

Table S1. Fossil calibrators for the time-scaled Bayesian phylogenetic analysis of the DNA supermatrix.

Fossil Taxon	Phylogenetic Placement	Site	Geologic Age
<i>Myorycteropus africanus</i>	oldest stem-Tubulidentata	Locality IV, Napak, Uganda	19.5 [19-20]
<i>Todralestes variabilis</i>	oldest stem-Afrosoricida	Adar Mgorn I, Ouarzazate, Morocco	56.8 [56-57.6]
<i>Eochrysochloris tribosphenus</i>	oldest stem-Chrysochloridea	Quarry E, Jebel Qatrani Fm., Fayum, Egypt	32.1 [31-33.2]
<i>Chambius kasserinensis</i>	oldest stem-Macroscolidea	CBI-1, Djebel Chambi, Kasserine Plateau, Tunisia	46.8 [45.5-48.07]
<i>Metoldobotes</i> sp.	advanced stem-Macroscolidea	L-41, Jebel Qatrani Fm., Fayum, Egypt	34.5 [33.9-35]
<i>Oligorhynchocyon songwensis</i>	oldest stem-Rhynchocyoninae	TZ-01S, Songwe Mbr., Nsungwe Fm., Tanzania	25 [25-25]
<i>Seggeurius amouensis</i>	oldest stem-Hyracoidea	El Kohol, Algeria	52.9 [51.3-54.5]
<i>Heterohyrax auricampensis</i>	earliest <i>Heterohyrax</i>	Site I, Berk Aukas, Namibia	10.4 [9.7-11.1]
<i>Dendrohyrax samueli</i>	earliest <i>Dendrohyrax</i>	Aragai, Lukeino Fm., Tugen Hills, Kenya	6 [6-6]
<i>Loxodonta</i> sp. indet.	earliest <i>Loxodonta</i>	Site 266, Toros-Menalla, Chad	6.5 [6-7]
<i>Mammuthus subplanifrons</i>	earliest <i>Mammuthus</i>	Kuseralee Mbr., Sagantole Fm., Middle Awash, Ethiopia	5.5 [5.2-5.8]
<i>Losodokodon losodokius</i>	oldest stem-Mammutidae	Eragaleit Beds, Lothidok, Kenya	25.8 [24-27.5]
<i>Phosphatherium escuilliei</i> ^a	oldest stem-Proboscidea	Intercalary bed II/I, Sidi Chennane, Ouled Abdoun, Morocco	56 [56-56]
<i>Priscosiren atlantica</i> ^b	oldest stem-Dugongidae	LACM 8060, Rio Guatemala Sect., San Sebastian Fm., Puerto Rico	29.5 [29.17-29.78]
Chambi Sirenian (CBI-1-542)	oldest stem-Sirenia	CBI-1, Djebel Chambi, Kasserine Plateau, Tunisia	46.8 [45.5-48.07]
<i>Eritherium azzouorum</i>	oldest crown-Afrotheria	Bed Ila, Sidi Chennane, Ouled Abdoun, Morocco	60 [60-60]

Notes:^a alternate for *Daoutherium rebouli*, same site & age^b occurrence in Puerto Rico

Ages reported in millions of years