**Table S1. Gene sequence source ID or Accession numbers, listed placental mammals> marsupials>monotremes>non-mammals.** NS=No Sequence; gene sequence not available

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Common Name** | **Species** | ***Zan*** | ***Tecta*** | ***Cytb*** |
| Aardvark | *Orycteropus afer afer* | XM\_007955893.1 | XM\_007955906.1 | NC\_002078.1 |
| African savannah elephant | *Loxodonta africana* | XM\_023541738.1 | XM\_003418199.2 | NC\_000934.1 |
| Alpaca | *Vicugna pacos* | XM\_015251946.1 | XM\_015242128.1 | NC\_002504.1 |
| Alpine marmot | *Marmota marmota marmota* | XM\_015490707.1 | XM\_015490036.1 | NS |
| American beaver | *Castor canadensis* | XM\_020182103.1 | NS | NS |
| Amur tiger | *Panthera tigris altaica* | XM\_015538605.1 | XM\_007091209.1 | NC\_010642.1 |
| Angola colobus | *Colobus angolensis palliatus* | XM\_011943959.1 | XM\_011926983.1 | AF295583.1 |
| Arabian camel | *Camelus dromedarius* | XM\_010979462.1 | XM\_010990120.1 | NC\_009849.1 |
| Armadillo | *Dasypus novemcinctus* | XM\_023588394.1 | XM\_012525555.2 | NC\_001821.1 |
| Atlantic walrus | *Odobenus rosmarus rosmarus* | NS | NS | NC\_004029.2 |
| Bactrian camel | *Camelus bactrianus* | XM\_010953390.1 | XM\_010967243.1 | NC\_009628.2 |
| Beluga whale | *Delphinapterus leucas* | XM\_022587956.1 | XM\_022560259.1 | NC\_034236.1 |
| Big brown bat | *Eptesicus fuscus* | XM\_028145734.1 | NS | AF376835.1 |
| Bison | *Bos bison bison* | XM\_010837929.1 | XM\_010830495.1 | NC\_012346.1 |
| Black flying fox | *Pteropus alecto* | XM\_006918670.1 | XM\_006925244.1 | NC\_023122.1 |
| Black snub-nosed monkey | *Rhinopithecus bieti* | XM\_017885956.1 | XM\_017865564.1 | NC\_015486.1 |
| Bolivian squirrel monkey | *Saimiri boliviensis boliviensis* | XM\_010344850.1 | XM\_003923586.2 | NC\_018096.1 |
| Bottlenose dolphin | *Tursiops truncatus* | ENSTTRT00000011082.1 | XM\_019941744.1 | NC\_012059.1 |
| Brandt’s bat | *Myotis brandtii* | XM\_014550115.1 | XM\_005857110.2 | NC\_025308.1 |
| Cape elephant shrew | *Elephantulus edwardii* | NS | XM\_006895633.1 | NC\_041486.1 |
| Cape golden mole | *Chrysochloris asiatica* | XM\_006859819.1 | XM\_006833923.1 | NC\_004920.1 |
| Cape rock hyrax | *Procavia capensis* | ENSPCAT00000005892.1 | ENSPCAT00000007546.1 | NC\_004919.1 |
| Cheetah | *Acinonyx jubatus* | XM\_027042102.1 | XM\_027036760.1 | NC\_005212.1 |
| Chimpanzee | *Pan troglodytes* | XM\_024357974.1 | XM\_001167042.4 | NC\_001643.1 |
| Chinese hamster | *Cricetulus griseus* | XM\_027442291.1 | XM\_016980130.2 | NC\_007936.1 |
| Chinese rufous horseshoe bat | *Rhinolophus sinicus* | XM\_019752697.1 | XM\_019718967.1 | NS |
| Chinese treeshrew | *Tupaia chinensis* | XM\_027774660.1 | XM\_006148855.1 | NS |
| Common squirrel monkey | *Saimiri sciureus* | AY428855.1 | NS | NC\_012775.1 |
| Common vampire bat | *Desmodus rotundus* | NS | XM\_024557468.1 | NS |
| Coquerel sifaka | *Propithecus coquereli* | XM\_012638882.1 | ENSPCOT00000019406.1 | NC\_011053.1 |
| Cotton top tamarin | *Saguinus oedipus* | AY428857.1 | NS | HM368007.1 |
