

Table S1 Primers for KASP

Rs. No	Sequence (5'-3')
rs1544410 F1	GAAGGTGACCAAGTTCATGCTAGCAGAGCCTGAGTATTGGGAATGC
rs1544410 F2	GAAGGTCGGAGTCAACGGATTAGCAGAGCCTGAGTATTGGGAATGT
rs1544410 R	TAAGCAGGGTTCCTG GGGCCACAGACAGG
rs 1800796 F1	GAAGGTGACCAAGTTCATGCTTGGCCAGGCAGTTCTACAACAGCCG
rs 1800796 F2	GAAGGTCGGAGTCAACGGATTGGCCAGGCAGTTCTACAACAGCCC
rs 1800796 R	ATCTGAGTTCTTCTGTGTTCTGGCTCTCC
rs3917924 F1	GAAGGTGACCAAGTTCATGCTAAGAGCCATGTAGAACA CTTCTCAG
rs3917924 F2	GAAGGTCGGAGTCAACGGATT AAGAGCCATGTAGAACA CTTCTCAA
rs3917924 R	CATCCAAGGGATAAATTGACCCTCCAGTG

Table S2: Integrity Analysis for DNA Quality Check

No	ID	Type	260nm	280nm	230nm	260/280	260/230	C:ng/uL	quality check
1	D1	DNA-50	1.59	0.89	0.76	1.78	2.09	79.69	acceptable
2	D2	DNA-50	1.63	0.93	0.88	1.76	1.85	81.60	acceptable
3	D3	DNA-50	5.86	3.26	2.61	1.80	2.25	292.93	acceptable
4	D4	DNA-50	2.11	1.24	1.01	1.71	2.10	105.72	acceptable
5	D5	DNA-50	5.14	3.07	3.38	1.67	1.52	256.80	acceptable
6	D6	DNA-50	5.80	3.22	2.55	1.80	2.28	290.14	acceptable
7	B1	DNA-50	2.00	1.12	0.93	1.78	2.14	99.77	acceptable
8	B2	DNA-50	9.01	5.03	4.01	1.79	2.25	450.68	acceptable
9	B3	DNA-50	13.92	7.68	8.70	1.81	1.60	695.88	acceptable
10	B4	DNA-50	8.00	4.72	5.06	1.69	1.58	400.01	acceptable
11	B5	DNA-50	3.72	2.14	1.83	1.74	2.04	186.25	acceptable
12	B6	DNA-50	1.51	0.91	0.82	1.66	1.85	75.53	acceptable
13	B7	DNA-50	14.65	8.47	8.05	1.73	1.82	732.59	acceptable
14	B8	DNA-50	1.39	0.78	0.76	1.79	1.83	69.57	acceptable
15	B9	DNA-50	1.13	0.63	0.55	1.80	2.05	56.29	acceptable
16	B10	DNA-50	1.57	0.79	0.75	1.98	2.09	78.61	acceptable
17	B11	DNA-50	6.80	3.93	3.40	1.73	2.00	340.18	acceptable
18	B12	DNA-50	5.79	3.27	3.32	1.77	1.74	289.60	acceptable
19	B13	DNA-50	0.86	0.47	0.46	1.83	1.87	43.16	acceptable
20	B14	DNA-50	8.56	4.96	5.71	1.73	1.50	427.97	acceptable
21	B15	DNA-50	7.83	4.42	4.12	1.77	1.90	391.29	acceptable
22	B16	DNA-50	10.22	5.83	5.87	1.75	1.74	510.85	acceptable
23	B17	DNA-50	8.77	4.95	4.53	1.77	1.94	438.44	acceptable
24	B18	DNA-50	14.36	7.89	6.84	1.82	2.10	718.23	acceptable
25	B19	DNA-50	13.37	7.31	7.37	1.83	1.81	668.40	acceptable
26	B20	DNA-50	11.41	6.59	7.55	1.73	1.51	570.64	acceptable
27	B21	DNA-50	1.33	0.76	0.70	1.76	1.92	66.71	acceptable
28	B22	DNA-50	1.05	0.56	0.56	1.86	1.87	52.59	acceptable
29	B23	DNA-50	3.75	2.05	2.08	1.83	1.80	187.58	acceptable

