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| Table S1 Detailed information of detrital zircon U-Pb samples in previous studies. | | | | | | |
| **Number** | **Sample** | **Location** | **Strata** | **Rock type** | **U-Pb age/Ma** | **Reference** |
| 1 | NN44 | eastern Hexi Corridor Belt | Xiangshan Group middle Cambrian | sandstone | 669~3349 | Zhao et al. 2017a |
| NN7 | eastern Hexi Corridor Belt | Xiangshan Group middle Ordovician | sandstone | 530~3421 |
|  |  |  |  |  |  |  |
| 2 | AY 09-21-11(8) | Central Qilian Block | Cretaceous | conglomerate | 231~2742 | Zuza et al. 2018 |
| W821-b1 | Central Qilian Block | Triassic | sandstone | 262~2787 |
| W822-b1 | Central Qilian Block | Triassic | sandstone | 378~2579 |
| W823-b1 | Central Qilian Block | Triassic | sandstone | 255~2572 |
| AY 09-22-11(4) | Central Qilian Block | Permian | sandstone | 255~2463 |
| AY 09-22-11 (1) | Central Qilian Block | Carboniferous | sandstone | 430~2478 |
| AY 09-26-11 (12) | Central Qilian Block | Devonian | sandy conglomerate | 397~4351 |
| AY 09-26-11 (9B) | Central Qilian Block | Silurian | sandy shale | 503~2856 |
| AY 09-26-11 (7E) | Central Qilian Block | Ordovician | sandy shale | 451~923 |
| AY09-21-11 (1) | Central Qilian Block | Proterozoic | gneiss basement | 1140~2947 |
|  |  |  |  |  |  |  |
| 3 | NN35 | eastern Hexi Corridor Belt | Upper Devonian Shixiagou Formation | gray quartz sandstone | 416~2815 | Zhao et al. 2016 |
| NN36 | eastern Hexi Corridor Belt | Middle Devonian Shixiagou | feldspar quartz sandstone | 306~2825 |
| NN59 | eastern Hexi Corridor Belt | Lower Devonian Xueshan Group | sandstone | 367~2669 |
| NN42 | eastern Hexi Corridor Belt | Upper Devonian Shaliushui Group | coarse sandstone | 421~2760 |
| NN18 | eastern Hexi Corridor Belt | Upper Silurian Hanxia Formation, | coarse sandstone | 568 ~ 3170 |
| NN9 | eastern Hexi Corridor Belt | Middle Ordovician Miboshan Formation | feldspar quartz sandstone | 524~3066 |
|  |  |  |  |  |  |  |
| 4 | ZY1-1 | North Qilian suture zone | Quaternary | Quaternary sediments | 286~2575 | Gong et al. 2017 |
| DC2-1 | North Qilian suture zone | Quaternary | Quaternary sediments | 255~2460 |
|  |  |  |  |  |  |  |
| 5 | 5-30-02-1 | NQUHPMB | Proterozoic | quartzite-metagraywacke | 607~1583 | Bektas 2013 |
| 5-30-02-3A | NQUHPMB | Paleozoic | quartz-rich metagraywacke | 358~2703 |
| 7-1-02-10 | NQUHPMB | Ordovician | metasandstone | 422~2720 |
| 6-27-02-11 | NQUHPMB | Paleozoic | metasandstone | 434~2198 |
| 6-29-02-3 | NQUHPMB | Devonian | sandstone | 436~3297 |
|  |  |  |  |  |  |  |
| 6 | D8526 | Central Qilian Block | lower Proterozoic Tuolai Group | Gneiss | 423~2843 | Liu et al. 2018a |
| D0016 | Central Qilian Block | lower Proterozoic Tuolai Group | Migmatite | 1295~3477 |
| PM105 | Central Qilian Block | lower Proterozoic Tuolai Group | Quartzite | 1140~2831 |
| D4181 | Central Qilian Block | lower Proterozoic Tuolai Group | Two‑mica schist | 1215 ~2602 |
