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QTL fine mapping for intramuscular fat and fatty acid composition using high-density SNP chip array on SSC12 in Korean native pig × Yorkshire F2 population

SANGWOOK KIM¹, BYEONGHWI LIM¹, KWANSUK KIM², KYOUNGTAG DO¹

¹Department of Animal Biotechnology, Faculty of Biotechnology, Jeju National University, Jeju, Republic of Korea

²Department of Animal Science, Chungbuk National University, Cheongju, Republic of Korea

Supplementary Online Material (SOM)

Table S1. Composition and specifications of the basal diets used in this study

Item (%)	Weaning	Growing	Fattening
Corn	60.03	67.84	70.18
Soybean meal	25.90	24.19	22.85
Fish meal	3.00	2.00	1.00
Animal fat	–	2.50	2.50
Dried milk	7.00	–	–
Dicalcium phosphate	1.50	1.00	1.00
Limestone	0.95	0.95	0.95
Salt	0.40	0.40	0.40
L-Lysine-HCl	0.40	0.30	0.30
DL-Methionine	0.30	0.30	0.30
L-Threonine	0.30	0.30	0.30
Vitamin premix ¹	0.12	0.12	0.12
Mineral premix ²	0.10	0.10	0.10
Total	100.00	100.00	100.00
Chemical composition			
Digestible energy (kcal/kg)	3190	3200	3200
Crude protein (%)	15.60	14.21	13.44
Lysine (%)	1.05	1.00	0.95
Methionine (%)	0.38	0.35	0.30
Threonine (%)	0.77	0.71	0.65
Calcium (%)	0.70	0.70	0.65
Phosphorus (%)	1.50	1.50	1.50

¹supplied per kg diet: 6000 IU vitamin A, 1000 IU vitamin D₃, 300 IU vitamin E, 2.5 mg vitamin K₃, 2 mg vitamin B₁, 3 mg vitamin B₂, 2.5 mg vitamin B₆, 20 µg vitamin B₁₂, 20 µg biotin, 0.6 mg folic acid, 18 mg niacin, 12 mg pantothenic acid, 15 mg vitamin C

²supplied per kg diet: 100 mg Fe, 100 mg Zn, 50 mg Mn, 50 mg Cu, 25 mg Mg, 0.2 mg Co, 0.6 mg I, 0.3 mg Se

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Table S2. Markers used in the QTL study, their relative map positions on pig chromosome 12, and information on the genotypes

Marker	Position		MAF ²	Heterozygosity ³	HWE, <i>P</i> -value ⁴	SNP code
	cM	bP1				
ASGA0052462	0.0	1 966 528	0.10	0.19	0.073	A/G
ASGA0052576	2.5	5 195 820	0.47	0.51	0.793	T/C
M1GA0015856	3.9	5 282 378	0.23	0.41	0.003	T/C
ASGA0052681	7.2	7 048 858	0.25	0.41	0.188	T/C
H3GA0033163	10.5	7 188 626	0.12	0.22	0.894	A/G
ASGA0052791	15.1	7 655 010	0.43	0.49	0.909	T/C
H3GA0033369	19.4	8 582 631	0.12	0.23	0.541	A/C
ALGA0064800	23.2	9 210 829	0.44	0.47	0.428	A/G
MARC0029980	25.5	#####	0.15	0.29	0.006	T/C
ASGA0053136	28.4	#####	0.18	0.30	1.000	T/C
ALGA0065049	32.5	#####	0.19	0.34	0.198	T/C
DRGA0011620	33.7	#####	0.30	0.45	0.365	T/C
ALGA0065225	37.6	#####	0.23	0.37	0.736	A/G
ALGA0065241	38.7	#####	0.26	0.43	0.048	T/C
ASGA0053379	40.3	#####	0.27	0.45	0.028	A/G
MARC0112630	42.5	#####	0.34	0.52	0.030	T/C
ALGA0065328	44.7	#####	0.22	0.36	0.631	A/G
H3GA0033782	48.5	#####	0.30	0.50	0.010	A/G
ALGA0065504	51.9	#####	0.36	0.49	0.348	T/C
DIAS0003753	58.0	#####	0.21	0.36	0.227	T/C
ASGA0053716	59.2	#####	0.25	0.42	0.105	T/C
ALGA0065555	62.3	#####	0.17	0.28	0.930	T/C
MARC0019933	65.1	#####	0.48	0.51	0.690	A/G
ASGA0053778	70.9	#####	0.33	0.50	0.028	T/C
M1GA0026008	72.9	#####	0.41	0.51	0.350	T/C
ALGA0065727	74.0	#####	0.42	0.52	0.341	T/G
ASGA0053899	75.4	#####	0.23	0.37	0.525	T/C
CASI0006966	76.9	#####	0.23	0.38	0.110	T/G
ASGA0053936	77.2	#####	0.40	0.52	0.189	A/G
ALGA0065876	77.5	#####	0.44	0.52	0.469	A/G
MARC0078793	77.8	#####	0.33	0.45	1.000	A/G
ALGA0065919	78.5	#####	0.25	0.40	0.310	A/G
H3GA0034063	79.2	#####	0.33	0.47	0.010	T/C
H3GA0034063	79.8	#####	0.28	0.48	0.010	A/G
MARC0023007	80.4	#####	0.21	0.37	0.046	T/G
ALGA0066091	82.1	#####	0.40	0.50	0.487	T/C
ASGA0054205	83.6	#####	0.42	0.52	0.260	T/C
DBWU0000835	84.8	#####	0.35	0.48	0.277	T/C
ALGA0066222	85.6	#####	0.36	0.52	0.037	T/C
ASGA0054380	86.6	#####	0.46	0.49	0.842	A/G
MARC0101217	86.9	#####	0.19	0.34	0.122	A/G
ASGA0093336	88.0	#####	0.22	0.35	0.739	T/C