30	B24	DNA-50	3.74	2.14	2.07	1.75	1.81	186.96	acceptable
31	B25	DNA-50	5.40	3.21	2.73	1.68	1.98	270.03	acceptable
32	B26	DNA-50	2.14	1.27	1.04	1.69	2.06	107.17	acceptable
33	B27	DNA-50	6.80	3.86	3.66	1.76	1.86	339.99	acceptable
34	B28	DNA-50	3.12	1.82	1.45	1.71	2.16	155.84	acceptable
35	B29	DNA-50	5.85	3.35	3.51	1.75	1.67	292.48	acceptable
36	B30	DNA-50	8.02	4.56	4.63	1.76	1.73	400.83	acceptable
37	B31	DNA-50	5.73	3.26	3.31	1.76	1.73	286.57	acceptable
38	B32	DNA-50	0.98	0.54	0.49	1.79	1.99	48.82	acceptable
39	B33	DNA-50	1.38	0.82	0.65	1.68	2.11	69.07	acceptable
40	B34	DNA-50	8.12	4.63	4.48	1.75	1.81	405.84	acceptable
41	B35	DNA-50	4.25	2.44	2.70	1.74	1.57	212.51	acceptable
42	B36	DNA-50	7.01	3.96	3.74	1.77	1.88	350.68	acceptable
43	B37	DNA-50	1.60	0.89	0.80	1.79	2.00	80.08	acceptable
44	B38	DNA-50	5.00	2.93	2.61	1.71	1.91	250.03	acceptable
45	B39	DNA-50	6.18	3.33	3.20	1.86	1.93	309.11	acceptable
46	B40	DNA-50	4.79	2.74	2.88	1.75	1.66	239.29	acceptable
47	B41	DNA-50	5.04	2.99	2.32	1.69	2.18	252.24	acceptable
48	B42	DNA-50	11.74	6.83	5.80	1.72	2.03	587.10	acceptable
49	B43	DNA-50	1.05	0.57	0.51	1.83	2.06	52.34	acceptable
50	B44	DNA-50	5.86	3.32	3.10	1.76	1.89	292.99	acceptable
51	B45	DNA-50	15.74	8.81	7.33	1.79	2.15	786.75	acceptable
52	E3	DNA-50	13.81	8.30	9.07	1.66	1.52	690.46	acceptable
53	C1	DNA-50	4.39	2.52	2.47	1.74	1.78	219.67	acceptable
54	C2	DNA-50	0.91	0.54	0.53	1.69	1.72	45.27	acceptable
55	C3	DNA-50	1.34	0.80	0.65	1.68	2.06	67.21	acceptable
56	C4	DNA-50	1.03	0.61	0.53	1.69	1.94	51.74	acceptable
57	C5	DNA-50	1.11	0.60	0.59	1.86	1.90	55.71	acceptable
58	C6	DNA-50	1.33	0.78	0.70	1.70	1.92	66.68	acceptable
59	C7	DNA-50	5.55	3.21	2.83	1.73	1.96	277.36	acceptable
60	C8	DNA-50	6.82	3.94	3.47	1.73	1.96	340.88	acceptable
61	C9	DNA-50	0.67	0.38	0.36	1.78	1.87	33.66	acceptable
62	C10	DNA-50	6.51	3.74	3.94	1.74	1.65	325.50	acceptable
63	C11	DNA-50	7.70	4.40	3.98	1.75	1.93	385.17	acceptable
64	C12	DNA-50	3.67	2.16	2.01	1.70	1.82	183.67	acceptable
65	C13	DNA-50	7.34	4.42	4.43	1.66	1.66	366.91	acceptable
66	C14	DNA-50	6.86	4.00	3.64	1.71	1.89	343.09	acceptable
67	C15	DNA-50	3.03	1.76	1.38	1.72	2.19	151.46	acceptable
68	C16	DNA-50	9.48	5.45	5.34	1.74	1.78	474.18	acceptable
69	C17	DNA-50	14.31	8.11	7.90	1.76	1.81	715.43	acceptable
70	C18	DNA-50	3.79	2.21	1.75	1.72	2.17	189.65	acceptable
71	C19	DNA-50	6.60	3.82	4.09	1.73	1.61	329.89	acceptable
72	E4	DNA-50	1.53	0.82	0.74	1.85	2.06	76.27	acceptable
73	1	DNA-50	8.72	5.10	4.22	1.71	2.07	436.10	acceptable
74	2	DNA-50	9.08	5.11	4.18	1.78	2.17	454.06	acceptable
75	3	DNA-50	3.20	1.86	2.06	1.72	1.55	159.88	acceptable
76	4	DNA-50	1.76	0.97	0.86	1.82	2.04	87.98	acceptable
77	5	DNA-50	2.85	1.66	1.74	1.72	1.64	142.68	acceptable
78	6	DNA-50	3.23	1.87	1.89	1.72	1.71	161.62	acceptable

