Appendix 3. Analytical settings and standard materials for U–Pb zircon dating.

Laser ablation system-1	(for HONDA, EBITSU)
Instrument	Analyte excimer laser (Teledyne Cetac, Bozeman, USA)
Cell type	two volume cell
Wave length (nm)	193 nm
Fluence (J cm^{-2})	3 J cm^{-2}
Repetition rate (Hz)	5 Hz
Ablation pit size (μm)	15 μm
Number of shot	75 shots per shot
Sampling mode	Single hole drilling
Pre-cleaning	One shot cleaning
Carrier gas	He gas and Ar make-up gas combined outside ablation cell
Signal smoothing device	Enabled (Tunheng and Hirata, 2004)
Laser ablation system-2	(for SARUTA, MIYAWAKA)
Instrument	CARBIDE femtosecond laser (Light Conversion, Lithuania)
Cell type	single volume cell
Wave length (nm)	257 nm
Fluence (J cm^{-2})	0.7–3.7 J cm^{-2}
Repetition rate (Hz)	3 Hz
Ablation pit size (μm)	15 μm
Number of shot	120 shots per shot
Sampling mode	Single hole drilling
Pre-cleaning	One shot cleaning
Carrier gas	He gas and Ar make-up gas combined outside ablation cell
Signal smoothing device	Enabled (Tunheng and Hirata, 2004)
MC-ICPMS system	
Model	Nu Plasma II (Nu instruments, Wrexham, UK)
RF power (W)	1300 W
Detection system	Mixed Faraday-Daly-multiple-ion counting array (Obayashi et al., 2017)
Detectors	
Full size electron multiplier (IC)	IC4 for ^{202}Hg, IC3 for ^{204}(Hg + Pb), IC0 for ^{208}Pb
Daly detector (D)	D2 for ^{206}Pb, D1 for ^{207}Pb, D5 for ^{238}U
Faraday detector (F)	H8 for ^{232}Th
Dead time (ns)	15.8, 20, 8.6, 14.7, 18.9 & 20 ns IC0, D1, D2, IC3, IC4 & D5 resp.
Integration time per peak times (ms)	200 ms for each isotope
Analysis mode	Time-resolved analysis
Integration time per shot	15 s (for Honda, EBITSU), 40 s (for SARUTA, MIYAWAKA)

(to be continued to the next page)

Data Processing	
Gas blank	10–30 s on-peak zero subtracted
Calibration strategy	91500 and NIST SRM 612 used as primary reference material, OD-3 zircon used as secondary reference material
Normalization value	Nancy 91500 zircon: $^{206}Pb/^{238}U = 0.17928$ (Sakata et al., 2017) NIST SRM 612: $^{207}Pb/^{206}Pb = 0.90726$ (Jochum et al., 2005)
Common-Pb correction	No common-Pb correction applied to the data
Uncertainty level & propagation	Ages are quoted at 2s absolute. Repeatability of the ratio measurements of primary reference materials and counting statistics for each analytes of unknown samples were propagated to estimat the overall uncertainities for the resulting data.

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