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Marker	Position		MAF ²	Heterozygosity ³	HWE, <i>P</i> -value ⁴	SNP code
	cM	bP1				
ALGA0066299	89.3	#####	0.44	0.53	0.218	A/G
H3GA0034333	89.8	#####	0.10	0.19	1.000	A/G
MARC0108602	91.7	#####	0.32	0.49	0.058	T/C
ALGA0066475	97.8	#####	0.15	0.28	0.344	T/C
H3GA0034462	99.7	#####	0.46	0.58	0.070	A/C
ALGA0066551	101.8	#####	0.38	0.48	0.811	A/G
ALGA0066610	102.9	#####	0.38	0.51	0.261	A/G
ASGA0105124	104.7	#####	0.31	0.48	0.047	A/G
DIAS0003408	108.1	#####	0.35	0.45	1.000	T/C
ALGA0066720	113.9	#####	0.40	0.51	0.348	A/G
H3GA0034675	115.9	#####	0.45	0.51	0.803	T/C
ALGA0066930	117.8	#####	0.29	0.47	0.024	A/G
ALGA0066946	118.7	#####	0.29	0.46	0.046	A/G
ALGA0066960	119.1	#####	0.29	0.47	0.029	A/C
ALGA0066969	119.6	#####	0.17	0.25	0.046	T/C
DIAS0001557	120.2	#####	0.25	0.37	0.985	T/C
H3GA0034753	120.7	#####	0.42	0.52	0.295	A/G
M1GA0016997	122.3	#####	0.28	0.38	0.409	A/G
H3GA0034813	123.7	#####	0.27	0.38	0.503	A/C
M1GA0017055	124.2	#####	0.33	0.44	1.000	T/C
ASGA0094812	125.5	#####	0.28	0.38	0.430	A/G
DIAS0003976	129.0	#####	0.32	0.42	0.461	T/C
H3GA0034916	130.9	#####	0.12	0.23	0.014	T/C
ASGA0099848	138.0	#####	0.31	0.46	0.233	T/C
H3GA0034965	142.3	#####	0.45	0.55	0.041	A/C
ALGA0067220	143.1	#####	0.44	0.57	0.010	A/G
ALGA0067238	145.3	#####	0.27	0.37	0.223	T/G

¹the positions of the SNPs were based on the porcine reference genome (build Sscrofa11.1), ²minor allele frequency, ³observed heterozygosity, ⁴Hardy-Weinberg equilibrium (*P*-value > 0.0001), SNP – single nucleotide polymorphism

Table S3. Information of haplotype blocks on SSC12 of Yorkshire and Korean native pig crossed F2 pigs

No.	SNP name	Haplotype block information	Detail of haplotype blocks
1	M1GA0015685	Block 1	BLOCK 1. MARKERS: 1 2 3 4 5
2	H3GA0032912	CCAAC	
3	ASGA0052435	AACCA	
4	H3GA0032918	CCCCC	
5	ASGA0052440	CCCAC	
6	MARC0083653	Block 2	BLOCK 2. MARKERS: 6 7
7	H3GA0032926	CA	
8	ASGA0052462	AC	
9	ASGA0052467	Block 3	BLOCK 3. MARKERS: 13 14
10	M1GA0015746	AA	
11	ALGA0064320	AC	
12	M1GA0027235	CC	
13	M1GA0015764	Block 4	BLOCK 4. MARKERS: 16 17
14	H3GA0032957	CA	
15	ALGA0064322	AA	
16	MARC0089921	AC	
17	ASGA0052479	Block 5	BLOCK 5. MARKERS: 20 21 23 24 25 26
18	ALGA0064329	CAACCC	
19	ALGA0064331	CCCCCC	
20	INRA0038383	CCAACA	
21	ALGA0064332	ACACAA	
22	MARC0058650	Block 6	BLOCK 6. MARKERS: 27 28
23	ALGA0064341	AA	
24	M1GA0015780	AC	
25	ASGA0052505	CC	
26	H3GA0032989	Block 7	BLOCK 7. MARKERS: 32 33 34 35 36
27	ASGA0052511	ACCCC	
28	H3GA0032997	ACACC	
29	ASGA0052517	ACAAC	
30	M1GA0015797	CAAAA	
31	ASGA0085408	AAAAA	
32	MARC0063986	Block 8	BLOCK 8. MARKERS: 71 72
33	ALGA0064359	AA	
34	ASGA0052524	AC	
35	ALGA0064361	CC	
36	H3GA0033014	Block 9	BLOCK 9. MARKERS: 82 83
37	MARC0027896	CC	
38	H3GA0033016	AA	
39	ASGA0052532	AC	BLOCK 10. MARKERS: 99 101 102 103
40	H3GA0033022	Block 10	
41	H3GA0033025	CACC	
42	MARC0113204	ACAA	
43	ASGA0052541	AAAA	
44	ASGA0052546	Block 11	BLOCK 11. MARKERS: 125 126

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
45	ALGA0064381	CC	
46	DRGA0011563	AC	
47	H3GA0033039	AA	
48	ALGA0064392	Block 12	BLOCK 12. MARKERS: 131 132
49	ALGA0064395	AC	
50	ISU10000114	AA	
51	M1GA0015850	CA	
52	ASGA0052576	Block 13	BLOCK 13. MARKERS: 146 147 148 149 150
53	ASGA0052581	CCAAC	
54	M1GA0015856	AACCC	
55	H3GA0033051	AACCA	
56	M1GA0026521	CACAC	
57	ASGA0052591	CAAAC	
58	ALGA0064411	Block 14	BLOCK 14. MARKERS: 165 166 167 169
59	M1GA0015870	AACA	
60	ASGA0052596	ACCA	
61	ASGA0088990	CCAA	
62	ASGA0052599	CCAC	
63	MARC0054849	CCCA	
64	INRA0038415	Block 15	BLOCK 15. MARKERS: 170 172 174 175 176 178 179 180
65	H3GA0033064	ACACCACA	
66	M1GA0015877	CCCCACA	
67	ASGA0052615	CACCCACC	
68	ASGA0052617	ACAAACAA	
69	ISU10000072	ACACCAA	
70	MARC0082230	ACACACAA	
71	H3GA0033068	Block 16	BLOCK 16. MARKERS: 181 184 185 186
72	DIAS0001708	CACA	
73	ASGA0052621	ACAC	
74	ALGA0064432	CCCC	
75	ALGA0064437	Block 17	BLOCK 17. MARKERS: 188 189
76	ALGA0114338	CC	
77	MARC0077026	AC	
78	ASGA0052652	CA	
79	ASGA0099044	Block 18	BLOCK 18. MARKERS: 196 197
80	H3GA0033104	CA	
81	ALGA0064467	CC	
82	ASGA0052681	AA	
83	H3GA0033126	Block 19	BLOCK 19. MARKERS: 209 210
84	MARC0046612	CC	
85	ALGA0064494	AC	
86	H3GA0033141	CA	
87	H3GA0033152	Block 20	BLOCK 20. MARKERS: 218 219 220 221 222
88	H3GA0033163	CCACA	
89	ALGA0064531	AACCC	

