**Supplemental 3.1: Change from baseline in amount burrowed (g) per time point by strain**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** | **Treatment group** |  | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **Sprague-Dawley** | Naive |  | 24 hrs | 23 | -77 | 371 | -254 | -88 | 256 |
|  |  |  | 48 hs | 24 | -28 | 544 | -354 | -94 | 301 |
|  |  |  | 72 hrs | 24 | 89 | 586 | -259 | 101 | 381 |
|  |  |  | 7 days | 24 | 338 | 714 | -172 | 445 | 789 |
|  |  |  | 10 days | 24 | 62 | 837 | -402 | -149 | 608 |
|  | Sham |  | 24 hrs | 46 | 107 | 595 | -244 | 27 | 459 |
|  |  |  | 48 hs | 45 | 204 | 598 | -1596 | 79 | 493 |
|  |  |  | 72 hrs | 46 | 138 | 664 | -346 | -3 | 658 |
|  |  |  | 7 days | 45 | 196 | 730 | -182 | 107 | 586 |
|  |  |  | 10 days | 35 | 173 | 741 | -207 | 84 | 739 |
|  | CFA |  | 24 hrs | 46 | -524 | 659 | -1044 | -579 | -178 |
|  |  |  | 48 hs | 46 | -303 | 521 | -576 | -383 | -101 |
|  |  |  | 72 hrs | 46 | -172 | 730 | -558 | -109 | 187 |
|  |  |  | 7 days | 46 | 3 | 545 | -303 | -11 | 249 |
|  |  |  | 10 days | 36 | -23 | 644 | -413 | 9 | 300 |
| **Wistar** | Naive |  | 24 hrs | 25 | 57 | 568 | -182 | -18 | 331 |
|  |  |  | 48 hs | 25 | 88 | 464 | -208 | -7 | 378 |
|  |  |  | 72 hrs | 25 | 141 | 477 | -205 | 200 | 471 |
|  |  |  | 7 days | 25 | 155 | 430 | -73 | 142 | 403 |
|  |  |  | 10 days | 25 | -20 | 616 | -350 | 15 | 314 |
|  | Sham |  | 24 hrs | 49 | 116 | 437 | -205 | 85 | 392 |
|  |  |  | 48 hs | 50 | 205 | 464 | -95 | 129 | 439 |
|  |  |  | 72 hrs | 50 | 134 | 573 | -240 | -2 | 297 |
|  |  |  | 7 days | 50 | 248 | 576 | -104 | 115 | 600 |
|  |  |  | 10 days | 50 | 197 | 561 | -80 | 139 | 474 |
|  | CFA |  | 24 hrs | 58 | -334 | 663 | -665 | -300 | 46 |
|  |  |  | 48 hs | 58 | -106 | 639 | -382 | -60 | 172 |
|  |  |  | 72 hrs | 58 | 39 | 740 | -235 | 36 | 357 |
|  |  |  | 7 days | 58 | 132 | 640 | -225 | 220 | 532 |
|  |  |  | 10 days | 58 | -16 | 624 | -362 | -109 | 235 |

**Supplemental 3.2: Change from baseline in amount burrowed (g) per time point by animal weight at start of study**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** |  | **Treatment group** | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **200-225 g** |  | Naive | 24 hrs | 9 | -15 | 207 | -175 | -55 | -15 |
|  |  |  | 48 hs | 9 | 106 | 327 | -185 | 85 | 325 |
|  |  |  | 72 hrs | 9 | -71 | 397 | -195 | -5 | 200 |
|  |  |  | 7 days | 9 | 101 | 316 | -100 | 125 | 275 |
|  |  |  | 10 days | 9 | 14 | 343 | -255 | 15 | 250 |
|  |  | Sham | 24 hrs | 20 | 13 | 249 | -210 | 17 | 171 |
|  |  |  | 48 hs | 20 | 22 | 266 | -96 | 27 | 144 |
|  |  |  | 72 hrs | 20 | 137 | 314 | -35 | 15 | 365 |
|  |  |  | 7 days | 19 | 17 | 273 | -147 | 55 | 110 |
|  |  |  | 10 days | 10 | 108 | 219 | 0 | 105 | 245 |
|  |  | CFA | 24 hrs | 18 | -714 | 485 | -1060 | -637 | -390 |
|  |  |  | 48 hs | 18 | -415 | 389 | -471 | -284 | -175 |
