

Table S1. LA-ICP-MS zircon U–Pb dating data of the porphyry intrusions in the Pulang Cu (–Mo–Au) deposit.

Sample No.	Element Content(ppm)			Th/U	Isotope Ratio (±2σ)						Age (Ma ± 2σ)					
	Pb	²³² Th	²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U	
					Ratios	2σ	Ratios	2σ	Ratios	2σ	Age	Ratios	Age	2σ	Age	2σ
PL-1 Quartz diorite porphyry (QDP)																
PL-1-1	13.449	203.830	295.390	0.7	0.05040	0.00169	0.25461	0.00845	0.03663	0.00047	213	53	230	7	232	3
PL-1-2	19.495	330.060	411.660	0.8	0.05096	0.00078	0.25168	0.00398	0.03582	0.00040	239	18	228	3	227	2
PL-1-3	13.999	265.700	298.170	0.9	0.05093	0.00134	0.25293	0.00660	0.03602	0.00044	238	38	229	5	228	3
PL-1-4	14.114	187.650	268.800	0.7	0.05021	0.00122	0.25213	0.00610	0.03642	0.00043	205	34	228	5	231	3
PL-1-5	16.693	227.700	349.670	0.7	0.05111	0.00081	0.25981	0.00419	0.03687	0.00041	246	18	235	3	233	3
PL-1-6	18.509	295.080	384.910	0.8	0.05115	0.00079	0.25878	0.00408	0.03669	0.00041	248	18	234	3	232	3
PL-1-7	26.939	473.950	568.580	0.8	0.05052	0.00094	0.25432	0.00477	0.03651	0.00042	219	23	230	4	231	3
PL-1-8	17.954	287.800	374.510	0.8	0.05056	0.00072	0.24765	0.00362	0.03553	0.00039	221	16	225	3	225	2
PL-1-9	22.024	367.690	438.120	0.8	0.05081	0.00088	0.25622	0.00450	0.03657	0.00041	232	21	232	4	232	3
PL-1-10	16.834	293.530	330.170	0.9	0.05037	0.00099	0.25335	0.00500	0.03648	0.00042	212	25	229	4	231	3
PL-1-11	20.982	379.010	440.540	0.9	0.05057	0.00120	0.25005	0.00589	0.03586	0.00043	221	33	227	5	227	3
PL-1-12	23.936	418.520	468.520	0.9	0.05072	0.00154	0.24943	0.00747	0.03567	0.00045	228	46	226	6	226	3
PL-1-13	15.935	238.960	313.720	0.8	0.05020	0.00112	0.24574	0.00549	0.03550	0.00042	204	30	223	4	225	3
PL-1-14	23.846	565.850	482.060	1.2	0.05073	0.00101	0.25432	0.00508	0.03636	0.00042	229	26	230	4	230	3
PL-1-15	17.007	251.220	361.540	0.7	0.05048	0.00155	0.24333	0.00736	0.03496	0.00044	217	47	221	6	222	3
PL-1-16	20.100	388.690	426.050	0.9	0.04954	0.00080	0.24259	0.00399	0.03551	0.00040	173	19	221	3	225	2
PL-1-17	18.618	272.100	415.490	0.7	0.05089	0.00077	0.24752	0.00382	0.03528	0.00039	236	17	225	3	224	2
PL-1-18	28.328	688.560	593.720	1.2	0.05073	0.00139	0.24419	0.00661	0.03491	0.00043	229	40	222	5	221	3
PL-1-19	17.735	234.290	348.010	0.7	0.04952	0.00131	0.24492	0.00641	0.03587	0.00044	173	38	222	5	227	3
PL-1-20	17.622	311.020	389.420	0.8	0.05068	0.00145	0.24969	0.00705	0.03573	0.00045	226	42	226	6	226	3
PL-1-21	13.367	242.860	291.740	0.8	0.04948	0.00146	0.24777	0.00721	0.03632	0.00046	171	44	225	6	230	3