79	7	DNA-50	4.72	2.77	2.29	1.71	2.06	236.13	acceptable
80	8	DNA-50	3.64	2.16	1.78	1.69	2.05	182.17	acceptable
81	9	DNA-50	1.80	1.00	0.88	1.80	2.05	89.83	acceptable
82	10	DNA-50	2.03	1.21	1.07	1.68	1.89	101.30	acceptable
83	11	DNA-50	7.00	4.11	3.43	1.70	2.04	349.86	acceptable
84	12	DNA-50	11.39	6.53	5.57	1.75	2.05	569.69	acceptable
85	13	DNA-50	13.03	7.27	6.36	1.79	2.05	651.33	acceptable
86	14	DNA-50	2.40	1.42	1.21	1.69	1.98	120.09	acceptable
87	15	DNA-50	7.77	4.58	5.07	1.70	1.53	388.70	acceptable
88	16	DNA-50	9.31	5.31	5.25	1.75	1.77	465.61	acceptable
89	17	DNA-50	1.37	0.79	0.66	1.74	2.08	68.38	acceptable
90	18	DNA-50	3.25	1.87	1.61	1.73	2.02	162.26	acceptable
91	19	DNA-50	5.96	3.22	3.24	1.85	1.84	298.05	acceptable
92	20	DNA-50	2.05	1.21	1.07	1.70	1.92	102.65	acceptable
93	21	DNA-50	3.05	1.79	1.39	1.70	2.20	152.37	acceptable
94	22	DNA-50	12.43	7.00	8.21	1.78	1.51	621.72	acceptable
95	23	DNA-50	2.03	1.21	1.09	1.68	1.87	101.60	acceptable
96	24	DNA-50	5.01	2.89	2.49	1.73	2.01	250.37	acceptable
97	25	DNA-50	4.33	2.47	2.56	1.75	1.69	216.51	acceptable
98	26	DNA-50	6.25	3.55	3.28	1.76	1.91	312.75	acceptable
99	27	DNA-50	1.27	0.74	0.65	1.71	1.95	63.61	acceptable
100	28	DNA-50	2.12	1.25	1.07	1.69	1.97	105.98	acceptable
101	29	DNA-50	8.51	4.80	4.51	1.77	1.89	425.28	acceptable
102	30	DNA-50	19.06	10.62	10.38	1.79	1.84	952.98	acceptable
103	31	DNA-50	2.42	1.44	1.20	1.69	2.02	121.18	acceptable
104	32	DNA-50	1.51	0.82	0.81	1.83	1.86	75.52	acceptable
105	33	DNA-50	1.56	0.87	0.72	1.79	2.16	77.96	acceptable
106	34	DNA-50	7.95	4.50	4.20	1.77	1.89	397.39	acceptable
107	35	DNA-50	5.57	3.17	3.43	1.76	1.62	278.63	acceptable
108	36	DNA-50	9.17	5.22	5.39	1.76	1.70	458.57	acceptable
109	37	DNA-50	5.90	3.40	3.18	1.74	1.85	295.11	acceptable
110	38	DNA-50	2.19	1.22	1.22	1.80	1.80	109.65	acceptable
111	39	DNA-50	2.14	1.25	1.31	1.71	1.64	106.85	acceptable
112	40	DNA-50	7.43	4.17	3.39	1.78	2.19	371.49	acceptable
113	41	DNA-50	3.49	1.99	1.83	1.75	1.91	174.37	acceptable
114	42	DNA-50	2.17	1.26	1.23	1.71	1.77	108.30	acceptable
115	43	DNA-50	5.64	3.18	2.56	1.77	2.20	281.98	acceptable
116	44	DNA-50	6.32	3.55	2.88	1.78	2.20	316.11	acceptable
117	45	DNA-50	7.95	4.47	3.72	1.78	2.14	397.70	acceptable
118	46	DNA-50	1.50	0.86	0.88	1.74	1.70	75.03	acceptable
119	47	DNA-50	1.58	0.93	0.89	1.70	1.78	79.19	acceptable
120	48	DNA-50	1.59	0.88	0.80	1.80	1.99	79.67	acceptable
121	49	DNA-50	3.14	1.79	1.47	1.75	2.14	157.07	acceptable
122	50	DNA-50	1.59	0.89	0.76	1.78	2.09	79.69	acceptable
123	51	DNA-50	1.63	0.93	0.88	1.76	1.85	81.60	acceptable
124	52	DNA-50	5.86	3.26	2.61	1.80	2.25	292.93	acceptable
125	53	DNA-50	2.11	1.24	1.01	1.71	2.10	105.72	acceptable
126	54	DNA-50	5.14	3.07	3.38	1.67	1.52	256.80	acceptable
127	55	DNA-50	5.80	3.22	2.55	1.80	2.28	290.14	acceptable

