



APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX A

Top 60 SNP ranking list and information

Table A.1: Top 60 SNP ranking list

SNP.ID	dbSNP.RS.ID	Chromosome	Physical Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1680154	rs10498202	2	227076779		G	T	0.1070	KA
SNP_A-1643649	rs10498204	2	227096583		A	C	0.1035	KA
SNP_A-1681948	rs1558524	17	14296893	TSC446350	C	T	0.0980	KA
SNP_A-1690419	rs7909489	10	20627497		C	T	0.0963	KA
SNP_A-1719079	rs489770	5	153619501		A	G	0.0923	KA
SNP_A-1759046	rs506674	5	153618492		A	G	0.0916	KA
SNP_A-1684254	rs490905	5	153618943	TSC1118020	C	T	0.0906	KA
SNP_A-1744483	rs10512111	9	80821039		C	T	0.0884	KA
SNP_A-1656551	rs1553893	15	23665751	TSC438979	A	G	0.0856	KA
SNP_A-1679608	rs2106444	7	108520964	TSC1106699	C	T	0.0840	KA
SNP_A-1716635	rs2363009	2	88241242	TSC1510231	A	T	0.0836	KA
SNP_A-1694131	rs894198	2	88241599	TSC166586	A	C	0.0805	KA
SNP_A-1750203	rs954845	2	6837215	TSC71175	C	T	0.0803	KA
SNP_A-1665236	rs1468339	7	97632152	TSC385419	C	T	0.0803	KA
SNP_A-1694819	rs1866946	2	88241773	TSC863187	G	T	0.0802	KA
SNP_A-1756685	rs894197	2	88241822	TSC166585	C	T	0.0802	KA
SNP_A-1710902	rs10503637	8	18750896		C	T	0.0785	KA
SNP_A-1752847			0	TSC551325	A	G	0.0783	KA
SNP_A-1684122	rs10507326	13	22616744		A	C	0.0777	KA
SNP_A-1642863	rs1932386	X	98164282	TSC995897	A	G	0.0775	KA
SNP_A-1758226	rs10487512	7	108507004		A	G	0.0766	KA
SNP_A-1666182	rs980400	7	108511168	TSC295382	C	T	0.0766	KA
SNP_A-1699261	rs10489991	2	71050026		G	T	0.0753	KA
SNP_A-1726164	rs973391	21	23756756	TSC284330	A	G	0.0751	KA
SNP_A-1757935	rs857879	6	146015736		A	C	0.0750	KA
SNP_A-1743271	rs10497352	2	170781278		A	G	0.0744	KA
SNP_A-1731831	rs1125607	7	19067370	TSC220133	A	C	0.0743	KA
SNP_A-1684090	rs1953054	9	108388856	TSC1032947	C	T	0.0731	KA

SNP.ID	dbSNP.RS.ID	Chromosome	Physical Position	TSC.ID	AlleleA	AlleleB	MI	Class
SNP_A-1648850	rs1011577	2	49259977	TSC91793	C	T	0.0730	KA
SNP_A-1748135	rs958974	2	49282132	TSC261003	G	T	0.0729	KA
SNP_A-1727973	rs2183493	13	57989044	TSC1228765	A	G	0.0723	KA
SNP_A-1724504	rs258716	7	81416107		A	G	0.0720	KA
SNP_A-1746565	rs1992188	2	231597941	TSC861675	A	C	0.0720	KA
SNP_A-1757826	rs10486944	7	81417320		A	G	0.0720	KA
SNP_A-1646248	rs3768416	1	223228175		C	T	0.0718	KA
SNP_A-1651604	rs10517465	4	60163774		A	G	0.0715	KA
SNP_A-1652804	rs2828069	21	23619057		A	T	0.0715	KA
SNP_A-1728457	rs298900	2	98135770		C	G	0.0710	KA
SNP_A-1692348	rs10516332	4	18870648		C	T	0.0705	KA
SNP_A-1756527	rs1503055	17	47529075	TSC749038	G	T	0.0702	KA
SNP_A-1744311	rs167177	4	161564983	TSC421550	A	G	0.0702	KA
SNP_A-1710059	rs6570708	6	146031121		C	T	0.0699	KA
SNP_A-1693431	rs10514795	2	106889744		C	T	0.0696	KA
SNP_A-1717877	rs6891265	5	128207050		A	G	0.0696	KA
SNP_A-1705121	rs1393735	17	47528183	TSC567332	C	T	0.0693	KA
SNP_A-1756981	rs9294115	6	79271573		C	G	0.0693	KA
SNP_A-1729870	rs10498700	6	21179832		C	G	0.0692	KA
SNP_A-1655857	rs365869	6	145926444		C	T	0.0691	KA
SNP_A-1668827	rs258717	7	81416136		A	G	0.0690	KA
SNP_A-1735633	rs2188445	7	108497136	TSC1239253	C	T	0.0687	KA
SNP_A-1758628	rs5911660	X	116264062		A	C	0.0683	KA
SNP_A-1715303	rs1412185	9	2386346	TSC604967	C	G	0.0683	KA
SNP_A-1702959	rs7981329	13	88336835		A	G	0.0677	KA
SNP_A-1747983	rs4738798	8	61223406		A	T	0.0675	KA
SNP_A-1695509	rs10497359	2	170593103		A	T	0.0671	KA
SNP_A-1652888	rs5910035	X	116280459		C	T	0.0671	KA
SNP_A-1715391	rs505310	2	45822543		C	T	0.0670	KA
SNP_A-1740763	rs2135871	11	7164400	TSC1149412	A	G	0.0666	KA
SNP_A-1695101	rs28155	5	68121263	TSC555891	A	G	0.0664	KA
SNP_A-1715679	rs3851569	10	127029343	TSC1491156	C	T	0.0657	KA
SNP_A-1666218	rs9326798	5	109686527		A	G	0.1813	HM
SNP_A-1706767	rs1488595	5	109932655	TSC720287	A	C	0.1515	HM
SNP_A-1643063	rs724317	4	11857060	TSC54955	G	T	0.1497	HM
SNP_A-1651226	rs10490710	2	169355299		A	G	0.1260	HM
SNP_A-1721546	rs10501202	11	38560394		A	C	0.1225	HM
SNP_A-1739109	rs10520536	4	183878760		C	T	0.1216	HM