PL-1-22	15.096	254.880	321.510	0.8	0.05055	0.00142	0.25617	0.00710	0.03675	0.00046	220	41	232	6	233	3

Sample No.	Element Content(ppm)			Th/U	Isotope Ratio (±2σ)						Age (Ma ± 2σ)					
	Pb	²³² Th	²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U	
					Ratios	2σ	Ratios	2σ	Ratios	2σ	Age	Ratios	Age	2σ	Age	2σ
PL-1-23	12.081	177.060	247.510	0.7	0.05061	0.00138	0.24250	0.00653	0.03475	0.00043	223	39	220	5	220	3
PL-2 Quartz monzonite porphyry (QMP)																
PL-2-1	20.382	434.520	408.920	1.1	0.05087	0.00235	0.24111	0.01086	0.03427	0.00051	235	76	219	9	217	3
PL-2-2	33.760	621.280	762.180	0.8	0.05033	0.00221	0.24059	0.01034	0.03459	0.00050	210	73	219	8	219	3
PL-2-3	16.791	303.530	349.090	0.9	0.04970	0.00156	0.23581	0.00729	0.03437	0.00044	181	48	215	6	218	3
PL-2-4	10.154	17.530	46.270	0.4	0.04973	0.00216	0.23170	0.00985	0.03376	0.00049	182	72	212	8	214	3
PL-2-5	16.306	279.670	361.280	0.8	0.05067	0.00301	0.24788	0.01442	0.03546	0.00061	226	102	225	12	225	4
PL-2-6	22.940	345.090	513.570	0.7	0.04886	0.00121	0.23675	0.00579	0.03513	0.00042	141	35	216	5	223	3
PL-2-7	13.794	253.690	300.920	0.8	0.05073	0.00087	0.24092	0.00413	0.03446	0.00038	229	20	219	3	218	2
PL-2-8	9.585	223.380	181.920	1.2	0.05083	0.00183	0.24631	0.00871	0.03516	0.00047	233	57	224	7	223	3
PL-2-9	9.407	11.520	44.120	0.3	0.05003	0.00128	0.23701	0.00601	0.03439	0.00041	196	37	216	5	218	3
PL-2-10	19.089	409.420	406.270	1.0	0.05029	0.00106	0.24014	0.00505	0.03467	0.00040	208	28	219	4	220	2
PL-2-11	27.448	491.490	622.320	0.8	0.05038	0.00136	0.23588	0.00629	0.03400	0.00041	213	40	215	5	216	3
PL-2-12	34.567	627.850	795.020	0.8	0.05045	0.00082	0.24104	0.00398	0.03472	0.00039	216	19	219	3	220	2
PL-2-13	16.887	317.510	370.600	0.9	0.05077	0.00170	0.24109	0.00797	0.03451	0.00045	230	52	219	7	219	3
PL-2-14	11.548	184.970	263.630	0.7	0.05095	0.00138	0.24364	0.00652	0.03476	0.00042	239	39	221	5	220	3
PL-2-15	18.249	389.490	378.510	1.0	0.05016	0.00081	0.23703	0.00390	0.03435	0.00038	202	19	216	3	218	2
PL-2-16	14.036	254.320	314.560	0.8	0.05095	0.00196	0.23905	0.00903	0.03411	0.00046	239	62	218	7	216	3
PL-2-17	16.106	269.100	368.510	0.7	0.05072	0.00137	0.23821	0.00637	0.03415	0.00042	228	39	217	5	216	3
PL-2-18	27.029	851.170	509.190	1.7	0.05076	0.00146	0.23755	0.00676	0.03403	0.00042	230	43	216	6	216	3
PL-2-19	17.948	352.190	390.830	0.9	0.05032	0.00155	0.23537	0.00716	0.03402	0.00043	210	47	215	6	216	3
PL-2-20	16.622	323.410	365.260	0.9	0.05057	0.00134	0.24128	0.00637	0.03470	0.00042	221	39	219	5	220	3
