

**Project 3.2.6 Supplement A:**

**List of Mammals**

Introduction

How and why does our new power to perform huge numbers of computations on huge datasets change other disciplines? Biology is only one of many examples, but it’s an important one! How can trillions of data points from millions of organisms be compared? Not by hand! We are using computers to uncover the basis for life. So much data are now available that high school students can make new discoveries by creating metadata and performing comparisons that scientists have not yet had the chance to generate.

You will access the genomic sequence data from the following mammals. Because the names are the *Genus species* name of the animal, you might not recognize them, so here’s a list with common names. Where only one word is given, it is the genus.

*Anguilla anguilla* = eel

*Bos taurus* = cow

*Canis lupus* = wolf

*Canis lupus* *familiaris*= dog

*Capra* *hircus*= domestic goat

*Cavia porcellus =* guinea pig

*Chinchilla lanigera =* chinchilla

*Equus* *caballus* = horse

*Felis catus* = housecat

*Gallus gallus* = chicken

*Gorilla* *gorilla* = gorilla

*Homo sapiens =* human

*Lemur catta* = lemur

*Loxodonta* *africana* = elephant

*Mus musculus* = house mouse

*Macaca mulatta* = macaque

*Oryctolagus* *cuniculus* = rabbit

*Otolemur garnetti* = bush baby

*Ovis aries* = sheep

*Pan paniscus* = bonobo

*Pan troglodyte* = chimp

*Panthera leo* = lion

*Panthera tigris* = tiger

*Papio* *anubis* = baboon

*Pongo* *abelii* = orangutan

*Rattus norvegicus* = Norway rat

*Sus scrofa* = pig

*Ursus* *arctos* = brown bear

Non-mammalian vertebrates: ~150 genomes sequenced include

*Danio* *rerio* = zebrafish

*Xenopus tropicalis* = frog

*Salmo salar* = salmon

*Ambystoma mexicanum* = salamander

*Python bivattatus* = python

*Alligator mississippiensis* = Alligator

# The tree relating similarities among these mammals is broadly similar across all proteins, but the specific details can vary depending on which protein is used for the calculations. A consensus tree is shown below from Song, Liu, Edwards, and Wu. (2012). *Resolving conflict in eutherian mammal phylogeny using phylogenomics and the multispecies coalescent model.* PNAS, 109:37, pp.14942-14947.