|  |  |  | 72 hrs | 18 | -210 | 454 | -398 | -157 | 96 |
|  |  |  | 7 days | 18 | -218 | 444 | -475 | -215 | -50 |
|  |  |  | 10 days | 12 | -104 | 382 | -447 | -92 | 182 |
| **225-250 g** |  | Naive | 24 hrs | 12 | -270 | 453 | -383 | -202 | -78 |
|  |  |  | 48 hs | 13 | -195 | 562 | -523 | -196 | -7 |
|  |  |  | 72 hrs | 13 | 69 | 715 | -296 | -98 | 183 |
|  |  |  | 7 days | 13 | 228 | 789 | -217 | 142 | 604 |
|  |  |  | 10 days | 13 | -234 | 1043 | -967 | -205 | -32 |
|  |  | Sham | 24 hrs | 55 | 132 | 603 | -254 | 75 | 457 |
|  |  |  | 48 hs | 55 | 230 | 558 | -128 | 186 | 548 |
|  |  |  | 72 hrs | 56 | 109 | 641 | -323 | -5 | 562 |
|  |  |  | 7 days | 56 | 173 | 672 | -215 | 70 | 608 |
|  |  |  | 10 days | 55 | 112 | 647 | -224 | 0 | 544 |
|  |  | CFA | 24 hrs | 58 | -399 | 667 | -905 | -371 | -15 |
|  |  |  | 48 hs | 58 | -202 | 614 | -576 | -226 | 7 |
|  |  |  | 72 hrs | 58 | -67 | 733 | -343 | -89 | 247 |
|  |  |  | 7 days | 58 | 97 | 641 | -303 | 46 | 460 |
|  |  |  | 10 days | 54 | -21 | 666 | -362 | -39 | 245 |
| **>250 g** |  | Naive | 24 hrs | 27 | 112 | 526 | -197 | 61 | 322 |
|  |  |  | 48 hs | 27 | 115 | 504 | -322 | 41 | 410 |
|  |  |  | 72 hrs | 27 | 201 | 459 | -64 | 252 | 517 |
|  |  |  | 7 days | 27 | 302 | 556 | -64 | 297 | 575 |
|  |  |  | 10 days | 27 | 145 | 623 | -342 | 167 | 693 |
|  |  | Sham | 24 hrs | 20 | 158 | 464 | -191 | 147 | 471 |
|  |  |  | 48 hs | 20 | 319 | 616 | -111 | 243 | 782 |
|  |  |  | 72 hrs | 20 | 213 | 773 | -409 | 26 | 760 |
|  |  |  | 7 days | 20 | 564 | 738 | 92 | 409 | 1037 |
|  |  |  | 10 days | 20 | 435 | 708 | 76 | 518 | 871 |
|  |  | CFA | 24 hrs | 28 | -269 | 720 | -822 | -417 | 79 |
|  |  |  | 48 hs | 28 | -35 | 634 | -399 | -27 | 389 |
|  |  |  | 72 hrs | 28 | 71 | 889 | -385 | 208 | 700 |
|  |  |  | 7 days | 28 | 220 | 553 | 74 | 315 | 523 |
|  |  |  | 10 days | 28 | 20 | 653 | -338 | -13 | 479 |

**Supplemental 3.3: Change from baseline in amount burrowed (g) per time point by animal substrate size**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** |  | **Treatment group** | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **2-5 mm** |  | Naive | 24 hrs | 23 | 73 | 608 | -228 | 61 | 332 |
|  |  |  | 48 hs | 23 | 105 | 493 | -322 | -7 | 382 |
|  |  |  | 72 hrs | 23 | 181 | 478 | -236 | 196 | 517 |
|  |  |  | 7 days | 23 | 222 | 474 | -64 | 201 | 466 |
|  |  |  | 10 days | 23 | -17 | 642 | -346 | -32 | 331 |
|  |  | Sham | 24 hrs | 25 | 14 | 322 | -205 | 29 | 277 |
|  |  |  | 48 hs | 25 | 93 | 387 | -161 | 59 | 332 |
|  |  |  | 72 hrs | 25 | 119 | 620 | -346 | 6 | 588 |
|  |  |  | 7 days | 25 | 133 | 525 | -110 | 120 | 312 |
|  |  |  | 10 days | 15 | 252 | 703 | -80 | 342 | 615 |
|  |  | CFA | 24 hrs | 33 | -628 | 526 | -1053 | -595 | -417 |
|  |  |  | 48 hs | 33 | -199 | 539 | -458 | -295 | 166 |
