**Supplementary Table 1.** δ13C values of carnivores (A) and herbivores (B) from Cerro de los Batallones (Madrid Basin, Spain). The + 1.3‰ adjustment is provided for the carnivore taxa (Fox-Dobbs et al. 2006; Clementz et al. 2009). Lower premolars (p) and molars (m) are expressed in lower case. Upper premolars (P) and molars (M) are expressed in upper case. R = Right, L = Left. BAT-1 = Batallones-1; BAT-3 = Batallones-3; BAT-10 = Batallones-10.

**A. CARNIVORES**

|  |  |  |  |  |  |  |  |
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| **Fossil site** | **Signature1** | **Signature2** | **Family** | **Taxon** | **Tooth** | **δ13C (‰ VPDB)** | **δ13C (‰VPDB) +1.3‰** |
| BAT-1 | B-1006 (3) | S1 | Felidae | *Promegantereon ogygia* | Rp4 | -12.39 | -11.09 |
| BAT-1 | B-3153 | S2 | Felidae | *Promegantereon ogygia* | Lp4 | -13.04 | -11.74 |
| BAT-1 | B-2179 | S3 | Felidae | *Promegantereon ogygia* | lower canine | -12.28 | -10.98 |
| BAT-1 | B-1676(8) | S5 | Felidae | *Promegantereon ogygia* | Rp3 | -11.97 | -10.67 |
| BAT-1 | SS | S18 | Felidae | *Promegantereon ogygia* | upper canine | -13.09 | -11.79 |
| BAT-1 | SS | S19 | Felidae | *Promegantereon ogygia* | upper canine | -12.08 | -10.78 |
| BAT-1 | SS | S20 | Felidae | *Promegantereon ogygia* | upper canine | -14.38 | -13.08 |
| BAT-1 | BAT-1'02 D3-19 | S36 | Felidae | *Promegantereon ogygia* | lower canine | -11.44 | -10.14 |
| BAT-1 | B-757 | S37 | Felidae | *Promegantereon ogygia* | upper canine | -12.62 | -11.32 |
| BAT-1 | B-4962 | S6 | Felidae | *Machairodus aphanistus* | Rp4 | -11.74 | -10.44 |
| BAT-1 | B-5279 | S7 | Felidae | *Machairodus aphanistus* | Lp3 | -11.94 | -10.64 |
| BAT-1 | B-855(2) | S8 | Felidae | *Machairodus aphanistus* | LP3 | -12.26 | -10.96 |
| BAT-1 | B-1018 | S9 | Felidae | *Machairodus aphanistus* | LP3 | -12.75 | -11.45 |
| BAT-1 | B-1183(2)bis | S10 | Felidae | *Machairodus aphanistus* | RP3 | -13.19 | -11.89 |
| BAT-1 | SS | S12 | Felidae | *Machairodus aphanistus* | upper canine | -12.98 | -11.68 |
| BAT-1 | SS | S13 | Felidae | *Machairodus aphanistus* | upper canine | -12.46 | -11.16 |
| BAT-1 | SS | S14 | Felidae | *Machairodus aphanistus* | upper canine | -13.09 | -11.79 |
| BAT-1 | SS | S15 | Felidae | *Machairodus aphanistus* | lower canine | -11.99 | -10.69 |
| BAT-1 | SS | S16 | Felidae | *Machairodus aphanistus* | lower canine | -12.56 | -11.26 |
| BAT-1 | SS | S17 | Felidae | *Machairodus aphanistus* | m1 | -11.81 | -10.51 |
| BAT-1 | B-3365 | S11 | Amphicyonidae | *Magericyon anceps* | Lp3 | -11.2 | -9.9 |
| BAT-1 | B-5441 | S28 | Amphicyonidae | *Magericyon anceps* | m2 | -11.56 | -10.26 |
| BAT-1 | B-5439 (2) | S29 | Amphicyonidae | *Magericyon anceps* | RM1 | -12.12 | -10.82 |
| BAT-1 | B-5439 (2) bis | S38 | Amphicyonidae | *Magericyon anceps* | RM2 | -11.10 | -9.80 |
| BAT-1 | B-396 | S39 | Amphicyonidae | *Magericyon anceps* | incisor | -11.70 | -10.40 |
| BAT-1 | B-1337 | S40 | Amphicyonidae | *Magericyon anceps* | incisor | -11.59 | -10.29 |
| BAT-1 | B-475 | S41 | Amphicyonidae | *Magericyon anceps* | lower canine | -10.97 | -9.67 |
