# Supporting Material

for Proceedings of the Royal Society B; doi:10.1098/rspb.2020.0665

## Cranial endocast of the stem lagomorph *Megalagus* and brain structure of basal Euarchontoglires

Sergi López-Torres[1,2,3,4], Ornella C. Bertrand[5], Madlen M. Lang[6] , Mary T. Silcox[6] and Łucja Fostowicz-Frelik[4,7,8*]

[1]Division of Paleontology, American Museum of Natural History, New York, NY, United States of America
[2]Richard Gilder Graduate School, American Museum of Natural History, New York, NY, United States of America
[3]New York Consortium in Evolutionary Primatology, New York, NY, United States of America
[4]Department of Evolutionary Paleobiology, Institute of Paleobiology, Polish Academy of Sciences, Warsaw, Poland
[5]School of Geosciences, Grant Institute, University of Edinburgh, Edinburgh, EH9 3FE, Scotland, UK
[6]Department of Anthropology, University of Toronto Scarborough, Toronto, ON, Canada
[7]Key Laboratory of Vertebrate Evolution and Human Origins, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing 100044, China
[8]CAS Center for Excellence in Life and Paleoenvironment, Beijing 100044, China

* Corresponding Author: Łucja Fostowicz-Frelik, Institute of Paleobiology, Polish Academy of Sciences, 51/55 Twarda St, Warsaw 00-818, Poland; email lfost@twarda.pan.pl

## Table of contents

**Materials and Methods** 3

**Figures**

Fig. S1 5

Fig. S2 6

Fig. S3 7

Fig. S4 8

Fig. S5 9

Fig. S6 10

Fig. S7 11

Fig. S8 12

Fig. S9 13

**Tables**

Table S1 14

Table S2 15

Table S3 17

Table S4 18

Table S5a 20

Table S5b 24

Table S6 50

Table S7 53

## Materials and Methods

The skull of *Megalagus turgidus* (FMNH UC 1642) comes from the early Orellan deposits (early Oligocene; 33.7–32.00 Ma) [24] of the Brule Formation at Grime's Ranch, Sioux County, Nebraska [25]. The specimen is an almost complete (the zygomatic arches are missing), undistorted cranium (Fig. 2), associated with two mandibular bodies, and was originally described by Olson [25].

The skull of *Megalagus turgidus* (Fig. 2) was micro-CT scanned in a high resolution Phoenix v|tome|x L 240 scanner (GE Measurement & Control Solutions) at the American Museum of Natural History (New York, NY, USA) with the following parameters: voltage 155 kV, current 145 mA, and 0.2 mm Cu filter. To accommodate the length of the specimen, the skull was scanned as a multiscan in four parts. The total of 4501 images were acquired at a resolution of 22.54 μm (isotropic voxels) with 0.33 sec of exposure. Raw data were reconstructed with Phoenix datos|x 2.0 software resulting in 16-bit TIFFs (1977x1000 pixel in size). The CT-data of the endocranial cavity of *Megalagus turgidus* were manually segmented in Avizo 9.0.1 (Visualization Science Group, 1995–2015) using a WACOM Cintiq 21UX tablet in each of the three parts that contain the cranial cavity, then the three resulting datasets were merged. We compared the endocast of *Megalagus* to a sample of 10 extant lagomorph species or subspecies representing extant families (Leporidae and Ochotonidae; Figs S3, S4, see also Table S2), and to previously published endocasts of early members of Euarchontoglires (Table S3), including basal Glires (*Rhombomylus*) [5], Palaeogene rodents [35–39], plesiadapiforms [31–34], and the apatemyids *Carcinella* [43] and *Labidolemur* [42].

The comparative material of extant lagomorphs was CT-scanned, with each specimen imaged as a single scan (Table S1), at the Shared Materials Instrumentation Facility (SMIF), Duke University (Durham, NC, USA), apart from *Romerolagus diazi* which was imaged as a multiscan performed at the American Museum of Natural History.

Endocast nomenclature follows Silcox et al. [31], with modifications; in particular, we refer to the paraflocculi as 'petrosal lobules'. Linear measurements are in Fig. S1, surface area and volumetric measurements follow Bertrand and Silcox [36]. They were taken on the endocasts using Avizo 9.0.1 (see Tables 1, S2–S3). Because of poorer preservation on the left side of the *Megalagus* endocast, we followed Jerison [27] and Long et al. [28], who measured only one side of the neocortex (the most complete hemisphere), excluding the superior sagittal sinus, and then doubled the area of the hemisphere (the module 'volume edit' was used). The resulting data on the endocast volume, relative neocortical surface area, relative olfactory bulb and petrosal lobule volumes for *Megalagus* are presented in Table 1. The surface rendering of the *Megalagus* endocast used in this paper is available from the Dryad Digital Repository (doi:10.5061/dryad.0vt4b8gwg) [26].

For comparative purposes, we calculated the encephalization quotient (EQ) using two equations: Jerison's (1973) and Eisenberg's [30]. Values for those equations were calculated for fossil and extant lagomorph endocasts and are included in Tables S2, S3 (and Figs 4, S9). The data for fossil euprimates are based on available virtual endocasts (see [40], Kirk et al. 2014, Ramdarshan and Orliac 2016); for raw data see Tables S5a, b. The width of the occipital

condyles (WOC) was used to estimate the body mass (Moncunill-Solé et al. 2015) for all species of lagomorphs in our sample (Table S7).

The statistical data were analyzed using PAST software ver. 2.17c (Hammer et al. 2001); all results, including Principal Component Analysis (PCA) performed using correlation matrix (Figs 5, S8; Table S4), boxplots (Figs 4, S9; Tables S5a, b), bivariate plots, with accompanying least square regression analysis (Figs 4, S5–S6; Table S6), can be found further in the Supplementary Material. The PCA included nine endocast parameters (Table S4) analyzed for 24 species of extant lagomorphs, fossil rodents, plesiadapiforms, and *Megalagus*.

**Additional references**

Ø. Hammer, D. A. T. Harper, P. D. Ryan, PAST: Paleontological Statistics software package for education and data analysis. *Palaeontol. Electron.* **4**, 1–9 (2001).

H. J. Jerison, Evolution of the Brain and Intelligence (Academic Press, 1973), 482 p.

E. C. Kirk, P. Daghighi, T. E. Macrini, B.-A. S. Bhullar, T. B. Rowe, Cranial anatomy of the Duchesnean primate *Rooneyia viejaensis*: New insights from high resolution computed tomography. *J. Hum. Evol.* **74**, 82–95 (2014).

B. Moncunill-Solé, J. Quintana, X. Jordana, P. Engelbrektsson, M. Köhler, The weight of fossil leporids and ochotonids: Body mass estimation models for the order Lagomorpha. *J. Zool.* **295**, 269–278 (2015).

A. Ramdarshan, M. J. Orliac, Endocranial morphology of *Microchoerus erinaceus* (Euprimates, Tarsiiformes) and early evolution of the Euprimates brain. *Am. J. Phys. Anthropol.* **159**, 5–16 (2016).

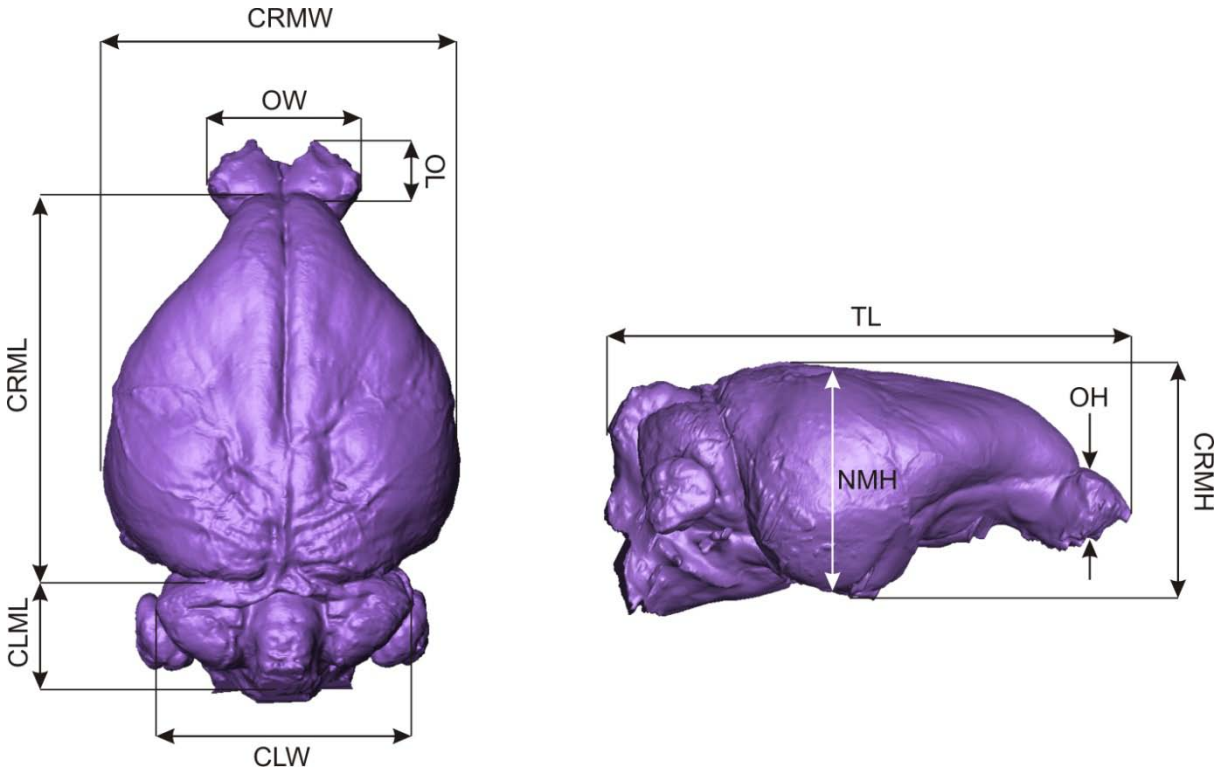



**Fig. S1**. Linear measurements of endocast (based of *Lepus arcticus* AMNH 42139). Abbreviations: CLML, cerebellum maximum length; CLW, cerebellum width (without petrosal lobes); CRMH, cerebrum maximum height; CRML, cerebrum maximum length; CRMW, cerebrum maximum width; NMH, neocortex maximum height; OH, olfactory bulbs height; OL, olfactory bulbs length; OW, olfactory bulbs width; TL, total endocast length. Left, dorsal; right, lateral view.

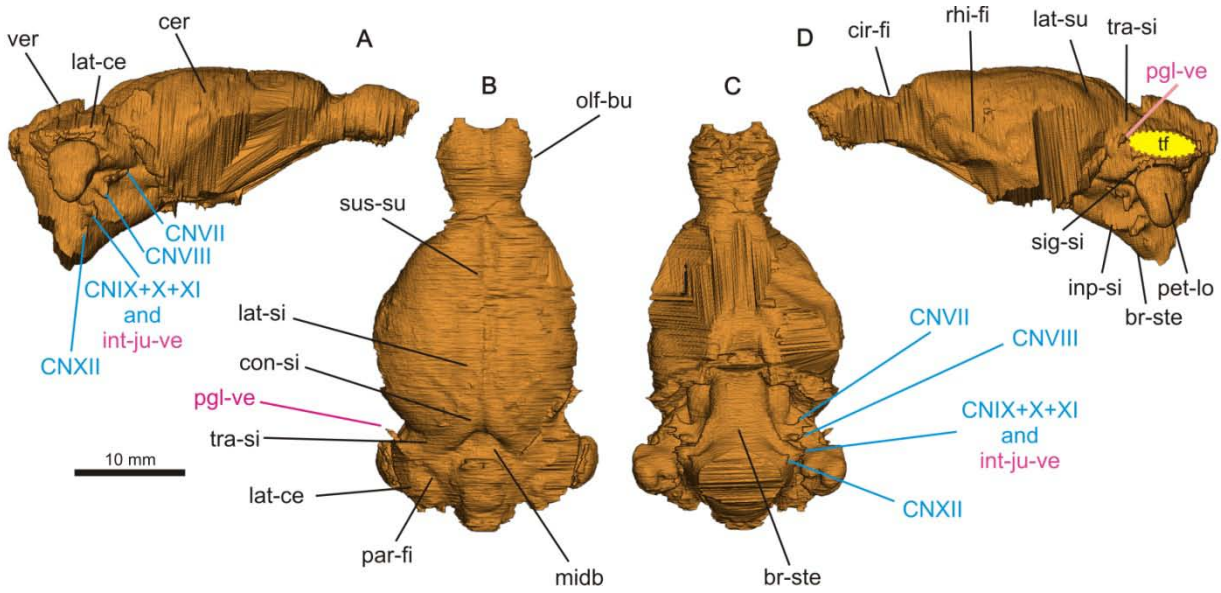



**Fig. S2**. Digital endocast of *Megalagus turgidus* in (A, D) lateral, (B) dorsal, and (C) ventral views. Abbreviations: br-ste, brain stem; cer, cerebrum; cir-fi, circular fissure; CNVII, cranial nerve VII (facial nerve); CNVIII, cranial nerve VIII (vestibulocochlear nerve); CNIX, cranial nerve IX (glossopharyngeal nerve); CNX, cranial nerve X (vagus nerve); CNXI, cranial nerve XI (accessory nerve); CNXII, cranial nerve XII (hypoglossal nerve); con-si, confluence of sinuses; inp-si, inferior petrosal sinus; int-ju-ve, internal jugular vein; lat-ce, lateral lobe of cerebellum; lat-si, lateral sinus; lat-su, lateral sulcus; midb, midbrain; olf-bu, olfactory bulbs; par-fi, paramedian fissure; pet-lo, petrosal lobule; pgl-ve, postglenoid vein; rhi-fi, rhinal fissure; sig-si, sigmoid sinus; sus-su, superior sagittal sulcus; tf, temporal foramen; tra-si, transverse sinus; ver, vermis. Color code: blue, nerves; pink, blood vessels; black, brain structures.

