Liqiang Wang, Wenbin Cheng, Teng Gao, and Yong Wang, 2021, A model involving amphibolite lower crust melting and subsequent melt extraction for leucogranite generation: GSA Bulletin, <https://doi.org/10.1130/B36055.1>.

Supplemental Material

Table S1. Isotopic data of U-Pb age determinations on zircons of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Table S2. ^{40}Ar - ^{39}Ar dating results for muscovite from the pegmatite in the Anglonggangri area.

Table S3. Whole-rock major and trace element compositions of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Table S4. Whole-rock Pb isotopic compositions of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Table S5. Zircon in situ Lu-Hf isotopic compositions of the Anglonggangri biotite-muscovite granite.

Table S6. Partition coefficients and assumed magma source compositions used in geochemical modeling.

Table S7. Partition coefficients and assumed compositions used in geochemical modeling and the calculated results.

Supplementary Table S1. Isotopic data of U-Pb age determinations on zircons of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Sample no.	Element (ppm)		Th/U	Isotope ratio						Age (Ma)					
	Th	U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²³⁵ U		²⁰⁸ Pb/ ²³² Th		²⁰⁶ Pb/ ²³⁸ U		²⁰⁷ Pb/ ²³⁵ U		²⁰⁸ Pb/ ²³² Th	
				1σ	1σ	1σ	1σ	1σ	1σ	1σ	1σ	1σ	1σ		
A-N1 biotite-muscovite granite															
1	156.4	712.9	0.22	0.001753	5.67E-05	0.010782	0.001387	4.248908	0.043675	11.3	0.4	10.9	1.4	14.7	3.0
2	126.1	379.8	0.33	0.001682	5.73E-05	0.010714	0.00146	2.995035	0.148652	10.8	0.4	10.8	1.5	11.2	1.7
3	513.2	8013.3	0.06	0.001689	3.84E-05	0.010776	0.000492	14.57679	0.80027	10.9	0.2	10.9	0.5	10.3	0.9
4	324.1	320.3	1.01	0.001666	5.75E-05	0.010691	0.001749	0.992846	0.01959	10.7	0.4	10.8	1.8	10.7	0.8
5	326.3	9334.0	0.03	0.00171	2.53E-05	0.011088	0.000307	26.79074	0.746411	11.0	0.2	11.2	0.3	12.6	0.8
6	1647.5	1451.4	1.14	0.001784	3.84E-05	0.011592	0.000511	0.819926	0.006566	11.5	0.2	11.7	0.5	11.5	0.3
7	274.6	287.8	0.95	0.001622	6.37E-05	0.010553	0.001974	0.958587	0.023302	10.4	0.4	10.7	2.0	12.8	1.3
8	190.2	724.7	0.26	0.001704	3.26E-05	0.011132	0.000753	3.443598	0.061822	11.0	0.2	11.2	0.8	12.1	1.0
9	512.3	3233.1	0.16	0.001725	4.70E-05	0.011313	0.00052	5.992431	0.343112	11.1	0.3	11.4	0.5	10.2	0.9
10	259.4	6433.7	0.04	0.001735	2.86E-05	0.011408	0.00041	27.25231	1.826467	11.2	0.2	11.5	0.4	11.2	1.5
11	242.5	757.1	0.32	0.001731	4.10E-05	0.011406	0.000877	2.914415	0.024544	11.1	0.3	11.5	0.9	12.2	1.1
12	236.1	135.7	1.74	0.001759	7.09E-05	0.011758	0.003017	0.539989	0.0035	11.3	0.5	11.9	3.0	9.4	1.1
13	2005.5	8357.3	0.24	0.001773	2.14E-05	0.011871	0.000342	4.172198	0.120921	11.4	0.1	12.0	0.3	12.2	0.4
14	344.6	6795.9	0.05	0.001687	2.17E-05	0.011353	0.000274	21.37176	0.85743	10.9	0.1	11.5	0.3	11.3	0.9
15	88.9	3419.3	0.03	0.0017	3.00E-05	0.011509	0.000529	41.27144	2.739335	11.0	0.2	11.6	0.5	10.5	3.2
16	577.1	4478.4	0.13	0.001722	4.01E-05	0.011675	0.000439	14.05234	1.280158	11.1	0.3	11.8	0.4	19.3	2.6
17	558.8	927.7	0.60	0.001689	4.28E-05	0.011514	0.000819	1.551537	0.014247	10.9	0.3	11.6	0.8	10.3	0.6
18	110.2	2154.9	0.05	0.001739	5.15E-05	0.011884	0.001586	22.55042	2.942012	11.2	0.3	12.0	1.6	8.5	2.6
19	157.4	370.0	0.43	0.001762	5.30E-05	0.012055	0.00177	2.251208	0.020845	11.3	0.3	12.2	1.8	11.7	1.8
20	199.3	313.5	0.64	0.001762	5.01E-05	0.012104	0.001511	1.485344	0.014866	11.3	0.3	12.2	1.5	11.9	1.2
21	378.9	356.0	1.06	0.001701	6.28E-05	0.012038	0.002309	0.887244	0.012085	11.0	0.4	12.2	2.3	10.8	0.8
22	310.0	384.1	0.81	0.001635	6.40E-05	0.012385	0.00174	1.21131	0.011965	10.5	0.4	12.5	1.7	10.3	1.2
A-N2 biotite-muscovite granite															

