

Table S3 Raw data for $^{40}\text{Ar}/^{39}\text{Ar}$ dating result of DRA-1

DRA-1,Sandine,No.D19J=0.0059075±0.00000059

Step	Laserpower	$^{36}\text{Ar}_{\text{air}}$	$^{37}\text{Ar}_{\text{Ca}}$	$^{38}\text{Ar}_{\text{Cl}}$	$^{39}\text{Ar}_{\text{K}}$	$^{40}\text{Ar}^*$	Age	±2s	$^{40}\text{Ar}^*$	$^{39}\text{Ar}_{\text{K}}$	K/Ca	±2s	Ratioanderrorforinverseisochron				
													(Ma)	(%)	(%)	$^{39}\text{Ar}/^{40}\text{Ar}$	±2s
1	4.0%		0.515	5.506	0.255	10.932	257.885	24.965	±6.38	62.64	0.50	0.85	±2.34	0.0265659	±0.0065060	0.0012504	±0.0001611
2	6.0%	Δ	0.444	11.162	0.998	75.890	1803.868	25.155	±0.90	93.10	3.50	2.92	±4.33	0.0391899	±0.0013888	0.0002294	±0.0000229
3	7.5%	Δ	0.830	15.988	2.740	216.735	5137.618	25.086	±0.34	95.34	9.99	5.83	±5.60	0.0402453	±0.0005101	0.0001541	±0.0000143
4	8.5%	Δ	0.700	9.801	2.838	238.868	5650.720	25.036	±0.29	96.37	11.01	10.48	±19.00	0.0407638	±0.0004694	0.0001195	±0.0000082
5	9.5%	Δ	0.322	19.062	2.111	190.046	4503.116	25.076	±0.36	97.85	8.76	4.29	±4.22	0.0413205	±0.0005952	0.0000701	±0.0000081
6	10.3%	Δ	0.207	26.431	1.928	150.212	3562.561	25.099	±0.45	98.24	6.92	2.44	±1.44	0.0414466	±0.0007466	0.0000570	±0.0000065
7	11.1%	Δ	0.100	18.771	1.080	84.413	1999.187	25.064	±0.81	98.46	3.89	1.93	±1.25	0.0415992	±0.0013299	0.00004952	±0.00001897
8	12.0%	Δ	0.181	18.674	1.572	124.246	2948.414	25.114	±0.55	98.14	5.73	2.86	±1.82	0.0413823	±0.0008986	0.00006021	±0.00001316
9	12.8%	Δ	0.219	0.000	0.920	104.121	2490.507	25.312	±0.66	97.38	4.80	3.70	±4.93	0.0407367	±0.0010511	0.00008577	±0.00001408
10	13.6%	Δ	0.188	6.464	0.978	79.920	1899.017	25.146	±0.86	97.07	3.68	5.32	±13.37	0.0408755	±0.0013852	0.00009626	±0.00001889
11	14.5%	Δ	0.235	18.057	0.953	62.108	1477.449	25.175	±1.11	95.41	2.86	1.48	±1.34	0.0401295	±0.0017404	0.00015199	±0.00003245
12	15.5%	Δ	0.123	5.759	0.952	77.350	1828.287	25.015	±0.88	97.97	3.57	5.78	±14.64	0.0414742	±0.0014454	0.00006595	±0.00001766
13	17.0%	Δ	0.093	14.070	1.127	92.004	2186.207	25.147	±0.74	98.69	4.24	2.81	±2.42	0.0415565	±0.0012192	0.00004198	±0.00001329
14	18.5%	Δ	0.178	0.000	1.084	88.863	2106.084	25.082	±0.77	97.48	4.10	5.99	±16.03	0.0411535	±0.0012471	0.00008255	±0.00001913
15	20.0%	Δ	0.208	0.000	1.080	91.253	2163.738	25.093	±0.75	97.15	4.21	8.50	±18.55	0.0409987	±0.0012073	0.00009334	±0.00002306
16	22.0%	4	0.288	0.000	1.689	134.176	3175.660	25.048	±0.51	97.30	6.19	30.59	±258.11	0.0411371	±0.0008266	0.00008833	±0.00001341
17	25.0%	4	0.509	7.125	2.268	195.019	4623.671	25.091	±0.36	96.76	8.99	11.77	±25.02	0.0408361	±0.0005669	0.00010659	±0.00001052
18	30.0%	Δ	0.331	0.000	1.759	152.972	3632.858	25.133	±0.45	97.29	7.05	22.80	±107.15	0.0409927	±0.0007231	0.00008871	±0.00001250