PL-2-21	28.030	463.510	655.800	0.7	0.05072	0.00108	0.23887	0.00512	0.03425	0.00040	228	28	217	4	217	2
PL-3 Quartz monzonite porphyry (QMP)																
PL-3-1	24.375	393.270	556.280	0.7	0.05086	0.00138	0.23870	0.00642	0.03404	0.00041	234	40	217	5	216	3

Sample No.	Element Content(ppm)			Th/U	Isotope Ratio (±2σ)						Age (Ma ± 2σ)					
	Pb	²³² Th	²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U	
					Ratios	2σ	Ratios	2σ	Ratios	2σ	Age	Ratios	Age	2σ	Age	2σ
PL-3-2	14.656	216.880	335.180	0.6	0.05058	0.00092	0.24154	0.00443	0.03463	0.00039	222	23	220	4	219	2
PL-3-3	35.795	702.130	760.250	0.9	0.05082	0.00101	0.24106	0.00483	0.03440	0.00040	233	26	219	4	218	2
PL-3-4	24.768	354.100	567.330	0.6	0.05073	0.00146	0.24640	0.00704	0.03523	0.00044	229	43	224	6	223	3
PL-3-5	11.475	126.670	255.680	0.5	0.05078	0.00147	0.23979	0.00688	0.03424	0.00042	231	44	218	6	217	3
PL-3-6	23.001	361.410	516.860	0.7	0.05092	0.00096	0.24192	0.00459	0.03446	0.00039	237	24	220	4	218	2
PL-3-7	26.438	431.720	609.200	0.7	0.05039	0.00153	0.24574	0.00740	0.03537	0.00044	213	47	223	6	224	3
PL-3-8	23.432	404.840	528.110	0.8	0.05069	0.00104	0.24219	0.00499	0.03465	0.00040	227	27	220	4	220	2
PL-3-9	14.943	248.030	338.970	0.7	0.05012	0.00148	0.23531	0.00689	0.03405	0.00043	201	45	215	6	216	3
PL-3-10	17.477	313.680	385.610	0.8	0.05033	0.00179	0.23711	0.00831	0.03417	0.00045	210	57	216	7	217	3
PL-3-11	23.923	405.000	524.460	0.8	0.05016	0.00108	0.23834	0.00516	0.03446	0.00040	202	29	217	4	218	2
PL-3-12	14.062	232.420	312.710	0.7	0.05053	0.00125	0.24400	0.00604	0.03502	0.00042	219	35	222	5	222	3
PL-3-13	16.225	278.040	371.610	0.7	0.05021	0.00193	0.23937	0.00909	0.03457	0.00047	205	63	218	7	219	3
PL-3-14	21.296	325.340	495.700	0.7	0.05099	0.00138	0.24682	0.00664	0.03510	0.00043	240	40	224	5	222	3
PL-3-15	19.268	277.960	435.680	0.6	0.05042	0.00081	0.23544	0.00386	0.03386	0.00038	214	19	215	3	215	2
PL-3-16	18.225	291.140	423.490	0.7	0.05054	0.00110	0.24388	0.00532	0.03499	0.00041	220	29	222	4	222	3
PL-3-17	31.734	709.850	644.440	1.1	0.05010	0.00076	0.23663	0.00369	0.03425	0.00038	200	18	216	3	217	2
PL-3-18	15.662	254.020	364.140	0.7	0.05061	0.00127	0.24537	0.00615	0.03516	0.00042	223	36	223	5	223	3
PL-3-19	25.541	425.070	560.660	0.8	0.05028	0.00151	0.23970	0.00715	0.03457	0.00044	208	46	218	6	219	3
PL-3-20	19.786	384.170	439.210	0.9	0.05053	0.00108	0.23685	0.00508	0.03399	0.00040	219	28	216	4	215	2
PL-3-21	13.461	240.130	300.850	0.8	0.05082	0.00109	0.24621	0.00530	0.03513	0.00041	233	29	223	4	223	3
PL-4 Granodiorite porphyry (GP)																