| SRM001 | Central Qilian Block | lower Proterozoic Tuolai Group | Slate | 1178~2902 |
|  |  |  |  |  |  |  |
| 7 | HG-39 | North Qilian suture zone | Mesoproterozoic Jingtieshan Group | phyllite | 1447~2339 | Yang et al. 2016b |
| ZK1-3-26 | North Qilian suture zone | Mesoproterozoic Jingtieshan Group | phyllite | 1331~2919 |
|  |  |  |  |  |  |  |
| 8 | 5 | Central Qilian Block | Quaternary | river sand | 217~1907 | Lease et al. 2007 |
| 6 | Central Qilian Block | Quaternary | river sand | 209~3168 |
| 7 | Central Qilian Block | Quaternary | river sand | 242~490 |
| 8 | Central Qilian Block | Quaternary | river sand | 251~1981 |
| 16 | Central Qilian Block | Quaternary | river sand | 223~2602 |
|  |  |  |  |  |  |  |
| 9 | Q07-19-3.1 | North Qilian suture zone | Ordovician | schist | 559~2069 | Zhang et al. 2012b |
| T08-18-2.1 | North Qilian suture zone | Ordovician | schist | 483~2586 |
| Q09-5-3.1 | North Qilian suture zone | Ordovician | schist | 482~2647 |
| NQL-6a | North Qilian suture zone | Ordovician | schist | 475~2106 |
| Q05-4-2.3 | North Qilian suture zone | Ordovician | schist | 470~1984 |
| Q09-24-4.2 | North Qilian suture zone | Ordovician | schist | 485~2693 |
|  |  |  |  |  |  |  |
| 10 | 09LPX1 | Central Qilian Block | Neoproterozoic Hualong Complex | biotite–quartz schist | 421~ 3507 | Yan et al. 2015 |
| 10ASG40 | Central Qilian Block | Neoproterozoic Hualong Complex | garnet–quartz mica schist | 412 ~ 2286 |
| 09LPX2 | Central Qilian Block | Neoproterozoic Hualong Complex | garnet-bearing amphibolite | 1237–2577 |
| 10LPX21 | Central Qilian Block | Neoproterozoic Hualong Complex | garnet-bearing amphibolite | 1195~3031 |
| 09LPX59 | Central Qilian Block | Neoproterozoic Hualong Complex | garnet-bearing amphibolite | 1106~2221 |
| 12GZG2 | Central Qilian Block | Neoproterozoic Hualong Complex | Quartzite | 916 ~2483 |
|  |  |  |  |  |  |  |
| 11 | SX1 | Hexi Corridor Belt | Middle Devonian Shixiagou Formation | medium grained sandstone | 422 ~3442 | Yuan et al. 2015b |
| SX3 | Hexi Corridor Belt | Upper Devonian Zhongning Formation | medium-coarse grained sandstones | 450 ~3205 |
| SX4 | Hexi Corridor Belt | Upper Devonian Zhongning Formation | medium-coarse grained sandstones | 425 ~ 2814 |
| SX6 | Hexi Corridor Belt | Upper Devonian Zhongning Formation | coarse sandstone | 457 ~3351 |
| SX7 | Hexi Corridor Belt | Upper Devonian Zhongning Formation | medium-coarse grained sandstones | 430~4022 |
|  |  |  |  |  |  |  |
| 12 | JY-6 | North Qilian suture zone | Upper Triassic Nanyinger Group | coarse sandstone | 260 ~3108 | Zhang et al. 2015a |
|  |  |  |  |  |  |  |
| 13 | WL13-7 | North Wulan terrane | Mesoproterozoic | gneiss | 1500~2522 | Wang et al. 2016a |
| WH13-46 | North Wulan terrane | Mesoproterozoic | gneiss | 1235~1611 |
|  |  |  |  |  |  |  |
| 14 | PC2 | North Qilian suture zone | Upper Devonian Shaliushui Formation | sandstone | 462~3574 | Yuan et al. 2015a |