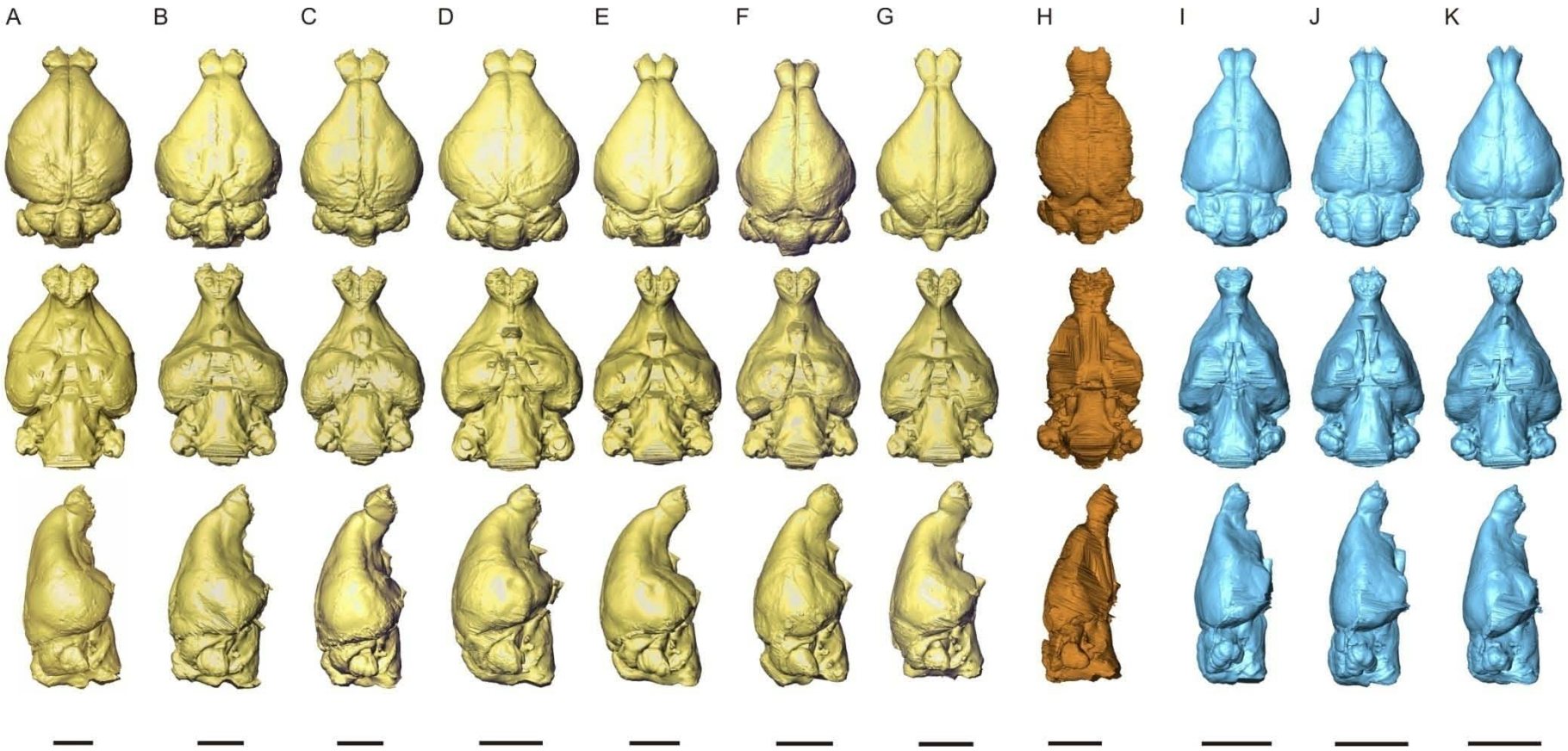



**Fig. S3**. Comparative endocast morphology of extant Lagomorpha (A–G, I–K) and *Megalagus turgidus* FMNH UC 1642 (H, in orange-brown). Leporidae (in yellow): *Lepus arcticus*, AMNH 42139 (A); *L. americanus bairdii*, AMNH 99352 (B); *L. americanus phaeonotus*, AMNH 99352 (C); *Brachylagus idahoensis*, AMNH 92869 (D); *Oryctolagus cuniculus*, AMNH 34816 (E); *Romerolagus diazi*, AMNH 148172 (F); *Poelagus marjorita*, AMNH 51052 (G). Ochotonidae (in blue): *Ochotona princeps schisticeps*, AMNH 40547 (I); *O. princeps princeps*, AMNH 120698 (J); *O. pallasi*, AMNH 59712 (K). Scale bar represents 1 cm.

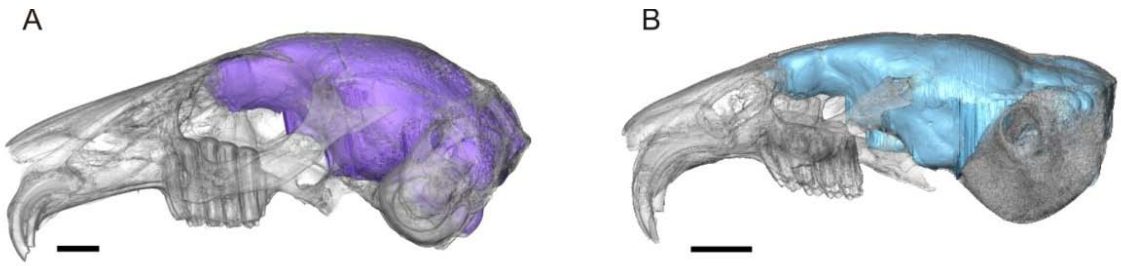



**Fig. S4**. Lateral view of the extant lagomorph brain endocasts inside translucent crania. A, leporid, *Romerolagus diazi* (AMNH 148172); B, ochotonid, *Ochotona princeps* (AMNH 120698). The picture shows the position of the anterior extremities of the olfactory bulbs in relation to the upper tooth row. Scale bar represents 1 cm.

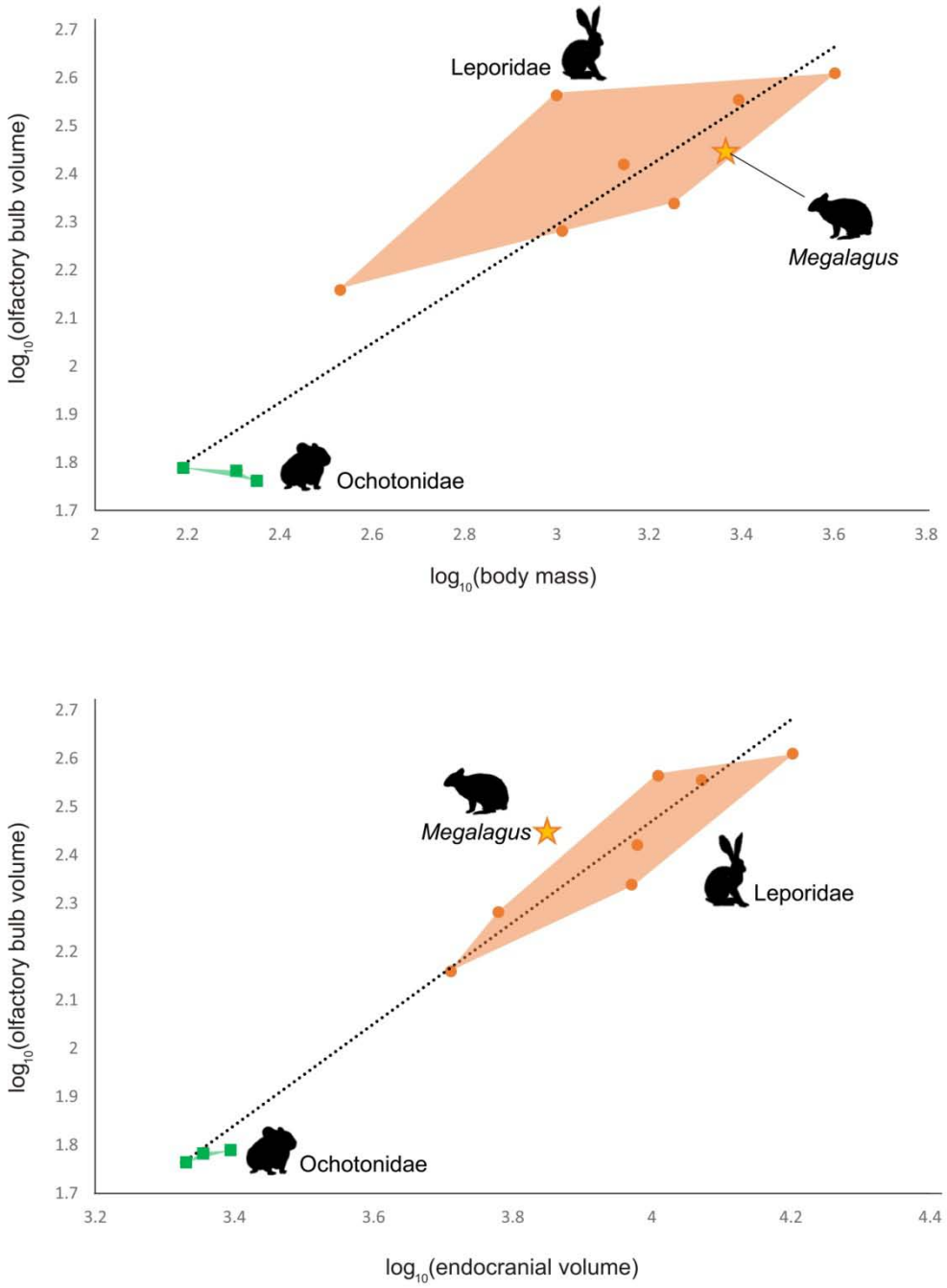



**Fig. S5**. Olfactory bulb proportions in studied Lagomorpha. Bivariate plots of olfactory bulb volume to body mass (top), and the endocranial volume (down). See metric data in Tables S2, S7. The equation parameters for the least square regression analysis are as follows: slope 0.6154, intercept 0.4475, and $r^2$ 0.8659 for (top), and slope 1.0487, intercept -1.7248, and $r^2$ 0.957 for (down).

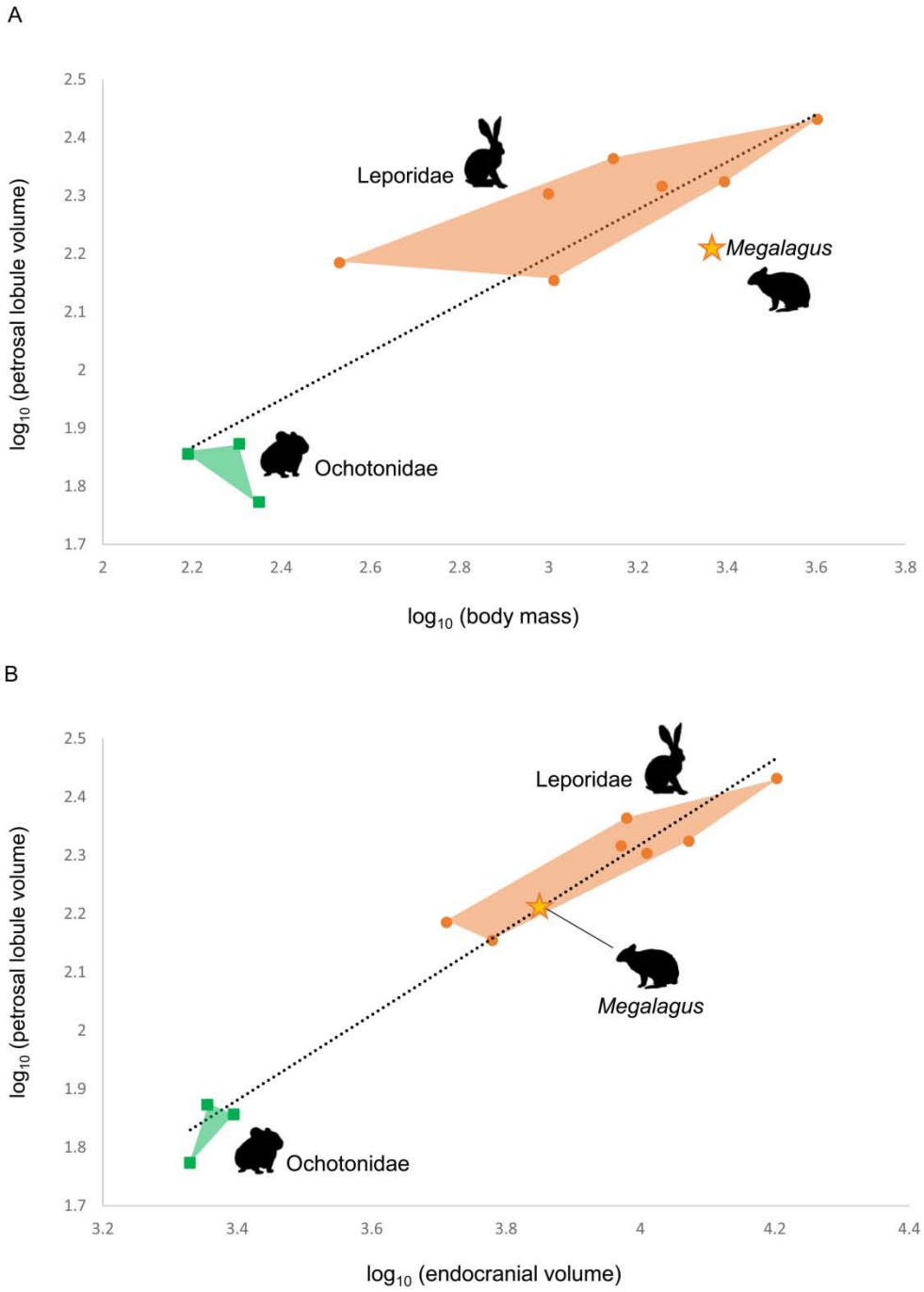



**Fig. S6**. Petrosal lobule ratios in studied Lagomorpha. Metric data in Tables 1, S2, and S7. The equation parameters for the least square regression analysis are as follows: slope 0.4091, intercept 0.9671, and $r^2$ 0.7977 for (A), and slope 0.7292, intercept -0.5986, and $r^2$ 0.9649 for (B).

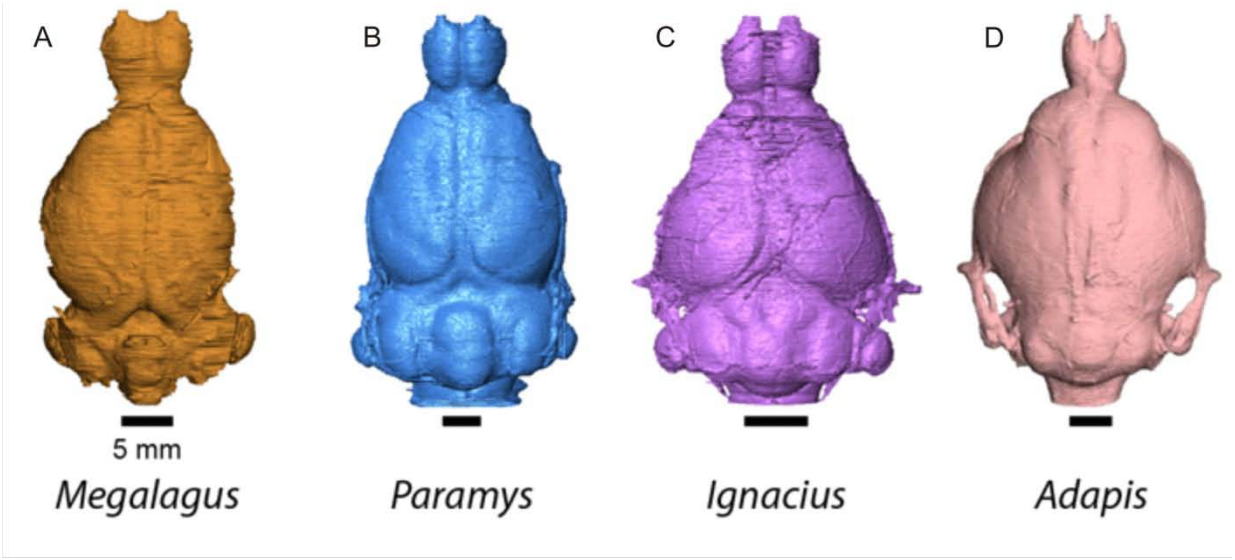
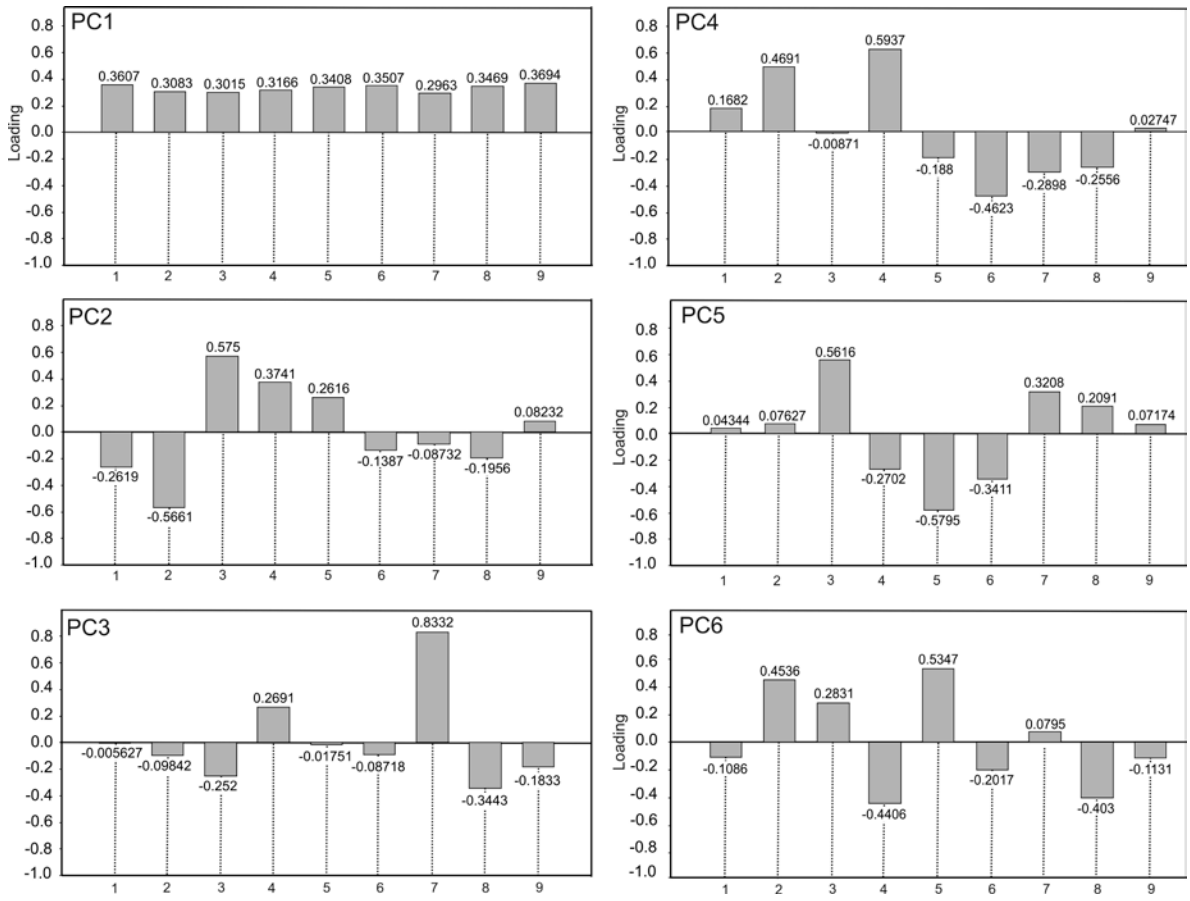



