**Supp. Table 1:** Zircon U–Pb dating results for the Nanwenhe gneissic granites (MD003-A, MLP156-Q21, and MLP133-Q14).

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| **Sample: MD003-A** |
| **Spot** | **Isotope ratio** | **Age/Ma** |
| **207Pb/235U** | **1σ** | **207Pb/206Pb** | **1σ** | **206Pb/238U** | **1σ** | **207Pb/235U** | **1σ** | **206Pb/238U** | **1σ** |
| 1 | 0.51263 | 0.00535 | 0.05378 | 0.00070 | 0.06917 | 0.00046 | 420 | 4 | 431 | 3 |
| 2 | 0.52898 | 0.00544 | 0.05472 | 0.00071 | 0.07015 | 0.00046 | 431 | 4 | 437 | 3 |
| 3 | 0.51138 | 0.00550 | 0.05425 | 0.00072 | 0.06840 | 0.00045 | 419 | 4 | 427 | 3 |
| 4 | 0.51734 | 0.00600 | 0.05372 | 0.00076 | 0.06989 | 0.00047 | 423 | 4 | 435 | 3 |
| 5 | 0.52353 | 0.00546 | 0.05444 | 0.00071 | 0.06980 | 0.00046 | 428 | 4 | 435 | 3 |
| 6 | 0.51101 | 0.00490 | 0.05409 | 0.00067 | 0.06857 | 0.00045 | 419 | 3 | 428 | 3 |
| 7 | 0.51621 | 0.00469 | 0.05403 | 0.00065 | 0.06934 | 0.00045 | 423 | 3 | 432 | 3 |
| 8 | 0.52694 | 0.00438 | 0.05431 | 0.00062 | 0.07042 | 0.00045 | 430 | 3 | 439 | 3 |
| 9 | 0.50532 | 0.00499 | 0.05354 | 0.00068 | 0.06851 | 0.00045 | 415 | 3 | 427 | 3 |
| 10 | 0.50302 | 0.00557 | 0.05384 | 0.00073 | 0.06782 | 0.00045 | 414 | 4 | 423 | 3 |
| 11 | 0.50681 | 0.00471 | 0.05384 | 0.00065 | 0.06833 | 0.00044 | 416 | 3 | 426 | 3 |
| 12 | 0.51234 | 0.00507 | 0.05334 | 0.00067 | 0.06973 | 0.00046 | 420 | 3 | 435 | 3 |
| 13 | 0.51143 | 0.00525 | 0.05344 | 0.00069 | 0.06948 | 0.00046 | 419 | 4 | 433 | 3 |
| 14 | 0.49501 | 0.00536 | 0.05269 | 0.00070 | 0.06821 | 0.00045 | 408 | 4 | 425 | 3 |
| 15 | 0.51636 | 0.00496 | 0.05432 | 0.00067 | 0.06902 | 0.00045 | 423 | 3 | 430 | 3 |
| 16 | 0.4969 | 0.00539 | 0.05351 | 0.00072 | 0.06743 | 0.00045 | 410 | 4 | 421 | 3 |
| **Sample: MLP156-Q21** |
| 1 | 0.51692 | 0.00441 | 0.05403 | 0.00063 | 0.06938 | 0.00044 | 423 | 3 | 432 | 3 |
| 2 | 0.51941 | 0.00455 | 0.05482 | 0.00065 | 0.0687 | 0.00044 | 425 | 3 | 428 | 3 |
| 3 | 0.52462 | 0.00558 | 0.05473 | 0.00073 | 0.06952 | 0.00045 | 428 | 4 | 433 | 3 |
| 4 | 0.52425 | 0.00517 | 0.05410 | 0.00069 | 0.07027 | 0.00045 | 428 | 3 | 438 | 3 |
| 5 | 0.54108 | 0.00440 | 0.05570 | 0.00063 | 0.07045 | 0.00044 | 439 | 3 | 439 | 3 |
| 6 | 0.51958 | 0.00444 | 0.05388 | 0.00063 | 0.06994 | 0.00044 | 425 | 3 | 436 | 3 |
| 7 | 0.51119 | 0.00466 | 0.05391 | 0.00065 | 0.06877 | 0.00044 | 419 | 3 | 429 | 3 |
| 8 | 0.55335 | 0.00629 | 0.05798 | 0.00081 | 0.06922 | 0.00046 | 447 | 4 | 431 | 3 |
| 9 | 0.52336 | 0.00494 | 0.05438 | 0.00067 | 0.06982 | 0.00045 | 427 | 3 | 435 | 3 |
| 10 | 0.5169 | 0.00602 | 0.05454 | 0.00077 | 0.06876 | 0.00046 | 423 | 4 | 429 | 3 |
| 11 | 0.51689 | 0.00436 | 0.05443 | 0.00063 | 0.06890 | 0.00044 | 423 | 3 | 430 | 3 |
| **Sample: MLP133-Q14** |
| 1 | 0.5099 | 0.00562 | 0.05429 | 0.00074 | 0.06807 | 0.00044 | 418 | 4 | 425 | 3 |
| 2 | 0.51965 | 0.00760 | 0.05564 | 0.00090 | 0.06774 | 0.00045 | 425 | 5 | 422 | 3 |
| 3 | 0.50605 | 0.00624 | 0.05568 | 0.00078 | 0.06592 | 0.00043 | 416 | 4 | 412 | 3 |
| 4 | 0.50362 | 0.00600 | 0.05438 | 0.00079 | 0.06712 | 0.00044 | 414 | 4 | 419 | 3 |
| 5 | 0.52097 | 0.00776 | 0.05525 | 0.00090 | 0.06839 | 0.00046 | 426 | 5 | 426 | 3 |
| 6 | 0.49231 | 0.00662 | 0.05387 | 0.00085 | 0.06625 | 0.00045 | 406 | 5 | 414 | 3 |
| 7 | 0.5122 | 0.00831 | 0.05484 | 0.0010 | 0.06771 | 0.00049 | 420 | 6 | 422 | 3 |
| 8 | 0.53062 | 0.00634 | 0.05608 | 0.00081 | 0.06859 | 0.00046 | 432 | 4 | 428 | 3 |
| 9 | 0.51086 | 0.00919 | 0.05535 | 0.0011 | 0.06691 | 0.00050 | 419 | 6 | 418 | 3 |
| 10 | 0.50908 | 0.00610 | 0.05532 | 0.0008 | 0.06672 | 0.00044 | 418 | 4 | 416 | 3 |
| 11 | 0.51816 | 0.00739 | 0.05654 | 0.00089 | 0.06647 | 0.00044 | 424 | 5 | 415 | 3 |
| 12 | 0.50285 | 0.00629 | 0.05418 | 0.00081 | 0.06730 | 0.00045 | 414 | 4 | 420 | 3 |