| PC3 | North Qilian suture zone | Upper Devonian Shaliushui Formation | sandstone | 483~3357 |
| PC5 | North Qilian suture zone | Upper Devonian Shaliushui Formation | sandstone | 436~3214 |
|  |  |  |  |  |  |  |
| 15 | HCB65 | North Qilian suture zone | Middle Devonian Laojunshan Formation | conglomerate | 331~435 | Yan et al. 2007 |
| HCB69 | North Qilian suture zone | Middle Devonian Laojunshan Formation | conglomerate | 447~462 |
|  |  |  |  |  |  |  |
| 16 | Sq33 | North Qilian suture zone | Lower Silurian Angzanggou Formation | medium grained quartz sandstone | 452~3417 | Yang et al. 2009 |
| Sq34 | North Qilian suture zone | Lower Silurian Angzanggou Formation | fine to medium grained graded sandstone | 627~3725 |
| Su10 | North Qilian suture zone | Lower Silurian Lujiaogou Formation | coarse sandstone | 423~3482 |
| Su11 | North Qilian suture zone | Lower Silurian Lujiaogou Formation | conglomeratic coarse sandstone | 425~3530 |
|  |  |  |  |  |  |  |
| 17 | SN28 | North Qilian suture zone | Silurian | granitoid diorite clast | 501~798 | Yan et al. 2010 |
| OBX58 | North Qilian suture zone | Silurian | coarse-grained granodiorite clast | 341~919 |
| OBX74 | North Qilian suture zone | Silurian | fine-grain granitoid diorite clast | 401~432 |
| OBX149 | North Qilian suture zone | Silurian | coarse-grained gabbro clast | 448~485 |
| OBX152 | North Qilian suture zone | Silurian | fine-grained gabbro clast | 415~450 |
| OBX153 | North Qilian suture zone | Silurian | coarse-grained gabbro | 441~491 |
|  |  |  |  |  |  |  |
| 18 | GA119 | South Qilian belt | Ordovician | volcanic wacke | 453~2622 | Gehrels et al. 2003a |
| GA132 | South Qilian belt | Ordovician | volcanic wacke | 467~1882 |
| GA210 | South Qilian belt | Ordovician | recycled orogenic sandstone | 445~2642 |
| GA221 | South Qilian belt | Proterozoic (?) | metaturbidite | 445~2642 |
| GA201 | Central Qilian Block | Silurian | turbidites | 477~504 |
| GA204 | Central Qilian Block | Lower Ordovician | Conglomeratic gray wacke | 473~487 |
| GA206 | Central Qilian Block | Middle Proterozoic | sandstone | 1102~1766 |
| GA209 | Central Qilian Block | Middle Proterozoic Changcheng System | sandstone, mudstone and shale. | 918~2454 |
| GA212 | NQUHPMB | Silurian (?) | Recycled orogenic sandstone | 431~2620 |
| GA214 | NQUHPMB | Late Ordovician | wacke | 445~2539 |
| GA200 | North Qilian suture zone | Jurassic | Recycled orogenic sandstone | 254~475 |
|  |  |  |  |  |  |  |
| 19 | HL-13 | Central Qilian Block | Neoproterozoic Hualong Group | biotite plagioclase | 544~954 | Xu et al. 2007 |
|  |  |  |  |  |  |  |
| 20 | 89-2105 | Central Qilian Block | Precambrian Yemananshan Group | garnet two mica schist | 1016~3089 | Tung et al. 2007b |
| 89-2609 | Central Qilian Block | Precambrian Huangyuan Group | garnet-muscovite schist | 882~3002 |
|  |  |  |  |  |  |  |
| 21 | DG-1 | North Qilian suture zone | Upper Ordovician Sijiagou Formation | coarse sandstone | 467~2554 | Xu et al. 2010a |