No.	SNP name	Haplotype block information	Detail of haplotype blocks
90	ASGA0052741	CCACC	
91	H3GA0033190	AACAC	
92	DRGA0011569	Block 21	BLOCK 21. MARKERS: 228 229
93	ASGA0052768	CA	
94	MARC0053250	CC	
95	ASGA0052791	AC	
96	ASGA0052797	Block 22	BLOCK 22. MARKERS: 244 246 247 248 249
97	ALGA0064592	CCCCA	
98	DIAS0001123	AAAAC	
99	ASGA0052835	CCCCC	
100	ALGA0064621	AACAC	
101	ASGA0052852	CACAC	
102	H3GA0033256	CCCAC	
103	M1GA0016062	Block 23	BLOCK 23. MARKERS: 260 261
104	ALGA0064647	AC	
105	ALGA0064657	AA	
106	H3GA0033282	CC	
107	H3GA0033284	Block 24	BLOCK 24. MARKERS: 266 267
108	ALGA0064668	CC	
109	CASI0008458	AA	
110	MARC0084161	CA	
111	ASGA0052898	Block 25	BLOCK 25. MARKERS: 269 270
112	M1GA0016079	CC	
113	CASI0007859	AA	
114	MARC0071704	CA	
115	ASGA0052919	Block 26	BLOCK 26. MARKERS: 272 273 274 275
116	MARC0115151	CAAA	
117	M1GA0016093	ACCC	
118	M1GA0016105	CACA	
119	M1GA0016120	CACC	
120	ALGA0064723	Block 27	BLOCK 27. MARKERS: 284 285
121	ALGA0101799	AC	
122	ASGA0052953	CA	
123	ASGA0087025	CC	
124	H3GA0033349	Block 28	BLOCK 28. MARKERS: 286 287
125	H3GA0033352	CC	
126	DIAS0001518	CA	
127	ASGA0052963	AA	
128	MARC0030371	Block 29	BLOCK 29. MARKERS: 294 296
129	ALGA0064738	CC	
130	UMB10000013	AC	
131	ALGA0064743	CA	
132	ASGA0052974	Block 30	BLOCK 30. MARKERS: 311 312 314 315 316 317 318 319 320 322 323 324 326 327 328
133	H3GA0033369	ACACCCACCCACCA	

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
134	ASGA0052986	CACAAAACAAAACAC	
135	H3GA0033370	ACACCCACAAAACA	
136	ALGA0064756	ACACCCAACCCACCA	
137	H3GA0033378	ACACCCACCCCCCA	
138	MARC0094394	ACACCCAACCCCCCA	
139	ASGA0053002	ACACCCACCAACCA	
140	ALGA0064767	CACCACAAAAAACAC	
141	ALGA0119521	Block 31	BLOCK 31. MARKERS: 346 347 348 349 350 351
142	H3GA0033394	CACACC	
143	ALGA0064792	CCCACC	
144	ASGA0053034	ACACAA	
145	MARC0017228	CCACAA	
146	ALGA0064800	CCCCCC	
147	MARC0056829	Block 32	BLOCK 32. MARKERS: 357 358
148	ASGA0053037	AA	
149	ASGA0053040	CC	
150	DRGA0011583	AC	
151	MARC0012227	Block 33	BLOCK 33. MARKERS: 381 382 383 384
152	ALGA0064821	AAAA	
153	ASGA0053048	CCCC	
154	MARC0025796	ACCC	
155	ASGA0053050	Block 34	BLOCK 34. MARKERS: 400 401 402 403 404 405
156	H3GA0033419	CAAAAC	
157	DIAS0002304	AAAAAA	
158	ALGA0064834	ACCCCA	
159	ALGA0108362	AAAAAC	
160	ASGA0053056	Block 35	BLOCK 35. MARKERS: 413 414
161	ASGA0053060	AA	
162	MARC0029980	CC	
163	ASGA0053064	AC	
164	ASGA0053070	Block 36	BLOCK 36. MARKERS: 430 432 433 434 435
165	MARC0086052	CAAAC	
166	ALGA0064853	AACCA	
167	ALGA0064856	CAACC	
168	H3GA0033435	CCACC	
169	ASGA0053080	ACCCC	
170	ALGA0064867	Block 37	BLOCK 37. MARKERS: 452 453 454 455 457 458 459 460 461 464
171	ALGA0064876	AACAACAAAA	
172	ALGA0064877	AACAACAAAC	
173	ASGA0053098	CCACCACCAA	
174	MARC0074609	CCACCACCCA	
175	ALGA0064884	AACAACCAAC	
176	ASGA0053101	Block 38	BLOCK 38. MARKERS: 470 471
177	ASGA0053105	CC	
178	ALGA0064900	AC	