DRA-1,Sandine,No.E38J=0.0058722±0.00000059

Step	Laserpower	³⁶ Ar _{air}	³⁷ Ar _{Ca}	³⁸ Ar _{Cl}	³⁹ Ar _K	⁴⁰ Ar*	Age (Ma)	±2s	⁴⁰ Ar* (%)	³⁹ Ar _K (%)	K/Ca	±2s	Ratioanderrorforinverseisochron			
													³⁹ Ar/ ⁴⁰ Ar	±2s	³⁶ Ar/ ⁴⁰ Ar	±2s
1	4.0%	0.515	5.506	0.255	10.932	257.885	24.965	±6.38	62.64	0.50	0.85	±2.34	0.0265659	±0.0065060	0.0012504	±0.0001611
2	6.0%	Δ 0.444	11.162	0.998	75.890	1803.868	25.155	±0.90	93.10	3.50	2.92	±4.33	0.0391899	±0.0013888	0.0002294	±0.0000229
3	7.5%	Δ 0.830	15.988	2.740	216.735	5137.618	25.086	±0.34	95.34	9.99	5.83	±5.60	0.0402453	±0.0005101	0.0001541	±0.0000143
4	8.5%	Δ 0.700	9.801	2.838	238.868	5650.720	25.036	±0.29	96.37	11.01	10.48	±19.00	0.0407638	±0.0004694	0.0001195	±0.0000082
5	9.5%	Δ 0.322	19.062	2.111	190.046	4503.116	25.076	±0.36	97.85	8.76	4.29	±4.22	0.0413205	±0.0005952	0.0000701	±0.0000081
6	10.3%	Δ 0.207	26.431	1.928	150.212	3562.561	25.099	±0.45	98.24	6.92	2.44	±1.44	0.0414466	±0.0007466	0.0000570	±0.0000065
7	11.1%	Δ 0.100	18.771	1.080	84.413	1999.187	25.064	±0.81	98.46	3.89	1.93	±1.25	0.0415992	±0.0013299	0.0000495	±0.0000190
8	12.0%	Δ 0.181	18.674	1.572	124.246	2948.414	25.114	±0.55	98.14	5.73	2.86	±1.82	0.0413823	±0.0008986	0.0000602	±0.0000132
9	12.8%	Δ 0.219	0.000	0.920	104.121	2490.507	25.312	±0.66	97.38	4.80	3.70	±4.93	0.0407367	±0.0010511	0.00008577	±0.00001408
10	13.6%	Δ 0.188	6.464	0.978	79.920	1899.017	25.146	±0.86	97.07	3.68	5.32	±13.37	0.0408755	±0.0013852	0.00009626	±0.00001889
11	14.5%	Δ 0.235	18.057	0.953	62.108	1477.449	25.175	±1.11	95.41	2.86	1.48	±1.34	0.0401295	±0.0017404	0.00015199	±0.00003245
12	15.5%	Δ 0.123	5.759	0.952	77.350	1828.287	25.015	±0.88	97.97	3.57	5.78	±14.64	0.0414742	±0.0014454	0.00006595	±0.00001766
13	17.0%	Δ 0.093	14.070	1.127	92.004	2186.207	25.147	±0.74	98.69	4.24	2.81	±2.42	0.0415565	±0.0012192	0.00004198	±0.00001329
14	18.5%	Δ 0.178	0.000	1.084	88.863	2106.084	25.082	±0.77	97.48	4.10	5.99	±16.03	0.0411535	±0.0012471	0.00008255	±0.00001913
15	20.0%	Δ 0.208	0.000	1.080	91.253	2163.738	25.093	±0.75	97.15	4.21	8.50	±18.55	0.0409987	±0.0012073	0.00009334	±0.00002306
16	22.0%	Δ 0.288	0.000	1.689	134.176	3175.660	25.048	±0.51	97.30	6.19	30.59	±258.11	0.0411371	±0.0008266	0.00008833	±0.00001341
17	25.0%	Δ 0.509	7.125	2.268	195.019	4623.671	25.091	±0.36	96.76	8.99	11.77	±25.02	0.0408361	±0.0005669	0.00010659	±0.00001052
18	30.0%	Δ 0.331	0.000	1.759	152.972	3632.858	25.133	±0.45	97.29	7.05	22.80	±107.15	0.0409927	±0.0007231	0.00008871	±0.00001250