| SJG-1-3 | North Qilian suture zone | Mid-Upper Ordovician Tianzhu Formation | coarse sandstone | 450~3221 |
| SJG-3-1 | North Qilian suture zone | Mid-Upper Ordovician Tianzhu Formation | medium grained quartz sandstone | 511~3198 |
| SJG-13-1 | North Qilian suture zone | Mid-Upper Ordovician Tianzhu Formation | medium sandstone | 448~3574 |
|  |  |  |  |  |  |  |
| 22 | Shl13-3 | Hexi Corridor Belt | Devonian Laojunshan Formation | coarse grained sandstone | 440~3651 | Xu et al. 2010b |
| Shl13-4 | Hexi Corridor Belt | Devonian Laojunshan Formation | coarse grained sandstone | 427~3381 |
| Shl25-1 | Hexi Corridor Belt | Devonian Shaliushui Formation | conglomeratic coarse sandstone | 438~4432 |
| Shl47-1 | Hexi Corridor Belt | Devonian Shaliushui Formation | medium-grained sandstone | 430~2661 |
|  |  |  |  |  |  |  |
| 23 | 04WL-22 | Quanji Block | Proterozoic lower Dakendaban sub-Group | biotite-plagioclase-gneiss | 2324~2828 | Chen et al. 2012 |
| CN07-1 | Quanji Block | Proterozoic upper Dakendaban sub-Group | paragneisses | 2110~2487 |
|  |  |  |  |  |  |  |
| 24 | 06DLH-15 | Quanji Block | Proterozoic Dakendaban Group | plagioclase gneiss | 1761~2485 | Wang et al. 2008 |
| 06DLH-17 | Quanji Block | Proterozoic Dakendaban Group | sillimanite-garnet-biotite quartz schist | 2121~2464 |
|  |  |  |  |  |  |  |
| 25 | CQA-319A | NQUHPMB | Miocene Xiayoushashan Formation | sandstone | 242~2739 | Liu et al. 2012b |
| CQA324A | NQUHPMB | Pliocene Shizigou Formation | sandstone | 472~1319 |
| CQA339 | NQUHPMB | Quaternary | river sand | 260~3133 |
|  |  |  |  |  |  |  |
| 26 | S27-11 | NQUHPMB | Cenozoic Lulehe Formation | sandstone | 239~2812 | Song et al. 2019a |
| S27-25 | NQUHPMB | Cenozoic Lulehe Formation | sandstone | 229~2673 |
| S27-38 | NQUHPMB | Cenozoic Lulehe Formation | sandstone | 204~2684 |
| S27-98 | NQUHPMB | Cenozoic Xiaganchaigou Formation | sandstone | 222~2605 |
| S27-143 | NQUHPMB | Cenozoic Shangganchaigou Formation | sandstone | 210~2457 |
| S27-190 | NQUHPMB | Cenozoic Shangganchaigou Formation | sandstone | 213~2900 |
| S27-227 | NQUHPMB | Cenozoic Shangganchaigou Formation | sandstone | 232~2555 |
| S27-253 | NQUHPMB | Cenozoic Shangganchaigou Formation | sandstone | 423~2531 |
| S27-292 | NQUHPMB | Cenozoic Xiayoushashan formation | sandstone | 242~2224 |
| S27-392 | NQUHPMB | Cenozoic Shangyoushashan formation | sandstone | 214~2705 |
| 16H01 | NQUHPMB | Quaternary | river sand | 249~2721 |
| 16H02 | NQUHPMB | Quaternary | river sand | 246~2507 |
| 17H01 | Central Qilian Block | Quaternary | river sand | 260~3305 |

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| Table S2 Previous granitoid samples for zircon U-Pb ages. | | | | | | |
| **Number** | **Sample** | **Location** | **Rock type** | **Tectonic setting** | **U-Pb age /Ma** | **Reference** |
| 1 | Q5-117 | NQUHPMB | tonalite | subduction | 423 ± 4 | Song et al. 2014a |
| Q5-122 | NQUHPMB | garnet-tonalite | subduction | 410 ± 4 |
| DL-19 | NQUHPMB | garnet-tonalite | subduction | 431 ± 3 |