128	56	DNA-50	2.00	1.12	0.93	1.78	2.14	99.77	acceptable
129	57	DNA-50	9.01	5.03	4.01	1.79	2.25	450.68	acceptable
130	58	DNA-50	13.92	7.68	8.70	1.81	1.60	695.88	acceptable
131	59	DNA-50	8.00	4.72	5.06	1.69	1.58	400.01	acceptable
132	60	DNA-50	3.72	2.14	1.83	1.74	2.04	186.25	acceptable
133	61	DNA-50	1.51	0.91	0.82	1.66	1.85	75.53	acceptable
134	62	DNA-50	14.65	8.47	8.05	1.73	1.82	732.59	acceptable
135	63	DNA-50	1.39	0.78	0.76	1.79	1.83	69.57	acceptable
136	64	DNA-50	1.13	0.63	0.55	1.80	2.05	56.29	acceptable
137	65	DNA-50	1.57	0.79	0.75	1.98	2.09	78.61	acceptable
138	66	DNA-50	6.80	3.93	3.40	1.73	2.00	340.18	acceptable
139	67	DNA-50	5.79	3.27	3.32	1.77	1.74	289.60	acceptable
140	68	DNA-50	0.86	0.47	0.46	1.83	1.87	43.16	acceptable
141	69	DNA-50	8.56	4.96	5.71	1.73	1.50	427.97	acceptable
142	70	DNA-50	7.83	4.42	4.12	1.77	1.90	391.29	acceptable
143	71	DNA-50	10.22	5.83	5.87	1.75	1.74	510.85	acceptable
144	72	DNA-50	8.77	4.95	4.53	1.77	1.94	438.44	acceptable
145	73	DNA-50	14.36	7.89	6.84	1.82	2.10	718.23	acceptable
146	74	DNA-50	13.37	7.31	7.37	1.83	1.81	668.40	acceptable
147	75	DNA-50	11.41	6.59	7.55	1.73	1.51	570.64	acceptable
148	76	DNA-50	1.33	0.76	0.70	1.76	1.92	66.71	acceptable
149	77	DNA-50	1.05	0.60	0.56	1.76	1.87	52.59	acceptable
150	78	DNA-50	3.75	2.05	2.08	1.83	1.80	187.58	acceptable
151	79	DNA-50	5.13	2.97	3.00	1.73	1.71	256.61	acceptable
152	80	DNA-50	14.21	8.17	7.65	1.74	1.86	710.61	acceptable
153	81	DNA-50	0.97	0.57	0.64	1.69	1.52	48.42	acceptable
154	82	DNA-50	16.40	9.29	8.70	1.77	1.89	820.13	acceptable
155	83	DNA-50	14.39	8.27	8.52	1.74	1.69	719.53	acceptable
156	84	DNA-50	1.34	0.78	0.74	1.73	1.81	67.24	acceptable
157	85	DNA-50	0.89	0.49	0.46	1.80	1.93	44.43	acceptable
158	86	DNA-50	2.47	1.49	1.55	1.66	1.59	123.69	acceptable
159	87	DNA-50	9.46	5.37	5.00	1.76	1.89	472.86	acceptable
160	88	DNA-50	4.50	2.54	2.23	1.77	2.02	224.86	acceptable
161	E1	DNA-50	15.37	8.59	6.86	1.79	2.24	768.32	acceptable
162	E2	DNA-50	3.54	2.04	1.98	1.74	1.79	177.16	acceptable
163	E5	DNA-50	6.16	3.53	3.67	1.75	1.68	308.11	acceptable
164	E6	DNA-50	9.82	5.53	4.31	1.78	2.28	491.13	acceptable
165	E7	DNA-50	11.83	6.74	5.86	1.75	2.02	591.65	acceptable
166	E95	DNA-50	2.74	1.58	1.30	1.74	2.11	136.89	acceptable
167	E96	DNA-50	18.00	10.16	8.18	1.77	2.20	900.09	acceptable
168	E97	DNA-50	3.89	2.22	2.00	1.75	1.94	194.33	acceptable
169	E99	DNA-50	14.58	8.25	7.31	1.77	1.99	728.89	acceptable