| Cattle | *Bos taurus* | XM\_024985146.1 | XM\_015474707.2 | NC\_006853.1 |
| Crab-eating macaque | *Macaca fascicularis* | XM\_015447172.1 | XM\_015436019.1 | NC\_012670.1 |
| Damara mole rat | *Fukomys damarensis* | XM\_019205267.1 | XM\_010629239.1 | NC\_027742.1 |
| David’s Myotis | *Myotis davidii* | XM\_015564568.1 | XM\_006763686.2 | NC\_025568.1 |
| Degu | *Octodon degus* | XM\_023714561.1 | XM\_006763686.2 | NC\_020661.1 |
| Dingo | *Canis lupus dingo* | XM\_025425976.1 | XM\_025465198.1 | MH035676.1 |
| Domestic cat | *Felis catus* | XM\_023246321.1 | XM\_023239201.1 | NC\_001700.1 |
| Domestic dog | *Canis lupus familiaris* | XM\_022420661.1 | XM\_022418187.1 | NC\_002008.4 |
| Domestic ferret | *Mustela putorius furo* | XM\_013061049.1 | XM\_013054972.1 | NC\_020638.1 |
| Donkey | *Equus asinus* | XM\_014854014.1 | XM\_014858838.1 | NC\_001788.1 |
| Drill | *Mandrillus leucophaeus* | XM\_011985821.1 | XM\_011964981.1 | NC\_028442.1 |
| Egyptian rousette | *Rousettus aegyptiacus* | XM\_016124823.1 | XM\_016161282.1 | NC\_007393.1 |
| European shrew | *Sorex araneus* | XM\_012934679.1 | XM\_004605093.1 | NC\_027963.1 |
| Florida manatee | *Trichechus manatus latirostris* | XM\_023740979.1 | XM\_004385610.2 | NS |
| Gelada | *Theropithecus gelada* | XM\_025379755.1 | XM\_025357413.1 | NC\_019802.1 |
| Giant panda | *Ailuropoda melanoleuca* | XM\_019807987.1 | XM\_002914077.3 | NC\_009492.1 |
| Goat | *Capra hircus* | XM\_018039999.1 | XM\_018059641.1 | NC\_005044.2 |
| Golden hamster | *Mesocricetus auratus* | XM\_013120772.2 | XM\_013112828.1 | NC\_013276.1 |
| Golden snub-nosed monkey | *Rhinopithecus roxellana* | XM\_010377736.1 | XM\_010357007.1 | NC\_008218.1 |
| Gorilla | *Gorilla gorilla gorilla* | XM\_019030456.1 | XM\_019035733.1 | NC\_011120.1 |
| Gray mouse lemur | *Microcebus murinus* | XM\_020281679.1 | XM\_020286855.1 | ENSMICT00000053028.1 |
| Great round leaf bat | *Hipposideros armiger* | XM\_019629886.1 | XM\_019666165.1 | NC\_018540.1 |
| Greater horseshoe bat | *Rhinolophus ferrumequinum* | NS | NS | KP063146.1 |
| Green monkey | *Chlorocebus sabaeus* | XM\_008018516.1 | XM\_008021233.1 | NC\_008066.1 |
| Guinea pig | *Cavia porcellus* | XM\_023565129.1 | XM\_013155428.2 | NC\_000884.1 |
| Hamadryas baboon | *Papio hamadryas* | AY428853.1 | XM\_017949012.2 | NC\_001992.1 |
| Hawaiian monk seal | *Neomanachus schauinslandi* | XM\_021680028.1 | XM\_021696471.1 | NC\_008421.1 |
| Himalayan marmot | *Marmota himalayana* | NS | NS | NC\_018367.1 |
| Horse | *Equus caballus* | XM\_023655363.1 | XM\_023645009.1 | NC\_001640.1 |
| House mouse | *Mus musculus* | NM\_011741.2 | NM\_001324548.1 | NC\_010339.1 |
| Human | *Homo sapiens* | NM\_003386.3 | NM\_005422.2 | NC\_012920.1 |
| Killer whale | *Orcinus orca* | XM\_012532585.1 | XM\_004280685.1 | NC\_023889.1 |
| Korean greater horseshoe bat | *Rhinolophus ferrumequinum*  | NS | NS | NC\_016191.1 |
| Large flying fox | *Pteropus vampyrus* | XM\_011371687.2 | XM\_011383588.1 | NC\_026542.1 |