| BAT-3 | BAT-3'11 132 | S100 | Felidae | *Promegantereon ogygia* | Rm1 | -12.50 | -11.20 |
| BAT-3 | BAT-3'11 1467 | S101 | Felidae | *Promegantereon ogygia* | Rm1 | -11.16 | -9.86 |
| BAT-3 | BAT-3'10 1773 | S104 | Felidae | *Promegantereon ogygia* | Rm1 | -11.58 | -10.28 |
| BAT-3 | S-683A | S105 | Felidae | *Promegantereon ogygia* | Lm1 | -11.82 | -10.52 |
| BAT-3 | BAT-3'01 60A | S106 | Felidae | *Promegantereon ogygia* | LP4 | -11.47 | -10.17 |
| BAT-3 | BAT-3'13 2070 | S108 | Felidae | *Promegantereon ogygia* | Rp4 | -13.32 | -12.02 |
| BAT-3 | BAT-3'13 1596 | S119 | Felidae | *Promegantereon ogygia* | Rp4 | -13.55 | -12.25 |
| BAT-3 | BAT-3'13 2057 | S120 | Felidae | *Promegantereon ogygia* | Lp4 | -12.49 | -11.19 |
| BAT-3 | BAT-3'11 2495 | S93 | Felidae | *Machairodus aphanistus* | LP4 | -13.28 | -11.98 |
| BAT-3 | BAT-3'09 1622 | S94 | Felidae | *Machairodus aphanistus* | RP4 | -11.19 | -9.89 |
| BAT-3 | BAT-3'10 2044 | S95 | Felidae | *Machairodus aphanistus* | RP4 | -12.67 | -11.37 |
| BAT-3 | BAT-3'12 2448 | S96 | Felidae | *Machairodus aphanistus* | LP4 | -11.88 | -10.58 |
| BAT-3 | BAT-3'10 235 | S97 | Felidae | *Machairodus aphanistus* | Lm1 | -11.70 | -10.40 |
| BAT-3 | BAT-3'08 92 | S98 | Felidae | *Machairodus aphanistus* | Lp4 | -12.53 | -11.23 |
| BAT-3 | BAT-3'10 149 | S99 | Felidae | *Machairodus aphanistus* | Rp4 | -11.67 | -10.37 |
| BAT-3 | BAT-3'09 786b | S102 | Felidae | *Machairodus aphanistus* | Lm1 | -11.51 | -10.21 |
| BAT-3 | BAT-3'09 786b | S107 | Felidae | *Machairodus aphanistus* | LP4 | -11.95 | -10.65 |
| BAT-3 | BAT-3'07 582 | S125 | Amphicyonidae | *Magericyon anceps* | Lm3 | -10.72 | -9.42 |
| BAT-3 | BAT-3'08 604 | S110 | Amphicyonidae | *Thaumastocyon* sp. | L lower canine | -12.70 | -11.40 |
| BAT-3 | BAT-3'10 347 | S111 | Amphicyonidae | *Thaumastocyon* sp. | incisor | -11.27 | -9.97 |
| BAT-3 | BAT-3'10 1689 | S115 | Amphicyonidae | *Thaumastocyon* sp. | R upper canine | -12.27 | -10.97 |
| BAT-3 | BAT-3'13 185 | S112 | Mustelidae | *Eomellivora piveteaui* | LP4 | -11.18 | -9.88 |
| BAT-3 | BAT-3'09 1000 | S113 | Mustelidae | *Eomellivora piveteaui* | LP4 | -13.47 | -12.17 |
| BAT-3 | BAT-3'09 1000 | S114 | Mustelidae | *Eomellivora piveteaui* | Rp4 | -11.49 | -10.19 |
| BAT-3 | BAT-3'09 250 | S116 | Mustelidae | *Eomellivora piveteaui* | RP3 | -11.63 | -10.33 |
| BAT-3 | BAT-3'09 688 | S117 | Mustelidae | *Eomellivora piveteaui* | R incisor | -11.74 | -10.44 |
| BAT-3 | BAT-3'08 526 | S118 | Mustelidae | *Eomellivora piveteaui* | R lower canine | -12.91 | -11.61 |
| BAT-3 | BAT-3'06 563 | S84 | Ursidae | *Indarctos arctoides* | Rm1 | -14.24 | -12.94 |
| BAT-3 | BAT-3'11 1130 | S85 | Ursidae | *Indarctos arctoides* | Lm1 | -12.06 | -10.76 |
| BAT-3 | BAT-3'10 666 | S86 | Ursidae | *Indarctos arctoides* | Lm1 | -11.95 | -10.65 |
| BAT-3 | BAT-3'10 400 | S87 | Ursidae | *Indarctos arctoides* | Lm1 | -12.59 | -11.29 |
| BAT-3 | BAT-3'08 358 | S88 | Ursidae | *Indarctos arctoides* | Rm1 | -12.22 | -10.92 |