Table S3: Sanger Sequencing for Regentyping: Methods and Results

Methods		
Experimental Materials		
Experimental Reagents		
Reagent/Consumable	Manufacturer	Catalog No.
Agarose	Sangon Biotech (Shanghai) Co., Ltd.	A610013-0250
Nucleic Acid Stain	Sangon Biotech (Shanghai) Co., Ltd.	NB6695
M5 HiClear DL2000 DNA Marker	Tsingke Biotech Co., Ltd.	MF025
2×Super Taq PCR Mix	Wuhan Junode Biotechnology Co., Ltd.	4109A
Experimental Instruments		
Primer Name	Sequence (5' to 3')	Fragment Size (bp)
rs3917924-F1	AGCAGCAGATAAGGGACT	352
rs3917924-R1	CCTTTCTTCCAGGGAGTGT	—
rs1800796-F2	AACCTCCTCTAAGTGGGC	302
rs1800796-R2	GCTAGAATTTAGCGTTCC	—
rs1544410-F2	CTCCCTCTTCTCACCTCTAA	349
rs1544410-R2	CCTACTTTGCTGGTTTGC	—
Experimental Procedures		
Primer Sequences		
Primer Name	Sequence (5' to 3')	Fragment Size (bp)
rs3917924-F1	AGCAGCAGATAAGGGACT	352
rs3917924-R1	CCTTTCTTCCAGGGAGTGT	—
rs1800796-F2	AACCTCCTCTAAGTGGGC	302
rs1800796-R2	GCTAGAATTTAGCGTTCC	—
rs1544410-F2	CTCCCTCTTCTCACCTCTAA	349
rs1544410-R2	CCTACTTTGCTGGTTTGC	—

PCR Amplification System

Reagent	Volume (μl)
DNA	2
Forward Primer (10 μM)	1
Reverse Primer (10 μM)	1
2×Super Taq PCR Mix	25
ddH ₂ O	21

PCR Amplification Program

Stage	Temperature	Time	Cycle Number
Pre-denaturation	94°C	3 min	1
Denaturation	94°C	30 s	35
Annealing	59.2°C	30 s	—
Extension	72°C	22 s	—
Final extension	72°C	5 min	1

Results

rs1544410			rs1800796			rs3917924		
ID	sequencing	KASP	ID	sequencing	KASP	ID	sequencing	KASP
4	CC	C C	6	CG	C G	6	GG	G G
18	CT	C T	13	CG	C G	13	GG	G G
28	CC	C C	18	CC	C C	18	GG	G G
31	CT	C T	28	GG	G G	28	GA	G A
32	CT	C T	31	CC	C C	37	AA	A A
36	CC	C C	32	CC	C C	40	AA	A A
			37	GG	G G	42	GA	G A
			40	CG	C G	84	GG	G G
			48	GG	G G	86	GG	G G