1	132.9	132.5	1.00	0.001628	8.73E-05	0.007682	0.003171	0.000721	8.20E-05	10.5	0.6	7.8	3.2	14.6	1.7
2	78.3	95.6	0.82	0.001689	0.000109	0.010029	0.004104	0.000572	0.000103	10.9	0.7	10.1	4.1	11.6	2.1
3	241.9	3564.6	0.07	0.001683	3.71E-05	0.010524	0.000627	0.000537	9.01E-05	10.8	0.2	10.6	0.6	10.8	1.8
4	26.5	51.5	0.51	0.001693	0.000123	0.010593	0.005644	0.000351	0.000226	10.9	0.8	10.7	5.7	7.1	4.6
5	1591.5	791.4	2.01	0.001573	5.16E-05	0.009926	0.001213	0.000521	3.23E-05	10.1	0.3	10.0	1.2	10.5	0.7
6	333.9	537.4	0.62	0.001694	4.30E-05	0.010746	0.00116	0.000525	4.36E-05	10.9	0.3	10.9	1.2	10.6	0.9
7	182.0	328.6	0.55	0.001676	5.55E-05	0.01067	0.001461	0.000524	5.88E-05	10.8	0.4	10.8	1.5	10.6	1.2
8	1089.3	2369.4	0.46	0.001613	1.93E-05	0.010436	0.000353	0.000537	2.21E-05	10.4	0.1	10.5	0.4	10.9	0.4
9	860.1	3597.5	0.24	0.0017	2.16E-05	0.01105	0.000411	0.000566	2.69E-05	10.9	0.1	11.2	0.4	11.4	0.5
10	195.9	312.8	0.63	0.001635	4.55E-05	0.010645	0.001181	0.000427	4.63E-05	10.5	0.3	10.8	1.2	8.6	0.9
11	102.5	196.2	0.52	0.001615	6.61E-05	0.010537	0.001671	0.000557	7.23E-05	10.4	0.4	10.6	1.7	11.3	1.5
12	556.1	1464.3	0.38	0.001689	3.54E-05	0.011025	0.000862	0.000647	4.02E-05	10.9	0.2	11.1	0.9	13.1	0.8
13	944.1	604.9	1.56	0.001746	4.82E-05	0.011658	0.001274	0.000577	3.47E-05	11.2	0.3	11.8	1.3	11.7	0.7
14	64.2	268.8	0.24	0.001667	4.72E-05	0.011147	0.001235	0.000578	8.52E-05	10.7	0.3	11.3	1.2	11.7	1.7
15	472.0	514.9	0.92	0.001699	9.95E-05	0.011402	0.001518	0.00058	6.42E-05	10.9	0.6	11.5	1.5	11.7	1.3
16	290.7	2949.2	0.10	0.001619	3.23E-05	0.010867	0.000951	0.000979	0.000353	10.4	0.2	11.0	1.0	19.8	7.1
17	622.6	1068.1	0.58	0.001598	4.92E-05	0.010793	0.001074	0.000539	7.95E-05	10.3	0.3	10.9	1.1	10.9	1.6
18	167.3	6685.5	0.03	0.001654	2.55E-05	0.011188	0.000484	0.000838	0.000158	10.7	0.2	11.3	0.5	16.9	3.2
19	363.3	516.1	0.70	0.001673	3.70E-05	0.011401	0.000945	0.000567	3.08E-05	10.8	0.2	11.5	0.9	11.5	0.6
20	177.7	498.9	0.36	0.001641	4.52E-05	0.011201	0.000999	0.000547	5.71E-05	10.6	0.3	11.3	1.0	11.1	1.2
21	121.7	173.7	0.70	0.001645	8.12E-05	0.013773	0.003153	0.000688	9.31E-05	10.6	0.5	13.9	3.2	13.9	1.9
A-N3 biotite-muscovite granite															
1	148.0	233.7	0.63	0.001643	6.49E-05	0.009274	0.001632	0.000544	7.65E-05	10.6	0.4	9.4	1.6	11.0	1.5
2	1251.4	931.4	1.34	0.001717	3.33E-05	0.010768	0.000731	0.000549	2.57E-05	11.1	0.2	10.9	0.7	11.1	0.5
3	313.9	599.1	0.52	0.00165	3.10E-05	0.010418	0.000744	0.000531	3.97E-05	10.6	0.2	10.5	0.7	10.7	0.8
4	429.6	967.3	0.44	0.001692	3.51E-05	0.010788	0.00063	0.00051	3.22E-05	10.9	0.2	10.9	0.6	10.3	0.7
5	356.2	629.6	0.57	0.00161	4.43E-05	0.010281	0.001064	0.000614	6.37E-05	10.4	0.3	10.4	1.1	12.4	1.3

6	883.8	1511.6	0.58	0.001654	3.43E-05	0.010671	0.00081	0.000525	3.64E-05	10.7	0.2	10.8	0.8	10.6	0.7
7	543.7	784.2	0.69	0.00165	3.10E-05	0.010644	0.000731	0.000521	4.55E-05	10.6	0.2	10.8	0.7	10.5	0.9
8	444.1	526.8	0.84	0.001711	5.13E-05	0.0111	0.001341	0.000551	5.19E-05	11.0	0.3	11.2	1.3	11.1	1.0
9	121.2	199.0	0.61	0.001655	4.83E-05	0.010738	0.001413	0.000531	5.44E-05	10.7	0.3	10.8	1.4	10.7	1.1
10	1052.8	3666.3	0.29	0.001668	2.21E-05	0.010851	0.000422	0.000539	4.31E-05	10.7	0.1	11.0	0.4	10.9	0.9
11	940.9	1358.3	0.69	0.001659	2.62E-05	0.010844	0.000632	0.000524	2.51E-05	10.7	0.2	11.0	0.6	10.6	0.5
12	806.6	4240.0	0.19	0.001641	2.76E-05	0.01084	0.0005	0.000509	3.07E-05	10.6	0.2	10.9	0.5	10.3	0.6
13	310.3	705.4	0.44	0.001655	3.04E-05	0.010961	0.000634	0.000595	2.93E-05	10.7	0.2	11.1	0.6	12.0	0.6
14	290.4	343.8	0.84	0.001691	4.39E-05	0.011341	0.001215	0.000547	5.50E-05	10.9	0.3	11.5	1.2	11.1	1.1
15	428.7	693.0	0.62	0.001651	3.51E-05	0.011137	0.000911	0.000566	3.64E-05	10.6	0.2	11.2	0.9	11.4	0.7
16	139.3	217.4	0.64	0.001688	6.66E-05	0.011415	0.001889	0.000626	7.60E-05	10.9	0.4	11.5	1.9	12.7	1.5
17	625.4	877.1	0.71	0.0016	3.62E-05	0.01087	0.000838	0.000563	3.65E-05	10.3	0.2	11.0	0.8	11.4	0.7
18	674.2	3859.4	0.17	0.001671	2.71E-05	0.011605	0.000406	0.000634	7.78E-05	10.8	0.2	11.7	0.4	12.8	1.6
19	322.8	711.9	0.45	0.00166	3.63E-05	0.011563	0.000919	0.000518	4.51E-05	10.7	0.2	11.7	0.9	10.5	0.9
20	473.3	2394.0	0.20	0.001685	2.94E-05	0.011764	0.000651	0.000547	5.18E-05	10.9	0.2	11.9	0.7	11.0	1.0
21	78.9	131.6	0.60	0.001648	5.56E-05	0.011645	0.002039	0.000487	8.19E-05	10.6	0.4	11.8	2.0	9.8	1.7
22	333.5	352.2	0.95	0.001692	6.92E-05	0.011986	0.001776	0.000447	5.01E-05	10.9	0.4	12.1	1.8	9.0	1.0
23	364.3	369.2	0.99	0.001631	5.14E-05	0.011648	0.001725	0.000564	4.38E-05	10.5	0.3	11.8	1.7	11.4	0.9
A-N4 biotite-muscovite granite															
1	162.6	235.1	0.69	0.001724	4.71E-05	0.010177	0.001447	0.000493	5.71E-05	11.1	0.3	10.3	1.5	10.0	1.2
2	391.5	547.5	0.72	0.00167	4.03E-05	0.010151	0.000805	0.000461	2.92E-05	10.8	0.3	10.3	0.8	9.3	0.6
3	167.7	329.5	0.51	0.001659	4.63E-05	0.010308	0.001155	0.000443	3.79E-05	10.7	0.3	10.4	1.2	8.9	0.8
4	383.9	590.6	0.65	0.001641	6.34E-05	0.010427	0.001416	0.000448	5.19E-05	10.6	0.4	10.5	1.4	9.1	1.0
5	223.1	492.8	0.45	0.001616	4.21E-05	0.010371	0.001092	0.000618	5.24E-05	10.4	0.3	10.5	1.1	12.5	1.1
6	784.5	513.9	1.53	0.001646	3.71E-05	0.010577	0.000936	0.000622	3.28E-05	10.6	0.2	10.7	0.9	12.6	0.7
7	315.3	631.4	0.50	0.00164	3.67E-05	0.010577	0.000703	0.000576	4.05E-05	10.6	0.2	10.7	0.7	11.6	0.8
8	269.1	946.3	0.28	0.001681	3.25E-05	0.01086	0.000663	0.000549	3.76E-05	10.8	0.2	11.0	0.7	11.1	0.8