DRA-1,Sandine,No.E51J=0.0058072±0.00000058

Step	Laserpower	³⁶ Ar _{air}	³⁷ Ar _{Ca}	³⁸ Ar _{Cl}	³⁹ Ar _K	⁴⁰ Ar*	Age (Ma)	±2s	⁴⁰ Ar* (%)	³⁹ Ar _K (%)	K/Ca	±2s	Ratioanderrorforinverseisochron			
													³⁹ Ar/ ⁴⁰ Ar	±2s	³⁶ Ar/ ⁴⁰ Ar	±2s
1	3.5%	6.713	9.842	0.074	8.526	266.846	32.515	±18.99	11.75	0.27	0.37	±1.38	0.0037539	±0.0020679	0.0029559	±0.0000798
2	6.0%	Δ 4.548	23.244	2.623	209.316	5063.711	25.183	±0.61	78.82	6.60	3.87	±5.36	0.0325959	±0.0007602	0.0007082	±0.0000192
3	7.0%	Δ 2.137	0.000	3.888	303.947	7323.607	25.083	±0.42	91.93	9.59	14.07	±56.86	0.0381762	±0.0006357	0.0002684	±0.0000093
4	8.0%	Δ 2.939	22.437	6.988	538.623	12940.287	25.010	±0.27	93.60	16.99	10.32	±13.55	0.0389804	±0.0004141	0.0002127	±0.0000066
5	8.5%	Δ 2.126	0.000	5.717	441.591	10604.770	25.000	±0.31	94.30	13.93	18.18	±66.53	0.0392896	±0.0004817	0.0001891	±0.00000667
6	9.0%	Δ 3.309	0.000	5.186	415.172	9945.016	24.937	±0.33	90.91	13.09	12.25	±29.32	0.0379745	±0.0004888	0.00030265	±0.00000950
7	9.5%	Δ 7.984	0.000	4.708	379.839	9208.505	25.236	±0.39	79.40	11.98	12.25	±29.32	0.0327668	±0.0004517	0.00068874	±0.00001793
8	10.5%	Δ 0.948	3.904	1.848	152.343	3740.928	25.559	±0.81	92.92	4.80	16.78	±143.47	0.0378597	±0.0011941	0.00023552	±0.00001500
9	12.0%	Δ 1.486	0.000	1.654	139.083	3408.349	25.507	±0.88	88.44	4.39	19.52	±220.94	0.0361074	±0.0012440	0.00038571	±0.00001582
10	13.5%	Δ 1.504	13.541	2.697	205.398	4979.323	25.235	±0.60	91.68	6.48	6.52	±13.42	0.0378385	±0.0008987	0.00027702	±0.00001099
11	14.2%	Δ 0.500	7.446	0.945	76.191	1866.932	25.505	±1.59	92.55	2.40	4.40	±17.62	0.0377903	±0.0023505	0.00024791	±0.00002454
12	18.5%	Δ 1.277	15.398	1.259	103.721	2538.352	25.473	±1.17	86.89	3.27	2.90	±6.61	0.0355240	±0.0016285	0.00043752	±0.00001974
13	21.0%	Δ 1.278	2.161	2.570	196.974	4790.339	25.315	±0.63	92.57	6.21	39.20	±580.59	0.0380858	±0.0009408	0.00024708	±0.00001060