**Fig. S7**. Comparison of endocast morphology in major groups of Euarchontoglires. A, lagomorph; B, ischyromyid rodent; C, plesiadapiform (stem primate); D, euprimate.




| PC | Eigenvalue | % variance |
|---|---|---|
| 1 | 6,98839 | 77,649 |
| 2 | 0,710952 | 7,8995 |
| 3 | 0,462316 | 5,1368 |
| 4 | 0,35083 | 3,8981 |
| 5 | 0,284515 | 3,1613 |
| 6 | 0,0953711 | 1,0597 |
| 7 | 0,0680578 | 0,7562 |
| 8 | 0,0222138 | 0,24682 |
| 9 | 0,0173513 | 0,19279 |

**Fig. S8**. PCA loadings for the first six principal components and the Eigenvalues for all nine components.

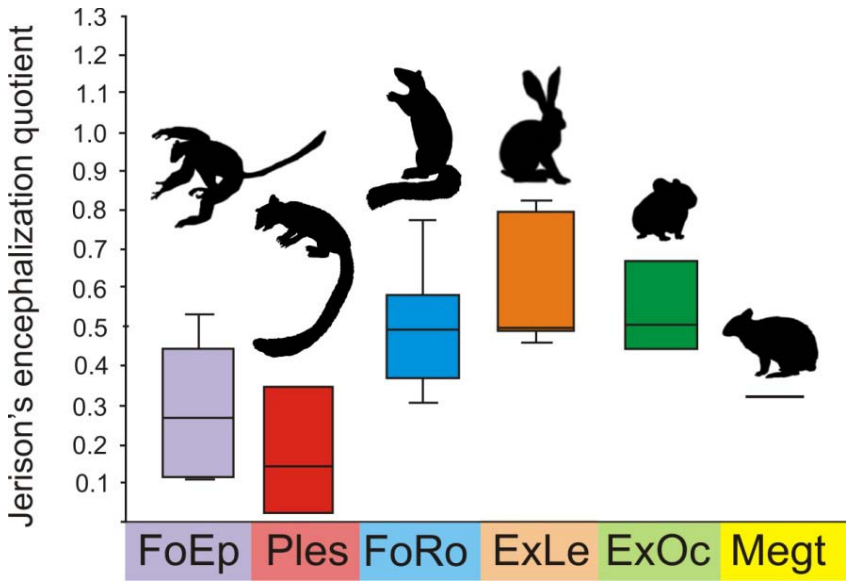



**Fig. S9**. EQ based on Jerison's equation. Abbreviations: FoEp, fossil eurimates (N=10); Ples, plesiadapids (N=4); FoRo, fossil rodents (N=15); ExLe, extant leporids (N=7); ExOc, extant ochotonids (N=3); Megt, *Megalagus turgidus* (N=1). Metric data in Table S5b.

**Table S1**. Information on lagomorph CT-scans used in the paper

| Species | Specimen | Location of the scan | Author responsible for scanning | Source-object distance (mm) | Energy settings | | Number of views | Voxel size (mm) | | Columns x rows (total) | Total number of slices |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | kV | mA | | X and Y | Z | | |
| *Brachylagus idahoensis* | AMNH 92869 | SMIF | MML | 118.64 | 138 | 87 | 2000 | 0.045899 | 0.091798 | 1331 x 1393 | 826 |
| *Poelagus marjorita* | AMNH 51052 | SMIF | MML | 194.94 | 147 | 91 | 2000 | 0.045899 | 0.091798 | 1255 x 1316 | 901 |
| *Lepus americanus phaeonotus* | AMNH 97648 | SMIF | MML | 165.24 | 138 | 87 | 2000 | 0.041922 | 0.083844 | 1416 x 1413 | 988 |
| *Lepus americanus bairdii* | AMNH 99352 | AMNH | OCB | 239.11 | 135 | 180 | 2250 | 0.041191 | 0.083844 | 1114 x 1111 | 926 |
| *Lepus arcticus* | AMNH 42139 | SMIF | MML | 233.98 | 148 | 90 | 2000 | 0.055091 | 0.082382 | 1456 x 1384 | 911 |
| *Oryctolagus cuniculus* | AMNH 34816 | SMIF | MML | 158.68 | 138 | 87 | 2000 | 0.040904 | 0.110182 | 1255 x 1394 | 953.5 |
| *Romerolagus diazi* | AMNH 148172 | AMNH | ŁFF | 91.94 | 150 | 180 | 1800 | 0.022608 | 0.081808 | 1669 x 1361 | 1364 |
| *Ochotona princeps princeps* | AMNH 120698 | SMIF | MML | 87.95 | 129 | 94 | 2000 | 0.023833 | 0.045216 | 1255 x 1853 | 897 |
| *Ochotona princeps schisticeps* | AMNH 40547 | AMNH | OCB | 134.26 | 105 | 165 | 2350 | 0.023128 | 0.046256 | 1583 x 1570 | 998 |
| *Ochotona pallasi* | AMNH 59712 | SMIF | MML | 89.27 | 123 | 98 | 2000 | 0.024188 | 0.048376 | 1033 x 1077 | 906 |
| *Megalagus turgidus* | FMNH UC 1642 | AMNH | ŁFF | 91.68 | 155 | 145 | 2250 | 0.022544 | 0.022544 | 1564 x 1421 | 2701 |

**Table S2**. Quantitative endocast data for Lagomorpha

| **Measurement** | *Brachylagus idahoensis* AMNH 92869 | *Lepus americanus phaeonotus* AMNH 97648 | *Lepus arcticus* AMNH 42139 | *Lepus americanus bairdii* AMNH 99352 | *Oryctolagus cuniculus* AMNH 34816 | *Poelagus marjorita* AMNH 51052 | *Romerolagus diazi* AMNH 148172 | *Ochotona pallasi* AMNH 59712 | *Ochotona princeps princeps* AMNH 120698 | *Ochotona princeps schisticeps* AMNH 40547 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Linear measurements** (in mm) | | | | | | | | | | |
| Total length (TL) | 33.02 | 46.36 | 50.01 | 43.92 | 42.70 | 51.99 | 38.57 | 29.73 | 30.33 | 31.05 |
| Olfactory bulb length (OL) | 5.55 | 8.6 | 8.71 | 10.08 | 6.98 | 14.33 | 6.10 | 5.34 | 5.34 | 4.93 |
| Olfactory bulb width (OW) | 8.98 | 13.68 | 15.01 | 10.55 | 10.09 | 11.55 | 9.00 | 5.39 | 5.79 | 6.06 |
| Olfactory bulb height (OH) | 6.08 | 7.82 | 8.34 | 7.53 | 6.58 | 7.92 | 6.31 | 5.03 | 4.40 | 4.49 |
| Maximum neocortex height (NMH) | 13.44 | 18.17 | 17.79 | 16.13 | 19.34 | 15.74 | 12.73 | 9.40 | 9.11 | 9.78 |
| Cerebrum total length (CRML) | 24.94 | 33.07 | 35.10 | 29.15 | 30.20 | 34.66 | 26.72 | 17.43 | 16.73 | 17.94 |
| Cerebrum maximum width (CRMW) | 23.00 | 29.02 | 32.64 | 28.02 | 27.22 | 29.01 | 23.49 | 16.37 | 16.43 | 16.81 |
| Cerebrum maximum height (CRMH) | 16.38 | 19.70 | 22.44 | 20.83 | 20.76 | 20.36 | 16.85 | 11.19 | 11.24 | 11.39 |
| Cerebellum length (vermis) (CLML) | 8.21 | 11.41 | 12.06 | 12.15 | 8.94 | 11.23 | 9.51 | 6.88 | 8.30 | 8.24 |
| Cerebellum width (without paraflocculi) (CLW) | 17.34 | 21.37 | 23.40 | 20.83 | 22.21 | 21.76 | 19.14 | 11.77 | 12.43 | 12.13 |
| **Ratios** (in %) | | | | | | | | | | |
| OL/TL | 16.81 | 18.55 | 17.42 | 22.95 | 16.35 | 27.56 | 15.82 | 17.96 | 17.61 | 15.88 |
| CRML/TL | 75.53 | 71.33 | 70.19 | 66.37 | 70.73 | 66.67 | 69.28 | 58.63 | 55.16 | 57.78 |
| CLML/TL | 24.86 | 24.61 | 24.12 | 27.66 | 20.94 | 21.60 | 24.66 | 23.14 | 27.37 | 26.54 |
| CLW/CRMW | 75.39 | 73.64 | 71.69 | 74.34 | 81.59 | 75.01 | 81.48 | 71.90 | 75.65 | 72.16 |
| OW/CRMW | 39.04 | 47.14 | 45.99 | 37.65 | 37.07 | 39.81 | 38.31 | 32.93 | 35.24 | 36.05 |
| OW/CLW | 51.79 | 64.01 | 64.15 | 50.65 | 45.43 | 53.08 | 47.02 | 45.79 | 46.58 | 49.96 |
| NMH/CRMH | 82.05 | 92.23 | 79.28 | 77.44 | 93.16 | 77.31 | 75.55 | 84.00 | 81.05 | 85.86 |

**Table S2**. continued

| **Measurement** | *Brachylagus idahoensis* AMNH 92869 | *Lepus americanus phaeonotus* AMNH 97648 | *Lepus arcticus* AMNH 42139 | *Lepus americanus bairdii* AMNH 99352 | *Oryctolagus cuniculus* AMNH 34816 | *Poelagus marjorita* AMNH 51052 | *Romerolagus diazi* AMNH 148172 | *Ochotona pallasi* AMNH 59712 | *Ochotona princeps princeps* AMNH 120698 | *Ochotona princeps schisticeps* AMNH 40547 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Surfaces** (in $mm^2$) | | | | | | | | | | |
| Total endocast area (TS) | 2210.12 | 3536.03 | 4562.86 | 3256.85 | 3329.57 | 3778.56 | 2472.52 | 1223.86 | 1270.50 | 1303.88 |
| Neocortical surface area (NS) | 728.43 | 1255.52 | 1944.27 | 1074.20 | 1223.30 | 1298.47 | 720.10 | 430.58 | 400.12 | 433.24 |
| Neocortical surface area (one side) (NS1) | 353.76 | 620.70 | 957.75 | 518.48 | 586.10 | 627.89 | 347.10 | 206.26 | 196.74 | 207.56 |
| **Volumes** (in $mm^3$) | | | | | | | | | | |
| Total endocast (TV) | 5145.19 | 10221.40 | 15949.90 | 9538.09 | 9363.12 | 11807.96 | 6020.62 | 2138.24 | 2270.48 | 2479.85 |
| Olfactory bulbs (OV) | 144.28 | 366.15 | 407.14 | 263.19 | 218.06 | 358.52 | 191.21 | 57.92 | 60.75 | 61.63 |
| Petrosal lobules (PLV) | 153.04 | 201.00 | 270.10 | 231.02 | 207.03 | 210.83 | 142.54 | 59.32 | 74.74 | 71.80 |
| **Ratio**(in %) | | | | | | | | | | |
| NS/TS | 32.96 | 35.51 | 42.61 | 32.98 | 36.74 | 34.36 | 29.12 | 35.18 | 31.49 | 33.23 |
| OV/TV | 2.80 | 3.58 | 2.55 | 2.76 | 2.33 | 3.04 | 3.18 | 2.71 | 2.68 | 2.49 |
| PLV/TV | 2.97 | 1.97 | 1.69 | 2.42 | 2.21 | 1.79 | 2.37 | 2.77 | 3.29 | 2.90 |
| **Mass** (in mg) | | | | | | | | | | |
| Olfactory bulb mass | 137.41 | 348.71 | 387.75 | 250.66 | 207.68 | 341.45 | 182.10 | 55.16 | 57.86 | 58.70 |
| Petrosal lobule mass | 145.75 | 191.43 | 257.24 | 220.02 | 197.17 | 200.79 | 135.75 | 56.50 | 71.18 | 68.38 |
| Brain volume converted to mass | 5.15 | 1.02 | 15.95 | 9.56 | 9.36 | 11.81 | 6.02 | 2.14 | 2.27 | 2.48 |
| **Encephalization quotient** | | | | | | | | | | |
| **Jerison's EQ** | 0.82 | 0.79 | 0.49 | 0.59 | 0.49 | 0.50 | 0.46 | 0.45 | 0.51 | 0.67 |
| **Eisenberg's EQ** | 1.19 | 1.06 | 0.59 | 0.78 | 0.63 | 0.63 | 0.61 | 0.67 | 0.77 | 1.02 |