9	85.8	176.8	0.49	0.001742	6.21E-05	0.01128	0.002057	-0.00092	-0.0001	11.2	0.4	11.4	2.1	-18.6	-2.1
10	541.0	5469.9	0.10	0.001623	1.63E-05	0.010506	0.000307	0.000576	3.39E-05	10.5	0.1	10.6	0.3	11.6	0.7
11	113.3	153.5	0.74	0.00171	6.13E-05	0.01126	0.002057	0.0005	6.13E-05	11.0	0.4	11.4	2.1	10.1	1.2
12	128.4	169.2	0.76	0.001599	5.08E-05	0.010566	0.001562	0.000518	5.21E-05	10.3	0.3	10.7	1.6	10.5	1.1
13	223.2	348.0	0.64	0.001643	4.28E-05	0.01099	0.001025	0.000446	3.79E-05	10.6	0.3	11.1	1.0	9.0	0.8
14	270.1	2476.0	0.11	0.00165	3.33E-05	0.011123	0.000474	0.001019	0.000155	10.6	0.2	11.2	0.5	20.6	3.1
15	63.8	126.5	0.50	0.001681	5.69E-05	0.011429	0.001918	0.000407	6.88E-05	10.8	0.4	11.5	1.9	8.2	1.4
16	424.7	609.6	0.70	0.001637	3.46E-05	0.011136	0.000695	0.000577	2.90E-05	10.5	0.2	11.2	0.7	11.7	0.6
17	174.1	274.0	0.64	0.001655	4.44E-05	0.011309	0.001159	0.000582	5.56E-05	10.7	0.3	11.4	1.2	11.8	1.1
18	226.5	412.2	0.55	0.001654	3.83E-05	0.011404	0.000911	0.000568	4.30E-05	10.7	0.2	11.5	0.9	11.5	0.9
19	204.9	1908.1	0.11	0.001679	2.44E-05	0.01191	0.000679	0.000643	7.39E-05	10.8	0.2	12.0	0.7	13.0	1.5
20	559.3	1020.0	0.55	0.001616	3.28E-05	0.011574	0.000752	0.000507	3.50E-05	10.4	0.2	11.7	0.8	10.2	0.7
21	97.9	88.0	1.11	0.001762	9.74E-05	0.013051	0.003125	0.000545	7.98E-05	11.3	0.6	13.2	3.1	11.0	1.6
A-N5 garnet-muscovite granite															
1	150.7	4685.7	0.03	0.00158	0.00002	0.01002	0.00024	0.00074	0.00037	10.2	0.2	10.1	0.2	15	7
2	242.1	11762.1	0.02	0.00159	0.00002	0.01009	0.00023	0.00089	0.00032	10.2	0.1	10.2	0.2	18	6
3	226.4	8077.6	0.03	0.00167	0.00003	0.01061	0.00038	0.00063	0.00024	10.8	0.2	10.7	0.4	13	5
4	306.2	12588.2	0.02	0.00163	0.00003	0.01044	0.00076	0.00052	0.00065	10.5	0.2	10.5	0.8	10	13
5	240.4	6207.3	0.04	0.00159	0.00003	0.01021	0.00048	0.00051	0.0001	10.2	0.2	10.3	0.5	10	2
6	612.8	11071.5	0.06	0.00156	0.00002	0.01041	0.00024	0.00049	0.00001	10	0.1	10.5	0.2	10	0.1
7	310.9	12738.3	0.02	0.0016	0.00002	0.01077	0.00044	0.00051	0.00004	10.3	0.1	10.9	0.4	10.3	0.9
8	277.6	12183.0	0.02	0.00167	0.00004	0.01141	0.00172	0.00053	0.00075	10.8	0.3	12	2	11	15
9	71.0	7100.7	0.01	0.00151	0.00004	0.01081	0.00119	0.00048	0.00011	9.8	0.3	11	1	10	2
10	456.8	9871.9	0.05	0.00158	0.00006	0.01192	0.00164	0.00049	0.00014	10.2	0.4	12	2	10	3

Supplementary Table S2. ^{40}Ar - ^{39}Ar dating results for muscovite from the pegmatite in the Anglonggangri area.