No.	SNP name	Haplotype block information	Detail of haplotype blocks
179	H3GA0033448	AA	
180	ASGA0053110	Block 39	BLOCK 39. MARKERS: 472 473 474 475 476 477 478 479 480 481
181	ASGA0053111	ACCACAACCA	
182	ALGA0122846	CAACCCCCAC	
183	ALGA0064913	CAACCAAAAAC	
184	ALGA0064915	CAACACCCAA	
185	ALGA0064916	CAACCCAAAAC	
186	H3GA0033462	Block 40	BLOCK 40. MARKERS: 483 484 485 486 487 490 491 492 496 497 498
187	ALGA0064924	CACAACCCAAC	
188	ALGA0064929	ACCAAAAACACA	
189	ALGA0064933	ACACCCACCAA	
190	ALGA0111478	ACACACAAAACA	
191	MARC0048336	ACACAAAACAAA	
192	ALGA0103381	Block 41	BLOCK 41. MARKERS: 499 500 501 502 504 505 506
193	H3GA0033471	CACCACC	
194	M1GA0016160	CCAACAC	
195	ALGA0064943	ACACAAA	
196	ALGA0064952	ACACAAC	
197	ALGA0064959	AACCACC	
198	ASGA0053136	Block 42	BLOCK 42. MARKERS: 508 509 510 511 512 513 514 515
199	M1GA0016164	ACCAAACA	
200	MARC0050019	CAACCACC	
201	MARC0042769	CACACACC	
202	ASGA0053153	CACCCAC	
203	MARC0057123	ACCAAACC	
204	H3GA0033486	CACCCACC	
205	ASGA0053177	Block 43	BLOCK 43. MARKERS: 519 520 521 522 523 524 525
206	M1GA0016174	CCACCCC	
207	ASGA0053189	CCAACCC	
208	DBWU0000115	CCCACCC	
209	DRGA0011611	CAAAAAA	
210	ALGA0065035	AAAAAAA	
211	ASGA0053200	CCCCCCC	
212	ALGA0065049	Block 44	BLOCK 44. MARKERS: 527 528
213	ASGA0053207	CA	
214	DRGA0011613	AC	
215	ASGA0053210	AA	
216	ASGA0053212	Block 45	BLOCK 45. MARKERS: 531 532 535 536 538 543
217	DIAS0003739	CAACCA	
218	DRGA0011620	ACCACA	
219	ASGA0053216	CACCAC	
220	ALGA0065055	AAACCA	
221	H3GA0033513	Block 46	BLOCK 46. MARKERS: 554 555 557 558 560 562 563
222	DRGA0011621	CCAAACA	

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
223	SIRI0000304	CCCAACA	
224	MARC0069988	AACCAAC	
225	DRGA0011623	CCAACCA	
226	H3GA0033519	CACCAAC	
227	ASGA0053228	CACAAAC	
228	ASGA0053231	Block 47	BLOCK 47. MARKERS: 575 576
229	H3GA0033521	CC	
230	ALGA0065086	AA	
231	H3GA0033531	Block 48	BLOCK 48. MARKERS: 581 583 584 586
232	ASGA0053255	CCCA	
233	ALGA0065112	AAAA	
234	ASGA0053268	CAAC	
235	ALGA0065120	CACA	
236	M1GA0025058	CAAA	
237	MARC0093870	Block 49	BLOCK 49. MARKERS: 588 589
238	ASGA0053297	AA	
239	M1GA0016243	CA	
240	ASGA0053304	CC	
241	H3GA0056361	Block 50	BLOCK 50. MARKERS: 595 596
242	ASGA0053310	CA	
243	H3GA0033589	AC	
244	MARC0113018	Block 51	BLOCK 51. MARKERS: 600 601 602 603
245	ALGA0101992	AACC	
246	DIAS0003482	CCAA	
247	ASGA0053324	CACC	
248	M1GA0016251	CAAC	
249	MARC0075799	Block 52	BLOCK 52. MARKERS: 610 612 613 615 616
250	ASGA0053328	AACCC	
251	ALGA0065183	CCACC	
252	ALGA0065186	CCAAA	
253	MARC0067177	CCCCC	
254	ALGA0065206	CCACA	
255	H3GA0033606	Block 53	BLOCK 53. MARKERS: 619 620 621 622 623 625 626 627 629
256	H3GA0052730	AACCACACA	
257	ALGA0065210	CAAAAAAAC	
258	BGIS0006233	CCAAAACCA	
259	ALGA0124164	CACAAAACCA	
260	MARC0070276	AACACAACA	
261	ALGA0065212	Block 54	BLOCK 54. MARKERS: 642 643
262	ALGA0065221	AC	
263	ALGA0065225	CC	
264	ALGA0065229	CA	
265	ASGA0053372	Block 55	BLOCK 55. MARKERS: 655 657 658 659 660
266	ALGA0065241	ACCAC	
267	ALGA0065251	CAACC	

No.	SNP name	Haplotype block information	Detail of haplotype blocks
268	MARC0014203	CACCC	
269	ASGA0053379	CAACA	
270	M1GA0016274	CCCAC	
271	ALGA0114079	Block 56	BLOCK 56. MARKERS: 671 672
272	MARC0112630	CA	
273	ALGA0065273	AC	
274	M1GA0016286	Block 57	BLOCK 57. MARKERS: 679 680 683 685
275	MARC0032480	CACA	
276	ASGA0053410	CAAC	
277	ASGA0053416	ACAC	
278	ASGA0053421	Block 58	BLOCK 58. MARKERS: 690 691
279	DRGA0011632	CC	
280	MARC0114829	AC	
281	M1GA0016298	AA	
282	ASGA0103210	Block 59	BLOCK 59. MARKERS: 725 726
283	ASGA0053428	CC	
284	DIAS0004710	AA	
285	MARC0013841	Block 60	BLOCK 60. MARKERS: 735 736
286	DBMA0000248	CA	
287	ALGA0065308	AA	
288	ASGA0053449	CC	
289	INRA0038693	Block 61	BLOCK 61. MARKERS: 746 747
290	ASGA0053450	CC	
291	MARC0046672	AC	
292	ASGA0053453	AA	
293	INRA0038700	Block 62	BLOCK 62. MARKERS: 752 757 758 760
294	MARC0020580	ACCC	
295	ALGA0124156	CACA	
296	MARC0040976	CCCA	
297	ASGA0053456	ACCA	
298	ASGA0091982	ACAC	
299	ALGA0065324	Block 63	BLOCK 63. MARKERS: 768 769 770 775
300	ALGA0065328	CCAC	
301	ASGA0103172	CACC	
302	MARC0112715	CCCC	
303	MARC0028856	AACA	
304	ALGA0065332	Block 64	BLOCK 64. MARKERS: 781 782
305	ALGA0065335	AC	
306	ASGA0053484	CA	
307	MARC0087412	CC	
308	MARC0097207	Block 65	BLOCK 65. MARKERS: 784 786 788 789 790
309	MARC0053300	ACAAA	
310	MARC0020652	ACACA	
311	ALGA0065337	CCCAC	
312	DRGA0011634	CACAC	