DRA-1,Sandine,No.F40J=0.0057374±0.00000057

Step	Laserpower	³⁶ Ar _{air}	³⁷ Ar _{Ca}	³⁸ Ar _{Cl}	³⁹ Ar _K	⁴⁰ Ar*	Age	±2s	⁴⁰ Ar*	³⁹ Ar _K	K/Ca	±2s	Ratioanderrorforinverseisochron			
													³⁹ Ar/ ⁴⁰ Ar	±2s	³⁶ Ar/ ⁴⁰ Ar	±2s
1	4.0%	0.407	11.448	0.185	4.237	115.436	27.98	±5.16	48.70	0.30	0.16	±0.30	0.0178787	0.0014629	0.00171796	±0.00027145
2	6.0%	Δ 0.289	1.960	0.618	42.858	1041.771	24.98	±0.53	92.29	3.04	9.40	±92.70	0.0379885	0.0003521	0.00025657	±0.00005953
3	7.5%	Δ 0.730	3.080	2.400	174.504	4241.430	24.98	±0.16	95.06	12.38	24.36	±144.43	0.0391312	0.0001306	0.00016376	±0.00001774
4	8.5%	Δ 0.677	1.890	2.194	174.100	4220.960	24.92	±0.14	95.37	12.35	39.61	±424.93	0.0393606	0.0001240	0.00015315	±0.00001570
5	9.5%	Δ 0.334	3.269	1.630	120.586	2925.469	24.94	±0.16	96.64	8.55	15.86	±99.36	0.0398594	±0.0001612	0.00011050	±0.00001570
6	10.3%	Δ 0.267	17.327	1.800	125.578	3049.232	24.96	±0.17	97.39	8.91	3.12	±4.28	0.0401329	±0.0001531	0.00008545	±0.00001869
7	11.1%	Δ 0.120	0.000	1.431	103.303	2512.858	25.00	±0.19	98.54	7.33	9.65	±42.09	0.0405334	±0.0001865	0.00004697	±0.00002092
8	12.0%	Δ 0.282	5.601	1.242	98.944	2396.359	24.89	±0.20	96.55	7.02	7.60	±27.90	0.0398880	±0.0001738	0.00011367	±0.00002206
9	12.8%	Δ 0.142	0.000	1.218	81.045	1979.452	25.10	±0.24	97.85	5.75	5.25	±17.51	0.0400857	±0.0002328	0.00007016	±0.00002571
10	13.6%	Δ 0.134	3.992	1.035	63.340	1539.722	24.99	±0.30	97.41	4.49	6.82	±34.98	0.0400941	±0.0002455	0.00008491	±0.00003459
11	14.5%	Δ 0.110	3.480	0.185	33.795	832.186	25.31	±0.49	96.16	2.40	4.18	±23.34	0.0390710	±0.0004074	0.00012690	±0.00005271
12	15.5%	Δ 0.051	15.828	0.574	41.325	1003.701	24.96	±0.42	98.44	2.93	1.12	±1.48	0.0405553	±0.0003788	0.00005023	±0.00004699
13	17.0%	Δ 0.100	9.252	1.204	76.215	1851.828	24.97	±0.27	98.36	5.41	3.54	±7.38	0.0405047	±0.0002326	0.00005307	±0.00002996
14	18.5%	Δ 0.286	9.441	1.471	106.351	2581.813	24.95	±0.22	96.74	7.54	4.84	±12.17	0.0398726	±0.0001874	0.00010732	±0.00002418
15	20.0%	Δ 0.088	7.017	0.554	28.403	684.392	24.77	±0.68	96.25	2.01	1.74	±5.31	0.0399665	±0.0005401	0.00012386	±0.00007755
16	22.0%	Δ 0.150	11.581	0.877	57.003	1392.524	25.11	±0.32	96.83	4.04	2.12	±3.53	0.0396602	±0.0002697	0.00010432	±0.00003560
17	25.0%	Δ 0.118	11.891	0.833	47.577	1171.562	25.31	±0.39	97.04	3.37	1.72	±2.96	0.0394286	±0.0002905	0.00009740	±0.00004387
18	30.0%	Δ 0.152	12.541	0.393	30.802	753.445	25.14	±0.65	94.27	2.18	1.06	±1.59	0.0385595	±0.0004587	0.00019022	±0.00007240