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1658584	rs290867	1	97248383	TSC772068	A	G	0.1215	HM
SNP_A-1660069	rs2040642	17	13039174	TSC1057171	A	G	0.1199	HM
SNP_A-1723942	rs1958346	14	89893764	TSC1041559	G	T	0.1142	HM
SNP_A-1655271	rs10501127	11	33698233		C	G	0.1120	HM
SNP_A-1736009	rs4644134	7	8268691		A	C	0.1110	HM
SNP_A-1646310	rs513300	9	254519		A	G	0.1101	HM
SNP_A-1699739	rs1357462	4	31771038	TSC495793	A	G	0.1090	HM
SNP_A-1736857	rs10508606	10	20316137		G	T	0.1074	HM
SNP_A-1667448	rs185793	15	45483437	TSC328850	A	T	0.1069	HM
SNP_A-1688334	rs830907	5	51940364	TSC678273	C	T	0.1051	HM
SNP_A-1644944	rs4344605	13	54680266		A	G	0.1051	HM
SNP_A-1712859	rs588412	9	239391	TSC813219	A	C	0.1042	HM
SNP_A-1649188	rs10510493	3	19692203		C	G	0.1040	HM
SNP_A-1756196	rs1993351	11	11766121	TSC868918	C	G	0.1036	HM
SNP_A-1691054	rs1038670	18	44152193	TSC344282	C	T	0.1024	HM
SNP_A-1720735	rs10510494	3	19589049		A	G	0.1024	HM
SNP_A-1743771	rs3857163	4	14085718	TSC1087943	C	T	0.1009	HM
SNP_A-1706321	rs1533904	2	138748534	TSC407460	A	T	0.1005	HM
SNP_A-1696032	rs10486222	7	8268176		A	C	0.0999	HM
SNP_A-1694007	rs3918334	13	102776780		A	C	0.0974	HM
SNP_A-1656209	rs911959	6	124730454	TSC194269	A	G	0.0966	HM
SNP_A-1723584	rs1009387	X	151191839	TSC88305	A	T	0.0964	HM
SNP_A-1690547	rs606688	12	51297353		A	G	0.0961	HM
SNP_A-1731799	rs10486293	7	18409035		C	T	0.0959	HM
SNP_A-1726172	rs4654	12	26381422		C	T	0.0959	HM
SNP_A-1742459	rs10496813	2	139832664		A	G	0.0954	HM
SNP_A-1758362	rs6508962	19	33798612		A	G	0.0953	HM
SNP_A-1705407	rs3804126	6	25676560		A	G	0.0951	HM
SNP_A-1736675	rs2328111	20	16821265	TSC1399576	A	C	0.0949	HM
SNP_A-1704641	rs10500477	16	62384830		A	C	0.0947	HM
SNP_A-1701417	rs10496797	2	138735628		A	C	0.0943	HM
SNP_A-1689727	rs2865398	4	96372161	TSC1703227	C	G	0.0935	HM
SNP_A-1701181	rs9289112	3	119818336		A	G	0.0932	HM
SNP_A-1668771	rs7915409	10	18459601		A	G	0.0930	HM
SNP_A-1721628	rs1031815	4	83180365	TSC334819	C	T	0.0921	HM
SNP_A-1719419	rs508796	1	33866151		A	G	0.0917	HM
SNP_A-1697897	rs1498991	3	20875136	TSC740951	C	G	0.0911	HM