|  |  |  |  |  |  |  |
| 2 | CL04-105 | North Qilian suture zone | granite | subduction | 476.7±6.6 | Wu et al. 2009 |
| CL04-108 | North Qilian suture zone | quartz diorite | subduction | 432.7±7.9 |
| CL04-122 | North Qilian suture zone | granodiorite | subduction | 463.1±4.7 |
|  |  |  |  |  |  |  |
| 3 | SMT-05 | North Qilian suture zone | quartz monzodiorite | subduction | 429.9±6.1 | Tseng et al. 2009a |
| LGS-07 | North Qilian suture zone | tonalite | subduction | 453.4±5.6 |
|  |  |  |  |  |  |  |
| 4 | Q1034 | Central Qilian Block | porphyritic monzogranite | post-collisional | 459±3 | Yang te al. 2015 |
| Q1226 | Central Qilian Block | quartz diorite | post-collisional | 451±3 |
| Q1029 | Central Qilian Block | biotite granite | post-collisional | 440±2 |
| QL1329 | Central Qilian Block | quartz diorite | post-collisional | 447±4 |
|  |  |  |  |  |  |  |
| 5 | Q1001 | Central Qilian Block | porphyritic granite | post-collisional | 452±7 | Yang te al. 2016a |
| Q1002 | Central Qilian Block | porphyritic granite | post-collisional | 452±5 |
| Q1024 | Central Qilian Block | two-mica granite | post-collisional | 455±3 |
| Q10106 | Central Qilian Block | porphyritic granite | post-collisional | 441±4 |
| Q10107 | Central Qilian Block | two-mica granite | post-collisional | 431±4 |
| Q1066 | Central Qilian Block | two-mica granite | post-collisional | 427±3 |
|  |  |  |  |  |  |  |
| 6 | 11ASG1 | Central Qilian Block | granite | continental arc | 436±5 | Yan et al. 2015 |
| 11ASG2 | Central Qilian Block | monzogranite | continental arc | 439±4 |
| 11ASG10 | Central Qilian Block | granite | continental arc | 433±5 |
| 11ASG17 | Central Qilian Block | granodiorite | continental arc | 439±7 |
| 11ASG21 | Central Qilian Block | granite | continental arc | 433±8 |
| 10GD26 | Central Qilian Block | monzogranite | continental arc | 427±1 |
| 10LPX22 | Central Qilian Block | granodiorite | continental arc | 452±2 |
| 09JZX3 | Central Qilian Block | granite | continental arc | 410±0.94 |
| 13QH15 | Central Qilian Block | granodiorite | continental arc | 455±3 |
|  |  |  |  |  |  |  |
| 7 | 06DLH-12 | Quanji Block | granitic pegmatite | not reported | 2427+44/-38 Ma | Wang et al. 2008 |
| 06DLH-6 | Quanji Block | granitic leucosome | not reported | 2471+18/-16Ma |
|  |  |  |  |  |  |  |
| 8 | 2015H49 | North Qilian suture zone | granodiorite | post-collisional | 443±4 | Zhang et al. 2017b |
| A02 | North Qilian suture zone | quartz diorite | post-collisional | 426±3 |
| A17 | North Qilian suture zone | granodiorite | post-collisional | 427±4 |
| 2015H57 | North Qilian suture zone | granite | post-collisional | 422±3 |
| 2015H74 | North Qilian suture zone | porphyric granite | post-collisional | 419±4 |
| 2015H75 | North Qilian suture zone | fine-grained granite | post-collisional | 414±3 |
| Q1086 | North Qilian suture zone | granodiorite | post-collisional | 441±4 |
|  |  |  |  |  |  |  |