|  |  |  | 72 hrs | 33 | -70 | 691 | -217 | 131 | 262 |
|  |  |  | 7 days | 33 | 108 | 483 | -83 | 164 | 429 |
|  |  |  | 10 days | 23 | -25 | 554 | -332 | -35 | 450 |
| **4-8 mm** |  | Naive | 24 hrs | 16 | -119 | 384 | -287 | -159 | 107 |
|  |  |  | 48 hs | 17 | -109 | 583 | -468 | -196 | 41 |
|  |  |  | 72 hrs | 17 | 127 | 648 | -221 | 175 | 384 |
|  |  |  | 7 days | 17 | 354 | 808 | -217 | 529 | 973 |
|  |  |  | 10 days | 17 | 74 | 976 | -560 | -193 | 1126 |
|  |  | Sham | 24 hrs | 60 | 184 | 601 | -144 | 106 | 480 |
|  |  |  | 48 hs | 60 | 294 | 595 | -113 | 206 | 705 |
|  |  |  | 72 hrs | 61 | 164 | 662 | -288 | -4 | 658 |
|  |  |  | 7 days | 60 | 295 | 737 | -172 | 226 | 790 |
|  |  |  | 10 days | 60 | 185 | 673 | -167 | 96 | 701 |
|  |  | CFA | 24 hrs | 61 | -251 | 701 | -639 | -237 | 46 |
|  |  |  | 48 hs | 61 | -161 | 643 | -568 | -223 | 25 |
|  |  |  | 72 hrs | 61 | -3 | 797 | -427 | -65 | 394 |
|  |  |  | 7 days | 61 | 126 | 668 | -326 | 84 | 532 |
|  |  |  | 10 days | 61 | 6 | 688 | -385 | -9 | 294 |
| **<1 mm [sand]** |  | Naive | 24 hrs | 9 | -15 | 207 | -175 | -55 | -15 |
|  |  |  | 48 hs | 9 | 106 | 327 | -185 | 85 | 325 |
|  |  |  | 72 hrs | 9 | -71 | 397 | -195 | -5 | 200 |
|  |  |  | 7 days | 9 | 101 | 316 | -100 | 125 | 275 |
|  |  |  | 10 days | 9 | 14 | 343 | -255 | 15 | 250 |
|  |  | Sham | 24 hrs | 10 | -72 | 229 | -265 | -130 | 125 |
|  |  |  | 48 hs | 10 | -49 | 228 | -85 | -10 | 85 |
|  |  |  | 72 hrs | 10 | 10 | 168 | -55 | 2 | 65 |
|  |  |  | 7 days | 10 | 30 | 156 | -5 | 60 | 80 |
|  |  |  | 10 days | 10 | 108 | 219 | 0 | 105 | 245 |
|  |  | CFA | 24 hrs | 10 | -749 | 577 | -1135 | -637 | -390 |
|  |  |  | 48 hs | 10 | -377 | 468 | -300 | -207 | -155 |
|  |  |  | 72 hrs | 10 | -316 | 485 | -345 | -240 | 30 |
|  |  |  | 7 days | 10 | -338 | 348 | -570 | -280 | -100 |
|  |  |  | 10 days | 10 | -163 | 390 | -465 | -247 | 130 |

**Supplemental 3.4: Change from baseline in amount burrowed (g) per time point by number of training sessions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** | **Treatment group** |  | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **2 sessions** | Naive |  | 24 hrs | 44 | 53 | 443 | -178 | -42 | 313 |
|  |  |  | 48 hs | 45 | 51 | 517 | -318 | -9 | 377 |
|  |  |  | 72 hrs | 45 | 127 | 540 | -195 | 175 | 384 |
|  |  |  | 7 days | 45 | 243 | 603 | -127 | 275 | 575 |
|  |  |  | 10 days | 45 | 70 | 703 | -342 | 5 | 523 |
|  | Sham |  | 24 hrs | 79 | 97 | 460 | -177 | 75 | 413 |
|  |  |  | 48 hs | 79 | 201 | 490 | -108 | 113 | 486 |
|  |  |  | 72 hrs | 80 | 130 | 598 | -269 | -2 | 574 |
|  |  |  | 7 days | 80 | 206 | 645 | -152 | 77 | 529 |
|  |  |  | 10 days | 70 | 193 | 629 | -135 | 119 | 560 |
|  | CFA |  | 24 hrs | 88 | -394 | 681 | -911 | -465 | -7 |
|  |  |  | 48 hs | 88 | -141 | 577 | -475 | -198 | 140 |
|  |  |  | 72 hrs | 88 | 31 | 702 | -292 | 30 | 338 |