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1729276	rs6507763	18	43310669		A	G	0.0904	HM
SNP_A-1753535	rs2066310	14	46491150	TSC1105021	A	G	0.0901	HM
SNP_A-1725730	rs10484198	14	46489396		A	G	0.0901	HM
SNP_A-1649934	rs10510002	10	116200592		A	G	0.0896	HM
SNP_A-1648210	rs10508602	10	20211537		A	G	0.0893	HM
SNP_A-1648512	rs281221	15	45500394		A	T	0.0887	HM
SNP_A-1729184	rs6836504	4	96275943		C	G	0.0885	HM
SNP_A-1644658	rs727929	18	3337813	TSC63028	A	G	0.0885	HM
SNP_A-1752179	rs1535768	1	57948423	TSC410417	C	G	0.0882	HM
SNP_A-1656171	rs1024116	18	73561374	TSC247167	C	T	0.0879	HM
SNP_A-1714949	rs10486223	7	8268647		C	T	0.0878	HM
SNP_A-1719233	rs2026446	6	2040233	TSC1073727	C	T	0.0875	HM
SNP_A-1725926	rs10513414	9	122685262		C	T	0.0875	HM
SNP_A-1735751	rs1476623	7	8267626	TSC398443	C	T	0.0874	HM
SNP_A-1743115	rs9316770	13	54689401		C	T	0.0867	HM
SNP_A-1742593	rs1503653	4	112733587	TSC750058	C	G	0.0866	HM
SNP_A-1727929	rs10495178	1	218348833		C	G	0.0863	HM
SNP_A-1668518	rs4497258	1	56029855		A	G	0.1524	YA
SNP_A-1703763	rs1074182	16	52028858	TSC52298	A	C	0.1502	YA
SNP_A-1671460	rs1867958	9	85239358	TSC865405	C	T	0.1446	YA
SNP_A-1689344	rs1434710	12	92921691	TSC648826	A	T	0.1256	YA
SNP_A-1731943	rs2154434	21	34049605	TSC1185403	G	T	0.1213	YA
SNP_A-1710495	rs1124791	4	139015889	TSC86326	A	T	0.1084	YA
SNP_A-1656365	rs526625	1	163364616	TSC312063	C	T	0.1056	YA
SNP_A-1725304	rs1077651	21	20588868	TSC200335	A	G	0.1031	YA
SNP_A-1718087	rs8094618	18	20816188		C	T	0.1015	YA
SNP_A-1691446	rs9295676	6	26036355		G	T	0.1010	YA
SNP_A-1692098	rs7531344	1	41176524		C	G	0.0991	YA
SNP_A-1650780	rs1456017	2	46819278	TSC687663	C	G	0.0986	YA
SNP_A-1660303	rs2337023	1	106661513	TSC1428957	C	T	0.0972	YA
SNP_A-1719863	rs970662	14	32243135	TSC280158	A	C	0.0969	YA
SNP_A-1655535	rs10504879	8	90610810		A	C	0.0964	YA
SNP_A-1699755			0	TSC1482252	G	T	0.0930	YA
SNP_A-1750365	rs9303973	18	5160379		C	T	0.0917	YA
SNP_A-1711492	rs1073935	5	86307720	TSC49412	C	T	0.0903	YA
SNP_A-1694581	rs2066244	6	70603796	TSC1104918	C	T	0.0902	YA
SNP_A-1749005	rs10494042	1	106651832		A	C	0.0900	YA

SNP.ID	dbSNP.RS.I D	Chro mo s o m e	Physical.Po s i t i o n	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1663468	rs26908	5	80401557		A	G	0.0894	YA
SNP_A-1666472	rs712408	14	41345673	TSC48718	C	T	0.0882	YA
SNP_A-1694445	rs520180	8	26765839		A	G	0.0876	YA
SNP_A-1691746	rs2041529	7	117380388	TSC1058303	C	T	0.0866	YA
SNP_A-1685724	rs1461237	5	153218516	TSC696894	A	G	0.0857	YA
SNP_A-1732580	rs652348	18	30972241		A	G	0.0832	YA
SNP_A-1753763	rs10504745	8	83089314		A	T	0.0831	YA
SNP_A-1753243	rs2104028	6	51829589	TSC1332174	A	G	0.0828	YA
SNP_A-1753323	rs2345638	2	152759810	TSC1456687	G	T	0.0822	YA
SNP_A-1720241	rs2201034	17	29273402	TSC1254927	A	C	0.0820	YA
SNP_A-1698321	rs713973	22	38491643	TSC4373	C	G	0.0817	YA
SNP_A-1652970	rs1429630	12	30314116	TSC639756	A	G	0.0814	YA
SNP_A-1662810	rs1924743	1	183872475	TSC982986	A	T	0.0814	YA
SNP_A-1756699	rs2477192	1	179004313	TSC1072415	C	T	0.0812	YA
SNP_A-1644336	rs10490177	2	50946583		C	G	0.0798	YA
SNP_A-1716569	rs4835804	5	121891581		A	G	0.0779	YA
SNP_A-1677384	rs10503858	8	29911647		C	T	0.0774	YA
SNP_A-1663174	rs6123609	20	36404995		C	G	0.0771	YA
SNP_A-1736213	rs7325222	13	104367380		A	G	0.0768	YA
SNP_A-1681022	rs2273408	14	30131260		C	T	0.0759	YA
SNP_A-1719781	rs3788764	X	100339130		C	T	0.0758	YA
SNP_A-1750343	rs10503457	8	13466101		C	T	0.0756	YA
SNP_A-1666398	rs1504608	14	56542041	TSC751791	A	G	0.0754	YA
SNP_A-1643095	rs10514413	16	75900070		A	C	0.0752	YA
SNP_A-1697060	rs1356598	2	14929001	TSC494144	C	T	0.0752	YA
SNP_A-1757215	rs7805903	7	11073941		C	G	0.0750	YA
SNP_A-1686146	rs959190	4	10549010	TSC261367	A	G	0.0747	YA
SNP_A-1728655	rs2408612	5	125545005	TSC1647620	A	G	0.0744	YA
SNP_A-1703737	rs4980285	10	125124733		A	C	0.0737	YA
SNP_A-1673794	rs10491841	9	77212760		A	G	0.0734	YA
SNP_A-1748113	rs1880113	18	28528275	TSC891470	A	G	0.0729	YA
SNP_A-1674777	rs2130910	4	187961359	TSC1151006	C	T	0.0727	YA
SNP_A-1743643	rs4122080	11	80062348	TSC796383	C	T	0.0723	YA
SNP_A-1745486	rs10250746	7	7301411		A	G	0.0720	YA
SNP_A-1681216	rs2224909	1	183895841	TSC1290875	C	T	0.0710	YA
SNP_A-1644844	rs7946770	11	98400429		G	T	0.0710	YA
SNP_A-1653080	rs723850	13	92831415	TSC53937	C	T	0.0706	YA