**Table S3**. Comparative endocast parameters and EQ values for fossil Euarchontoglires taxa

| | Specimen number | Epoch | Total endocast volume ($mm^3$) | Neocortical surface area ratio (%) | Olfactory bulb volume ratio (%) | Petrosal lobule volume ratio (%) | Jerison's EQ | Eisenberg's EQ |
|---|---|---|---|---|---|---|---|---|
| **Rodentia** | | | | | | | | |
| *Altasciurus relictus* | USNM 437793 | Early Oligocene | 957.45 | - | 3.55 | 3.35 | 0.78 | 1.33 |
| *Protosciurus* cf. *rachelae* | YPM 14736; YPM 14737 | Late Oligocene–early Miocene | 4546.82–5658.95 | 30.67–31.71 | 3.65–4.76 | 2.96–3.31 | 0.71 | 1.03 |
| *Paramys copei* | AMNH 4756 | Early Eocene | 7526.65 | 18.14 | 6.05 | 1.20 | 0.57 | 0.76 |
| *Paramys delicatus* | AMNH 12506 | | 12565.40 | 17.19 | 4.74 | 1.03 | 0.48 | 0.59 |
| *Pseudotomus horribilis* | USNM 17159 | Middle Eocene | 15188.20 | 18.75 | 5.33 | 1.14 | 0.31 | 0.36 |
| *Pseudotomus oweni* | USNM 17161 | Middle Eocene | 12063.00 | 21.89 | 5.94 | 0.62 | 0.30 | 0.36 |
| *Pseudotomus petersoni* | AMNH 2018 | Middle Eocene | 17014.90 | - | 4.14 | 0.39 | 0.37 | 0.43 |
| *Pseudotomus hians* | AMNH 5025 | Middle Eocene | 13679.10 | 23.29 | 5.43 | 1.04 | 0.49 | 0.61 |
| *Rapamys atramontis* | AMNH 128706; AMNH 128704 | Middle Eocene | 6006.47–7109.97 | 22.98–23.01 | 3.16–3.76 | 1.52–2.05 | 0.46–0.49 | 0.61–0.66 |
| *Ischyromys typus* | ROMV 1007; AMNH 12252; AMNH F:AM 144638 | Early Oligocene | 5578.07–7276.91 | 19.83–23.41 | 3.15–3.68 | 1.60–1.63 | 0.36–0.53 | 0.47–0.70 |
| *Cedromus wilsoni* | USNM 256584 | Early Oligocene | 3609.87 | 31.49 | 2.96 | 3.16 | 0.68 | 0.99 |
| **Primates** | | | | | | | | |
| *Microsyops annectens* | UW 12362 | Middle Eocene | 5900.00 | 24.3 | 5.1 | - | 0.32 | 0.42 |
| *Ignacius graybullianus* | USNM 421608; UF 26000 | Early Eocene | 2140.00 | 21.8–24.4 | 5.5 | - | 0.42 | 0.61 |
| *Plesiadapis tricuspidens* | MNHN CR 125 | Late Palaeocene | 5210.00 | 22 | 4.9 | - | 0.12 | 0.14 |
| *Plesiadapis cookei* | UM 87990 | Late Palaeocene | 5000.00 | - | 7.8 | - | 0.23 | 0.29 |
| **Apatemyoidea** | | | | | | | | |
| *Labidolemur kayi* | USNM 530208; USNM 530221 | Late Palaeocene | 501.88 | - | 14.75 | - | 0.22 | 0.36 |

**Table S4**. Data for Principal Component Analysis of endocast measurements (see Fig. S1 for explanation) for studied lagomorphs, fossil rodents, and plesiadapiforms; var., variable

| Measurement<br>Species | TL<br>(var. 1) | OL<br>(var. 2) | OW<br>(var. 3) | CRML<br>(var. 4) | CRMW<br>(var. 5) | CLW<br>(var. 6) | CLML<br>(var. 7) | OV<br>(var. 8) | TV<br>(var. 9) |
|---|---|---|---|---|---|---|---|---|---|
| *Plesiadapis tricuspidens* (MNHN CR125) | 43.5 | 9.7 | 4.6 | 18.2 | 22 | 19.6 | 7.5 | 136 | 5210 |
| *Plesiadapis cookei* (UM 87990) | 42 | 10 | 5 | 22 | 22 | 20 | 7.2 | 390 | 5700 |
| *Microsyops annectens* (UW 12362) | 41.25 | 8 | 5 | 22.26 | 24 | 23.9 | 11.9 | 300 | 5900 |
| *Ignacius graybullianus* (USNM 421608) | 30.79 | 6.28 | 3.94 | 15.8 | 19.44 | 15.6 | 9.4 | 120 | 2140 |
| *Mesogaulus paniensis* (AMNH F:AM 65511) | 28.29 | 4.83 | 8.11 | 16.42 | 21.52 | 16.15 | 5.56 | 114 | 3468 |
| *Protosciurus* cf. *rachelae* (YPM 14736) | 32.95 | 6.69 | 8.35 | 19.23 | 22.79 | 15.81 | 6.69 | 216.41 | 4546.82 |
| *Protosciurus* cf. *rachelae* (YPM 14737) | 36.14 | 6.73 | 8.46 | 19.75 | 21.8 | 17.28 | 6.41 | 206.7 | 5658.95 |
| *Paramys copei* (AMNH 4756) | 45.82 | 10.11 | 9.63 | 21.05 | 21.47 | 20.3 | 9.92 | 455.45 | 7526.65 |
| *Paramys delicatus* (AMNH 12506) | 50.54 | 10.17 | 11.15 | 23.27 | 25.63 | 24.01 | 11.5 | 595.51 | 12565.4 |
| *Pseudotomus horribilis* (USNM 17159) | 54.38 | 11.76 | 16.49 | 26.42 | 32.11 | 29.31 | 12.63 | 808.92 | 15188,2 |
| *Pseudotomus oweni* (USNM 17161) | 51.72 | 10.2 | 12.49 | 28.2 | 23 | 23.83 | 10.3 | 717.06 | 12063 |
| *Pseudotomus hians* (AMNH 5025) | 47.78 | 7.82 | 15.82 | 23.83 | 32.34 | 29.64 | 12.22 | 743.2 | 13679.1 |
| *Rapamys atramontis* (AMNH 128706) | 41.49 | 7.63 | 7.99 | 21.58 | 22.17 | 18.66 | 8.2 | 224.618 | 7109.97 |
| *Rapamys atramontis* (AMNH 128704) | 39.48 | 7.71 | 8.17 | 20 | 22.24 | 18.34 | 7.87 | 226.058 | 6006.47 |
| *Ischyromys typus* (ROMV 1007) | 40.55 | 7.24 | 7.12 | 20.96 | 23.58 | 19.98 | 9.36 | 180.09 | 5578.07 |
| *Ischyromys typus* (AMNH F:AM 144638) | 40.43 | 7.14 | 7.73 | 20.43 | 23.72 | 21.44 | 11.22 | 229.19 | 7276.91 |
| *Cedromus wilsoni* (USNM 256584) | 31.98 | 5.7 | 6.17 | 18.61 | 19.54 | 12.94 | 7.03 | 106.97 | 3609.87 |
| *Megalagus turgidus* (FMNH UC 1642) | 37.76 | 8.32 | 9.6 | 19.2 | 18.24 | 16.32 | 9.28 | 280.1 | 7052.78 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Brachylagus idahoensis* (AMNH 92869) | 33.02 | 5.55 | 8.98 | 24.94 | 23 | 17.34 | 8.21 | 144.28 | 5145.19 |
| *Lepus americanus* (AMNH 97648) | 46.36 | 8.6 | 13.68 | 33.07 | 29.02 | 21.37 | 11.41 | 366.15 | 10221.4 |
| *Lepus americanus bairdii* (AMNH 99352) | 43.92 | 10.08 | 10.55 | 29.15 | 28.02 | 20.83 | 12.15 | 263.19 | 9538.09 |
| *Lepus arcticus* (AMNH 42139) | 50.01 | 8.71 | 15.01 | 35.1 | 32.64 | 23.4 | 12.06 | 407.14 | 15949.9 |
| *Oryctolagus cuniculus* (AMNH 34816) | 42.7 | 6.98 | 10.09 | 30.2 | 27.22 | 22.21 | 8.94 | 218.06 | 9363.12 |
| *Poelagus marjorita* (AMNH 51052) | 52 | 14.33 | 11.55 | 34.66 | 29.01 | 21.76 | 11.23 | 358.52 | 11807.96 |
| *Romerolagus diazi* (AMNH 148172) | 38.57 | 6.1 | 9 | 26.72 | 23.49 | 19.14 | 9.51 | 191.21 | 6020.62 |
| *Ochotona pallasi* (AMNH 59712) | 29.73 | 5.34 | 5.39 | 17.43 | 16.37 | 11.77 | 6.88 | 57.92 | 2138.24 |
| *Ochotona princeps* (AMNH 120698) | 30.33 | 5.34 | 5.79 | 16.73 | 16.43 | 12.43 | 8.3 | 60.75 | 2270,48 |
| *Ochotona princeps schisticeps* (AMNH 40547) | 31.05 | 4.93 | 6.06 | 17.94 | 16.81 | 12.13 | 8.24 | 61.63 | 2479.85 |

**Table S5a**. Data used for the box plot analyses in Figure 4. NS1*2/TS, neocortical ratio using the neocortical surface area of one side x 2; OV/TV, olfactory bulb volume ratio; PLV/TV, petrosal lobule volume ratio

| Group | Species | Collection number | NS1*2/TS | OV/TV | PLV/TV | Source |
|---|---|---|---|---|---|---|
| Extinct Euprimates | *Notharctus tenebrosus* | AMNH 127167 | 28.89 | 2.1 | - | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | USNM V 23277 | 31.49 | 2.23 | - | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | USNM V 23278 | 31.20 | 1.51 | - | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 17994 | 30.57 | 2.06 | - | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 17996 | 31.21 | 1.67 | - | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 21815 | 32.58 | 1.24 | - | Harrington et al (2016) |
| Extinct Euprimates | *Adapis parisiensis* | NHM M 1345 | 31.10 | 2.4 | - | Harrington et al (2016) |
| Extinct Euprimates | *Rooneyia viejaensis* | TMM 40688-7 | - | 0.94 | - | Kirk et al (2014) |
| Extinct Euprimates | *Microchoerus erinaceus* | UM-PRR 1771 | - | 0.96 | - | Ramdarshan & Orliac (2016) |
| Plesiadapiformes | *Microsyops annectens* | UW 12362 | 21.3 | 5.09 | - | Silcox et al (2010a) |
| Plesiadapiformes | *Ignacius graybullianus* | USNM 421608 | 19.72 | 5.53 | - | Silcox et al (2009) |
| Plesiadapiformes | *Plesiadapis cookei* | UM 87990 | - | 7.8 | - | Gingerich & Gunnell (2005) |
| Plesiadapiformes | *Plesiadapis tricuspidens* | MNHN CR 125 | 19.9 | 4.9 | - | Orliac et al (2014) |
| Extinct Rodentia | *Prosciurus relictus* | USNM 437793 | - | 3.55 | 3.35 | Bertrand et al (2018) |
| Extinct Rodentia | *Protosciurus* cf. *rachelae* | YPM 14736 | 30.59 | 4.76 | 3.31 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extinct Rodentia | *Protosciurus* cf. *rachelae* | YPM 14737 | 30.95 | 3.65 | 2.96 | Bertrand et al (2018) |
| Extinct Rodentia | *Paramys copei* | AMNH 4756 | 17.10 | 6.05 | 1.20 | Bertrand et al (2016b) |
| Extinct Rodentia | *Paramys delicatus* | AMNH 12506 | 16.25 | 4.74 | 1.03 | Bertrand et al (2016b) |
| Extinct Rodentia | *Pseudotomus horribilis* | USNM 17159 | 18.89 | 5.33 | 1.14 | Bertrand et al (2019) |
| Extinct Rodentia | *Pseudotomus oweni* | USNM 17161 | 22.92 | 5.94 | 0.62 | Bertrand et al (2019) |
| Extinct Rodentia | *Pseudotomus petersoni* | AMNH 2018 | 22.89 | 4.14 | 0.39 | Bertrand et al (2019) |
| Extinct Rodentia | *Pseudotomus hians* | AMNH 5025 | 23.02 | 5.43 | 1.04 | Bertrand et al (2019) |
| Extinct Rodentia | *Rapamys atramontis* | AMNH 128706 | 20.24 | 3.16 | 1.52 | Bertrand et al (2019) |
| Extinct Rodentia | *Rapamys atramontis* | AMNH 128704 | 21.77 | 3.76 | 2.05 | Bertrand et al (2019) |
| Extinct Rodentia | *Ischyromys typus* | ROMV 1007 | 21.18 | 3.23 | 1.63 | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Ischyromys typus* | AMNH 12252 | 18.45 | 3.68 | - | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Ischyromys typus* | AMNH F:AM 144638 | 23.03 | 3.15 | 1.60 | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Cedromus wilsoni* | USNM 256584 | 29.59 | 2.96 | 3.16 | Bertrand et al (2017) |
| Extant Rodentia | *Aplodontia rufa* | AMNH 42389 | 25.94 | 2.58 | 0.82 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus carolinensis* | AMNH 42389 | 35.41 | 3.18 | 2.03 | Bertrand and Silcox, 2016) |
| Extant Rodentia | *Sciurus granatensis* | AMNH 42389 | 35.39 | 2.69 | 2.08 | Bertrand et al (2017) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | USNM 549146 | 36.30 | 2.50 | 2.33 | Bertrand et al (2017) |
| Extant Rodentia | *Eutamias minimus* | USNM 298500 | 34.93 | 3.36 | 2.29 | Bertrand et al (2017) |
| Extant Rodentia | *Funisciurus pyrropus* | USNM 294865 | 36.44 | 3.22 | 2.19 | Bertrand et al (2017) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Heliosciurus rufobrachium* | USNM 378091 | 35.85 | 2.45 | 1.87 | Bertrand et al (2017) |
| Extant Rodentia | *Paraxerus cepapi* | USNM 367956 | 35.62 | 2.62 | 1.46 | Bertrand et al (2017) |
| Extant Rodentia | *Protoxerus stangeri* | USNM 435027 | 38.02 | 2.31 | 1.89 | Bertrand et al (2017) |
| Extant Rodentia | *Aeromys tephromelas* | USNM 481190 | 35.19 | 2.85 | 1.45 | Bertrand et al (2017) |
| Extant Rodentia | *Glaucomys volans* | AMNH 240290 | 35.69 | 3.49 | 1.68 | Bertrand et al (2017) |
| Extant Rodentia | *Petaurista petaurista* | USNM 589079 | 35.28 | 1.64 | 1.62 | Bertrand et al (2017) |
| Extant Rodentia | *Hylopetes spadiceus* | USNM 488639 | 36.73 | 3.30 | 0.85 | Bertrand et al (2017) |
| Extant Rodentia | *Petinomys setosus* | USNM 488674 | 35.76 | 3.10 | - | Bertrand et al (2017) |
| Extant Rodentia | *Pteromyscus pulverulentus* | USNM 481178 | 33.82 | 2.81 | 1.37 | Bertrand et al (2017) |
| Extant Rodentia | *Pteromys buechneri* | USNM 172622 | 34.11 | 1.75 | 1.61 | Bertrand et al (2017) |
| Extant Rodentia | *Rhinosciurus laticaudatus* | USNM 488511 | 34.10 | 3.88 | 2.22 | Bertrand et al (2017) |
| Extant Rodentia | *Callosciurus* sp. | USNM 294865 | 38.79 | 3.28 | 1.77 | Bertrand et al (2017) |
| Extant Rodentia | *Lariscus insignis* | USNM 488570 | 33.88 | 4.73 | 2.32 | Bertrand et al (2017) |
| Extant Rodentia | *Dremomys rufigenis* | USNM 488602 | 36.82 | 3.96 | 2.14 | Bertrand et al (2017) |
| Extant Rodentia | *Ratufa affinis* | USNM 488104 | 37.09 | 1.64 | 1.91 | Bertrand et al (2017) |
| Extant Leporidae | *Brachylagus idahoensis* | AMNH 92869 | 32.01 | 2.80 | 2.97 | This paper |
| Extant Leporidae | *Lepus americanus bairdii* | AMNH 42139 | 31.84 | 2.76 | 2.42 | This paper |
| Extant Leporidae | *Lepus americanus phaeonotus* | AMNH 51052 | 35.11 | 3.58 | 1.97 | This paper |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Leporidae | *Lepus arcticus* | AMNH 97648 | 41.98 | 2.55 | 1.69 | This paper |
| Extant Leporidae | *Oryctolagus cuniculus* | AMNH 99352 | 35.21 | 2.33 | 2.21 | This paper |
| Extant Leporidae | *Poelagus marjorita* | AMNH 34816 | 33.23 | 3.04 | 1.79 | This paper |
| Extant Leporidae | *Romerolagus diazi* | AMNH 148172 | 28.08 | 3.18 | 2.37 | This paper |
| Extant Ochotonidae | *Ochotona pallasi* | AMNH 120698 | 33.71 | 2.71 | 2.77 | This paper |
| Extant Ochotonidae | *Ochotona princeps princeps* | AMNH 59712 | 30.97 | 2.68 | 3.29 | This paper |
| Extant Ochotonidae | *Ochotona princeps schisticeps* | AMNH 40547 | 31.84 | 2.49 | 2.90 | This paper |
| Stem lagomorph | *Megalagus turgidus* | FMNH UC 1642 | 18.98 | 3.97 | 2.31 | This paper |
| Apatemyid | *Labidolemur kayi* | USNM 530208/530221 | - | 13.02 | - | Silcox et al (2011) |