|  |  |  | 7 days | 88 | 91 | 559 | -244 | 66 | 421 |
|  |  |  | 10 days | 78 | -12 | 644 | -430 | -46 | 294 |
| **3 sessions** | Naive |  | 24 hrs | 4 | -674 | 463 | -1033 | -597 | -315 |
|  |  |  | 48 hs | 4 | -193 | 251 | -337 | -100 | -47 |
|  |  |  | 72 hrs | 4 | -10 | 423 | -350 | -85 | 330 |
|  |  |  | 7 days | 4 | 273 | 445 | 10 | 110 | 535 |
|  |  |  | 10 days | 4 | -543 | 863 | -1223 | -425 | 137 |
|  | Sham |  | 24 hrs | 16 | 187 | 755 | -338 | 0 | 671 |
|  |  |  | 48 hs | 16 | 222 | 712 | -304 | 225 | 507 |
|  |  |  | 72 hrs | 16 | 168 | 716 | -288 | -3 | 644 |
|  |  |  | 7 days | 15 | 322 | 694 | -60 | 364 | 626 |
|  |  |  | 10 days | 15 | 162 | 700 | -94 | 67 | 562 |
|  | CFA |  | 24 hrs | 16 | -552 | 567 | -1048 | -514 | -109 |
|  |  |  | 48 hs | 16 | -487 | 628 | -864 | -492 | -169 |
|  |  |  | 72 hrs | 16 | -523 | 788 | -1193 | -305 | 21 |
|  |  |  | 7 days | 16 | -9 | 810 | -361 | 73 | 473 |
|  |  |  | 10 days | 16 | -58 | 564 | -316 | -4 | 171 |

**Supplemental 3.5: Change from baseline in amount burrowed (g) per time point by weight of substrate provided in tube**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** | **Treatment group** |  | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **2000 g** | Naive |  | 24 hrs |  |  |  |  |  |  |
|  |  |  | 48 hs |  |  |  |  |  |  |
|  |  |  | 72 hrs |  |  |  |  |  |  |
|  |  |  | 7 days |  |  |  |  |  |  |
|  |  |  | 10 days |  |  |  |  |  |  |
|  | Sham |  | 24 hrs | 16 | 190 | 390 | -57 | 159 | 429 |
|  |  |  | 48 hs | 16 | 201 | 518 | -201 | 164 | 577 |
|  |  |  | 72 hrs | 16 | 176 | 628 | -313 | 38 | 753 |
|  |  |  | 7 days | 16 | 295 | 489 | -92 | 226 | 794 |
|  |  |  | 10 days | 16 | 167 | 532 | -294 | 156 | 577 |
|  | CFA |  | 24 hrs | 16 | -102 | 465 | -311 | -140 | 130 |
|  |  |  | 48 hs | 16 | -60 | 590 | -311 | 3 | 177 |
|  |  |  | 72 hrs | 16 | 114 | 659 | -184 | 32 | 372 |
|  |  |  | 7 days | 16 | 347 | 603 | -15 | 236 | 795 |
|  |  |  | 10 days | 16 | 237 | 666 | -229 | 44 | 798 |
| **2500 g** | Naive |  | 24 hrs | 48 | -7 | 484 | -212 | -61 | 294 |
|  |  |  | 48 hs | 49 | 31 | 503 | -318 | -26 | 325 |
|  |  |  | 72 hrs | 49 | 116 | 529 | -221 | 170 | 384 |
|  |  |  | 7 days | 49 | 245 | 588 | -100 | 235 | 575 |
|  |  |  | 10 days | 49 | 20 | 727 | -346 | -32 | 335 |
|  | Sham |  | 24 hrs | 79 | 96 | 540 | -244 | 25 | 360 |
|  |  |  | 48 hs | 79 | 206 | 535 | -118 | 113 | 439 |
|  |  |  | 72 hrs | 80 | 128 | 617 | -269 | -5 | 567 |
|  |  |  | 7 days | 79 | 210 | 680 | -157 | 80 | 575 |
|  |  |  | 10 days | 69 | 192 | 663 | -100 | 108 | 560 |
|  | CFA |  | 24 hrs | 88 | -476 | 682 | -1004 | -556 | -93 |
|  |  |  | 48 hs | 88 | -218 | 596 | -547 | -248 | 1 |
|  |  |  | 72 hrs | 88 | -85 | 753 | -424 | -37 | 268 |
|  |  |  | 7 days | 88 | 26 | 591 | -315 | 45 | 384 |
|  |  |  | 10 days | 78 | -72 | 612 | -430 | -46 | 235 |