T (°C)	$(^{40}\text{Ar}/^{39}\text{Ar})_{\text{m}}$	$\pm 1\sigma$	$(^{36}\text{Ar}/^{39}\text{Ar})_{\text{m}}$	$\pm 1\sigma$	$(^{37}\text{Ar}/^{39}\text{Ar})_{\text{m}}$	$\pm 1\sigma$	^{40}Ar (mol)	$^{40}\text{Ar}^*/^{39}\text{Ar}$	$\pm 2\sigma$	^{39}Ar (Cum.) (%)	Age (Ma)	$\pm 2\sigma$ (Ma)
650	14.765637	0.026331	0.040361	0.001150	0.000000	0.964638	1.360E-12	2.83411	0.69205	0.56	22.88	5.55
700	6.673137	0.011855	0.015483	0.000689	0.000000	0.629448	7.229E-13	2.09308	0.41678	0.65	16.93	3.36
750	6.625840	0.011276	0.017260	0.000398	0.000000	0.216106	1.276E-12	1.52067	0.23670	1.16	12.32	1.91
810	6.345887	0.010301	0.016635	0.000208	0.000000	0.163414	3.107E-12	1.42533	0.12445	2.96	11.55	1.00
850	4.278153	0.006914	0.009790	0.000125	0.000000	0.080217	3.274E-12	1.38030	0.07447	4.62	11.18	0.60
890	2.264708	0.003653	0.003462	0.000071	0.050648	0.045060	3.648E-12	1.24064	0.04262	9.73	10.05	0.34
930	1.691958	0.002728	0.001498	0.000038	0.000000	0.032305	3.533E-12	1.24454	0.02340	12.61	10.09	0.19
970	1.719720	0.002777	0.001543	0.000030	0.000000	0.020629	5.714E-12	1.25887	0.01817	20.07	10.20	0.15
1010	1.657794	0.002666	0.001303	0.000034	0.000000	0.027379	4.545E-12	1.26811	0.02089	16.56	10.28	0.17
1050	1.803822	0.002906	0.001750	0.000038	0.000000	0.026307	3.462E-12	1.28184	0.02292	11.59	10.39	0.19
1100	1.691649	0.002725	0.001512	0.000042	0.020962	0.024073	3.497E-12	1.24157	0.02523	12.49	10.06	0.20
1150	1.883813	0.003068	0.002021	0.000111	0.000000	0.079151	1.420E-12	1.28183	0.06664	4.56	10.39	0.54
1220	2.396654	0.004047	0.003290	0.000237	0.000000	0.205182	5.921E-13	1.41981	0.14328	1.49	11.50	1.16
1400	5.309084	0.008948	0.013573	0.000257	0.987143	0.274588	8.200E-13	1.36464	0.15634	0.93	11.06	1.26

Supplementary Table S3. Whole-rock major and trace element compositions of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Sample	A-H5-1	A-H5-2	A-H5-3	A-H5-4	A-H1-1	A-H1-2	A-H1-3	A-H1-4	A-H2-2	A-H2-3	A-H2-4	A-H2-6	A-H3-1	A-H3-3	A-H3-4	A-H3-6	A-H4-1	A-H4-2	A-H4-3	A-H4-4
Major elements (wt.%)																				
SiO ₂	73.59	74.05	73.97	74.36	73.55	74.18	73.96	73.04	72.96	73.41	72.77	72.8	72.44	72.84	72.31	72.7	74.13	73.03	72.87	72.48
Al ₂ O ₃	15.22	15.31	15.26	15	14.74	14.47	14.66	15.13	14.99	14.65	14.98	15.09	15.36	14.91	15.17	15.11	14.36	15.11	14.9	15.43
TFE	0.831	0.535	0.589	0.881	0.877	0.887	0.763	1.1	1.15	1.06	1.1	1.08	1.35	1.15	1.19	1.36	1.03	1.34	1.11	1.28
MgO	0.092	0.1	0.106	0.121	0.243	0.247	0.209	0.291	0.329	0.312	0.326	0.321	0.351	0.346	0.333	0.397	0.304	0.308	0.312	0.35
FeO	0.69	0.44	0.44	0.7	0.7	0.67	0.65	0.9	0.95	0.9	0.95	0.89	1.15	1.01	1.05	1.11	0.86	1.07	0.92	1.05
CaO	0.504	0.501	0.481	0.546	1.09	0.935	1.12	1.23	1.35	1.28	1.34	1.35	1.57	1.3	1.48	1.6	1.17	1.21	1.46	1.69
Na ₂ O	4.39	4.92	4.62	4.16	3.74	3.74	3.82	4.25	3.98	4	4.02	4.06	4.67	3.59	3.83	4.11	3.49	4.42	3.8	4.41
K ₂ O	4.2	3.43	3.85	3.39	5.03	4.71	4.85	4.05	4.3	4.34	4.42	4.46	3.38	4.99	4.68	3.83	4.8	3.69	4.61	3.64
MnO	0.41	0.215	0.235	0.387	0.016	0.022	0.023	0.026	0.03	0.031	0.031	0.029	0.03	0.02	0.027	0.031	0.021	0.039	0.024	0.03
TiO ₂	0.025	0.028	0.038	0.041	0.141	0.137	0.124	0.157	0.225	0.204	0.227	0.216	0.214	0.209	0.224	0.237	0.203	0.19	0.213	0.204
P ₂ O ₅	0.082	0.08	0.08	0.212	0.055	0.067	0.065	0.061	0.065	0.064	0.066	0.065	0.074	0.074	0.071	0.091	0.058	0.071	0.069	0.072
LOI	0.56	0.76	0.69	0.82	0.42	0.52	0.31	0.58	0.53	0.56	0.63	0.43	0.46	0.47	0.58	0.43	0.39	0.5	0.54	0.32
Na ₂ O+K ₂ O	8.59	8.35	8.47	7.55	8.77	8.45	8.67	8.3	8.28	8.34	8.44	8.52	8.05	8.58	8.51	7.94	8.29	8.11	8.41	8.05
Na ₂ O/K ₂ O	1.05	1.43	1.20	1.23	0.74	0.79	0.79	1.05	0.93	0.92	0.91	0.91	1.38	0.72	0.82	1.07	0.73	1.20	0.82	1.21
A/CNK	1.20	1.20	1.21	1.30	1.08	1.12	1.08	1.11	1.10	1.08	1.08	1.08	1.08	1.09	1.08	1.09	1.10	1.12	1.07	1.08
A/NK	1.29	1.30	1.30	1.43	1.27	1.28	1.27	1.33	1.34	1.30	1.31	1.31	1.35	1.32	1.33	1.38	1.31	1.34	1.32	1.38
Rare earth elements (ppm)																				
La	4.42	3.4	2.84	2.45	26.2	24.7	26.8	26	34.7	31.7	38.1	32.1	30	38.4	38.8	44	39.9	34	40.3	31.7
Ce	7.44	6.01	5.8	6.24	50.7	46.6	51.7	53.5	67.7	64.4	70.8	57	57.5	72.3	66.9	75.4	73.4	66.4	70	65.5
Pr	0.896	0.644	0.658	0.678	5.79	5.39	5.26	5.26	6.27	6.56	7.31	6.25	6.68	7.68	8.31	8.66	7.78	7.31	7.73	6.99
Nd	2.9	2.19	2.11	2.59	19	19.1	19.2	18.9	24.4	23.3	25.9	23.1	23.6	27.1	28.1	33.4	28.1	26.9	27.4	24.6
Sm	0.83	0.624	0.622	0.97	3.49	3.21	3.4	3.26	3.74	3.6	3.96	3.37	3.79	4.79	4.29	4.97	4.03	4.65	4.18	3.97
Eu	0.078	0.053	0.073	0.051	0.546	0.514	0.584	0.525	0.648	0.626	0.643	0.615	0.544	0.685	0.727	0.774	0.624	0.524	0.673	0.674
Gd	0.74	0.527	0.529	0.876	2.67	2.53	2.72	2.57	2.87	2.83	3.2	2.52	2.9	3.58	3.21	3.6	2.89	3.62	2.98	3.04
Tb	0.288	0.149	0.156	0.268	0.329	0.331	0.327	0.343	0.359	0.32	0.352	0.305	0.405	0.404	0.391	0.419	0.344	0.455	0.37	0.395
Dy	2.42	1.25	1.3	1.77	1.31	1.23	1.41	1.62	1.51	1.45	1.54	1.34	1.69	1.58	1.73	1.72	1.39	1.97	1.66	1.73
Ho	0.522	0.263	0.252	0.315	0.153	0.155	0.17	0.223	0.173	0.168	0.183	0.143	0.219	0.165	0.194	0.213	0.156	0.244	0.172	0.2
Er	1.57	0.77	0.831	0.893	0.434	0.392	0.472	0.529	0.501	0.478	0.562	0.456	0.623	0.541	0.547	0.602	0.467	0.671	0.513	0.536