| Lesser Egyptian jerboa | *Jaculus jaculus* | XM\_012950591.1 | XM\_004667352.1 | NC\_005314.1 |
| Lesser hedgehog tenrec | *Echinops telfairi* | XM\_013005430.1 | XM\_004716269.1 | NC\_002631.2 |
| Little brown bat | *Myotis lucifugus* | XM\_014453436.1 | XM\_023744715.1 | NC\_029849.1 |
| Long-tailed chinchilla | *Chinchilla lanigera* | XM\_013509448.1 | XM\_005378359.1 | NC\_021386.1 |
| Malayan pangolin | *Manis javanica* | XM\_017679895.1 | XM\_017679642.1 | NC\_026781.1 |
| Ma’s night monkey | *Aotus nancymaae* | XM\_021671603.1 | XM\_012470273.1 | NC\_018116.1 |
| Minke whale | *Balaenoptera acutorostrata* | XM\_007187024.1 | XM\_007196694.1 | NC\_005271.1 |
| Mongolian gerbil | *Meriones unguiculatus* | XM\_021650706.1 | XM\_021655443.1 | NC\_023263.1 |
| Natal long-fingered bat | *Miniopterus natalensis* | XM\_016217684.1 | XM\_016209090.1 | AJ841977.1 |
| Neanderthal | *Homo neanderthalensis* | ENST00000356510 | ENST00000264037 | NC\_011137.1 |
| Northern fur seal | *Callorhinus ursinus* | XM\_025864597.1 | XM\_025893827.1 | NC\_008415.3 |
| Northern treeshrew | *Tupaia belangeri* | NS | NS | NC\_002521.1 |
| Northern white-cheeked gibbon | *Nomascus leucogenys* | XM\_012496204.1 | XM\_003253294.2 | NC\_021957.1 |
| Norway rat | *Rattus norvegicus* | XM\_017598593.1 | XM\_008766130.2 | NC\_001665.2 |
| Olive baboon | *Papio anubis* | XM\_021936505.1 | XM\_017949012.2 | NC\_020006.2 |
| Ord’s kangaroo rat | *Dipodomys ordii* | XM\_013031714.1 | XM\_013009594.1 | AF173501.1 |
| Pacific walrus | *Odobenus rosmarus divergens* | XM\_012561877.1 | XM\_004417225.2 | NS |
| Philippine tarsier | *Tarsius syrichta* | XM\_008053323.1 | XM\_008054274.2 | NC\_012774.1 |
| Pig | *Sus scrofa* | NM\_214383.1 | ENSSSCT00000032235.2 | NC\_000845.1 |
| Pig-tailed macaque | *Macaca nemestrina* | XM\_024797634.1 | XM\_011732186.1 | NC\_026976.1 |
| Pika | *Ochotona princeps* | XM\_012927479.1 | XM\_004584986.1 | NC\_005358.1 |
| Polar bear | *Ursus maritimus* | XM\_008698435.1 | XM\_008690174.1 | NC\_003428.1 |
| Prairie deermouse | *Peromyscus maniculatus bairdii* | XM\_016002906.1 | XM\_006981237.2 | NS |
| Prairie vole | *Microtus ochragaster* | XM\_005371467.1 | XM\_005347143.1 | NC\_027945.1 |
| Przewalski’s horse | *Equus przewalskii* | XM\_008527352.1 | XM\_008513722.1 | NC\_024030.1 |
| Pygmy chimpanzee | *Pan paniscus* | XM\_008965459.1 | XM\_008973393.1 | NC\_001644.1 |
| Rabbit | *Oryctolagus cuniculus* | XM\_008257988.2 | XM\_017347720.1 | NC\_001913.1 |
| Red fox | *Vulpes vulpes* | XM\_026019606.1 | XM\_025999036.1 | DQ498126.1 |
| Rhesus macaque | *Macaca mulatta* | XM\_015134488.2 | XM\_015115973.1 | NC\_005943.1 |
| Ryukyu mouse | *Mus caroli* | XM\_021163424.1 | XM\_021172355.1 | NC\_025268.1 |
| Sea otter | *Enhydra lutris kenyoni* | XM\_022500393.1 | NS | AF057120.1 |
| Sheep | *Ovis aries* | XM\_027961542.1 | XM\_015100775.1 | NC\_001941.1 |
| Shrew mouse | *Mus pahari* | XM\_029533878.1 | XM\_021206960.1 | NC\_036680.1 |
| Small-eared galago | *Otolemur garnetti* | XM\_023518621.1 | XM\_023517294.1 | AY441466.1 |