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
313	ASGA0053492	Block 66	BLOCK 66. MARKERS: 793 794 795 796
314	ALGA0065344	AACA	
315	ALGA0065346	AAAC	
316	MARC0036876	CACA	
317	ASGA0053496	AAAA	
318	ASGA0053505	CCCA	
319	ALGA0065366	Block 67	BLOCK 67. MARKERS: 799 800 801 802 805
320	H3GA0033690	AAAAC	
321	ALGA0065369	AACAC	
322	ASGA0053516	CAACA	
323	ASGA0053519	CCACA	
324	H3GA0056081	AAACC	
325	MARC0035526	Block 68	BLOCK 68. MARKERS: 810 811 812 813 814 817 819 820 821 822 823
326	ALGA0065378	CAAACCACAAC	
327	ALGA0065392	ACCCCCCCCAC	
328	ASGA0053547	ACCCACCCCAC	
329	ALGA0111531	CAAACCACACC	
330	ALGA0065404	CCACCACCCCAC	
331	MARC0077537	CAAACCAAACA	
332	ALGA0065410	CAAACCACAAA	
333	DRGA0011641	CAAACCACACA	
334	DRGA0011644	Block 69	BLOCK 69. MARKERS: 844 845
335	MARC0007093	AC	
336	MARC0030398	CA	
337	DIAS0001350	AA	
338	ALGA0065426	Block 70	BLOCK 70. MARKERS: 846 847
339	H3GA0033729	CC	
340	ALGA0065428	CA	
341	MARC0048672	AC	
342	H3GA0033740	Block 71	BLOCK 71. MARKERS: 854 855
343	M1GA0016336	AC	
344	ALGA0065443	CC	
345	M1GA0016343	CA	
346	MARC0056519	Block 72	BLOCK 72. MARKERS: 858 859 860 861 862 863
347	MARC0066314	CCCCAC	
348	M1GA0016357	AAAAAA	
349	ALGA0065461	AAAAAC	
350	M1GA0016361	CCACCC	
351	ALGA0065470	Block 73	BLOCK 73. MARKERS: 864 865
352	ALGA0065479	CA	
353	MARC0007643	CC	
354	ALGA0065484	AC	
355	MARC0011235	Block 74	BLOCK 74. MARKERS: 867 868
356	H3GA0033782	AA	
357	H3GA0033784	CC	

No.	SNP name	Haplotype block information	Detail of haplotype blocks
358	DIAS0002268	Block 75	BLOCK 75. MARKERS: 871 872 873 874 875
359	ASGA0053654	ACCCA	
360	ALGA0065504	CACAC	
361	ASGA0053661	CCCCA	
362	H3GA0033795	CACCA	
363	H3GA0033798	ACACA	
364	H3GA0033801	Block 76	BLOCK 76. MARKERS: 885 886 887
365	H3GA0033803	AAA	
366	ALGA0065510	CCC	
367	ALGA0065514	ACC	
368	ASGA0053674	Block 77	BLOCK 77. MARKERS: 891 892 893 894 895 896 897 898 899 900 901 902
369	ASGA0053677	CCAACCCACACC	
370	MARC0050287	CCCCACACAACA	
371	ALGA0065527	AACCAACCACAA	
372	H3GA0033824	CCCCAACCACAA	
373	DIAS0000091	CCAAACACCACA	
374	ALGA0065555	Block 78	BLOCK 78. MARKERS: 903 905 908 910
375	INRA0038774	AAAA	
376	MARC0025918	CCCC	
377	ASGA0053696	ACAA	
378	ASGA0053700	Block 79	BLOCK 79. MARKERS: 917 918
379	ASGA0096784	AA	
380	DRGA0011653	CC	
381	H3GA0033847	AC	
382	DRGA0011654	Block 80	BLOCK 80. MARKERS: 920 921
383	H3GA0033852	CC	
384	MARC0075064	AC	
385	ALGA0065569	AA	
386	H3GA0033856	Block 81	BLOCK 81. MARKERS: 925 926
387	ALGA0065579	AC	
388	ASGA0053715	AA	
389	ASGA0053716	CA	
390	ALGA0065588	Block 82	BLOCK 82. MARKERS: 948 949
391	ASGA0096428	AA	
392	DRGA0011659	AC	
393	MARC0055851	CC	
394	ALGA0065594	Block 83	BLOCK 83. MARKERS: 961 962
395	DBKK0000100	AC	
396	ASGA0102332	CA	
397	SIRI0000812	AA	
398	MARC0019933	Block 84	BLOCK 84. MARKERS: 982 985 988 989 990 991 995
399	DIAS0004787	CACCCAC	
400	DIAS0000407	CCCAACC	
401	M1GA0016423	ACAAACC	