Tm	0.381	0.216	0.199	0.208	0.051	0.048	0.057	0.08	0.053	0.054	0.071	0.048	0.08	0.05	0.06	0.067	0.043	0.084	0.049	0.065
Yb	2.54	1.48	1.29	1.39	0.271	0.276	0.298	0.467	0.295	0.285	0.352	0.264	0.438	0.276	0.32	0.369	0.272	0.45	0.286	0.333
Lu	0.292	0.18	0.145	0.169	0.027	0.029	0.033	0.05	0.028	0.028	0.039	0.029	0.048	0.03	0.034	0.038	0.025	0.055	0.032	0.037
Y	19.8	9.72	9.44	12.4	4.79	4.32	4.58	6.69	4.85	4.9	5.41	4.31	6.49	4.71	5.56	5.98	4.3	7.22	5.41	5.38
ΣREE	25.317	17.756	16.805	18.868	110.971	104.505	112.431	113.327	143.247	135.799	153.012	127.54	128.517	157.581	153.613	174.232	159.421	147.333	156.345	139.77
LREE	16.564	12.921	12.103	12.979	105.726	99.514	106.944	107.445	137.458	130.186	146.713	122.435	122.114	150.955	147.127	167.204	153.834	139.784	150.283	133.434
HREE	8.753	4.835	4.702	5.889	5.245	4.991	5.487	5.882	5.789	5.613	6.299	5.105	6.403	6.626	6.486	7.028	5.587	7.549	6.062	6.336
LREE/ HREE	1.89	2.67	2.57	2.20	20.16	19.94	19.49	18.27	23.74	23.19	23.29	23.98	19.07	22.78	22.68	23.79	27.53	18.52	24.79	21.06
(La/Yb) _N	1.25	1.65	1.58	1.26	69.35	64.19	64.51	39.94	84.37	79.78	77.64	87.22	49.13	99.80	86.97	85.53	105.22	54.20	101.07	68.28
(La/Gd) _N	4.99	5.39	4.49	2.34	8.20	8.16	8.23	8.45	10.10	9.36	9.95	10.64	8.64	8.96	10.10	10.21	11.53	7.85	11.30	8.71
(Gd/Yb) _N	0.24	0.29	0.33	0.51	7.95	7.40	7.37	4.44	7.85	8.01	7.34	7.70	5.34	10.47	8.09	7.87	8.57	6.49	8.41	7.37
δEu	0.30	0.28	0.39	0.17	0.55	0.55	0.59	0.55	0.60	0.60	0.55	0.65	0.50	0.51	0.60	0.56	0.56	0.39	0.58	0.59
δCe	0.92	1.00	1.04	1.19	1.01	0.99	1.07	1.12	1.13	1.09	1.04	0.99	1.00	1.03	0.91	0.95	1.02	1.03	0.97	1.08
Trace elements (ppm)																				
Li	92.4	97.4	121	248	154	123	162	221	175	179	179	171	130	133	131	124	109	148	126	124
Be	8.79	9.77	8.94	10.1	2.71	4.28	3.54	4.13	6.79	3.83	4.72	3.82	5.03	2.72	3.79	4.61	3.35	8.23	3.57	4.3
Sc	1.12	0.895	1.07	1.44	2.01	1.75	1.63	2.8	1.84	1.83	1.89	1.84	2.23	2.26	2.35	2.47	1.88	3.06	1.98	2.6
V	4.21	3.97	4.51	4.53	9.87	8.8	9.99	14.5	21	13.2	14.6	13.2	15.9	14.3	14.8	20.5	15.5	15	21.2	19.4
Cr	1.29	1.41	1.25	1.4	2.07	2.05	2.18	2.81	2.92	2.13	2.32	2.17	1.87	2.61	2.27	2.32	2.29	2.67	2.93	2.49
Co	0.204	0.176	0.179	0.215	0.833	0.819	0.741	1.01	1.2	1.1	1.28	1.17	1.43	1.2	1.24	1.49	1.08	1.26	1.2	1.45
Ni	1.04	1.16	0.905	1.28	1.34	1.21	1.17	1.73	1.47	1.44	1.59	1.42	1.51	2.17	1.94	2.02	2.09	2.79	1.61	1.77
Ga	33.3	34.7	33.8	38.2	20.9	20.5	21.7	25.9	22.5	22.1	23.8	22.8	24.9	20.3	22.8	23.4	21.1	29.3	21.8	24.2
Rb	410	380	412	466	239	279	265	303	253	239	257	246	205	226	232	226	243	294	229	208
Sr	38.5	28.9	37.1	24.1	213	198	223	201	304	307	334	349	278	298	334	295	308	211	321	301
Cd	0.077	0.056	0.051	0.139	0.024	0.037	0.037	0.077	0.066	0.052	0.078	0.03	0.043	0.022	0.026	0.036	0.031	0.031	0.025	0.061
In	0.063	0.06	0.064	0.1	0.038	0.036	0.035	0.057	0.051	0.039	0.046	0.042	0.041	0.038	0.036	0.047	0.031	0.061	0.034	0.05
Sb	0.239	0.141	1.52	0.386	0.091	0.148	0.093	1.07	0.644	1.28	0.522	0.112	0.042	0.152	0.04	0.033	0.975	0.089	0.033	0.392
Cs	18.7	22.4	35.8	33.1	9.58	21.9	12.4	21.8	19.2	14.6	12.5	11.7	13.2	10	14.7	13	11.7	26.2	16.3	11
Ba	58.6	38.4	56	30.7	544	476	565	398	629	679	760	679	496	707	707	680	682	406	690	464
W	0.762	0.791	0.828	1.34	0.636	0.35	0.629	0.561	0.561	0.65	0.94	0.76	0.374	0.284	0.203	0.379	0.433	0.595	0.191	0.333
Tl	2.39	2.1	2.24	2.39	1.38	1.7	1.52	1.88	1.53	1.56	1.51	1.5	1.32	1.36	1.52	1.37	1.43	1.63	1.48	1.21