| BAT-3 | BAT-3'09 791 | S89 | Ursidae | *Indarctos arctoides* | Lm1 | -10.74 | -9.44 |
| BAT-3 | BAT-3'09 31 | S90 | Ursidae | *Indarctos arctoides* | Rm2 | -11.84 | -10.54 |
| BAT-3 | BAT-3'05 254 | S91 | Ursidae | *Indarctos arctoides* | Rm2 | -12.23 | -10.93 |
| BAT-3 | BAT-3'05 255 | S92 | Ursidae | *Indarctos arctoides* | Lm2 | -12.11 | -10.81 |

**B. HERBIVORES**

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| **Fossil site** | **Signature1** | **Signature2** | **Family** | **Taxon** | **Tooth** | **δ13C (‰ VPDB)** |
| BAT-1 | B/S695 | S31 | Equidae | *Hipparion* sp. | RP3/P4 | -9.80 |
| BAT-1 | B-4496 | S32 | Equidae | *Hipparion* sp. | Lm3 | -11.66 |
| BAT-1 | B/S708 | S33 | Equidae | *Hipparion* sp. | Rm1 | -9.79 |
| BAT-1 | B/S696 | S35 | Equidae | *Hipparion* sp. | RM1/M2 | -8.31 |
| BAT-1 | B/S709a | S45 | Equidae | *Hipparion* sp. | Rm2 | -10.64 |
| BAT-1 | B/S709b | S46 | Equidae | *Hipparion* sp. | Rm1 | -10.77 |
| BAT-1 | B-3050 | S47 | Equidae | *Hipparion* sp. | incisor | -9.69 |
| BAT-10 | BAT-10'09 F5-13 | S48 | Equidae | *Hipparion* sp. | incisor | -11.89 |
| BAT-10 | BAT-10'09 G4-41 | S49 | Equidae | *Hipparion* sp. | incisor | -9.07 |
| BAT-10 | BAT-10'09 G2-138 | S50 | Equidae | *Hipparion* sp. | incisor | -12.04 |
| BAT-10 | BAT-10'09 G2-141 | S51 | Equidae | *Hipparion* sp. | incisor | -8.17 |
| BAT-10 | BAT-10'11 G1-1 | S75 | Equidae | *Hipparion* sp. | RM1/M2 | -10.81 |
| BAT-10 | BAT-10'11 G5-10 | S76 | Equidae | *Hipparion* sp. | incisor | -9.28 |
| BAT-10 | BAT-10'11 C6-25a | S77 | Equidae | *Hipparion* sp. | incisor | -9.66 |
| BAT-10 | BAT-10'11 D6-21 | S78 | Equidae | *Hipparion* sp. | incisor | -10.8 |
| BAT-10 | BAT-10'11 F3-6 | S79 | Equidae | *Hipparion* sp. | Rp3/p4 | -9.18 |
| BAT-3 | BAT-3'13 1866 | S121 | Equidae | *Hipparion* sp. | Upper molar | -11.12 |
| BAT-3 | BAT-3'13 1168 | S122 | Equidae | *Hipparion* sp. | m3 | -11.08 |
| BAT-3 | BAT-3'10 1454 | S124 | Equidae | *Hipparion* sp. | molar | -10.67 |
| BAT-10 | BAT-10'09 F4-24 | S65 | Suidae | *Microstonyx* sp. | incisor | -9.03 |
| BAT-10 | BAT-10'11 G2-43 | S80 | Suidae | *Microstonyx* sp. | incisor | -10.02 |
| BAT-10 | BAT-10'11 F2-16 | S81 | Suidae | *Microstonyx* sp. | incisor | -12.62 |
| BAT-10 | BAT-10'11 F2-14 | S82 | Suidae | *Microstonyx* sp. | incisor | -11.68 |
| BAT-1 | BAT-1'03 D4-323 | S74 | Bovidae | *Austroportax* sp. | LM2 | -9.98 |
| BAT-1 | BAT-1'05 D4-78 | S83 | Bovidae | *Austroportax* sp. | LM2 | -9.41 |
| BAT-3 | BAT-3'08 699 | S123 | Bovidae | Bovidae indet. | p2 | -12.44 |
| BAT-1 | B-461 | S27 | Rhinocerotidae | Rhinocerotinae indet. | p2 | -9.42 |
| BAT-1 | SS BLOQUE1 | S43 | Rhinocerotidae | Rhinocerotinae indet. | Lp3 | -10.3 |
| BAT-1 | BAT-1'05 E3-150 | S69 | Rhinocerotidae | Rhinocerotinae indet. | LM1 | -11.41 |
| BAT-1 | BAT-1'07 F4-22 | S72 | Rhinocerotidae | Rhinocerotinae indet. | Lm1 | -10.96 |
| BAT-1 | BAT-1'04 F5-157 | S70 | Rhinocerotidae | *Aceratherium incisivum* | RM1 | -10.52 |
| BAT-1 | B-2788 | S71 | Rhinocerotidae | *Aceratherium incisivum* | Lm1 | -11.78 |