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
402	DBKK0000322	CACACAA	
403	INRA0038788	CACCCAA	
404	ALGA0065600	CACACAC	
405	MARC0113309	Block 85	BLOCK 85. MARKERS: 1068 1069
406	ASGA0053735	AA	
407	ALGA0065615	CC	
408	M1GA0016433	CA	
409	DBWU0000800		
410	ALGA0065635		
411	DIAS0000287		
412	SIRI0000501		
413	ASGA0053778		
414	MARC0042683		
415	ALGA0065646		
416	MARC0072078		
417	ALGA0065650		
418	ALGA0065654		
419	ASGA0053794		
420	ALGA0065660		
421	MARC0031729		
422	H3GA0054848		
423	ALGA0065669		
424	ALGA0065672		
425	ALGA0065674		
426	H3GA0033916		
427	MARC0031045		
428	H3GA0033921		
429	ASGA0053809		
430	H3GA0033927		
431	MARC0010590		
432	ALGA0065691		
433	H3GA0033935		
434	MARC0013292		
435	ASGA0053829		
436	ASGA0053830		
437	ALGA0065702		
438	ALGA0065705		
439	H3GA0033953		
440	H3GA0033954		
441	MARC0047863		
442	ALGA0065723		
443	ALGA0065727		
444	H3GA0033959		
445	ALGA0065735		
446	ALGA0065740		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
447	MARC0049315		
448	ASGA0053879		
449	DIAS0004287		
450	ASGA0053893		
451	ALGA0065765		
452	ASGA0053899		
453	H3GA0033980		
454	ALGA0065766		
455	ALGA0065768		
456	M1GA0016523		
457	H3GA0033984		
458	ALGA0065773		
459	ASGA0053908		
460	ALGA0065780		
461	ALGA0065784		
462	ALGA0065785		
463	ALGA0065788		
464	ASGA0053920		
465	ALGA0065798		
466	ISU10000036		
467	DIAS0002835		
468	ALGA0065807		
469	MARC0026813		
470	DIAS0002694		
471	H3GA0055422		
472	ASGA0053936		
473	ALGA0065812		
474	ALGA0065816		
475	H3GA0034018		
476	H3GA0034019		
477	MARC0054687		
478	ALGA0065826		
479	ALGA0065830		
480	ASGA0053943		
481	ALGA0065836		
482	CASI0009743		
483	ALGA0065838		
484	ALGA0065841		
485	ALGA0065842		
486	MARC0114449		
487	ALGA0065844		
488	ALGA0065848		
489	ALGA0065850		
490	ASGA0053947		
491	MARC0040926		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
492	MARC0001921		
493	DRGA0011688		
494	MARC0025055		
495	ALGA0065866		
496	ALGA0065869		
497	MARC0044696		
498	DRGA0011693		
499	H3GA0034030		
500	ALGA0065876		
501	ALGA0065881		
502	ASGA0053963		
503	MARC0001434		
504	DRGA0011696		
505	ASGA0053974		
506	DRGA0011702		
507	DIAS0002084		
508	MARC0078793		
509	ASGA0053981		
510	ALGA0065904		
511	ALGA0065906		
512	ASGA0053987		
513	DIAS0001974		
514	MARC0007320		
515	ALGA0065913		
516	SIRI0001034		
517	H3GA0034044		
518	ASGA0098632		
519	MARC0011225		
520	ASGA0053992		
521	ASGA0053996		
522	ALGA0065919		
523	MARC0083873		
524	ALGA0065925		
525	H3GA0034056		
526	MARC0027059		
527	H3GA0034060		
528	ALGA0065934		
529	ALGA0103808		
530	MARC0103307		
531	MARC0037889		
532	H3GA0034063		
533	ASGA0054011		
534	ALGA0065949		
535	MARC0008574		
536	MARC0085766		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
537	ASGA0054019		
538	MARC0071015		
539	MARC0077294		
540	ASGA0054021		
541	MARC0029301		
542	ASGA0054027		
543	ASGA0054033		
544	ASGA0054039		
545	ASGA0054041		
546	ASGA0054044		
547	ALGA0065968		
548	ALGA0065969		
549	DRGA0011713		
550	ALGA0065970		
551	H3GA0034075		
552	MARC0053916		
553	MARC0031396		
554	MARC0023007		
555	ALGA0065979		
556	ALGA0065985		
557	ALGA0065989		
558	ALGA0065995		
559	H3GA0034087		
560	ALGA0066000		
561	MARC0113412		
562	DRGA0011720		
563	ASGA0054083		
564	H3GA0034093		
565	ALGA0066020		
566	H3GA0034100		
567	MARC0010368		
568	ALGA0066043		
569	MARC0016080		
570	ALGA0066053		
571	ASGA0054133		
572	ASGA0054137		
573	DRGA0011723		
574	ASGA0054160		
575	ASGA0054167		
576	H3GA0034133		
577	ALGA0066083		
578	ASGA0054177		
579	MARC0072638		
580	ALGA0066091		
581	MARC0037857		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
582	MARC0041459		
583	M1GA0016584		
584	ASGA0054205		
585	ALGA0066105		
586	DRGA0011725		
587	H3GA0034177		
588	M1GA0016603		
589	MARC0070458		
590	M1GA0016607		
591	M1GA0016615		
592	MARC0046077		
593	MARC0026738		
594	ALGA0066145		
595	ASGA0054284		
596	ASGA0054288		
597	ALGA0066156		
598	ASGA0054291		
599	DIAS0001138		
600	DBWU0000835		
601	ASGA0054302		
602	H3GA0034221		
603	H3GA0034233		
604	ASGA0054317		
605	H3GA0034238		
606	ASGA0054326		
607	ASGA0054332		
608	DRGA0011731		
609	DIAS0000800		
610	ASGA0054337		
611	ASGA0054340		
612	DRGA0011732		
613	DIAS0000466		
614	MARC0100359		
615	MARC0040388		
616	ALGA0066208		
617	ALGA0122190		
618	ASGA0092611		
619	ALGA0066210		
620	ALGA0066212		
621	ASGA0054360		
622	ALGA0066214		
623	ASGA0054362		
624	DRGA0011735		
625	MARC0016326		
626	ASGA0054364		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
627	ALGA0066216		
628	ASGA0054366		
629	DRGA0011737		
630	ALGA0066217		
631	ALGA0066218		
632	CASI0010333		
633	H3GA0034264		
634	ALGA0066221		
635	ALGA0066222		
636	MARC0039239		
637	DRGA0011741		
638	DRGA0011742		
639	INRA0038984		
640	ALGA0066229		
641	ALGA0066230		
642	H3GA0034268		
643	ALGA0066234		
644	MARC0084960		
645	H3GA0034269		
646	ASGA0054380		
647	H3GA0034274		
648	ASGA0054385		
649	ALGA0066247		
650	DRGA0011747		
651	ALGA0066249		
652	ASGA0054390		
653	MARC0026665		
654	ALGA0066254		
655	ALGA0066256		
656	MARC0086882		
657	DRGA0011751		
658	ALGA0066258		
659	DRGA0011752		
660	M1GA0016672		
661	ASGA0054400		
662	DRGA0011754		
663	ALGA0066271		
664	H3GA0034289		
665	ASGA0054417		
666	MARC0045484		
667	ASGA0054423		
668	ALGA0066283		
669	ALGA0066285		
670	MARC0109449		
671	MARC0108602		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
672	DRGA0011757		
673	DIAS0000500		
674	ASGA0054436		
675	M1GA0016687		
676	MARC0061495		
677	ALGA0066299		
678	M1GA0024259		
679	ALGA0066302		
680	H3GA0034312		
681	ASGA0054449		
682	ASGA0054450		
683	M1GA0016697		
684	H3GA0034319		
685	ASGA0054453		
686	ASGA0054455		
687	ASGA0054460		
688	SIRI0001426		
689	M1GA0016701		
690	H3GA0034325		
691	ASGA0054467		
692	MARC0091586		
693	ASGA0054479		
694	MARC0067281		
695	H3GA0055095		
696	ASGA0054485		
697	ASGA0054486		
698	H3GA0034333		
699	ALGA0066360		
700	DIAS0000242		
701	ALGA0066372		
702	ASGA0054501		
703	DBKK0000238		
704	ALGA0066378		
705	ASGA0054522		
706	ALGA0066396		
707	MARC0044698		
708	ALGA0066401		
709	ALGA0066405		
710	ALGA0066408		
711	DIAS0003753		
712	MARC0003898		
713	ASGA0100417		
714	ASGA0054573		
715	H3GA0034394		