Pb	17.2	13.3	14.5	10.3	38.8	34.5	38.2	33.7	30.8	32.7	34.5	31.9	31.3	40.9	39.2	35.3	39.6	34.6	38.3	35.4
Bi	1.66	1.29	1.93	6.28	0.162	0.125	0.605	0.221	0.191	0.399	0.272	0.274	0.037	0.059	0.077	0.045	0.038	0.035	0.054	0.04
Th	4.77	4.52	4.09	1.35	17.1	15	15.9	15.9	17.3	16.9	18.9	16.9	17.5	22.5	22.4	24.4	23.8	21.9	21.1	17.4
U	2.95	2.33	1.91	1.91	2.23	1.35	1.45	1.58	1.78	1.73	1.88	1.65	2.21	1.38	1.46	2.04	1.36	2.8	1.38	1.82
Nb	13.5	13.8	15.6	8.64	6	7.05	6.39	8.25	8.15	6.62	7.06	6.62	9.2	5.78	6.42	6.6	5.29	12.1	5.46	8.42
Ta	1.64	2.18	2.39	0.849	0.615	1.15	0.893	0.911	1.36	0.96	1.28	1	1.56	0.655	0.76	0.936	0.579	2.08	0.64	1.32
Zr	42.6	32.8	36.9	16.8	68.7	69.2	73.7	75.3	94.3	79.4	71.9	78.5	113	97.4	79.1	125	93.9	58.9	78.8	101
Hf	2.53	2.03	2.31	1.07	2	1.9	2.22	2.17	2.6	2.32	2.07	2.23	3.01	2.65	2.17	3.24	2.5	1.76	2.21	2.77
Sr/Y	1.94	2.97	3.93	1.94	44.47	45.83	48.69	30.04	62.68	62.65	61.74	80.97	42.84	63.27	60.07	49.33	71.63	29.22	59.33	55.95
Nb/Ta	8.23	6.33	6.53	10.18	9.76	6.13	7.16	9.06	5.99	6.90	5.52	6.62	5.90	8.82	8.45	7.05	9.14	5.82	8.53	6.38
Zr/Hf	16.84	16.16	15.97	15.70	34.35	36.42	33.20	34.70	36.27	34.22	34.73	35.20	37.54	36.75	36.45	38.58	37.56	33.47	35.66	36.46
Rb/Sr	10.65	13.15	11.11	19.34	1.12	1.41	1.19	1.51	0.83	0.78	0.77	0.70	0.74	0.76	0.69	0.77	0.79	1.39	0.71	0.69
Rb/Cs	21.93	16.96	11.51	14.08	24.95	12.74	21.37	13.90	13.18	16.37	20.56	21.03	15.53	22.60	15.78	17.38	20.77	11.22	14.05	18.91
TE _{1,3}	1.21	1.13	1.22	1.27	1.09	1.06	1.05	1.06	1.06	1.06	1.03	1.06	1.08	1.07	1.06	0.99	1.06	1.05	1.08	1.11
⁸⁷ Rb/ ⁸⁶ Sr		38.1183	32.1937	56.0554	3.2529	4.0850	3.4450		2.4127	2.2569	2.2307		2.1378	2.1986	2.0137		2.2872	4.0394	2.0681	
⁸⁷ Sr/ ⁸⁶ Sr		0.71680	0.71619	0.71302	0.71968	0.71295	0.71235		0.70917	0.70884	0.70889		0.71015	0.71126	0.71026		0.71027	0.71203	0.71026	
(⁸⁷ Sr/ ⁸⁶ Sr) _i		0.71153	0.70490	0.71917	0.71231	0.71180	0.70880		0.70849	0.70855	0.70982		0.71092	0.70995	0.70992		0.71142	0.70994	0.71128	
¹⁴³ Nd/ ¹⁴⁴ Nd		0.511955	0.512064	0.512199	0.512194	0.512239	0.512181		0.512242	0.512275	0.512224		0.512143	0.512175	0.512109		0.512184	0.512250	0.512251	
¹⁴⁷ Sm/ ¹⁴⁴ Nd		0.1782	0.2264	0.1110	0.1016	0.1070	0.0927		0.0934	0.0924	0.0971		0.1068	0.0923	0.0867		0.1045	0.0922	0.1722	
(¹⁴³ Nd/ ¹⁴⁴ Nd) _{st}		0.511943	0.512049	0.512191	0.512187	0.512231	0.512175		0.512235	0.512269	0.512217		0.512136	0.512169	0.512103		0.512177	0.512244	0.512240	
εNd(t)		-7.51755	-13.2995	-11.2359	-8.43996	-8.52413	-7.65401		-8.77288	-7.58394	-6.93886		-7.94009	-9.53353	-8.88942		-10.1707	-8.73169	-7.4276	
TDM (Ga)		3.29	5.08	-13.53	1.41	1.30	1.30		1.22	1.15	1.10		1.21	1.44	1.22		1.25	1.35	1.13	

Note

Chondrite and primitive mantle normalization values are from [Sun and McDonough \(1989\)](#).

TE_{1,3} is defined as (TE1× TE3)0.5, where TE1 = (Ce/Ce* × Pr/Pr*)0.5 and TE3 = (Tb/Tb* × Dy/Dy*)0.5 ([Irber, 1999](#)).