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1711616	rs10520166	2	76995223		C	T	0.0786	LW
SNP_A-1675139			0	TSC1437031	A	G	0.0780	LW
SNP_A-1670756			0		C	T	0.0777	LW
SNP_A-1677826	rs268274	10	43952268		A	G	0.0765	LW
SNP_A-1753767	rs7675468	4	100819047		C	T	0.0762	LW
SNP_A-1724074	rs446815	11	115324874	TSC1275117	C	T	0.0759	LW
SNP_A-1705521	rs2254210	12	46559981	TSC1648633	A	G	0.0758	LW
SNP_A-1674215	rs10506587	12	69004866		C	T	0.0756	LW
SNP_A-1659300	rs10515645	5	150532020		A	G	0.0753	LW
SNP_A-1689290	rs259940	6	30119913	TSC317427	A	G	0.0752	LW
SNP_A-1712899			0	TSC688102	G	T	0.0750	LW
SNP_A-1733210	rs843674	2	54323581		G	T	0.0748	LW
SNP_A-1654333	rs4140921	12	95991353		A	C	0.0740	LW
SNP_A-1666254	rs1599515	16	50308993	TSC698005	A	T	0.0738	LW
SNP_A-1735981	rs1381452	16	50309752	TSC542797	A	T	0.0738	LW
SNP_A-1682636	rs1527961	2	62692091	TSC797573	A	G	0.0736	LW
SNP_A-1701151	rs180618	10	117777111		C	T	0.0732	LW
SNP_A-1651626	rs1041680	9	31088614	TSC348743	A	G	0.0731	LW
SNP_A-1744981	rs10506466	12	62435806		C	T	0.0731	LW
SNP_A-1713710	rs3829032	8	131902218		C	T	0.0731	LW
SNP_A-1743489	rs10515995	18	61067712		A	C	0.0728	LW
SNP_A-1681494	rs4694087	4	72284202		C	G	0.0727	LW
SNP_A-1758025	rs1582165	1	244927430	TSC503534	A	T	0.0726	LW
SNP_A-1676060	rs10489621	1	56950549		A	G	0.0724	LW
SNP_A-1673712	rs7578216	2	195658194		A	C	0.0724	LW
SNP_A-1753381	rs2175462	15	23754928	TSC1215086	A	G	0.0723	LW
SNP_A-1746328	rs9294603	6	95221718		A	T	0.0721	LW
SNP_A-1651186	rs1014226	2	199237970	TSC95754	A	C	0.2061	TN
SNP_A-1750133	rs4658945	1	228225576		C	T	0.1670	TN
SNP_A-1689314	rs10492058	12	4756365		C	T	0.1585	TN
SNP_A-1733742	rs275715	15	37899611	TSC520534	A	G	0.1443	TN
SNP_A-1743897	rs10498068	2	220440249		C	T	0.1423	TN
SNP_A-1727481	rs950658	4	121627333	TSC43525	C	T	0.1419	TN
SNP_A-1656001	rs10257635	7	13514931		A	C	0.1418	TN
SNP_A-1663086	rs2824502	21	18126666		A	G	0.1326	TN
SNP_A-1722840	rs10497800	2	197579195		C	T	0.1326	TN
SNP_A-1679666	rs923312	11	44999019	TSC238205	A	G	0.1309	TN