716	ASGA0054590		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
717	ALGA0066440		
718	ALGA0066446		
719	ASGA0054611		
720	M1GA0016745		
721	ALGA0066475		
722	MARC0111729		
723	MARC0011289		
724	ASGA0054658		
725	ALGA0066519		
726	ASGA0054669		
727	M1GA0016764		
728	H3GA0034455		
729	DIAS0000648		
730	H3GA0034462		
731	ASGA0054696		
732	DIAS0003789		
733	ALGA0066546		
734	M1GA0016777		
735	ALGA0066551		
736	M1GA0016778		
737	SIRI0000605		
738	MARC0050861		
739	DIAS0004274		
740	ASGA0054716		
741	ALGA0066573		
742	MARC0005177		
743	ALGA0066582		
744	ASGA0054735		
745	ASGA0054736		
746	ALGA0066591		
747	ASGA0054741		
748	ASGA0054746		
749	H3GA0034491		
750	ASGA0054752		
751	M1GA0016795		
752	ALGA0066610		
753	ALGA0066613		
754	M1GA0016813		
755	ALGA0066623		
756	H3GA0034522		
757	ASGA0054790		
758	ALGA0066628		
759	DIAS0000888		
760	M1GA0016816		
761	DRGA0011773		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
762	DIAS0000887		
763	ALGA0066637		
764	H3GA0034530		
765	ALGA0066642		
766	ASGA0054801		
767	ALGA0066653		
768	H3GA0034538		
769	ALGA0066656		
770	ALGA0066658		
771	MARC0049166		
772	ALGA0066661		
773	H3GA0034540		
774	ASGA0054815		
775	MARC0072483		
776	DIAS0001882		
777	ASGA0054820		
778	ASGA0054824		
779	H3GA0034546		
780	DIAS0003408		
781	ASGA0054836		
782	ALGA0066682		
783	ALGA0066685		
784	ALGA0066686		
785	ALGA0066690		
786	ASGA0054854		
787	ALGA0066693		
788	ALGA0066694		
789	ASGA0054859		
790	ALGA0066696		
791	ASGA0054861		
792	INRA0039107		
793	ASGA0054862		
794	ALGA0066702		
795	H3GA0034572		
796	CASI0007864		
797	DRGA0011783		
798	INRA0039113		
799	ALGA0066706		
800	ALGA0066707		
801	ASGA0054864		
802	ASGA0054868		
803	M1GA0016848		
804	ALGA0066712		
805	H3GA0034580		
806	DRGA0011785		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
807	MARC0004840		
808	H3GA0034587		
809	CASI0011743		
810	ALGA0066720		
811	ALGA0066725		
812	DRGA0011789		
813	ASGA0054883		
814	ALGA0066729		
815	ASGA0054884		
816	INRA0039127		
817	MARC0027202		
818	ALGA0066734		
819	H3GA0034597		
820	ASGA0054888		
821	ALGA0066740		
822	H3GA0034599		
823	ASGA0054900		
824	ASGA0054903		
825	ALGA0066768		
826	DRGA0011793		
827	ASGA0054919		
828	H3GA0034618		
829	M1GA0026008		
830	DRGA0011794		
831	ASGA0054953		
832	ALGA0066808		
833	ASGA0083170		
834	ALGA0066854		
835	ALGA0066858		
836	H3GA0034642		
837	ASGA0054989		
838	DRGA0011803		
839	DRGA0011804		
840	H3GA0034644		
841	CASI0007860		
842	ALGA0066876		
843	M1GA0016889		
844	DRGA0011805		
845	ALGA0066881		
846	H3GA0034657		
847	ALGA0066888		
848	MARC0076194		
849	H3GA0055624		
850	ASGA0055004		
851	DIAS0003012		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
852	H3GA0034668		
853	ASGA0055013		
854	ASGA0055015		
855	M1GA0016908		
856	ALGA0066899		
857	ASGA0055017		
858	H3GA0034675		
859	MARC0094795		
860	ALGA0066905		
861	H3GA0034677		
862	H3GA0034683		
863	ASGA0055028		
864	ASGA0055031		
865	H3GA0034686		
866	H3GA0034688		
867	H3GA0034690		
868	ALGA0066917		
869	MARC0062969		
870	ASGA0055046		
871	ASGA0055049		
872	ALGA0066930		
873	H3GA0034702		
874	H3GA0034704		
875	MARC0014525		
876	H3GA0034708		
877	ALGA0066941		
878	CASI0006966		
879	ALGA0066945		
880	ALGA0066946		
881	ASGA0055070		
882	ALGA0066953		
883	ASGA0055076		
884	ASGA0082320		
885	ALGA0066960		
886	M1GA0016958		
887	ASGA0055081		
888	MARC0074514		
889	M1GA0016964		
890	MARC0007117		
891	ALGA0066969		
892	ALGA0066974		
893	ALGA0066975		
894	ASGA0055092		
895	ALGA0066981		
896	ALGA0066985		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
897	ALGA0066986		
898	H3GA0034753		
899	ASGA0055110		
900	ASGA0055114		
901	MARC0074335		
902	ALGA0067003		
903	M1GA0016997		
904	ASGA0055133		
905	ALGA0067016		
906	M1GA0017015		
907	ASGA0055159		
908	ALGA0067033		
909	MARC0020792		
910	ASGA0055169		
911	ALGA0122248		
912	DRGA0011818		
913	MARC0062599		
914	H3GA0034813		
915	M1GA0017034		
916	MARC0063635		
917	ALGA0067055		
918	ALGA0067057		
919	ALGA0067058		
920	M1GA0017055		
921	H3GA0034838		
922	M1GA0017062		
923	ALGA0067072		
924	ALGA0114849		
925	ALGA0067079		
926	ALGA0067087		
927	ASGA0055217		
928	ASGA0104866		
929	M1GA0017073		
930	DIAS0000860		
931	ASGA0055225		
932	ALGA0067099		
933	CASI0010145		
934	MARC0004712		
935	DIAS0001577		
936	ALGA0067101		
937	ASGA0105814		
938	MARC0019583		
939	DIAS0003803		
940	ASGA0094170		
941	CASI0009244		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
942	H3GA0034872		
943	ASGA0095394		
944	DIAS0000861		
945	H3GA0034898		
946	H3GA0034902		
947	ALGA0118014		
948	ALGA0067119		
949	ASGA0055250		
950	ASGA0055256		
951	DIAS0003416		
952	MARC0036271		
953	H3GA0034916		
954	M1GA0017106		
955	MARC0087816		
956	M1GA0017107		
957	MARC0034728		
958	MARC0094338		
959	ASGA0055300		
960	H3GA0034945		
961	MARC0022924		
962	ASGA0055316		
963	M1GA0017119		
964	H3GA0034965		
965	ALGA0067173		
966	M1GA0017151		
967	H3GA0052850		
968	ALGA0067189		
969	H3GA0034987		
970	ASGA0055345		
971	ALGA0067201		
972	M1GA0017170		
973	ALGA0067216		
974	ALGA0067220		
975	MARC0068381		
976	M1GA0017195		
977	ALGA0067238		
978	ALGA0067249		
979	H3GA0035045		
980	MARC0089347		
981	MARC0065270		
982	H3GA0035053		
983	ALGA0067264		
984	ASGA0055450		
985	H3GA0035061		
986	ALGA0067271		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
987	ASGA0055455		
988	H3GA0035071		
989	ALGA0067281		
990	ALGA0067282		
991	H3GA0035082		
992	MARC0036093		
993	ASGA0055477		
994	H3GA0035092		
995	MARC0114025		
996	ALGA0067317		
997	ALGA0067326		
998	H3GA0035117		
999	MARC0019736		
1000	ALGA0104556		
1001	CASI0009146		
1002	MARC0054603		
1003	ASGA0088782		
1004	ASGA0089300		
1005	ALGA0122353		
1006	H3GA0052480		
1007	ASGA0099846		
1008	SIRI0000102		
1009	ALGA0102719		
1010	SIRI0000047		
1011	CASI0006976		
1012	MARC0045984		
1013	MARC0089581		
1014	MARC0097496		
1015	ALGA0115133		
1016	DIAS0002864		
1017	ASGA0089638		
1018	MARC0101217		
1019	DIAS0004103		
1020	MARC0021670		
1021	MARC0077640		
1022	MARC0017204		
1023	ASGA0104154		
1024	ALGA0114017		
1025	MARC0115537		
1026	ALGA0123819		
1027	ALGA0115394		
1028	ASGA0093336		
1029	MARC0099960		
1030	ALGA0106765		
1031	MARC0087562		