Referneces

- Irber, W., 1999, The lanthanide tetrad effect and its correlation with K/Rb, Eu/Eu^{*}, Sr/Eu, Y/Ho, and Zr/Hf of evolving peraluminous granite suites: *Geochimica et Cosmochimica Acta*, v. 63, p. 489-508, [https://doi.org/10.1016/S0016-7037\(99\)00027-7](https://doi.org/10.1016/S0016-7037(99)00027-7).
- Sun, S.S., McDonough, W.F., 1989, Chemical and isotope systematics of oceanic basalts: implications for mantle composition and processes. In *Magmatism in Ocean Basins* (ed. A. D. Saunders). Geological Society Special Publication 42: 313-345, <https://doi.org/10.1144/GSL.SP.1989.042.01.19>.

Supplementary Table S4. Whole-rock Pb isotopic compositions of the Anglonggangri biotite-muscovite and garnet-muscovite granites.

Sample no.	Lithology	$^{206}\text{Pb}/^{204}\text{Pb}$	2σ	$^{207}\text{Pb}/^{204}\text{Pb}$	2σ	$^{208}\text{Pb}/^{204}\text{Pb}$	2σ	$(^{206}\text{Pb}/^{204}\text{Pb})_i$	$(^{207}\text{Pb}/^{204}\text{Pb})_i$	$(^{208}\text{Pb}/^{204}\text{Pb})_i$
A-H5-2	Garnet-muscovite granite	18.707	0.001	15.687	0.001	39.180	0.003	18.687	15.686	39.167
A-H5-3		18.732	0.002	15.687	0.002	39.188	0.004	18.717	15.686	39.177
A-H5-4		18.779	0.004	15.680	0.004	39.164	0.01	18.757	15.679	39.159
A-H1-1	Biotite-muscovite granite	18.713	0.003	15.705	0.003	39.248	0.006	18.706	15.705	39.230
A-H1-2		18.692	0.001	15.689	0.001	39.199	0.004	18.687	15.689	39.181
A-H1-3		18.704	0.003	15.69	0.003	39.197	0.007	18.699	15.690	39.180
A-H2-2		18.672	0.004	15.682	0.003	39.157	0.008	18.665	15.682	39.135
A-H2-3		18.682	0.002	15.673	0.001	39.136	0.004	18.676	15.673	39.116
A-H2-4		18.691	0.002	15.684	0.002	39.171	0.005	18.684	15.684	39.149
A-H3-1		18.713	0.003	15.697	0.003	39.243	0.006	18.704	15.697	39.221
A-H3-3		18.700	0.003	15.692	0.003	39.213	0.009	18.696	15.692	39.191
A-H3-4		18.704	0.003	15.698	0.002	39.240	0.005	18.699	15.698	39.217
A-H4-1		18.698	0.003	15.694	0.002	39.215	0.006	18.694	15.694	39.192
A-H4-2		18.725	0.003	15.705	0.003	39.261	0.008	18.715	15.705	39.236
A-H4-3		18.701	0.002	15.695	0.002	39.221	0.005	18.697	15.695	39.199

Supplementary Table S5. Zircon in situ Lu-Hf isotopic compositions of the Anglonggangri biotite-muscovite granite.

Sample no.	$^{176}\text{Yb}/^{177}\text{Hf}$	2σ	$^{176}\text{Lu}/^{177}\text{Hf}$	2σ	$^{176}\text{Hf}/^{177}\text{Hf}$	2σ	$^{176}\text{Hf}/^{177}\text{Hf}_i$	$\varepsilon_{\text{Hf}}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
A-N1											
03	0.029474	0.001200	0.000741	0.000033	0.282760	0.000024	0.2827599	-0.2	692	1107	-0.98
04	0.016844	0.000696	0.000441	0.000023	0.282710	0.000015	0.2827098	-2.0	757	1221	-0.99
05	0.031429	0.000600	0.000749	0.000014	0.282670	0.000019	0.2826702	-3.4	818	1310	-0.98
06	0.055758	0.000628	0.001362	0.000021	0.282700	0.000023	0.2827002	-2.3	789	1242	-0.96
07	0.021403	0.000283	0.000524	0.000013	0.282767	0.000033	0.2827669	0.1	679	1092	-0.98
08	0.022707	0.001003	0.000540	0.000022	0.282652	0.000018	0.2826515	-4.0	840	1352	-0.98
09	0.061795	0.001427	0.001362	0.000028	0.282701	0.000016	0.2827008	-2.3	788	1241	-0.96
11	0.031000	0.000370	0.000765	0.000010	0.282591	0.000017	0.2825912	-6.1	929	1488	-0.98
12	0.016740	0.000732	0.000426	0.000019	0.282642	0.000022	0.2826424	-4.3	850	1373	-0.99
14	0.038605	0.000991	0.000951	0.000025	0.282679	0.000020	0.2826793	-3.0	810	1289	-0.97
16	0.029420	0.000693	0.000671	0.000015	0.282701	0.000016	0.2827012	-2.3	773	1240	-0.98
17	0.024770	0.000703	0.000590	0.000015	0.282736	0.000019	0.2827361	-1.0	723	1161	-0.98
19	0.077464	0.000451	0.001752	0.000010	0.282598	0.000020	0.2825978	-5.9	944	1473	-0.95
20	0.039771	0.000733	0.000940	0.000018	0.282799	0.000024	0.2827987	1.2	641	1020	-0.97
21	0.024920	0.000436	0.000636	0.000011	0.282641	0.000019	0.2826413	-4.4	856	1375	-0.98
A-N2											
01	0.023879	0.000342	0.000567	0.000009	0.282693	0.000016	0.2826927	-2.6	783	1260	-0.98
03	0.024814	0.000437	0.000646	0.000018	0.282739	0.000021	0.2827389	-0.9	720	1155	-0.98
04	0.028748	0.000336	0.000754	0.000013	0.282703	0.000017	0.2827027	-2.2	773	1237	-0.98
08	0.016444	0.000322	0.000348	0.000011	0.282592	0.000028	0.2825920	-6.1	918	1486	-0.99
09	0.021875	0.001152	0.000519	0.000030	0.282694	0.000026	0.2826939	-2.5	780	1257	-0.98
11	0.033232	0.000164	0.000885	0.000014	0.282862	0.000024	0.2828614	3.4	552	878	-0.97
12	0.024725	0.000932	0.000595	0.000021	0.282808	0.000025	0.2828081	1.5	622	999	-0.98