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1666378	rs1328103	13	105212945	TSC813731	C	T	0.1303	TN
SNP_A-1660335	rs4924288	15	36770425		C	G	0.1247	TN
SNP_A-1656557	rs2395182	6	32521295	TSC1607630	G	T	0.1230	TN
SNP_A-1650838	rs222396	X	149452999		A	C	0.1218	TN
SNP_A-1733148	rs950427	3	144557663	TSC41892	A	G	0.1192	TN
SNP_A-1748471	rs10499431	7	13453335		C	T	0.1186	TN
SNP_A-1653934	rs4839592	3	144568588		C	G	0.1176	TN
SNP_A-1685794	rs17455244	21	18132193		A	G	0.1173	TN
SNP_A-1757613	rs10513206	3	144560509		C	G	0.1160	TN
SNP_A-1690251	rs4659634	1	232621117		A	T	0.1144	TN
SNP_A-1651046	rs10519750	15	30896973		A	C	0.1135	TN
SNP_A-1758558	rs10512769	5	5200125		C	T	0.1130	TN
SNP_A-1724206	rs10506501	12	65511739		C	T	0.1129	TN
SNP_A-1723456	rs3770705	2	65142390		A	G	0.1128	TN
SNP_A-1677114	rs10500485	16	62584935		C	T	0.1123	TN
SNP_A-1723206	rs9296057	6	32977893		A	G	0.1112	TN
SNP_A-1753565	rs10484390	6	22181633		C	T	0.1108	TN
SNP_A-1726920	rs2398777	3	103979514	TSC1617699	G	T	0.1107	TN
SNP_A-1671136	rs320379	1	210065486		C	T	0.1093	TN
SNP_A-1750757	rs697787	3	104084528		A	G	0.1092	TN
SNP_A-1667780	rs2227139	6	32521437	TSC1295460	C	T	0.1090	TN
SNP_A-1703801	rs697788	3	104085035	TSC576461	C	T	0.1090	TN
SNP_A-1754264	rs1705908	3	104017462		A	T	0.1085	TN
SNP_A-1654319	rs718307	20	55639435	TSC41859	A	G	0.1081	TN
SNP_A-1731289	rs12523974	6	22181900		C	T	0.1080	TN
SNP_A-1727010	rs118002	1	210054979	TSC97397	G	T	0.1066	TN
SNP_A-1643615	rs1641561	4	26313218	TSC1140151	A	T	0.1063	TN
SNP_A-1693807	rs950257	3	196328947	TSC40733	A	T	0.1057	TN
SNP_A-1723540	rs33430	19	35631283		A	G	0.1055	TN
SNP_A-1729220	rs1570719	13	55462792	TSC465657	C	G	0.1047	TN
SNP_A-1758278	rs1921332	12	11450125	TSC977234	C	G	0.1046	TN
SNP_A-1742135	rs118003	1	210055132	TSC97398	A	G	0.1043	TN
SNP_A-1659334	rs1905272	7	49827338	TSC949405	C	T	0.1039	TN
SNP_A-1757868	rs2225125	9	4988639	TSC1291264	A	G	0.1032	TN
SNP_A-1674647	rs977382	6	62118323	TSC290773	A	G	0.1029	TN
SNP_A-1673248	rs10520143	15	37729232		A	G	0.1026	TN

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1712947	rs1453181	6	53465441	TSC682713	C	G	0.1025	TN
SNP_A-1709537	rs10484563	6	32811140		C	T	0.1022	TN
SNP_A-1658954	rs632682	3	126362686		A	G	0.1021	TN
SNP_A-1651244	rs1791067	18	3258550		A	G	0.1018	TN
SNP_A-1751867	rs10496320	2	85990136		C	T	0.1001	TN
SNP_A-1694389	rs10502442	18	19836827		C	T	0.0999	TN
SNP_A-1714326	rs10507220	12	106776718		C	T	0.0998	TN
SNP_A-1743675	rs10495279	1	224678286		C	T	0.0997	TN
SNP_A-1738292	rs324216	11	21939439		A	G	0.0994	TN
SNP_A-1740855	rs10519308	15	79161506		C	T	0.0984	TN
SNP_A-1678982	rs7833413	8	59650843		C	T	0.0972	TN
SNP_A-1702783	rs3769862	2	179491519		A	G	0.0969	TN
SNP_A-1653786	rs2179694	6	128405416	TSC1222664	C	G	0.0965	TN
SNP_A-1688778	rs10521109	17	560251		A	C	0.0963	TN
SNP_A-1673624	rs975618	6	65881300	TSC287883	A	G	0.2514	MA
SNP_A-1712207	rs6500986	16	7553178		C	G	0.2890	MA
SNP_A-1724898	rs1465651	6	33009329	TSC380893	A	G	0.2546	MA
SNP_A-1649624	rs1971772	6	123724457	TSC425053	A	T	0.2503	MA
SNP_A-1686580	rs1349710	6	141536371	TSC480076	C	T	0.2675	MA
SNP_A-1702223	rs9303192	17	5265560		C	T	0.2649	MA
SNP_A-1705051	rs4239056	17	5265130		A	C	0.2704	MA
SNP_A-1691252	rs225694	6	142568835		A	G	0.2788	MA
SNP_A-1720925	rs10484946	6	79913349		A	G	0.2454	MA
SNP_A-1683942	rs9325795	8	16398673		C	T	0.2550	MA
SNP_A-1648946	rs1385982	8	50930576	TSC551502	A	T	0.3321	MA
SNP_A-1726726	rs6570450	6	141574093		C	T	0.2677	MA
SNP_A-1691942	rs10510606	3	28249237		A	G	0.2778	MA
SNP_A-1646276	rs1526897	7	128551905	TSC795750	C	T	0.2735	MA
SNP_A-1758162	rs726157	21	35251859	TSC59079	C	T	0.2593	MA
SNP_A-1747521	rs10485351	6	168002914		C	T	0.2960	MA
SNP_A-1676068	rs354748	20	58344957		G	T	0.2495	MA
SNP_A-1688836	rs1074553	8	75985406	TSC56749	C	T	0.2547	MA
SNP_A-1668809	rs10516960	4	96516855		A	C	0.2675	MA
SNP_A-1749911	rs10510613	3	28902199		C	T	0.2444	MA
SNP_A-1648946	rs1385982	8	50930576	TSC551502	A	T	0.3321	MA
SNP_A-1726726	rs6570450	6	141574093		C	T	0.2677	MA