| 9 | 09QL-01 | North Qilian suture zone | biotite monzogranites | subduction | 751±6 | Chen et al. 2014 |
| 09QL-03 | North Qilian suture zone | biotite monzogranites | subduction | 510±4 |
|  |  |  |  |  |  |  |
| 10 | 14CL124-3 | North Qilian suture zone | granite | continental collision | 452±2 | Wang et al. 2018 |
| 14CL124–6 | North Qilian suture zone | granite | continental collision | 453±2 |
| 14CL103-3 | North Qilian suture zone | monzogranite | crustal extension | 440±1 |
| 14CL105-3 | North Qilian suture zone | monzogranite | crustal extension | 438±1 |
|  |  |  |  |  |  |  |
| 11 | K55 | NQUHPMB | granite | subduction | 473 | Wu et al. 2002 |
|  |  |  |  |  |  |  |
| 12 | JFS08-7 | North Qilian suture zone | biotite granite | continental collision | 416.7±4.1 | Sun et al. 2012 |
|  |  |  |  |  |  |  |
| 13 | QL09-15 | Central Qilian Block | granite | crustal growth | 924.1±1.5 | Huang et al. 2016 |
| QL09-01 | Central Qilian Block | granite | crustal rework | 796.7±7.4 |
| QL09-02 | Central Qilian Block | S-type granite | continental collision | 452.9±5.5 |
| QL09-10 | Central Qilian Block | S-type granite | continental collision | 460±10 |
| QL09-12 | Central Qilian Block | S-type granite | continental collision | 485±25 |
| QL09-14 | Central Qilian Block | I-type granite | continental collision | 475±13 |
| QL10-34 | Central Qilian Block | I-type granite | back-arc | 507±10 |
| QL10-37 | Central Qilian Block | I-type granite | back-arc | 508±18 |
| QL09-18 | Central Qilian Block | granite | back-arc | 502.9±2.0 |
|  |  |  |  |  |  |  |
| 14 | 89-2101A | Central Qilian Block | potassic granite | island arc | 896±15 | Tung et al. 2013 |
| 98-0704A | Central Qilian Block | granodiorite | island arc | 920±4 |
| 98-0501A | Central Qilian Block | potassic granite | island arc | 932±4 |
| 88-0301C | Central Qilian Block | granodiorite | continental rift | 795±7 |
| 87-1404E | Central Qilian Block | granite | continental rift | 816±5 |
| 87-1404G | Central Qilian Block | granite | continental rift | 788±6 |
| 87-1701C | Central Qilian Block | granodiorite | continental rift | 809±5 |
| 87-1701A | Central Qilian Block | granodiorite | continental rift | 826±7 |
|  |  |  |  |  |  |  |
| 15 | YJD-2 | Central Qilian Block | diorite | subduction | 441±10 Ma | Zhang et al. 2006a |
| CCP-2 | Central Qilian Block | granite | subduction | 434±10 Ma |
| GS-3 | Central Qilian Block | granite | continental collision | 229±7 Ma |
|  |  |  |  |  |  |  |
| 16 | GA76 | NQUHPMB | granite | subduction | 482±5 | Gehrels et al. 2003b |
| GA211 | NQUHPMB | granite | island arc | 928±10 |
| GA213 | NQUHPMB | granite | subduction | 442±4 |
| GA202 | North Qilian suture zone | granite | subduction | 406±12 |
| GA203 | North Qilian suture zone | granite | subduction | 422±6 |
| GA207 | North Qilian suture zone | granite | subduction | 423±6 |
| GA129 | Central Qilian Block | granite | subduction | 472±6 |
| GA133 | Central Qilian Block | granite | subduction | 424±4 |