**Table S5b**. Data used for the box plot analyses in Figure 4 and S9. EQ, encephalization quotient

| Group | Species | Body mass (g) | Brain mass (g) | Jerison's EQ | Eisenberg's EQ | Source |
|---|---|---|---|---|---|---|
| Extant Leporidae | *Brachylagus idahoensis* | 339.56 | 4.90 | 0.82835 | 1.18741999 | This paper |
| Extant Leporidae | *Lepus americanus bairdii* | 1396.22 | 9.11 | 0.593178 | 0.7753435 | This paper |
| Extant Leporidae | *Lepus americanus phaeonotus* | 998.68 | 9.73 | 0.793465 | 1.06175485 | This paper |
| Extant Leporidae | *Lepus arcticus* | 4003.10 | 15.19 | 0.488425 | 0.59304291 | This paper |
| Extant Leporidae | *Oryctolagus cuniculus* | 1796.07 | 8.917 | 0.490517 | 0.62995199 | This paper |
| Extant Leporidae | *Romerolagus diazi* | 1027.79 | 5.73 | 0.458422 | 0.61219303 | This paper |
| Extant Leporidae | *Poelagus marjorita* | 2480.24 | 11.25 | 0.4983 | 0.6256518 | This paper |
| Extant Ochotonidae | *Ochotona pallasi* | 223.85 | 2.04 | 0.452043 | 0.67164444 | This paper |
| Extant Ochotonidae | *Ochotona princeps princeps* | 202.92 | 2.16 | 0.512629 | 0.76691336 | This paper |
| Extant Ochotonidae | *Ochotona princeps schisticeps* | 155.10 | 2.36 | 0.670416 | 1.02201659 | This paper |
| Stem lagomorph | *Megalagus turgidus* | 2325.01 | 6.72 | 0.310803 | 0.39200494 | This paper |
| Extinct Rodentia | *Prosciurus relictus* | 30.07 | 0.91 | 0.776951 | 1.32855846 | Bertrand et al (2018) |
| Extinct Rodentia | *Protosciurus* cf. r*achelae* | 349.62 | 4.33 | 0.713063 | 1.02690931 | Bertrand et al (2018) |
| Extinct Rodentia | *Paramys copei* | 1029.89 | 7.17 | 0.57235 | 0.76422646 | Bertrand et al (2016b) |
| Extinct Rodentia | *Paramys delicatus* | 2913.82 | 11.97 | 0.47601 | 0.59096189 | Bertrand et al (2016b) |
| Extinct Rodentia | *Pseudotomus horribilis* | 7466.70 | 14.47 | 0.306295 | 0.35602181 | Bertrand et al (2019) |
| Extinct Rodentia | *Pseudotomus oweni* | 5396.00 | 11.49 | 0.30241 | 0.3595902 | Bertrand et al (2019) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extinct Rodentia | *Pseudotomus petersoni* | 6644.56 | 16.20 | 0.371028 | 0.43480043 | Bertrand et al (2019) |
| Extinct Rodentia | *Pseudotomus hians* | 3153.50 | 13.03 | 0.491469 | 0.60678718 | Bertrand et al (2019) |
| Extinct Rodentia | *Rapamys atramontis* | 1307.61 | 6.77 | 0.460741 | 0.605006 | Bertrand et al (2019) |
| Extinct Rodentia | *Rapamys atramontis* | 918.93 | 5.72 | 0.493003 | 0.66355341 | Bertrand et al (2019) |
| Extinct Rodentia | *Ischyromys typus* | 1342.23 | 5.31 | 0.355197 | 0.46556207 | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Ischyromys typus* | 1086.42 | 5.65 | 0.43541 | 0.57920863 | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Ischyromys typus* | 1109.01 | 6.93 | 0.526586 | 0.6994881 | Bertrand and Silcox, 2016) |
| Extinct Rodentia | *Cedromus wilsoni* | 268.89 | 3.44 | 0.675003 | 0.99012925 | Bertrand et al (2017) |
| Plesiadapiformes | *Microsyops annectens* | 1686 | 5.62 | 0.322468 | 0.41597093 | Silcox et al (2010a) |
| Plesiadapiformes | *Ignacius graybullianus* | 253 | 2.04 | 0.416824 | 0.6140308 | Silcox et al (2009) |
| Plesiadapiformes | *Plesiadapis tricuspidens* | 6372 | 4.96 | 0.116843 | 0.13732804 | Orliac et al (2014) |
| Plesiadapiformes | *Plesiadapis cookei* | 2200 | 4.76 | 0.228653 | 0.28950948 | Gingerich & Gunnell (2005) |
| Apatemyidae | *Labidolemur kayi* | 74 | 0.478 | 0.222762 | 0.35764366 | Silcox et al (2011) |
| Extinct Euprimates | *Notharctus tenebrosus* | 2641 | 7.03 | 0.298608 | 0.37327879 | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | 2923 | 7.68 | 0.304691 | 0.3781876 | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | 2244 | 7.08 | 0.3353 | 0.42395277 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | 1420 | 8.22 | 0.529184 | 0.69088059 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | 1303 | 8.56 | 0.583951 | 0.76698416 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | 1582 | 7.09 | 0.42436 | 0.54985188 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | 1547 | 8.019 | 0.487509 | 0.63266649 | Harrington et al (2016) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extinct Euprimates | *Adapis parisiensis* | 1074 | 8.39 | 0.651377 | 0.86719808 | Harrington et al (2016) |
| Extinct Euprimates | *Rooneyia viejaensis* | 381 | 6.89 | 1.070997 | 1.53313215 | Kirk et al (2014) |
| Extinct Euprimates | *Microchoerus erinaceus* | 597 | 4.06 | 0.466806 | 0.64755128 | Ramdarshan & Orliac (2016) |
| Extant Rodentia | *Acomys dimidiatus* | 76 | 0.97 | 0.444064 | 0.7116141 | Bertrand et al (2018) |
| Extant Rodentia | *Acomys dimidiatus* | 50.5 | 0.88 | 0.532189 | 0.87758969 | Bertrand et al (2018) |
| Extant Rodentia | *Aeromys tephromelas* | 904.59 | 10.92 | 0.95071 | 1.28101056 | Bertrand et al (2018) |
| Extant Rodentia | *Allactaga elater* | 80 | 1.90 | 0.840431 | 1.34196713 | Bertrand et al (2018) |
| Extant Rodentia | *Allactaga sibirica* | 193 | 3.50 | 0.85815 | 1.28834004 | Bertrand et al (2018) |
| Extant Rodentia | *Allactaga sibirica* | 106 | 2 | 0.732645 | 1.1470399 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 1475.86 | 7.52 | 0.471755 | 0.61424253 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 982 | 7.60 | 0.626495 | 0.83931688 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 870 | 8.40 | 0.750966 | 1.01463516 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 710 | 8.40 | 0.860508 | 1.17929641 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 985 | 8.80 | 0.723934 | 0.96964939 | Bertrand et al (2018) |
| Extant Rodentia | *Aplodontia rufa* | 887 | 8.30 | 0.732467 | 0.98830156 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus agrarius* | 28.50 | 0.63 | 0.5582 | 0.95809098 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus agrarius agrarius* | 26.20 | 0.62 | 0.57936 | 1.00028465 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus flavicollis* | 30 | 0.75 | 0.640042 | 1.09462762 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus flavicollis flavicollis* | 33 | 0.80 | 0.640478 | 1.0880893 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus sylvaticus* | 19.40 | 0.59 | 0.674285 | 1.18892265 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Apodemus sylvaticus* | 22 | 0.56 | 0.592481 | 1.03552643 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus sylvaticus* | 21.60 | 0.59 | 0.627461 | 1.09807273 | Bertrand et al (2018) |
| Extant Rodentia | *Apodemus sylvaticus sylvaticus* | 19 | 0.60 | 0.695353 | 1.22785888 | Bertrand et al (2018) |
| Extant Rodentia | *Arvicola amphibius* | 137.80 | 1.53 | 0.470125 | 0.7226398 | Bertrand et al (2018) |
| Extant Rodentia | *Arvicola amphibius* | 131 | 1.50 | 0.476802 | 0.73550456 | Bertrand et al (2018) |
| Extant Rodentia | *Arvicola amphibius* | 84.50 | 1.09 | 0.463078 | 0.73659833 | Bertrand et al (2018) |
| Extant Rodentia | *Atherurus africanus* | 1600 | 17.20 | 1.02232 | 1.3235932 | Bertrand et al (2018) |
| Extant Rodentia | *Atherurus africanus* | 3620 | 25.30 | 0.870171 | 1.06402308 | Bertrand et al (2018) |
| Extant Rodentia | *Atherurus africanus* | 1925 | 17.80 | 0.934696 | 1.19458244 | Bertrand et al (2018) |
| Extant Rodentia | *Atherurus africanus* | 2250 | 23 | 1.087888 | 1.37526896 | Bertrand et al (2018) |
| Extant Rodentia | *Atlantoxerus getulus* | 251 | 3.75 | 0.771515 | 1.13716435 | Bertrand et al (2018) |
| Extant Rodentia | *Brachytarsomys albicauda* | 300 | 2.47 | 0.450655 | 0.65599736 | Bertrand et al (2018) |
| Extant Rodentia | *Brachyuromys ramirohitra* | 94 | 1.40 | 0.555842 | 0.87758318 | Bertrand et al (2018) |
| Extant Rodentia | *Callosciurus* sp. | 437.35 | 6.67 | 0.945942 | 1.34110378 | Bertrand et al (2018) |
| Extant Rodentia | *Callospermophilus lateralis* | 246 | 2.98 | 0.621223 | 0.91693369 | Bertrand et al (2018) |
| Extant Rodentia | *Callospermophilus lateralis* | 217 | 3.10 | 0.701592 | 1.0446931 | Bertrand et al (2018) |
| Extant Rodentia | *Capromys pilorides* | 7000 | 11 | 0.243218 | 0.28398474 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 20500 | 44 | 0.473583 | 0.51289644 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 18000 | 53 | 0.622389 | 0.68021951 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 14500 | 45 | 0.610822 | 0.67775864 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Castor canadensis* | 22500 | 52 | 0.525847 | 0.56580027 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 8000 | 38 | 0.768302 | 0.88873416 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 9750 | 48 | 0.850016 | 0.96973415 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 12500 | 42 | 0.629707 | 0.70600983 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 16000 | 38 | 0.482883 | 0.53212012 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 5500 | 43 | 1.117491 | 1.32701226 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 20000 | 40 | 0.437712 | 0.47486774 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 4180 | 25.48 | 0.795848 | 0.96339379 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 5380 | 29.52 | 0.778594 | 0.92600288 | Bertrand et al (2018) |
| Extant Rodentia | *Castor canadensis* | 14500 | 45 | 0.610822 | 0.67775864 | Bertrand et al (2018) |
| Extant Rodentia | *Castor fiber* | 14300 | 41.40 | 0.56721 | 0.62997968 | Bertrand et al (2018) |
| Extant Rodentia | *Castor fiber* | 16900 | 38.80 | 0.475298 | 0.52175958 | Bertrand et al (2018) |
| Extant Rodentia | *Castor fiber* | 25000 | 45 | 0.424045 | 0.45290986 | Bertrand et al (2018) |
| Extant Rodentia | *Castor fiber* | 23100 | 45.50 | 0.452075 | 0.48552702 | Bertrand et al (2018) |
| Extant Rodentia | *Castor fiber* | 20000 | 39 | 0.426769 | 0.46299604 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 163 | 2.70 | 0.741339 | 1.12621111 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 260 | 3 | 0.602432 | 0.88575955 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 430 | 3.90 | 0.559061 | 0.7935473 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 647 | 5.46 | 0.595258 | 0.82110433 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 460 | 4.20 | 0.575467 | 0.81298656 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Cavia aperea* | 792 | 4.70 | 0.447477 | 0.60857778 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* | 540 | 4.10 | 0.504544 | 0.70483481 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia aperea* f. *porcellus* | 485 | 4.57 | 0.604349 | 0.85063291 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 520 | 5.40 | 0.681538 | 0.95461038 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 650 | 5.80 | 0.630369 | 0.86925456 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 348 | 6.40 | 1.05716 | 1.52295195 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 648 | 4.40 | 0.479199 | 0.66094001 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 493.1 | 3.80 | 0.496977 | 0.69869328 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 361 | 4.10 | 0.660804 | 0.94951842 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 324 | 3.80 | 0.658472 | 0.95335612 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 214.94 | 3.32 | 0.757363 | 1.12849124 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 214.57 | 3.28 | 0.749103 | 1.11631729 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 432 | 4 | 0.571616 | 0.81110464 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 456 | 4.23 | 0.582979 | 0.82410254 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 675 | 4.54 | 0.481106 | 0.66167683 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 971 | 4.28 | 0.355489 | 0.47662455 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 900 | 4.94 | 0.431721 | 0.58191876 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 500 | 5 | 0.647857 | 0.90992809 | Bertrand et al (2018) |
| Extant Rodentia | *Cavia porcellus* | 700 | 4.73 | 0.489175 | 0.67106326 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus baileyi* | 31.20 | 0.62 | 0.514588 | 0.87765641 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Chaetodipus californicus* | 26 | 0.57 | 0.536721 | 0.92716396 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus fallax* | 20.30 | 0.50 | 0.549048 | 0.96503229 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus formosus* | 15.30 | 0.41 | 0.548725 | 0.98374461 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus hispidus* | 35.20 | 0.63 | 0.481936 | 0.81505691 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus penicillatus* | 16.50 | 0.42 | 0.533787 | 0.95191929 | Bertrand et al (2018) |
| Extant Rodentia | *Chaetodipus spinatus* | 19.10 | 0.44 | 0.505935 | 0.89305603 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla chinchilla* | 520 | 7.80 | 0.984444 | 1.37888167 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla chinchilla* | 425 | 6.40 | 0.924652 | 1.31355129 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla chinchilla* | 320 | 6.90 | 1.205639 | 1.74708074 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla chinchilla* | 470 | 8.90 | 1.201996 | 1.69555726 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla chinchilla* | 450 | 6 | 0.834291 | 1.18045343 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 432 | 5.20 | 0.743101 | 1.05443604 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 380 | 5.20 | 0.80978 | 1.15941349 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 385 | 5.05 | 0.779563 | 1.11512951 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 460 | 5.10 | 0.698781 | 0.98719796 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 385 | 4.90 | 0.756408 | 1.08200685 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 370 | 5.32 | 0.843403 | 1.20981015 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 385 | 5.50 | 0.849029 | 1.21449748 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 425 | 6.40 | 0.924652 | 1.31355129 | Bertrand et al (2018) |
| Extant Rodentia | *Chinchilla lanigera* | 500 | 6 | 0.777428 | 1.0919137 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Colomys goslingi* | 58.20 | 1.37 | 0.75106 | 1.22626963 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetomys emini* | 1000 | 6.60 | 0.53748 | 0.71914887 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetomys emini* | 80.50 | 2.70 | 1.189322 | 1.89823371 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetulus griseus* | 36 | 0.67 | 0.506024 | 0.85444836 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetulus griseus* | 23.18 | 0.63 | 0.637019 | 1.10930398 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetus cricetus* | 450 | 2.85 | 0.396288 | 0.56071538 | Bertrand et al (2018) |
| Extant Rodentia | *Cricetus cricetus* | 297 | 2.20 | 0.404105 | 0.58865085 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 5635 | 35.80 | 0.915383 | 1.08516654 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 6125 | 33.50 | 0.810033 | 0.95468735 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 3665 | 33.20 | 1.132471 | 1.38356067 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 9000 | 37.30 | 0.696923 | 0.79954745 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 5000 | 26.10 | 0.723018 | 0.86432599 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 3627 | 21.85 | 0.750539 | 0.9176163 | Bertrand et al (2018) |
| Extant Rodentia | *Cuniculus paca* | 4559 | 48 | 1.414547 | 1.70197277 | Bertrand et al (2018) |
| Extant Rodentia | *Cynomys ludovicianus* | 1200 | 6.40 | 0.461262 | 0.60934145 | Bertrand et al (2018) |
| Extant Rodentia | *Dasymys incomtus* | 102.5 | 1.57 | 0.58971 | 0.92543077 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 3600 | 21.60 | 0.745675 | 0.91214686 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2684 | 20 | 0.840552 | 1.04955646 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2390 | 18.40 | 0.835815 | 1.05215142 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2004 | 17 | 0.868953 | 1.10743815 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Dasyprocta leporina* | 2880 | 18.50 | 0.741647 | 0.92150173 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2350 | 18 | 0.826943 | 1.04221461 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2550 | 17 | 0.739411 | 0.92658242 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 3172 | 18.30 | 0.687665 | 0.84867109 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2371 | 19.80 | 0.904232 | 1.13891342 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2400 | 27 | 1.223041 | 1.53915485 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta leporina* | 2370 | 19.80 | 0.904487 | 1.13926901 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta mexicana* | 1527 | 17.80 | 1.091608 | 1.41792736 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta mexicana* | 2300 | 20 | 0.932161 | 1.17659301 | Bertrand et al (2018) |
| Extant Rodentia | *Dasyprocta punctata* | 3172 | 18.34 | 0.689168 | 0.8505261 | Bertrand et al (2018) |
| Extant Rodentia | *Dendromus mesomelas* | 14 | 0.51 | 0.725242 | 1.30830891 | Bertrand et al (2018) |
| Extant Rodentia | *Desmodillus auricularis* | 60 | 1.12 | 0.600725 | 0.97872564 | Bertrand et al (2018) |