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1681390	rs2385545	8	50930430	TSC1576793	C	T	0.3216	MA
SNP_A-1737525	rs458772	X	124837155	TSC1268693	C	T	0.2649	MA
SNP_A-1710946	rs580901	8	41643965		C	G	0.2824	MA
SNP_A-1714743	rs174591	11	61374252	TSC42360	A	T	0.2634	MA
SNP_A-1651882	rs7764878	6	142388438		A	G	0.3135	MA
SNP_A-1668246	rs2009530	19	53411500	TSC47070	G	T	0.2704	MA
SNP_A-1704197	rs3132132	6	33009912		A	G	0.2546	MA
SNP_A-1755576	rs8115115	20	57972257		A	G	0.2489	MA
SNP_A-1700458	rs1486258	8	50990529	TSC715853	A	G	0.3123	MA
SNP_A-1733364	rs10521035	9	98374907		G	T	0.2445	MA
SNP_A-1724948	rs1371549	2	224243757	TSC523524	A	C	0.2450	MA
SNP_A-1716373	rs10482999	21	30664466		C	T	0.2724	MA
SNP_A-1694579	rs9287422	2	133178408		A	C	0.3259	MA
SNP_A-1737553	rs2274963	9	98842646		A	G	0.2936	MA
SNP_A-1670183	rs2981108	8	74034617	TSC547653	C	T	0.3216	MA
SNP_A-1757711	rs194982	20	57978142	TSC604999	C	T	0.2492	MA
SNP_A-1713275	rs1937337	10	90811983	TSC1004820	G	T	0.3158	MA
SNP_A-1678378	rs588036	6	150790788	TSC1454106	C	T	0.2460	MA
SNP_A-1678216	rs2112527	19	9464751	TSC1114254	A	G	0.2579	MA
SNP_A-1723366	rs754920	7	128062363	TSC560228	A	G	0.2458	MA
SNP_A-1737221	rs10521319	16	54136937		A	C	0.2502	MA
SNP_A-1743035	rs720203	6	123668845	TSC46027	A	G	0.2702	MA
SNP_A-1713766	rs10498152	2	224264991		C	T	0.2560	MA
SNP_A-1752719	rs10503565	8	15858256		C	G	0.2559	MA
SNP_A-1657820	rs1208261	6	134234536		A	G	0.2614	MA
SNP_A-1758175	rs1525499	7	109365686	TSC793316	C	G	0.2569	MA
SNP_A-1673380	rs2450290	8	50990561		G	T	0.3321	MA
SNP_A-1664178	rs262120	6	142884053	TSC647485	G	T	0.2503	MA
SNP_A-1690047	rs10506640	12	70376345		C	T	0.2547	MA
SNP_A-1734244	rs1455811	8	76103499	TSC687299	C	T	0.2704	MA
SNP_A-1722204	rs1362400	16	54129326	TSC505450	A	G	0.2444	MA
SNP_A-1718847	rs724224	7	85970271	TSC54770	A	C	0.2638	MA
SNP_A-1658956	rs2144715	6	65717788	TSC1164002	A	G	0.2547	MA
SNP_A-1646202	rs10492725	13	34353493		A	C	0.2522	MA
SNP_A-1689134	rs10500249	19	36260518		C	T	0.2740	MA
SNP_A-1745614	rs6982126	8	74102177		A	G	0.2762	MA
SNP_A-1685948	rs2450287	8	50992349		G	T	0.3321	MA
SNP_A-1697893	rs10485312	6	66002895		C	T	0.2619	MA
SNP_A-1712801	rs2171935	6	47184602	TSC1208857	A	G	0.2456	MA