| GA205 | Central Qilian Block | granite | island arc | 922±5 |
| GA208 | Central Qilian Block | granite | subduction | 480±6 |
| GA145 | Central Qilian Block | granite | arc | 270±4 |
| GA215 | Central Qilian Block | granite | subduction | 425±3 |
| GA216 | Central Qilian Block | granite | arc | 272±8 |
| GA217 | Central Qilian Block | granite | arc | 270±4 |
|  |  |  |  |  |  |  |
| 17 | AY5-18-99-7 | Central Qilian Block | granite | not reported | 458.8±8 | Cowgill et al. 2003 |
| AY5-20-99-4 | Central Qilian Block | granite | not reported | 460.8±7.8 |
|  |  |  |  |  |  |  |
| 18 | CL05-98 | northwestern Qaidam Basin | granite | subduction | 465.4±3.5 | Wu et al. 2009 |
| CL05-96 | northwestern Qaidam Basin | granite | subduction | 469.7±4.6 |
| CL05-95 | northwestern Qaidam Basin | granite | subduction | 445.2±9.2 |
| CL05-105 | northwestern Qaidam Basin | quartz diorite | crustal equilibration | 372.1±2.6 |
| CL05-99 | northwestern Qaidam Basin | granite | lithosphere delamination | 269.4±5.8 |
| CLO5-101 | northwestern Qaidam Basin | granite | lithosphere delamination | 260.4±2.3 |
|  |  |  |  |  |  |  |
| 19 | Q10-12-4.1 | NQUHPMB | quartz diorite | continental collision | 436±2 | Yu et al. 2012 |
| Q10-13-5.1 | NQUHPMB | quartz diorite | continental collision | 437±2 |
|  |  |  |  |  |  |  |
| 20 | 2010STS-01 | NQUHPMB | S-type granites | subduction | 930±6.4 | Fu et al. 2015 |
| 2011ZJ18-3 | NQUHPMB | S-type granites | subduction | 917±6.2 |
|  |  |  |  |  |  |  |
| 21 | DL13-12-3.3 | North Qilian suture zone | fine-grained granite | continental collision | 457±2 | Yu et al. 2015a |
| DL13-10-4.1 | North Qilian suture zone | fine-grained granite | continental collision | 446±3 |
| DL13-10-1.1 | North Qilian suture zone | coarse-grained granodiorite | continental collision | 430±2 |
| DL13-16-2.1 | North Qilian suture zone | coarse-grained granodiorite | continental collision | 431±2 |
|  |  |  |  |  |  |  |
| 22 | 07DL-01 | NQUHPMB | two-mica granite | post-collisional | 427±7 | Wang et al. 2014 |
| 10DL-48 | NQUHPMB | two-mica granite | post-collisional | 403±3.5 |
| 10DL-44 | NQUHPMB | quartz diorite | post-collisional | 424±6 |
| 10DL-42 | NQUHPMB | quartz diorite | post-collisional | 391±4 |
| 07DL-99 | NQUHPMB | granodiorite | post-collisional | 386.4±4.1 |
| 07DL-79 | NQUHPMB | granodiorite | post-collisional | 379.1±2.2 |
| 07DL-97 | NQUHPMB | biotite monzogranite | post-collisional | 379.5±5.3 |
| 07DL-102 | NQUHPMB | porphyritic biotite granite | post-collisional | 366.7±2.6 |
| 07DL-55 | NQUHPMB | diorite | post-collisional | 359.7±4.1 |
| 10DL-24 | NQUHPMB | diorite | post-collisional | 373.7±2.4 |
|  |  |  |  |  |  |  |
| 23 | B1310-1 | NQUHPMB | granite | continental collision | 441±2 | Zhao et al. 2017b |
| B1403-1 | NQUHPMB | granite | continental collision | 442±2 |
|  |  |  |  |  |  |  |
| 24 | CL557 | NQUHPMB | granite | crustal extension | 406.6±3.5 | Wu et al. 2014 |
| CL5083 | NQUHPMB | granodiorite | crustal extension | 407.3±8.3 |