| Extant Rodentia | *Dicrostonyx groenlandicus* | 52.1 | 0.90 | 0.529613 | 0.87143772 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys deserti* | 114.7 | 1.60 | 0.555944 | 0.86560134 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys heermanni* | 71.3 | 1.38 | 0.659823 | 1.06210467 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys merriami* | 41 | 1.06 | 0.731791 | 1.22447097 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys microps* | 65.7 | 1.12 | 0.567208 | 0.91826748 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys ordii* | 60.2 | 1.39 | 0.744137 | 1.21209601 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys panamintinus* | 74 | 1.47 | 0.683542 | 1.09742492 | Bertrand et al (2018) |
| Extant Rodentia | *Dipodomys spectabilis* | 146.60 | 1.98 | 0.58396 | 0.89373706 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Dolichotis patagonum* | 5500 | 15 | 0.389823 | 0.46291125 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 5650 | 25.70 | 0.655963 | 0.77748522 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 5650 | 25.66 | 0.654942 | 0.77627512 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 7880 | 33.50 | 0.684212 | 0.79230113 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 7500 | 32 | 0.675581 | 0.78501781 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 5500 | 26 | 0.675693 | 0.8023795 | Bertrand et al (2018) |
| Extant Rodentia | *Dolichotis patagonum* | 7200 | 30 | 0.650919 | 0.75852531 | Bertrand et al (2018) |
| Extant Rodentia | *Dremomys rufigenis* | 418.43 | 5.59 | 0.815626 | 1.15993435 | Bertrand et al (2018) |
| Extant Rodentia | *Eliurus minor* | 38 | 1.46 | 1.063449 | 1.78890741 | Bertrand et al (2018) |
| Extant Rodentia | *Eliurus myoxinus* | 59 | 1.69 | 0.916716 | 1.49530947 | Bertrand et al (2018) |
| Extant Rodentia | *Epixerus ebii* | 605 | 9.77 | 1.114296 | 1.54430811 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 5160 | 27.90 | 0.756742 | 0.90264773 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 3430 | 28.70 | 1.023419 | 1.2561431 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 4980 | 25.10 | 0.697186 | 0.83367903 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 4980 | 27.20 | 0.755517 | 0.90342907 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 4640 | 27.10 | 0.789262 | 0.94846401 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 6200 | 27.10 | 0.649958 | 0.76537507 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 6640 | 24 | 0.549765 | 0.64429051 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 2800 | 30.77 | 1.257044 | 1.56496786 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 2725 | 21.22 | 0.882813 | 1.10115647 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Erethizon dorsatum* | 3410 | 19.15 | 0.685555 | 0.84179319 | Bertrand et al (2018) |
| Extant Rodentia | *Erethizon dorsatum* | 5000 | 24 | 0.664845 | 0.79478252 | Bertrand et al (2018) |
| Extant Rodentia | *Eutamias sibiricus* | 110 | 2.60 | 0.929093 | 1.45083368 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus anerythrus* | 230 | 4.03 | 0.878238 | 1.30240885 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus carruthersi* | 107.50 | 4 | 1.45156 | 2.27034886 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus carruthersi* | 158 | 4.50 | 1.261627 | 1.92079554 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus carruthersi* | 195.50 | 3.25 | 0.790012 | 1.1849762 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus carruthersi* | 168 | 4.10 | 1.103177 | 1.67236033 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus carruthersi* | 195 | 4.65 | 1.132266 | 1.69864337 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus isabella* | 160.50 | 3.14 | 0.871917 | 1.32601361 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus lemniscatus* | 154 | 3.22 | 0.918137 | 1.4003511 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus pyrropus* | 258.75 | 4.47 | 0.899855 | 1.32350915 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus pyrropus* | 301.15 | 4.34 | 0.789315 | 1.14866046 | Bertrand et al (2018) |
| Extant Rodentia | *Funisciurus substriatus* | 186.10 | 3.70 | 0.930784 | 1.40095071 | Bertrand et al (2018) |
| Extant Rodentia | *Galea spixii* | 672 | 6.20 | 0.658981 | 0.90659495 | Bertrand et al (2018) |
| Extant Rodentia | *Geomys bursarius* | 192.40 | 1.49 | 0.365037 | 0.54814874 | Bertrand et al (2018) |
| Extant Rodentia | *Geomys pinetis* | 313.50 | 2.30 | 0.408287 | 0.59249563 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus gerbillus* | 95 | 3.40 | 1.340364 | 2.11464913 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus nanus* | 18 | 0.52 | 0.62487 | 1.10758371 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus pyramidum* | 79 | 1.14 | 0.508526 | 0.81271013 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Gerbillus pyramidum* | 70 | 1.20 | 0.580476 | 0.93558568 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus pyramidum* | 72.30 | 1.08 | 0.511234 | 0.82212203 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus pyramidum* | 79 | 1.06 | 0.472394 | 0.75496494 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus pyramidum* | 57.90 | 1 | 0.551516 | 0.90079599 | Bertrand et al (2018) |
| Extant Rodentia | *Gerbillus pyramidum* | 59.40 | 0.98 | 0.529725 | 0.86365821 | Bertrand et al (2018) |
| Extant Rodentia | *Glaucomys volans* | 63.97 | 1.91 | 0.983817 | 1.59570287 | Bertrand et al (2018) |
| Extant Rodentia | *Glaucomys volans* | 52 | 1.89 | 1.115728 | 1.83609099 | Bertrand et al (2018) |
| Extant Rodentia | *Glaucomys volans* | 64 | 1.92 | 0.986233 | 1.59956877 | Bertrand et al (2018) |
| Extant Rodentia | *Glis glis* | 118 | 1.4 | 0.477294 | 0.74166916 | Bertrand et al (2018) |
| Extant Rodentia | *Glis glis* | 148 | 1.9 | 0.556541 | 0.85120624 | Bertrand et al (2018) |
| Extant Rodentia | *Grammomys dolichurus* | 45 | 1.18 | 0.767447 | 1.27579124 | Bertrand et al (2018) |
| Extant Rodentia | *Graphiurus murinus* | 17.70 | 0.55 | 0.66962 | 1.18830042 | Bertrand et al (2018) |
| Extant Rodentia | *Heliosciurus gambianus* | 209.80 | 3.53 | 0.819207 | 1.22270988 | Bertrand et al (2018) |
| Extant Rodentia | *Heliosciurus rufobrachium* | 354.98 | 5.79 | 0.943314 | 1.35705735 | Bertrand et al (2018) |
| Extant Rodentia | *Heliosciurus rufobrachium isabellinus* | 280.90 | 4.84 | 0.922494 | 1.3490281 | Bertrand et al (2018) |
| Extant Rodentia | *Heliosciurus rufobrachium rufobrachium* | 334 | 5.03 | 0.853794 | 1.23352259 | Bertrand et al (2018) |
| Extant Rodentia | *Heterocephalus glaber* | 39 | 0.52 | 0.372228 | 0.62501495 | Bertrand et al (2018) |
| Extant Rodentia | *Heterogeomys cherriei* | 405 | 3.19 | 0.476079 | 0.67859969 | Bertrand et al (2018) |
| Extant Rodentia | *Heteromys desmarestianus* | 77.10 | 1.08 | 0.487957 | 0.78116679 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Heteromys pictus* | 40.20 | 0.71 | 0.501025 | 0.83949778 | Bertrand et al (2018) |
| Extant Rodentia | *Hoplomys gymnurus* | 637 | 3.85 | 0.423875 | 0.585334 | Bertrand et al (2018) |
| Extant Rodentia | *Hybomys univittatus* | 56.80 | 1.15 | 0.63933 | 1.04562782 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 31000 | 85 | 0.693466 | 0.72960221 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 24130 | 61.40 | 0.59248 | 0.63438196 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 29500 | 76 | 0.640991 | 0.67673739 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 10000 | 55 | 0.957594 | 1.09052985 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 12000 | 53 | 0.816664 | 0.91824086 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 13000 | 53 | 0.774021 | 0.86543142 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 17000 | 61 | 0.7443 | 0.8167187 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 28000 | 52 | 0.454178 | 0.48126166 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 24031 | 61.40 | 0.594114 | 0.63631487 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 28500 | 75 | 0.647342 | 0.68509522 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 27670 | 52.21 | 0.459649 | 0.48746314 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 26700 | 75 | 0.676266 | 0.71898164 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 34300 | 73 | 0.556538 | 0.58140676 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 33000 | 75.50 | 0.590692 | 0.61875897 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 54000 | 82 | 0.461242 | 0.46678548 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 29500 | 76.02 | 0.641159 | 0.67691547 | Bertrand et al (2018) |
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 28000 | 75 | 0.655065 | 0.6941274 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Hydrochoerus hydrochaeris* | 32500 | 71 | 0.561197 | 0.5884906 | Bertrand et al (2018) |
| Extant Rodentia | *Hylopetes spadiceus* | 84.22 | 2.02 | 0.863155 | 1.37330095 | Bertrand et al (2018) |
| Extant Rodentia | *Hypogeomys antimena* | 875 | 8 | 0.712465 | 0.96223001 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix brachyura* | 22000 | 43 | 0.441432 | 0.47571905 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix cristata* | 7036.50 | 36.50 | 0.804234 | 0.93869344 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix cristata* | 15000 | 32 | 0.424607 | 0.47002106 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix cristata* | 10000 | 37 | 0.6442 | 0.73362917 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix* hybrid | 13500 | 37 | 0.526862 | 0.5875294 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix javanica* | 23000 | 20 | 0.199293 | 0.21410473 | Bertrand et al (2018) |
| Extant Rodentia | *Hystrix* sp. | 15000 | 37.50 | 0.497587 | 0.55080593 | Bertrand et al (2018) |
| Extant Rodentia | *Ictidomys tridecemlineatus* | 200 | 2.20 | 0.526685 | 0.7887427 | Bertrand et al (2018) |
| Extant Rodentia | *Ictidomys tridecemlineatus* | 115 | 2.40 | 0.832458 | 1.29589468 | Bertrand et al (2018) |
| Extant Rodentia | *Ictidomys tridecemlineatus* | 139 | 2.16 | 0.660443 | 1.0145664 | Bertrand et al (2018) |
| Extant Rodentia | *Ictidomys tridecemlineatus* | 153 | 2.30 | 0.657511 | 1.00330033 | Bertrand et al (2018) |
| Extant Rodentia | *Jaculus jaculus* | 73 | 1.85 | 0.87009 | 1.39825918 | Bertrand et al (2018) |
| Extant Rodentia | *Jaculus orientalis* | 140 | 2.64 | 0.802633 | 1.23237832 | Bertrand et al (2018) |
| Extant Rodentia | *Jaculus orientalis* | 98 | 2.50 | 0.965244 | 1.51952406 | Bertrand et al (2018) |
| Extant Rodentia | *Lagidium viscacia* | 2460 | 12.40 | 0.552477 | 0.69407208 | Bertrand et al (2018) |
| Extant Rodentia | *Lagidium viscacia* | 2252 | 16 | 0.756341 | 0.95608003 | Bertrand et al (2018) |
| Extant Rodentia | *Lagidium viscacia* | 2350 | 15.20 | 0.698308 | 0.88009233 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Lagidium viscacia* | 3845 | 14.80 | 0.488877 | 0.59526903 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 6630 | 20 | 0.458601 | 0.5375079 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 6385 | 21 | 0.493833 | 0.5803301 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 5965 | 17.20 | 0.423339 | 0.49986368 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 3930 | 18 | 0.585933 | 0.71235567 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 3765 | 16.50 | 0.552765 | 0.67405095 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 2940 | 16.30 | 0.644486 | 0.79962332 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 7000 | 17 | 0.375882 | 0.43888551 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1575 | 12.20 | 0.732826 | 0.94983263 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1990 | 14.50 | 0.744655 | 0.94949262 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1395 | 12 | 0.781871 | 1.02204778 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1500 | 11.10 | 0.688907 | 0.8959635 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1265 | 11.80 | 0.820919 | 1.08046297 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1125 | 13.20 | 0.993392 | 1.31824439 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1095 | 11.70 | 0.896597 | 1.19204948 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1440 | 13 | 0.8292 | 1.0815086 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1225 | 12.70 | 0.902758 | 1.19085226 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1510 | 12.60 | 0.778529 | 1.01205117 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1335 | 11.90 | 0.798534 | 1.04704583 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1325 | 11.90 | 0.802567 | 1.05288777 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Lagostomus maximus* | 1115 | 12.30 | 0.931214 | 1.236507 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1075 | 11 | 0.85343 | 1.13612284 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1030 | 11.20 | 0.894202 | 1.19396981 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1125 | 11.20 | 0.842878 | 1.1185104 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 1230 | 11.70 | 0.829408 | 1.09378244 | Bertrand et al (2018) |
| Extant Rodentia | *Lagostomus maximus* | 3854 | 8.80 | 0.290229 | 0.35333192 | Bertrand et al (2018) |
| Extant Rodentia | *Lagurus lagurus* | 15 | 0.40 | 0.543122 | 0.97505099 | Bertrand et al (2018) |
| Extant Rodentia | *Lariscus insignis* | 324.71 | 4.65 | 0.803933 | 1.16378115 | Bertrand et al (2018) |
| Extant Rodentia | *Lemmus lemmus* | 21 | 0.70 | 0.75863 | 1.33024192 | Bertrand et al (2018) |
| Extant Rodentia | *Lemmus trimucronatus* | 32 | 1.13 | 0.920252 | 1.56675928 | Bertrand et al (2018) |
| Extant Rodentia | *Lemmus trimucronatus* | 48 | 1.31 | 0.817186 | 1.35235337 | Bertrand et al (2018) |
| Extant Rodentia | *Lemniscomys striatus* | 53.30 | 1.02 | 0.592259 | 0.9729643 | Bertrand et al (2018) |
| Extant Rodentia | *Lemniscomys striatus* | 53 | 1.01 | 0.586926 | 0.96458432 | Bertrand et al (2018) |
| Extant Rodentia | *Lemniscomys striatus* | 53.40 | 1.01 | 0.588036 | 0.96590028 | Bertrand et al (2018) |
| Extant Rodentia | *Lemniscomys striatus* | 57 | 0.99 | 0.549563 | 0.89859225 | Bertrand et al (2018) |
| Extant Rodentia | *Lophuromys sikapusi* | 63.50 | 1.20 | 0.619643 | 1.00554974 | Bertrand et al (2018) |
| Extant Rodentia | *Lophuromys sikapusi* | 70 | 1.13 | 0.546615 | 0.88100985 | Bertrand et al (2018) |
| Extant Rodentia | *Macrotarsomys bastardi* | 28.50 | 0.80 | 0.706582 | 1.21277339 | Bertrand et al (2018) |
| Extant Rodentia | *Macrotarsomys ingens* | 65 | 1.70 | 0.864203 | 1.40012853 | Bertrand et al (2018) |
| Extant Rodentia | *Malacomys longipes* | 98 | 1.29 | 0.496136 | 0.78103537 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Malacothrix typicus* | 124 | 0.50 | 0.164891 | 0.25533646 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota bobak* | 5333 | 11.97 | 0.31761 | 0.37797396 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota marmota* | 5000 | 16 | 0.44323 | 0.52985501 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota marmota* | 4050 | 17 | 0.542341 | 0.65797149 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota marmota* | 2950 | 17 | 0.670636 | 0.83187007 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota marmota* | 3500 | 17 | 0.598056 | 0.73301597 | Bertrand et al (2018) |
| Extant Rodentia | *Marmota sibirica* | 1890 | 18.10 | 0.962206 | 1.2313222 | Bertrand et al (2018) |
| Extant Rodentia | *Mastomys coucha* | 21.80 | 0.71 | 0.753814 | 1.31834294 | Bertrand et al (2018) |
| Extant Rodentia | *Mastomys natalensis* | 63 | 0.90 | 0.4672 | 0.75858696 | Bertrand et al (2018) |
| Extant Rodentia | *Meriones crassus* | 122 | 1.36 | 0.453416 | 0.70292259 | Bertrand et al (2018) |
| Extant Rodentia | *Meriones libycus* | 93 | 1.51 | 0.603826 | 0.95405725 | Bertrand et al (2018) |
| Extant Rodentia | *Meriones meridianus* | 50 | 1.20 | 0.727261 | 1.20010242 | Bertrand et al (2018) |
| Extant Rodentia | *Meriones shawi* | 140 | 1.48 | 0.449961 | 0.69087875 | Bertrand et al (2018) |
| Extant Rodentia | *Meriones unguiculatus* | 50 | 1.30 | 0.787866 | 1.30011096 | Bertrand et al (2018) |
| Extant Rodentia | *Mesocricetus auratus* | 100 | 1.40 | 0.53327 | 0.83830664 | Bertrand et al (2018) |
| Extant Rodentia | *Mesocricetus auratus* | 125 | 1.12 | 0.367373 | 0.56856416 | Bertrand et al (2018) |
| Extant Rodentia | *Mesocricetus auratus* | 87 | 1.32 | 0.551969 | 0.87620263 | Bertrand et al (2018) |
| Extant Rodentia | *Mesocricetus brandti* | 80 | 1 | 0.442332 | 0.70629849 | Bertrand et al (2018) |
| Extant Rodentia | *Microdipodops megacephalus* | 13.60 | 0.48 | 0.690444 | 1.24806379 | Bertrand et al (2018) |
| Extant Rodentia | *Microdipodops pallidus* | 12.90 | 0.50 | 0.758246 | 1.37570417 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Micromys minutus* | 5.50 | 0.27 | 0.710047 | 1.36746979 | Bertrand et al (2018) |
| Extant Rodentia | *Micromys minutus* | 6.10 | 0.28 | 0.699676 | 1.33776522 | Bertrand et al (2018) |