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1737419	rs376350	21	41636158	TSC1653187	A	T	0.2657	MA
SNP_A-1757931	rs6063180	20	45987307		A	C	0.1155	MO
SNP_A-1653208	rs242528	20	30905617		A	G	0.0885	MO
SNP_A-1644480	rs723529	2	148110655	TSC53221	C	T	0.0881	MO
SNP_A-1664048	rs1343982	1	65757272	TSC60701	A	G	0.0858	MO
SNP_A-1661698	rs8014811	14	25288491		C	T	0.0835	MO
SNP_A-1668594	rs1540453	4	175320519	TSC417835	C	G	0.0817	MO
SNP_A-1750365	rs9303973	18	5160379		C	T	0.0781	MO
SNP_A-1655269	rs10507652	13	60085200		C	T	0.0779	MO
SNP_A-1668518	rs4497258	1	56029855		A	G	0.0774	MO
SNP_A-1697442	rs1379020	2	198963363	TSC538316	A	G	0.0771	MO
SNP_A-1681506	rs878133	2	238798933	TSC211307	A	G	0.0771	MO
SNP_A-1696520	rs10497948	2	212317632		C	T	0.0771	MO
SNP_A-1711804	rs6982358	8	4803771		C	T	0.0762	MO
SNP_A-1678302	rs9288668	2	231233168		C	T	0.0759	MO
SNP_A-1725444	rs10506035	12	28502359		C	T	0.0750	MO
SNP_A-1753765	rs10508500	10	16159054		C	G	0.0736	MO
SNP_A-1679772	rs10486467	7	26427754		A	G	0.0732	MO
SNP_A-1753945	rs26152	5	11544991	TSC703640	C	T	0.0731	MO
SNP_A-1702341	rs1923076	6	91433299	TSC979990	A	G	0.0723	MO
SNP_A-1747485	rs10503484	8	14005504		A	C	0.0710	MO
SNP_A-1704997	rs3110705	8	40231500		A	G	0.0673	MO
SNP_A-1653554	rs7994890	13	79748385		C	T	0.0669	MO
SNP_A-1663398	rs727363	12	45780396	TSC61773	A	C	0.0669	MO
SNP_A-1755578	rs1478026	8	14069520	TSC700708	A	G	0.0668	MO
SNP_A-1695307	rs10506033	12	28459232		A	G	0.0668	MO
SNP_A-1668438	rs10495471	1	237032148		A	G	0.0663	MO
SNP_A-1650740	rs590086	9	130373213	TSC198945	C	T	0.0662	MO
SNP_A-1698183	rs707496	2	124257236	TSC241707	A	G	0.0661	MO
SNP_A-1756323	rs559160	3	139862767		C	T	0.0659	MO
SNP_A-1701755	rs10503389	8	8977133		C	T	0.0649	MO
SNP_A-1655233	rs1074750	2	153878099	TSC59139	A	G	0.0640	MO
SNP_A-1714439	rs10506032	12	28428377		C	T	0.0634	MO
SNP_A-1668775	rs560843	9	18734367		A	T	0.0633	MO
SNP_A-1669383	rs10510090	10	122964760		A	G	0.0627	MO
SNP_A-1674667	rs10497964	2	212893933		C	T	0.0625	MO
SNP_A-1751217	rs10506029	12	28364502		C	T	0.0625	MO
SNP_A-1752107	rs7842213	8	125119479		A	G	0.0624	MO