| CL5086 | NQUHPMB | granite | crustal extension | 397±6 |
| CL572 | NQUHPMB | granodiorite | crustal extension | 404.5±4 |
| CL571 | NQUHPMB | granite | crustal extension | 397±3.7 |
| CL561 | NQUHPMB | quartz diorite | crustal equilibration | 380.5±5 |
| CL5765 | NQUHPMB | granodiorite | crustal equilibration | 372.5±2.8 |
| CL577 | NQUHPMB | granite | crustal equilibration | 380±5.5 |
|  |  |  |  |  |  |  |
| 25 | 98-0804B | Central Qilian Block | alkali feldspar granite | back-arc | 447±3 | Tung et al. 2016 |
| 87-1702A | Central Qilian Block | alkali feldspar granite | back-arc | 437±4 |
| 98-0903B | Central Qilian Block | granite | back-arc | 437±3 |
| 99-0205A | Central Qilian Block | felsic granite | back-arc | 402±5 |
| 99-0206A | Central Qilian Block | felsic granite | back-arc | 414±3 |
| 100-2304A | Central Qilian Block | granodiorite | back-arc | 445±4 |
| 100-2304C | Central Qilian Block | quartz diorite | back-arc | 451±4 |
| 89-2701A | Central Qilian Block | quartz diorite | back-arc | 436±4 |
| 98-0602A | Central Qilian Block | quartz diorite | back-arc | 438±3 |
| 96-0902A | Central Qilian Block | granodiorite | back-arc | 440±2 |
| 98-0904A | Central Qilian Block | diorite | back-arc | 447±4 |
| 99-0501A | Central Qilian Block | granite | back-arc | 438±4 |
| 96-1004B | Central Qilian Block | granodiorite | back-arc | 429±6 |
| 99-0704B | Central Qilian Block | alkali feldspar granite | back-arc | 419±5 |
| 89-2702A | Central Qilian Block | granodiorite | back-arc | 447±4 |
|  |  |  |  |  |  |  |
| 26 | DP106 | Qaidam basin | Granite | not reported | 955 ± 5 | Cheng at al. 2017 |
| P1-2-3 | Qaidam basin | Syenite | Subduction-related arc | 916 ± 8 |
| DP105 | Qaidam basin | Diorite | Subduction-related arc | 460 ± 3 |
| NB1 | Qaidam basin | Monzogranite | Subduction-related arc | 275 ± 4 |
| SC1 | Qaidam basin | Diorite | Subduction-related arc | 454 ± 3 |
| MB18 | Qaidam basin | Granodiorite | Subduction-related arc | 291 ± 2 |
| MB14 | Qaidam basin | Granodiorite | Subduction-related arc | 271 ± 2 |
| P1 | Qaidam basin | Monzogranite | Subduction-related arc | 271 ± 2 |
| Q608 | Qaidam basin | Granodiorite | Subduction-related arc | 467 ± 5 |
| D3 | Qaidam basin | Granodiorite | Subduction-related arc | 467 ± 6 |
| Q1616 | Qaidam basin | Granite | Subduction-related arc | 448 ± 5 |
| Q30 | Qaidam basin | Monzogranite | Syn-/post-collisional | 428 ± 5 |
| Q29 | Qaidam basin | Granite | Post-collisional | 415 ± 1 |
| ST1 | Qaidam basin | Monzogranite | Post-collisional | 402 ± 7 |
| ADT5 | Qaidam basin | Granite | Post-collisional | 384 ± 4 |
| A3 | Qaidam basin | Syenogranite | Post-collisional | 381 ± 2 |
| Q1615 | Qaidam basin | Syenogranite | Subduction-related arc | 261 ± 5 |
| Q401 | Qaidam basin | Syenogranite | not reported | 260 ± 4 |
| Q404 | Qaidam basin | Syenogranite | Subduction-related arc | 260 ± 4 |
| GC1 | Qaidam basin | Granodiorite | Subduction-related arc | 236 ± 2 |