| Extant Rodentia | *Micromys minutus* | 5.95 | 0.28 | 0.701354 | 1.34331267 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus agrestis* | 42.50 | 0.90 | 0.608192 | 1.01510173 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus agrestris* | 30.50 | 0.53 | 0.449003 | 0.76701635 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus arvalis arvalis* | 20.50 | 0.40 | 0.440559 | 0.77381475 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus oeconomus stimmingi* | 45 | 0.68 | 0.442258 | 0.73520173 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus pennsylvanicus* | 23.70 | 0.66 | 0.660201 | 1.14788839 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus pennsylvanicus* | 22.90 | 0.65 | 0.661044 | 1.15212065 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus pennsylvanicus* | 25.20 | 0.72 | 0.687317 | 1.18991317 | Bertrand et al (2018) |
| Extant Rodentia | *Microtus pennsylvanicus* | 27.90 | 0.74 | 0.662435 | 1.13869445 | Bertrand et al (2018) |
| Extant Rodentia | *Mus minutoides* | 10.40 | 0.33 | 0.567485 | 1.04524464 | Bertrand et al (2018) |
| Extant Rodentia | *Mus minutoides* | 5 | 0.26 | 0.737025 | 1.42892822 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 18 | 0.43 | 0.516719 | 0.91588653 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 24 | 0.45 | 0.445954 | 0.77469555 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 20.85 | 0.43 | 0.468259 | 0.82149484 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 16 | 0.36 | 0.468124 | 0.83662065 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 24.32 | 0.48 | 0.46657 | 0.80975835 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 24 | 0.50 | 0.495504 | 0.86077284 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus* | 18.92 | 0.42 | 0.492774 | 0.87040041 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Mus musculus domesticus* | 12 | 0.36 | 0.567636 | 1.03510224 | Bertrand et al (2018) |
| Extant Rodentia | *Mus musculus musculus* | 20 | 0.50 | 0.559885 | 0.98510535 | Bertrand et al (2018) |
| Extant Rodentia | *Mus triton* | 8.40 | 0.36 | 0.720865 | 1.34775421 | Bertrand et al (2018) |
| Extant Rodentia | *Muscardinus avellanarius* | 13 | 0.50 | 0.747217 | 1.35496099 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 3300 | 23 | 0.841671 | 1.03586316 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 3380 | 19 | 0.684224 | 0.84067883 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 5000 | 23 | 0.637143 | 0.76166658 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 5300 | 18.70 | 0.498191 | 0.59313333 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 3300 | 21 | 0.768482 | 0.94578811 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 7450 | 15.64 | 0.331674 | 0.38558131 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 7530 | 15.60 | 0.328466 | 0.38156733 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 8475 | 17.55 | 0.341383 | 0.39330422 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 5510 | 17.43 | 0.452423 | 0.53718029 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 3800 | 14.77 | 0.49175 | 0.59926029 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 5700 | 18.35 | 0.465606 | 0.55152289 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus* | 5000 | 23 | 0.637143 | 0.76166658 | Bertrand et al (2018) |
| Extant Rodentia | *Myocastor coypus f domestica* | 3500 | 18.40 | 0.647308 | 0.79338199 | Bertrand et al (2018) |
| Extant Rodentia | *Myodes glareolus* | 35 | 0.593 | 0.456402 | 0.77218117 | Bertrand et al (2018) |
| Extant Rodentia | *Myodes glareolus* | 20 | 0.70 | 0.783839 | 1.37914749 | Bertrand et al (2018) |
| Extant Rodentia | *Myoprocta pratti* | 780 | 9.90 | 0.952249 | 1.29646279 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Mystromys albicaudatus* | 130 | 1.47 | 0.469671 | 0.72489336 | Bertrand et al (2018) |
| Extant Rodentia | *Neotamias minimus* | 37.05 | 1.45 | 1.073591 | 1.80917233 | Bertrand et al (2018) |
| Extant Rodentia | *Oenomys hypoxanthus* | 92 | 1.15 | 0.463211 | 0.73243606 | Bertrand et al (2018) |
| Extant Rodentia | *Oenomys hypoxanthus* | 92 | 1.17 | 0.469656 | 0.74262647 | Bertrand et al (2018) |
| Extant Rodentia | *Oenomys hypoxanthus* | 92 | 1.16 | 0.468044 | 0.74007887 | Bertrand et al (2018) |
| Extant Rodentia | *Oenomys hypoxanthus* | 178 | 1.48 | 0.383088 | 0.57839667 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 1500 | 4.80 | 0.297906 | 0.38744367 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 1500 | 7.60 | 0.471684 | 0.61345248 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 1600 | 8.10 | 0.481441 | 0.62332006 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 1032 | 5.70 | 0.454494 | 0.6067737 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 900 | 5.33 | 0.465804 | 0.62785972 | Bertrand et al (2018) |
| Extant Rodentia | *Ondatra zibethicus* | 900 | 5.33 | 0.465804 | 0.62785972 | Bertrand et al (2018) |
| Extant Rodentia | *Orthogeomys heterodus* | 630 | 3.96 | 0.439708 | 0.60766874 | Bertrand et al (2018) |
| Extant Rodentia | *Orthogeomys hispidus* | 542.10 | 3.66 | 0.448877 | 0.62689966 | Bertrand et al (2018) |
| Extant Rodentia | *Otomys irroratus* | 57.70 | 0.97 | 0.534862 | 0.87380724 | Bertrand et al (2018) |
| Extant Rodentia | *Otomys irroratus* | 66 | 1.62 | 0.815153 | 1.31925081 | Bertrand et al (2018) |
| Extant Rodentia | *Paraxerus cepapi* | 138.13 | 2.91 | 0.892084 | 1.37101409 | Bertrand et al (2018) |
| Extant Rodentia | *Paraxerus cepapi* | 223.80 | 3.22 | 0.714727 | 1.06195425 | Bertrand et al (2018) |
| Extant Rodentia | *Paraxerus poensis* | 100 | 2.73 | 1.041145 | 1.63669391 | Bertrand et al (2018) |
| Extant Rodentia | *Pelomys campanae* | 91 | 1.23 | 0.499075 | 0.78974948 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Pelomys fallax* | 121 | 1.46 | 0.489447 | 0.7592181 | Bertrand et al (2018) |
| Extant Rodentia | *Pelomys fallax* | 110 | 1.41 | 0.502425 | 0.78456621 | Bertrand et al (2018) |
| Extant Rodentia | *Pelomys fallax* | 111 | 1.41 | 0.501519 | 0.78265536 | Bertrand et al (2018) |
| Extant Rodentia | *Perognathus flavus* | 8 | 0.29 | 0.591126 | 1.10897111 | Bertrand et al (2018) |
| Extant Rodentia | *Perognathus longimembris* | 8 | 0.30 | 0.610831 | 1.14593682 | Bertrand et al (2018) |
| Extant Rodentia | *Perognathus parvus* | 17.3 | 0.45 | 0.552378 | 0.98181421 | Bertrand et al (2018) |
| Extant Rodentia | *Perognathus parvus* | 17 | 0.58 | 0.724179 | 1.28875588 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus californicus* | 55 | 1.03 | 0.585161 | 0.95919356 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus californicus* | 51.20 | 1.03 | 0.614093 | 1.011676 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus eremicus* | 20.10 | 0.65 | 0.726092 | 1.27709688 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus eremicus* | 20 | 0.64 | 0.718444 | 1.26408718 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus gossypinus* | 27.20 | 0.68 | 0.619679 | 1.06709428 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus leucopus* | 25.50 | 0.63 | 0.599484 | 1.03699267 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus leucopus* | 19.70 | 0.64 | 0.720779 | 1.26953778 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus leucopus* | 22.90 | 0.62 | 0.636193 | 1.10880918 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus maniculatus bairdii* | 16.50 | 0.52 | 0.660088 | 1.17715637 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus maniculatus bairdii* | 18 | 0.52 | 0.623428 | 1.10502774 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus maniculatus gracilis* | 22.10 | 0.69 | 0.721074 | 1.25987811 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus maniculatus gracilis* | 26 | 0.69 | 0.648936 | 1.12101077 | Bertrand et al (2018) |
| Extant Rodentia | *Peromyscus polionotus* | 13.50 | 0.49 | 0.714426 | 1.2920811 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Peromyscus polionotus* | 13.10 | 0.49 | 0.723616 | 1.31146123 | Bertrand et al (2018) |
| Extant Rodentia | *Petaurista petaurista* | 1096.65 | 11.73 | 0.898077 | 1.19389145 | Bertrand et al (2018) |
| Extant Rodentia | *Petinomys setosus* | 41.86 | 1.44 | 0.983395 | 1.64307785 | Bertrand et al (2018) |
| Extant Rodentia | *Podomys floridanus* | 36.50 | 0.89 | 0.665698 | 1.12298233 | Bertrand et al (2018) |
| Extant Rodentia | *Podomys floridanus* | 39.20 | 0.89 | 0.636115 | 1.06773123 | Bertrand et al (2018) |
| Extant Rodentia | *Praomys jacksoni* | 49 | 0.87 | 0.534449 | 0.88317959 | Bertrand et al (2018) |
| Extant Rodentia | *Protoxerus aubinni* | 525 | 8.03 | 1.006816 | 1.40927342 | Bertrand et al (2018) |
| Extant Rodentia | *Protoxerus stangeri* | 767.23 | 9.28 | 0.90281 | 1.23057362 | Bertrand et al (2018) |
| Extant Rodentia | *Protoxerus stangeri* | 690.60 | 10.25 | 1.069449 | 1.46848724 | Bertrand et al (2018) |
| Extant Rodentia | *Pteromys buechneri* | 106.37 | 2.22 | 0.81127 | 1.26982654 | Bertrand et al (2018) |
| Extant Rodentia | *Pteromys nitidus* | 1600 | 11.80 | 0.701359 | 0.9080465 | Bertrand et al (2018) |
| Extant Rodentia | *Pteromyscus pulverulentus* | 195.44 | 3.45 | 0.838463 | 1.25767647 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 274 | 2.18 | 0.422651 | 0.6191501 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 278 | 2.30 | 0.441608 | 0.64626339 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 197 | 1.61 | 0.389361 | 0.58370812 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 291 | 2.27 | 0.422704 | 0.61662328 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 305 | 2.36 | 0.425843 | 0.61916299 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus* | 448 | 2.36 | 0.329135 | 0.46584468 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus domestica* | 324 | 2.70 | 0.467862 | 0.67738461 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus norvegicus norvegicus* | 202 | 2.60 | 0.618311 | 0.92531202 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Rattus rattus* | 160 | 2.24 | 0.622739 | 0.94727069 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus rattus* | 200 | 1.59 | 0.38065 | 0.57004586 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus rattus* | 150 | 1.92 | 0.557364 | 0.85166454 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus rattus alexandrinus* | 150 | 1.57 | 0.455761 | 0.69641319 | Bertrand et al (2018) |
| Extant Rodentia | *Rattus rattus rattus* | 217 | 1.68 | 0.380803 | 0.56702727 | Bertrand et al (2018) |
| Extant Rodentia | *Ratufa affinis* | 1074.27 | 11.73 | 0.910274 | 1.21185368 | Bertrand et al (2018) |
| Extant Rodentia | *Ratufa bicolor* | 1440 | 12 | 0.765415 | 0.99831563 | Bertrand et al (2018) |
| Extant Rodentia | *Ratufa bicolor* | 1400 | 12 | 0.779999 | 1.0193454 | Bertrand et al (2018) |
| Extant Rodentia | *Ratufa indica* | 1935 | 11.40 | 0.596551 | 0.76214184 | Bertrand et al (2018) |
| Extant Rodentia | *Ratufa indica* | 1010 | 11.60 | 0.938386 | 1.25468597 | Bertrand et al (2018) |
| Extant Rodentia | *Rhinosciurus laticaudatus* | 507.38 | 4.17 | 0.535657 | 0.75157065 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus carolinensis* | 592.55 | 7.67 | 0.886828 | 1.23084865 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus carolinesis* | 469 | 7.58 | 1.025185 | 1.44635923 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus carolinesis* | 466 | 7.48 | 1.016019 | 1.43407177 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus carolinesis* | 535 | 7.53 | 0.932431 | 1.303431 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus granatensis* | 336.99 | 6.02 | 1.01647 | 1.46763308 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger* | 365 | 6.90 | 1.103905 | 1.5849926 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger* | 365 | 6.50 | 1.03991 | 1.49310897 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger* | 703 | 10.20 | 1.051862 | 1.44254078 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger* | 770 | 10.50 | 1.01873 | 1.38822874 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Sciurus niger* | 650 | 9.20 | 0.999896 | 1.37881758 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger* | 580 | 8.95 | 1.049893 | 1.4593558 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus niger cinereus* | 328 | 7.20 | 1.237416 | 1.79003169 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 350 | 7.50 | 1.234112 | 1.77715693 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 323 | 6.10 | 1.059212 | 1.53389219 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 287 | 5.81 | 1.091978 | 1.59447751 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 316 | 5.89 | 1.037872 | 1.50529536 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 327 | 6.23 | 1.072901 | 1.55237835 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 361 | 5.85 | 0.942855 | 1.35480068 | Bertrand et al (2018) |
| Extant Rodentia | *Sciurus vulgaris* | 389 | 6 | 0.919822 | 1.31481126 | Bertrand et al (2018) |
| Extant Rodentia | *Sigmodon hispidus* | 148 | 1.18 | 0.345641 | 0.52864388 | Bertrand et al (2018) |
| Extant Rodentia | *Spalax leucodon* | 122 | 3 | 1.000182 | 1.55056454 | Bertrand et al (2018) |
| Extant Rodentia | *Spalax leucodon* | 180 | 2.63 | 0.675681 | 1.01936323 | Bertrand et al (2018) |
| Extant Rodentia | *Spalax leucodon* | 214 | 1.90 | 0.434705 | 0.64792133 | Bertrand et al (2018) |
| Extant Rodentia | *Spermophilus citellus* | 290 | 2.58 | 0.481539 | 0.70261927 | Bertrand et al (2018) |
| Extant Rodentia | *Spermophilus suslicus* | 224 | 2.30 | 0.510364 | 0.75826179 | Bertrand et al (2018) |
| Extant Rodentia | *Stochomys longicaudatus* | 65 | 1.27 | 0.64561 | 1.04597837 | Bertrand et al (2018) |
| Extant Rodentia | *Tachyoryctes splendens* | 282 | 2.10 | 0.399366 | 0.58386148 | Bertrand et al (2018) |
| Extant Rodentia | *Tachyoryctes splendens* | 174 | 2.29 | 0.601847 | 0.910131 | Bertrand et al (2018) |
| Extant Rodentia | *Tachyoryctes splendens* | 206 | 2.40 | 0.563299 | 0.84182994 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Tachyoryctes splendens* | 218 | 2.24 | 0.506175 | 0.75346847 | Bertrand et al (2018) |
| Extant Rodentia | *Tamias striatus* | 80 | 2.70 | 1.194297 | 1.90700593 | Bertrand et al (2018) |
| Extant Rodentia | *Tamias striatus* | 97 | 2.90 | 1.127404 | 1.77607697 | Bertrand et al (2018) |
| Extant Rodentia | *Tamias striatus* | 75 | 2.22 | 1.02537 | 1.64468415 | Bertrand et al (2018) |
| Extant Rodentia | *Tamias striatus* | 62 | 2.31 | 1.212072 | 1.97023032 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 256.61 | 4.90 | 0.99299 | 1.46134237 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 125 | 4.80 | 1.574455 | 2.43670355 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 159 | 4.10 | 1.144634 | 1.74190655 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 248 | 5.02 | 1.040495 | 1.53491504 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 183 | 4.71 | 1.196733 | 1.80335808 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 169 | 4.21 | 1.12828 | 1.70970351 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 183 | 3.97 | 1.008712 | 1.52002793 | Bertrand et al (2018) |
| Extant Rodentia | *Tamiasciurus hudsonicus* | 159 | 4.80 | 1.340059 | 2.03930523 | Bertrand et al (2018) |
| Extant Rodentia | *Thamnomys venustus* | 82.50 | 1.29 | 0.559398 | 0.89130263 | Bertrand et al (2018) |
| Extant Rodentia | *Thamnomys venustus* | 82.50 | 1.28 | 0.556365 | 0.88646985 | Bertrand et al (2018) |
| Extant Rodentia | *Thamnomys venustus* | 82.50 | 1.35 | 0.584963 | 0.93203606 | Bertrand et al (2018) |
| Extant Rodentia | *Thomomys bottae* | 185.20 | 1.41 | 0.355281 | 0.53492508 | Bertrand et al (2018) |
| Extant Rodentia | *Thomomys talpoides* | 90.60 | 1.01 | 0.410827 | 0.65030421 | Bertrand et al (2018) |
| Extant Rodentia | *Thryonomys gregorianus* | 3500 | 13.15 | 0.462614 | 0.56700941 | Bertrand et al (2018) |
| Extant Rodentia | *Thryonomys gregorianus* | 3500 | 13.15 | 0.462614 | 0.56700941 | Bertrand et al (2018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Extant Rodentia | *Thryonomys swinderianus* | 4500 | 12 | 0.356737 | 0.42961442 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus columbianus* | 482 | 3.52 | 0.467939 | 0.65891969 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus columbianus* | 529 | 3.57 | 0.4456 | 0.62338973 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus parryii* | 878 | 5.63 | 0.500249 | 0.6754564 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus parryii* | 958 | 5.74 | 0.481078 | 0.64561897 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus parryii* | 482 | 3.95 | 0.524851 | 0.73905857 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus parryii* | 756 | 4.98 | 0.48924 | 0.6675459 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus richardsonii* | 354 | 3.08 | 0.502342 | 0.72281254 | Bertrand et al (2018) |
| Extant Rodentia | *Urocitellus richardsonii* | 361 | 3.31 | 0.534169 | 0.76755496 | Bertrand et al (2018) |
| Extant Rodentia | *Xerus inauris* | 638 | 6.41 | 0.705366 | 0.97394253 | Bertrand et al (2018) |
| Extant Rodentia | *Zapus hudsonius* | 19.30 | 0.70 | 0.798302 | 1.40810193 | Bertrand et al (2018) |
| Extant Rodentia | *Zapus hudsonius* | 15.20 | 0.71 | 0.948796 | 1.70176556 | Bertrand et al (2018) |
| Extant Rodentia | *Zygogeomys trichopus* | 545 | 3.63 | 0.443781 | 0.6195511 | Bertrand et al (2018) |