PL-4-1	14.054	241.720	307.970	0.8	0.05046	0.00146	0.23185	0.00661	0.03333	0.00041	216	43	212	5	211	3
PL-4-2	13.271	220.470	283.500	0.8	0.05010	0.00192	0.22420	0.00847	0.03246	0.00044	200	62	205	7	206	3
PL-4-3	12.919	199.050	304.300	0.7	0.04992	0.00127	0.22660	0.00572	0.03293	0.00039	191	37	207	5	209	2
PL-4-4	17.626	310.110	390.150	0.8	0.05003	0.00214	0.22576	0.00947	0.03273	0.00046	196	71	207	8	208	3

Sample No.	Element Content(ppm)			Th/U	Isotope Ratio (±2σ)						Age (Ma ± 2σ)					
	Pb	²³² Th	²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U	
					Ratios	2σ	Ratios	2σ	Ratios	2σ	Age	Ratios	Age	2σ	Age	2σ
PL-4-5	11.357	173.230	257.210	0.7	0.05078	0.00143	0.22487	0.00629	0.03212	0.00039	231	42	206	5	204	2
PL-4-6	12.958	229.230	293.740	0.8	0.05006	0.00169	0.22838	0.00759	0.03309	0.00043	198	53	209	6	210	3
PL-4-7	15.423	266.260	338.750	0.8	0.04983	0.00126	0.22631	0.00569	0.03294	0.00039	187	37	207	5	209	2
PL-4-8	15.772	294.110	351.340	0.8	0.04961	0.00122	0.22643	0.00555	0.03311	0.00039	177	35	207	5	210	2
PL-4-9	19.259	394.980	426.020	0.9	0.05009	0.00128	0.22750	0.00579	0.03294	0.00040	199	37	208	5	209	2
PL-4-10	15.272	229.810	361.930	0.6	0.04969	0.00103	0.22641	0.00471	0.03305	0.00038	181	28	207	4	210	2
PL-4-11	13.259	221.130	301.040	0.7	0.05075	0.00113	0.22976	0.00512	0.03283	0.00038	229	30	210	4	208	2
PL-4-12	15.365	239.270	349.220	0.7	0.05038	0.00169	0.22771	0.00753	0.03278	0.00042	213	53	208	6	208	3
PL-4-13	19.956	298.740	452.540	0.7	0.04990	0.00174	0.22840	0.00787	0.03320	0.00043	190	56	209	7	211	3
PL-4-14	10.253	147.450	238.200	0.6	0.05028	0.00146	0.22813	0.00656	0.03291	0.00041	208	44	209	5	209	3
PL-4-15	20.845	400.540	466.960	0.9	0.05097	0.00184	0.23151	0.00825	0.03294	0.00044	239	57	211	7	209	3
PL-4-16	11.674	189.050	267.570	0.7	0.04990	0.00138	0.22178	0.00607	0.03223	0.00039	190	41	203	5	204	2
PL-4-17	15.533	307.750	334.030	0.9	0.05041	0.00114	0.23031	0.00518	0.03313	0.00039	214	31	210	4	210	2
PL-4-18	17.424	307.910	394.460	0.8	0.04981	0.00138	0.22703	0.00623	0.03306	0.00040	186	41	208	5	210	2
PL-4-19	14.054	257.570	315.420	0.8	0.05050	0.00162	0.22557	0.00715	0.03239	0.00041	218	50	207	6	205	3
PL-4-20	11.085	161.920	258.270	0.6	0.05010	0.00101	0.22985	0.00464	0.03327	0.00038	200	26	210	4	211	2
PL-4-21	27.036	638.900	580.900	1.1	0.05051	0.00134	0.23046	0.00608	0.03309	0.00040	219	39	211	5	210	2

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Table S2. Whole-rock major and trace element data of the porphyry intrusions in the Pulang Cu (–Mo–Au) deposit.