| Sooty mangabey | *Cercocebus atys* | XM\_012057317.1 | XM\_012053453.1 | NC\_028592.1 |
| Southern white rhinoceros | *Ceratotherium simum simum* | XM\_014797076.1 | XM\_004427198.2 | NC\_001808.1 |
| Sperm whale | *Physeter catodon* | XM\_028498046.1 | XM\_007116373.2 | NC\_002503.2 |
| Star-nosed mole | *Condylura cristata* | XM\_012731625.1 | XM\_012729955.1 | NC\_029762.1 |
| Sumatran orangutan | *Pongo abelii* | XM\_024250049.1 | XM\_002822597.2 | NC\_002083.1 |
| Sunda flying lemur | *Galeopterus variegatus* | XM\_008580725.1 | XM\_008578339.1 | NC\_004031.1 |
| Texas white-tailed deer | *Odocoileus virginianus texanus* | XM\_020875960.1 | XM\_020891407.1 | NS |
| Thick-tailed bushbaby | *Otolemur crassicaudatus* | NS | NS | NC\_012762.1 |
| Thirteen-lined ground squirrel | *Ictidomys tridecemlineatus* | XM\_021728560.1 | XM\_005328387.1 | NC\_027278.1 |
| Tibetan antelope | *Pantholops hodgsonii*  | XM\_005956236.1 | XM\_005968188.1 | NC\_007441.1 |
| Two-toed sloth | *Choloepus hoffmanni* | NS | ENSCHOT00000012139.1 | KR336793.1 |
| Ugandan red colobus | *Piliocolobus tephrosceles* | XM\_026456664.1 | XM\_023208479.1 | NS |
| Upper Galilee Mtns blind mole rat | *Nannospalax galili* | ENSNGAG00000010261 | XM\_008826017.2 | NC\_020754.1 |
| Water buffalo | *Bubalus bubalis* | XM\_025275454.1 | XM\_006046458.1 | NC\_006295.1 |
| Weddell seal | *Leptonychotes weddellii* | XM\_006733759.1 | XM\_006734324.1 | NC\_008424.1 |
| West Indian manatee | *Trichechus manatus* | NS | NS | JF489120.1 |
| Western European hedgehog | *Erinaceus europaeus* | XM\_016193282.1 | XM\_007523569.2 | NC\_002080.2 |
| Western red colobus | *Piliocolobus badius* | NS | NS | NC\_008219.1 |
| White-footed deermouse | *Peromyscus leucopus* | NS | NS | NC\_037180.1 |
| White-fronted capuchin | *Cebus capucinus imitator* | XM\_017533382.1 | XM\_017523255.1 | NC\_002763.1 |
| White-tailed deer  | *Odocoileus virginianus* | NS | NS | NC\_015247.1 |
| White-tufted ear marmoset | *Callithrix jacchus* | XM\_008982413.2 | XM\_017978437.1 | NC\_025586.1 |
| Wild Bactrian camel | *Camelus ferus* | XM\_014561991.1 | XM\_006180274.2 | NC\_009629.2 |
| Yak | *Bos mutus* | XM\_014483333.1 | XM\_005897103.1 | NC\_025563.1 |
| Yangtze River dolphin | *Lipotes vexillifer* | XM\_007468897.1 | XM\_007450613.1 | NC\_007629.1 |
| Zebu | *Bos indicus* | XM\_019987175.1 | XM\_019974194.1 | NC\_005971.1 |
| Banded-hare wallaby | *Lagostrophus fasciatus* | NS | NS | NC\_008447.1 |
| Gray short-tailed opossum | *Monodelphis domestica* | NS | XM\_001370253.3 | NC\_006299.1 |
| Koala | *Phascolarctos cinereus* | NS | XM\_020984871.1 | NC\_008133.1 |
| Tammar wallaby | *Macropus eugenii* | NS | ENSMEUG00000016001 | NS |
| Tazmanian devil | *Sarcophilus harrisi* | NS | XM\_023499402.1 | NC\_018788.1 |
| Duck-billed platypus  | *Ornithorhynchus anatinus* | NS | XM\_007668019.1 | ENSOANT00000028483.1 |
| Chinese soft-shelled turtle | *Pelodiscus sinensis* | XM\_025189431.1 | XM\_025189890.1 | NC\_006132.1 |
| Coelocanth | *Latimeria chalumnae* | XM\_014490663.1 | XM\_014494885.1 | U82228.1 |