A	Pan troglodytes	N I I	Enhydra lutris	N S S	Manis javanica	S A C
Peromyscus maniculatus	L A S	Equus przewalskii	C A A	Pongo abelii	N I I	Cricetulus griseus	N S S	Oryctolagus cuniculus	S A C
Mus musculus	L A S	Equus asinus	C A A	Propithecus coquereli	N I I	Mesocricetus auratus	N S S	Ictidomys tridecemlineatus	S A C
Mus spretus	L A S	Equus caballus	C A A	Mesocricetus auratus	N I I	Ailuropoda melanoleuca	N S S	Marmota marmota	S A C
Mus pahari	L A S	Cavia aepaea	C A A	Dipodomys ordii	N I I	Cavia porcellus	N S S	Condylura cristata	S A C
Elephantulus edwardii	L A S	Sorex araneus	C A A	Sorex araneus	N I I	Octodon degus	N S S	Elephantulus edwardii	S A C
Trichechus manatus	L A S	Castor canadensis	C A A	Acinonyx jubatus	N I I	Castor canadensis	N S S	Meriones unguiculatus	S A C
Eptesicus fuscus	L A S	Fukomys damarensis	C A A	Camelus ferus	N I I	Orycteropus afer	N S S	Mus caroli	S A C
Myotis lucifugus	L A S	Ochotona princeps	C A A	Camelus dromedarius	N I I	Loxodonta africana	N S S	Mus musculus	S A C
Myotis brandtii	L A S	Procavia capensis	C A A	Camelus bactrianus	N I I	Oryctolagus cuniculus	N S S	Mus spretus	S A C
Ochotona princeps	L A S	Dasypris novemcinctus	C A A	Procavia capensis	N I I	Felis catus	N S S	Rattus norvegicus	S A C
Oryctolagus cuniculus	L A S	Mesocricetus auratus	C A A	Aotus nancymaeae	N I I	Panthera pardus	N S S	Peromyscus maniculatus	S A C
Erinaceus europaeus	L A S	Choleopus hoffmanni	C A A	Manis javanica	N I I	Acinonyx jubatus	N S S	Microtus ochrogaster	S A C
Sorex araneus	L A S	Chinchilla lanigera	C A A	Ornithorhynchus anatinus	N I I	Pteropus vampyrus	N S S	Chinchilla lanigera	S A C
Sarcophilus harrisii	L A S	Chrysochloris asiatica	C A A	Cercopithecus atys	N I I	Delphinapterus leucas	N A A	Procavia capensis	C A C
Ornithorhynchus anatinus	L A S	Echinops telfairi	C A A	Galeopterus variegatus	N I I	Panthera tigris	N W W	Sorex araneus	S A C

Figure S1 Other mammals share same amino acid sites with long-lived species in this study. Species share same amino acid sites with long-lived species are highlight in red. (the convergence sites between long-lived mammals and other mammals are marked in orange and the remaining are in blue).