Sample	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL	PL
No.	1-1	1-2	1-3	1-4	1-5	2-1	2-2	2-3	2-4	2-5	3-1	3-2	3-3	3-4	3-5	4-1	4-2	4-3
	Quartz diorite Porphyry					Quartz Monzonite Porphyry										Granodiorite Porphyry		
Major element (wt. %)																		
SiO ₂	62.64	62.73	61.90	64.24	62.61	67.69	65.96	67.16	67.46	66.37	65.47	65.70	65.41	64.32	65.76	70.10	74.10	69.95
TiO ₂	0.72	0.72	0.77	0.68	0.72	0.44	0.46	0.45	0.44	0.44	0.47	0.48	0.49	0.51	0.48	0.45	0.40	0.49
Al ₂ O ₃	16.17	15.75	15.65	15.43	15.63	14.60	15.53	15.10	15.04	15.64	14.32	15.21	15.50	16.07	15.21	12.11	11.39	11.88
Fe ₂ O ₃ T	3.00	3.31	3.15	3.01	3.05	3.81	4.26	3.71	3.57	3.92	3.85	3.82	2.72	2.76	2.61	4.56	2.17	2.63
MnO	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.06	0.07	0.06	0.05	0.05	0.05	0.06	0.06	0.03	0.03
MgO	3.41	3.49	4.19	3.26	3.88	1.69	1.81	1.80	1.80	1.78	1.98	2.02	2.04	2.06	1.91	2.01	1.80	3.23
CaO	5.81	5.78	6.18	5.05	5.63	2.71	2.72	2.76	2.60	2.70	3.27	3.40	3.64	3.85	3.50	1.99	2.14	1.49
Na ₂ O	4.80	4.61	4.75	4.88	4.87	4.83	4.96	4.87	4.71	4.98	4.78	4.14	4.15	4.23	4.90	4.70	2.46	3.44
K ₂ O	1.13	1.12	1.13	1.11	1.14	2.92	3.01	2.92	3.19	3.04	2.53	3.43	4.10	4.33	3.63	2.00	2.43	3.01
P ₂ O ₅	0.44	0.43	0.45	0.41	0.43	0.23	0.25	0.23	0.23	0.24	0.26	0.28	0.27	0.28	0.27	0.31	0.30	0.37
LOI	1.15	1.33	1.15	1.09	1.30	0.84	0.88	0.79	0.75	0.71	2.27	0.75	0.93	0.92	0.97	0.79	1.60	1.59
Total	99.33	99.33	99.39	99.23	99.33	99.83	99.91	99.86	99.84	99.89	99.25	99.28	99.31	99.38	99.30	99.09	98.81	98.10
Na ₂ O/ K ₂ O	4.26	4.13	4.22	4.40	4.27	1.65	1.65	1.67	1.48	1.64	1.89	1.20	1.01	0.98	1.35	2.35	1.01	1.14
A/CNK	0.82	0.82	0.77	0.84	0.80	0.91	0.95	0.93	0.94	0.95	0.86	0.91	0.87	0.86	0.83	0.90	1.08	1.02
A/NK	1.82	1.84	1.78	1.72	1.74	1.34	1.39	1.38	1.37	1.39	1.38	1.47	1.40	1.40	1.29	1.25	1.74	1.36
Mg#	69.26	67.58	72.54	68.20	71.55	46.72	45.74	48.98	49.96	47.40	50.40	51.20	59.71	59.68	59.17	46.60	62.11	70.90
Trace element (ppm)																		
Li	2.44	2.67	2.47	3.55	3.97	38.30	44.06	42.46	41.96	45.96	6.26	7.17	5.48	5.66	5.42	10.78	16.77	17.02
Sc	14.98	15.12	16.85	13.85	16.23	13.25	12.96	11.97	13.23	13.47	8.69	8.83	8.24	8.44	8.51	9.42	10.45	10.10
V	142.42	140.40	144.34	129.20	147.70	96.28	100.78	93.56	96.10	98.98	77.86	82.14	72.46	75.30	76.34	101.44	92.28	91.98
Cr	79.80	81.30	101.98	67.08	82.48	46.70	48.88	38.34	38.42	42.92	38.28	44.28	36.42	41.02	104.10	49.86	50.42	48.06