**Table S6**. Data for bivariate plot (Fig. 4)

| Group | Species | Specimen number | Total Endocranial Volume (mm3) | Log Endocranial Volume | Body mass (g) | Log Body Mass | Source |
|---|---|---|---|---|---|---|---|
| Extant Leporidae | *Brachylagus idahoensis* | AMNH 92869 | 5145.19 | 3.711401417 | 339.56 | 2.530917909 | This paper |
| Extant Leporidae | *Poelagus marjorita* | AMNH 51052 | 11807.96 | 4.072174918 | 2480.24 | 3.394493972 | This paper |
| Extant Leporidae | *Lepus americanus bairdii* | AMNH 99352 | 9538.09 | 3.979461416 | 1396.22 | 3.144953375 | This paper |
| Extant Leporidae | *Lepus americanus phaeonotus* | AMNH 97648 | 10221.40 | 4.009510384 | 998.68 | 2.999426961 | This paper |
| Extant Leporidae | *Lepus arcticus* | AMNH 42139 | 15949.90 | 4.202757965 | 4003.10 | 3.602396965 | This paper |
| Extant Leporidae | *Oryctolagus cuniculus* | AMNH 34816 | 9363.12 | 3.971420589 | 1796.07 | 3.254323205 | This paper |
| Extant Leporidae | *Romerolagus diazi* | AMNH 148172 | 6020.62 | 3.779641217 | 1027.79 | 3.011904802 | This paper |
| Extant Ochotonidae | *Ochotona pallasi* | AMNH 59712 | 2138.24 | 3.33005645 | 223.85 | 2.349951356 | This paper |
| Extant Ochotonidae | *Ochotona princeps princeps* | AMNH 120698 | 2270.48 | 3.356117681 | 202.92 | 2.307332896 | This paper |
| Extant Ochotonidae | *Ochotona princeps schisticeps* | AMNH 40547 | 2479.85 | 3.394425412 | 155.10 | 2.190612212 | This paper |
| Stem lagomorph | *Megalagus turgidus* | UC 1642 | 7052.78 | 3.848360337 | 2325.01 | 3.366424825 | This paper |
| Extinct Rodentia | *Prosciurus relictus* | USNM 437793 | 957.45 | 2.981113836 | 30.07 | 1.478133428 | Bertrand et al (2018) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Extinct Rodentia | *Protosciurus* cf. *rachelae* | YPM 14736 | 4546.82 | 3.657707762 | 349.62 | 2.543596268 | Bertrand et al (2018) |
| Extinct Rodentia | *Paramys copei* | AMNH 4756 | 7526.65 | 3.876601721 | 1029.89 | 3.012790841 | Bertrand et al (2018) |
| Extinct Rodentia | *Paramys delicatus* | AMNH 12506 | 12565.40 | 4.099176318 | 2913.82 | 3.46446272 | Bertrand et al (2018) |
| Extinct Rodentia | *Pseudotomus horribilis* | USNM 17159 | 15188.20 | 4.181506307 | 7466.70 | 3.873128748 | Bertrand et al (2018) |
| Extinct Rodentia | *Pseudotomus oweni* | USNM 17161 | 12063.00 | 4.081455328 | 5396.00 | 3.732071693 | Bertrand et al (2018) |
| Extinct Rodentia | *Pseudotomus petersoni* | AMNH 2018 | 17014.90 | 4.230829401 | 6644.56 | 3.822466227 | Bertrand et al (2018) |
| Extinct Rodentia | *Pseudotomus hians* | AMNH 5025 | 13679.10 | 4.136057524 | 3153.50 | 3.498792835 | Bertrand et al (2018) |
| Extinct Rodentia | *Rapamys atramontis* | AMNH 128706 | 7109.97 | 3.851867768 | 1307.61 | 3.116477912 | Bertrand et al (2018) |
| Extinct Rodentia | *Rapamys atramontis* | AMNH 128704 | 6006.47 | 3.778619312 | 918.93 | 2.96328243 | Bertrand et al (2018) |
| Extinct Rodentia | *Ischyromys typus* | ROMV 1007 | 5578.07 | 3.74648396 | 1342.23 | 3.127826941 | Bertrand et al (2018) |
| Extinct Rodentia | *Ischyromys typus* | AMNH 12252 | 5934.55 | 3.773387793 | 1086.42 | 3.035997752 | Bertrand et al (2018) |
| Extinct Rodentia | *Ischyromys typus* | AMNH F:AM 144638 | 7276.91 | 3.861947004 | 1109.01 | 3.044935462 | Bertrand et al (2018) |
| Extinct Rodentia | *Cedromus wilsoni* | USNM 256584 | 3609.87 | 3.557491562 | 268.89 | 2.429574651 | Bertrand et al (2018) |
| Plesiadapiformes | *Microsyops annectens* | UW 12362 | 5900 | 3.770852012 | 1686 | 3.22685757 | Silcox et al (2010a) |
| Plesiadapiformes | *Ignacius graybullianus* | USNM 421608 | 2140 | 3.330413773 | 253 | 2.403120521 | Silcox et al (2009) |
| Plesiadapiformes | *Plesiadapis tricuspidens* | MNHN CR 125 | 5210 | 3.716837723 | 6372 | 3.804275767 | Orliac et al (2014) |
| Plesiadapiformes | *Plesiadapis cookei* | UM 87990 | 5000 | 3.698970004 | 2200 | 3.342422681 | Gingerich & Gunnell (2005) |
| Apatemyidae | *Labidolemur kayi* | USNM 530208/530221 | 501.88 | 2.700596428 | 74 | 1.86923172 | Silcox et al (2011) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Extinct Euprimates | *Notharctus tenebrosus* | AMNH 127167 | 7380 | 3.868056362 | 2641 | 3.421768401 | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | USNM V 23277 | 8060 | 3.906335042 | 2923 | 3.465828815 | Harrington et al (2016) |
| Extinct Euprimates | *Notharctus tenebrosus* | USNM V 23278 | 7430 | 3.870988814 | 2244 | 3.351022853 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 17994 | 8630 | 3.936010796 | 1420 | 3.152288344 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 17996 | 8990 | 3.953759692 | 1303 | 3.114944416 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | USNM V 21815 | 7440 | 3.871572936 | 1582 | 3.199206479 | Harrington et al (2016) |
| Extinct Euprimates | *Smilodectes gracilis* | UM 32773 | 8420 | 3.925312091 | 1547 | 3.189490314 | Harrington et al (2016) |
| Extinct Euprimates | *Adapis parisiensis* | NHM M 1345 | 8810 | 3.944975908 | 1074 | 3.031004281 | Harrington et al (2016) |
| Extinct Euprimates | *Rooneyia viejaensis* | TMM 40688-7 | 7234 | 3.859378504 | 381 | 2.580924976 | Kirk et al (2014) |
| Extinct Euprimates | *Microchoerus erinaceus* | UM-PRR 1771 | 4260 | 3.629409599 | 597 | 2.775974331 | Ramdarshan & Orliac (2016) |

**Table S7**. Metrical data of the width of the occipital condyles (in mm) and body mass estimation (in g; using formula of Moncunill-Solé et al. 2015) for studied lagomorph taxa

| Family | Species | Specimen number | Occipital width | Body mass |
|---|---|---|---|---|
| Leporidae | *Brachylagus idahoensis* | AMNH 92869 | 9.81 | 339.5 |
| | *Poelagus marjorita* | AMNH 51052 | 15.95 | 2480.2 |
| | *Lepus americanus phaeonotus* | AMNH 97648 | 12.77 | 998.6 |
| | *Lepus americanus bairdii* | AMNH 99352 | 13.86 | 1396.2 |
| | *Lepus arcticus* | AMNH 42139 | 17.93 | 4003.1 |
| | *Oryctolagus cuniculus* | AMNH 34816 | 14.74 | 1796.1 |
| | *Romerolagus diazi* | AMNH 148172 | 12.86 | 1027.8 |
| Ochotonidae | *Ochotona princeps princeps* | AMNH 120698 | 8.65 | 202.9 |
| | *Ochotona princeps schisticep* | AMNH 40547 | 8.10 | 155.1 |
| | *Ochotona pallasi* | AMNH 59712 | 8.86 | 223.8 |
| Stem Lagomorpha | *Megalagus turgidus* | UC 1642 | 15.70 | 2325.0 |