14	0.043941	0.003339	0.001158	0.000086	0.282877	0.000029	0.2828772	4.0	533	842	-0.97
15	0.051631	0.002307	0.001137	0.000052	0.282715	0.000014	0.2827149	-1.8	763	1209	-0.97
16	0.022425	0.002058	0.000535	0.000051	0.282891	0.000028	0.2828912	4.4	505	811	-0.98
17	0.024383	0.000207	0.000591	0.000005	0.282801	0.000028	0.2828012	1.3	632	1014	-0.98
18	0.051399	0.001133	0.001145	0.000018	0.282636	0.000014	0.2826359	-4.6	875	1387	-0.97
19	0.028733	0.000287	0.000680	0.000014	0.282696	0.000021	0.2826956	-2.5	781	1253	-0.98
20	0.052270	0.002196	0.001168	0.000046	0.282600	0.000020	0.2825995	-5.9	927	1469	-0.96
21	0.022079	0.000237	0.000513	0.000002	0.282757	0.000020	0.2827566	-0.3	693	1115	-0.98
A-N3											
01	0.019474	0.000375	0.000514	0.000013	0.282762	0.000025	0.2827617	-0.1	686	1104	-0.98
02	0.034893	0.000248	0.000871	0.000005	0.282710	0.000013	0.2827102	-2.0	765	1220	-0.97
04	0.031731	0.000690	0.000727	0.000017	0.282828	0.000017	0.2828276	2.2	597	955	-0.98
05	0.049314	0.000182	0.001215	0.000008	0.282591	0.000018	0.2825903	-6.2	942	1490	-0.96
06	0.026550	0.000177	0.000619	0.000004	0.282677	0.000015	0.2826765	-3.1	807	1296	-0.98
08	0.028377	0.000442	0.000665	0.000008	0.282736	0.000016	0.2827354	-1.1	725	1163	-0.98
11	0.063471	0.001614	0.001320	0.000042	0.282639	0.000014	0.2826383	-4.5	876	1382	-0.96
12	0.029181	0.000777	0.000672	0.000017	0.282746	0.000018	0.2827461	-0.7	710	1139	-0.98
14	0.053203	0.001456	0.001265	0.000027	0.282494	0.000014	0.2824935	-9.6	1080	1707	-0.96
15	0.053525	0.000880	0.001198	0.000019	0.282656	0.000018	0.2826561	-3.9	848	1342	-0.96
17	0.038683	0.000971	0.000894	0.000015	0.282711	0.000016	0.2827107	-1.9	764	1219	-0.97
18	0.017497	0.000239	0.000382	0.000004	0.282636	0.000016	0.2826359	-4.6	858	1388	-0.99
19	0.016571	0.000161	0.000391	0.000004	0.282696	0.000021	0.2826960	-2.5	775	1252	-0.99
20	0.072609	0.001339	0.001631	0.000049	0.282708	0.000016	0.2827072	-2.1	784	1227	-0.95
22	0.016762	0.000637	0.000397	0.000015	0.282756	0.000016	0.2827558	-0.3	692	1117	-0.99
A-N4											
01	0.039872	0.000321	0.000961	0.000007	0.282610	0.000016	0.2826099	-5.5	908	1446	-0.97

02	0.010583	0.000844	0.000232	0.000019	0.282748	0.000018	0.2827476	-0.6	700	1136	-0.99
04	0.009329	0.000076	0.000227	0.000002	0.282747	0.000022	0.2827471	-0.6	701	1137	-0.99
05	0.019761	0.000288	0.000512	0.000007	0.282746	0.000022	0.2827460	-0.7	708	1139	-0.98
06	0.039179	0.000348	0.000964	0.000008	0.282588	0.000017	0.2825873	-6.3	940	1497	-0.97
10	0.012820	0.000260	0.000303	0.000006	0.282711	0.000019	0.2827107	-1.9	753	1219	-0.99
11	0.032515	0.000321	0.000811	0.000013	0.282704	0.000021	0.2827034	-2.2	773	1235	-0.98
12	0.050963	0.001585	0.001267	0.000058	0.282641	0.000018	0.2826409	-4.4	871	1376	-0.96
13	0.015073	0.000094	0.000385	0.000004	0.282714	0.000019	0.2827142	-1.8	750	1211	-0.99
14	0.040642	0.000306	0.001077	0.000015	0.282616	0.000017	0.2826156	-5.3	902	1433	-0.97
15	0.019859	0.000250	0.000471	0.000006	0.282728	0.000018	0.2827280	-1.3	732	1180	-0.99
17	0.022866	0.000318	0.000534	0.000009	0.282718	0.000018	0.2827183	-1.7	747	1202	-0.98
19	0.035856	0.000272	0.000912	0.000010	0.282692	0.000020	0.2826914	-2.6	792	1262	-0.97
20	0.033672	0.001333	0.000818	0.000035	0.282677	0.000019	0.2826768	-3.1	810	1295	-0.98
21	0.020003	0.000415	0.000456	0.000009	0.282743	0.000020	0.2827434	-0.8	710	1145	-0.99

Supplementary Table S6. Partition coefficients and assumed magma source compositions used in geochemical modeling

Partition coefficient	D _{Sr}	D _Y		
Grt(15%)+Amp(75%)+Pl(10%)	0.45875	9.76		
Assumed magma source sample	KG-03-A	KG-03-B	KH97-113	KG-04
Sr contents of the assumed magma source sample	265.0	286.9	255.2	202.9
Sr contents of the assumed magma source sample	12.3	15.12	15.62	22.05

Grt = garnet, Amp = amphibole, Pl = plagioclase.

D values for mineral are sourced from [Rollinson \(1993\)](#).

Compositions of the assumed magma source sample are sourced from [Garrido et al. \(2006\)](#).

References

- Garrido, C.J., Bodinier, J.L., Burg, J.P., Zeilinger, G., Hussain, S.S., Dawood, H., Chaudhry, M.N., Gervilla, F., 2006, Petrogenesis of mafic garnet granulite in the lower crust of the Kohistan Paleo-arc complex (Northern Pakistan): Implications for intra-crustal differentiation of island arcs and generation of continental crust: *Journal of Petrology*, v. 47, p. 1873-1914, <https://doi.org/10.1093/petrology/egl030>.
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Supplementary Table S7. Partition coefficients and assumed compositions used in geochemical modeling and the calculated results.

	Mineral/melt partition coefficients K_D				Compositions used in modeling			Calculated results		
	Plagioclase	K-feldspar	Muscovite	Biotite	CL (ppm)	CR (ppm)	Co (ppm)	Fd	Cs (ppm)	ftap
Sr	6.5	6	0.05	0.04	24.1	279.7	203.02	0.47	360.25	0.24
Ba	0.5	20	3	6	30.7	597.6	427.53	0.48	798.39	0.26
Fractionating modes	40%	20%	6%	4%						

Partition coefficients for micas were sourced from [Icenhower and London \(1995\)](#) and partition coefficients for feldspars were sourced from [Michael \(1984\)](#). The detailed calculating process can be found in [Liu et al \(2019\)](#).

References

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