Mn	448.80	461.20	400.00	412.00	449.00	687.40	583.20	592.80	607.20	641.20	461.0 0	429.20	410.40	398.60	454.40	434.00	266.80	254.80
Co	2.89	6.39	5.11	4.70	2.65	10.59	10.98	8.77	8.84	9.19	7.91	9.32	7.06	7.35	6.98	8.85	6.65	6.84
Ni	21.46	10.65	57.28	9.09	13.21	17.33	20.94	13.36	14.60	14.00	13.83	15.62	12.77	15.98	87.84	12.81	13.25	12.50
Cu	113.03	116.32	117.01	115.96	115.43	3678.0 0	5220.0 0	5126.0 0	343.40	469.10	678.6 0	361.00	1216.4 0	1249.4 0	1549.6 0	223.48	222.16	229.92
Zn	44.58	36.52	62.72	37.34	43.30	90.48	107.26	99.72	109.40	90.86	179.7 4	62.46	55.26	60.38	91.86	52.48	47.92	43.80
Ga	17.24	16.48	16.31	15.41	17.18	24.20	24.58	23.40	23.46	24.54	18.14	18.83	17.27	17.77	17.81	16.30	16.40	16.28
Rb	102.11	101.89	102.06	102.12	103.09	98.14	101.36	98.48	98.52	101.10	99.48	99.02	103.90	106.56	122.46	191.28	167.72	170.08
Sr	990.60	951.40	936.00	938.80	1018.6 0	1150.6 0	1147.8 0	1111.8 0	1126.0 0	1132.8 0	955.6 0	1026.4 0	977.60	1014.6 0	1037.2 0	431.80	624.60	615.20
Y	15.79	15.49	16.20	14.23	16.25	14.24	14.33	13.61	13.72	13.38	11.88	12.58	11.50	12.18	11.00	8.93	11.24	11.14
Zr	211.00	180.48	175.16	168.26	214.80	211.80	179.12	176.54	193.50	195.86	201.2 0	181.14	177.54	182.42	219.00	169.74	202.60	169.02
Nb	14.63	14.17	14.82	13.74	15.16	14.68	14.49	14.07	13.78	13.85	12.70	12.85	12.55	13.10	12.62	11.82	14.33	14.75
Cs	0.35	0.34	0.36	0.69	0.61	3.29	3.64	3.23	2.98	3.65	2.61	2.86	2.19	2.26	2.31	6.38	7.30	7.23
Ba	1041.5 0	1029.7 0	1020.9 0	1030.8 0	1049.7 0	1303.0 0	1136.8 0	1069.0 0	1606.6 0	1118.6 0	915.2 0	969.80	927.40	948.60	1053.4 0	1123.6 0	1422.6 0	1412.8 0
La	15.70	15.25	15.90	16.26	19.25	38.02	32.32	37.36	39.64	36.22	29.42	30.82	26.90	28.72	29.28	10.61	25.94	25.66
Ce	38.42	37.04	38.98	39.14	47.94	65.84	60.18	65.66	68.12	66.28	53.84	57.66	50.24	53.78	53.84	21.18	46.88	45.78
Pr	5.79	5.57	5.90	5.37	6.42	7.61	6.81	7.39	7.53	7.19	6.17	6.52	5.73	6.14	5.96	2.78	5.24	5.24
Nd	26.04	25.12	26.84	22.82	27.42	26.26	23.96	25.44	25.54	24.74	23.44	24.88	21.88	23.56	22.68	12.06	20.50	20.54
Sm	5.62	5.43	5.88	4.68	5.71	4.36	4.11	4.18	4.14	4.09	4.13	4.32	3.84	4.09	3.92	2.57	3.69	3.71
Eu	1.65	1.58	1.70	1.24	1.51	1.20	1.15	1.13	1.18	1.10	1.02	1.10	0.97	1.03	1.01	0.64	0.88	0.88
Gd	4.75	4.64	4.94	4.07	4.82	3.18	3.12	3.10	3.10	3.02	3.26	3.41	3.05	3.23	3.05	2.23	2.95	2.97