**Supplemental 3.6: Change from baseline in amount burrowed (g) per time point by gender of experimenter**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  | **Percentiles** | | |
| **Subgroup** |  | **Treatment group** | **Time point** | **N number** | **Mean** | **SD** | **25%** | **50%** | **75%** |
| **Female** |  | Naive | 24 hrs | 32 | 47 | 354 | -168 | -27 | 294 |
|  |  |  | 48 hs | 32 | 153 | 480 | -190 | 63 | 435 |
|  |  |  | 72 hrs | 32 | 134 | 505 | -190 | 130 | 427 |
|  |  |  | 7 days | 32 | 292 | 516 | -82 | 255 | 509 |
|  |  |  | 10 days | 32 | 165 | 531 | -230 | 33 | 531 |
|  |  | Sham | 24 hrs | 25 | 146 | 392 | -205 | 85 | 413 |
|  |  |  | 48 hs | 25 | 228 | 553 | -55 | 85 | 434 |
|  |  |  | 72 hrs | 25 | 149 | 542 | -230 | 15 | 506 |
|  |  |  | 7 days | 25 | 388 | 595 | 55 | 110 | 762 |
|  |  |  | 10 days | 25 | 307 | 489 | 60 | 225 | 560 |
|  |  | CFA | 24 hrs | 33 | -335 | 738 | -1010 | -417 | 52 |
|  |  |  | 48 hs | 33 | -31 | 554 | -300 | -90 | 297 |
|  |  |  | 72 hrs | 33 | 8 | 730 | -285 | 70 | 295 |
|  |  |  | 7 days | 33 | 99 | 463 | -205 | 170 | 335 |
|  |  |  | 10 days | 33 | 68 | 549 | -315 | 9 | 450 |
| **Male** |  | Naive | 24 hrs | 4 | 709 | 641 | 266 | 546 | 1152 |
|  |  |  | 48 hs | 4 | 217 | 616 | -222 | 240 | 656 |
|  |  |  | 72 hrs | 4 | 362 | 116 | 275 | 338 | 448 |
|  |  |  | 7 days | 4 | -99 | 515 | -538 | -70 | 340 |
|  |  |  | 10 days | 4 | -284 | 567 | -756 | -192 | 187 |
|  |  | Sham | 24 hrs | 14 | 8 | 323 | -119 | 17 | 222 |
|  |  |  | 48 hs | 14 | 105 | 359 | -107 | 69 | 336 |
|  |  |  | 72 hrs | 14 | 260 | 667 | -134 | 130 | 626 |
|  |  |  | 7 days | 14 | 83 | 633 | -147 | 42 | 283 |
|  |  |  | 10 days | 4 | 398 | 1275 | -446 | 478 | 1241 |
|  |  | CFA | 24 hrs | 14 | -794 | 378 | -1161 | -800 | -547 |
|  |  |  | 48 hs | 14 | -262 | 307 | -458 | -318 | -117 |
|  |  |  | 72 hrs | 14 | 144 | 422 | -147 | 113 | 262 |
|  |  |  | 7 days | 14 | -50 | 311 | -267 | -104 | 57 |
|  |  |  | 10 days | 4 | -526 | 212 | -682 | -462 | -370 |
| **Mixed** |  | Naive | 24 hrs | 12 | -391 | 425 | -652 | -253 | -153 |
|  |  |  | 48 hs | 13 | -327 | 364 | -562 | -318 | -26 |
|  |  |  | 72 hrs | 13 | -3 | 647 | -312 | -98 | 183 |
|  |  |  | 7 days | 13 | 236 | 763 | -57 | 142 | 604 |
|  |  |  | 10 days | 13 | -243 | 1068 | -967 | -560 | 307 |
|  |  | Sham | 24 hrs | 56 | 123 | 602 | -271 | 52 | 445 |
|  |  |  | 48 hs | 56 | 220 | 559 | -142 | 152 | 517 |
|  |  |  | 72 hrs | 57 | 100 | 639 | -358 | -5 | 555 |
|  |  |  | 7 days | 56 | 186 | 675 | -215 | 122 | 622 |
|  |  |  | 10 days | 56 | 119 | 644 | -200 | 31 | 523 |
|  |  | CFA | 24 hrs | 57 | -375 | 654 | -760 | -367 | -15 |
|  |  |  | 48 hs | 57 | -271 | 657 | -639 | -226 | 2 |
|  |  |  | 72 hrs | 57 | -139 | 801 | -451 | -100 | 245 |
|  |  |  | 7 days | 57 | 93 | 717 | -326 | 84 | 507 |
|  |  |  | 10 days | 57 | -34 | 677 | -332 | -11 | 245 |