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No.	SNP name	Haplotype block information	Detail of haplotype blocks
1032	ASGA0082570		
1033	ALGA0120742		
1034	ASGA0105266		
1035	DIAS0000446		
1036	ALGA0105166		
1037	MARC0026575		
1038	MARC0003973		
1039	MARC0096209		
1040	ASGA0089419		
1041	DIAS0000309		
1042	H3GA0054821		
1043	MARC0058985		
1044	MARC0072172		
1045	ASGA0091302		
1046	MARC0091439		
1047	ASGA0101331		
1048	ASGA0105124		
1049	CASI0009186		
1050	H3GA0054086		
1051	MARC0088166		
1052	DIAS0004797		
1053	ALGA0117416		
1054	ALGA0107728		
1055	ASGA0088871		
1056	MARC0028461		
1057	CASI0006979		
1058	ASGA0105202		
1059	ASGA0105950		
1060	ASGA0105332		
1061	ASGA0094812		
1062	H3GA0056386		
1063	MARC0005201		
1064	M1GA0025611		
1065	CASI0004067		
1066	ASGA0096656		
1067	MARC0032581		
1068	ASGA0100766		
1069	DIAS0002016		
1070	MARC0017000		
1071	MARC0032271		
1072	ASGA0099848		
1073	ASGA0089279		
1074	DIAS0001134		
1075	MARC0113118		
1076	ASGA0100802		

No.	SNP name	Haplotype block information	Detail of haplotype blocks
1077	DIAS0001557		
1078	ALGA0108835		
1079	MARC0080541		
1080	ALGA0117175		
1081	DIAS0001372		
1082	DIAS0002847		
1083	H3GA0056745		
1084	ALGA0123244		
1085	CASI0000408		
1086	SIRI0001163		
1087	DIAS0003976		
1088	ASGA0099715		
1089	MARC0113397		
1090	MARC0009546		
1091	ASGA0101438		
1092	MARC0012583		
1093	MARC0016323		
1094	M1GA0026329		
1095	M1GA0026465		
1096	MARC0092504		
1097	MARC0030180		
1098	MARC0065743		