Tb	0.61	0.59	0.64	0.54	0.63	0.42	0.42	0.40	0.40	0.40	0.41	0.44	0.39	0.42	0.39	0.29	0.38	0.38

Dy	3.39	3.32	3.53	3.01	3.51	2.35	2.33	2.21	2.23	2.17	2.40	2.51	2.24	2.39	2.22	1.69	2.16	2.18
Ho	0.60	0.59	0.62	0.54	0.63	0.44	0.44	0.42	0.42	0.41	0.45	0.47	0.42	0.45	0.41	0.31	0.40	0.40
Er	1.66	1.62	1.72	1.51	1.75	1.24	1.25	1.20	1.21	1.18	1.28	1.33	1.23	1.31	1.19	0.90	1.17	1.17
Tm	0.23	0.22	0.23	0.21	0.24	0.17	0.18	0.17	0.17	0.17	0.18	0.19	0.17	0.19	0.17	0.13	0.17	0.17
Yb	1.45	1.43	1.46	1.34	1.54	1.13	1.12	1.10	1.10	1.07	1.20	1.23	1.13	1.20	1.12	0.82	1.11	1.10
Lu	0.21	0.21	0.20	0.20	0.22	0.17	0.17	0.16	0.16	0.16	0.18	0.18	0.17	0.19	0.17	0.13	0.17	0.16
Hf	5.01	4.36	4.14	4.22	5.22	4.62	4.12	4.05	4.36	4.33	4.89	4.32	4.19	4.36	5.22	4.13	4.91	4.24
Ta	0.85	0.82	0.85	0.98	0.92	0.93	0.83	0.85	0.80	0.89	0.78	0.81	0.74	0.77	0.83	0.78	0.92	0.96
Pb	9.50	15.57	12.33	9.44	13.87	113.32	102.84	113.70	110.00	79.52	9.96	12.37	9.87	14.12	19.03	15.33	13.53	13.28
Th	15.67	15.67	14.43	17.78	17.12	8.04	7.95	8.29	8.24	7.95	14.46	14.29	13.24	14.41	14.16	15.10	17.71	17.44
U	2.93	2.87	2.84	2.77	2.99	1.99	1.99	1.94	1.89	1.88	3.57	3.56	3.35	3.48	3.31	1.71	3.38	3.42
LREE	93.23	89.99	95.20	89.51	108.26	143.29	128.53	141.16	146.15	139.62	118.0 2	125.30	109.56	117.32	116.69	49.83	103.14	101.81
ΣREE	106.13	102.62	108.54	100.92	121.58	152.39	137.55	149.93	154.95	148.20	127.3 9	135.06	118.36	126.70	125.39	56.33	111.63	110.33
HREE	12.90	12.62	13.34	11.41	13.32	9.10	9.03	8.77	8.79	8.57	9.37	9.76	8.80	9.37	8.70	6.50	8.49	8.53
LREE/ HREE	7.23	7.13	7.13	7.85	8.12	15.75	14.24	16.10	16.62	16.29	12.60	12.84	12.45	12.52	13.41	7.67	12.15	11.94
La _N / Yb _N	7.76	7.65	7.82	8.69	9.00	24.23	20.70	24.45	25.93	24.24	17.54	17.98	17.04	17.16	18.78	9.26	16.80	16.73
δEu	0.95	0.94	0.94	0.85	0.86	0.94	0.94	0.92	0.97	0.92	0.83	0.85	0.84	0.84	0.86	0.80	0.79	0.79
δCe	0.97	0.97	0.97	1.00	1.03	0.88	0.93	0.90	0.89	0.93	0.92	0.93	0.93	0.93	0.93	0.92	0.92	0.90
Zr/Hf	42.10	41.35	42.31	39.90	41.14	45.85	43.53	43.61	44.33	45.24	41.14	41.92	42.34	41.88	41.97	41.15	41.26	39.85
Nb/Ta	30.52	30.54	31.52	23.38	29.95	28.24	28.96	29.97	31.97	27.68	29.96	30.67	29.72	30.44	27.43	15.44	22.30	21.36
Rb/Sr	0.10	0.11	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.44	0.27	0.28
Sr/Y	62.73	61.43	57.76	65.98	62.70	80.79	80.11	81.71	82.08	84.65	80.42	81.58	85.01	83.27	94.31	48.38	55.57	55.22