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1644032	rs2039371	10	130790196	TSC1055288	C	T	0.0622	MO
SNP_A-1648846	rs2039372	10	130790379	TSC1055289	C	T	0.0622	MO
SNP_A-1746076	rs26349	3	42426416		C	T	0.0622	MO
SNP_A-1723302	rs1104529	3	104832914	TSC1068	G	T	0.0622	MO
SNP_A-1673286	rs601032	3	139832030		A	G	0.0622	MO
SNP_A-1752693	rs691728	10	18270772	TSC50850	C	G	0.0619	MO
SNP_A-1758151	rs6733332	2	231463645		A	G	0.0618	MO
SNP_A-1744577	rs7976402	12	53322794		A	G	0.0617	MO
SNP_A-1701203	rs10495368	1	232446777		A	G	0.0616	MO
SNP_A-1643976	rs815659	6	96528990	TSC831272	A	T	0.0614	MO
SNP_A-1740899	rs10517147	4	28204329		A	G	0.0614	MO
SNP_A-1699545	rs721012	12	53323790	TSC47880	G	T	0.0610	MO
SNP_A-1714743	rs174591	11	61374252	TSC42360	A	T	0.0293	MO
SNP_A-1726726	rs6570450	6	141574093		C	T	0.0178	MO
SNP_A-1702223	rs9303192	17	5265560		C	T	0.0162	MO
SNP_A-1668809	rs10516960	4	96516855		A	C	0.0116	MO
SNP_A-1718847	rs724224	7	85970271	TSC54770	A	C	0.0109	MO
SNP_A-1686580	rs1349710	6	141536371	TSC480076	C	T	0.0105	MO
SNP_A-1737419	rs376350	21	41636158	TSC1653187	A	T	0.0103	MO
SNP_A-1668246	rs2009530	19	53411500	TSC47070	G	T	0.0101	MO
SNP_A-1743035	rs720203	6	123668845	TSC46027	A	G	0.0078	MO
SNP_A-1734244	rs1455811	8	76103499	TSC687299	C	T	0.0025	MO
SNP_A-1737525	rs458772	X	124837155	TSC1268693	C	T	0.0010	MO
SNP_A-1731807	rs4141883	9	72127449		A	T	0.1614	PL
SNP_A-1719321	rs966284	2	209789091	TSC273228	C	T	0.1562	PL
SNP_A-1756266	rs2146959	6	9061356	TSC1167418	A	G	0.1450	PL
SNP_A-1718751	rs6008359	22	46453107		C	T	0.1277	PL
SNP_A-1647344	rs2365661	2	210217343	TSC1518202	C	T	0.1276	PL
SNP_A-1735074	rs966285	2	209789135	TSC273229	G	T	0.1264	PL
SNP_A-1642361	rs1431948	5	121140166	TSC643810	A	G	0.1156	PL
SNP_A-1700813	rs2348125	2	201441896	TSC1462720	A	C	0.1142	PL
SNP_A-1739843	rs890267	15	55848181	TSC160231	A	G	0.1136	PL
SNP_A-1704075	rs7355281	2	210073698		A	C	0.1122	PL
SNP_A-1754514	rs9288405	2	210072467		A	C	0.1122	PL
SNP_A-1644108	rs1407596	1	170636616	TSC596140	C	T	0.1104	PL
SNP_A-1689608	rs2134452	5	101968425	TSC1146968	A	G	0.1069	PL
SNP_A-1705149	rs2362598	7	77717353	TSC1508942	A	G	0.1048	PL
SNP_A-1688746	rs382734	11	16845973		A	G	0.1046	PL

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1711264	rs415300	11	16846321		C	T	0.1039	PL
SNP_A-1718279	rs1343837	4	137850691	TSC49340	A	G	0.1031	PL
SNP_A-1747449	rs956305	18	25073536	TSC149765	C	T	0.1008	PL
SNP_A-1748749	rs812382	13	104976066		A	G	0.0998	PL
SNP_A-1736849	rs6994244	8	29526515		A	G	0.0990	PL
SNP_A-1682084	rs478801	1	111038434	TSC1142617	A	G	0.0985	PL
SNP_A-1652818	rs10485501	20	31224759		A	C	0.0963	PL
SNP_A-1726328	rs1790677	18	26950011	TSC1185727	A	T	0.0958	PL
SNP_A-1752761	rs10495458	1	236587906		C	T	0.0948	PL
SNP_A-1682390	rs1363554	5	144934117	TSC507700	A	G	0.0941	PL
SNP_A-1694437	rs10513465	3	156034341		A	C	0.0938	PL
SNP_A-1682036	rs717211	11	56719135	TSC39402	A	G	0.0935	PL
SNP_A-1689288	rs1841256	6	93406747	TSC694405	A	G	0.0935	PL
SNP_A-1678070	rs966088	5	152389223	TSC272924	A	G	0.0934	PL
SNP_A-1750881	rs6558132	8	29526866		A	G	0.0930	PL
SNP_A-1645068	rs10513854	3	191788576		C	T	0.0930	PL
SNP_A-1667212	rs1350214	5	29725158	TSC480973	A	G	0.0928	PL
SNP_A-1693671	rs10504375	8	65377046		A	G	0.0924	PL
SNP_A-1678778	rs10514076	18	69409852		C	T	0.0915	PL
SNP_A-1675499	rs10502587	18	28174428		A	G	0.0912	PL
SNP_A-1750767	rs1986468	7	36343424	TSC44985	A	G	0.0911	PL
SNP_A-1734404	rs2193135	14	79517999	TSC1261357	C	T	0.0901	PL
SNP_A-1684568	rs292491	5	167951832	TSC541348	C	T	0.0896	PL
SNP_A-1649308	rs10503633	8	18698022		A	G	0.0896	PL
SNP_A-1716481	rs10489791	1	111670927		G	T	0.0895	PL
SNP_A-1752445	rs10487380	7	117180242		A	G	0.0889	PL
SNP_A-1705523	rs2467961	8	133839469		A	G	0.0888	PL
SNP_A-1694035	rs1927571	13	105263158	TSC987252	A	G	0.0885	PL
SNP_A-1758011	rs727164	7	117126103	TSC61344	A	G	0.0880	PL
SNP_A-1734424	rs1328090	13	105266410	TSC813717	A	C	0.0879	PL
SNP_A-1682030			0	TSC50448	C	T	0.0876	PL
SNP_A-1727585	rs10495055	1	213894789		A	G	0.0875	PL
SNP_A-1705115	rs6123551	20	54195825		A	G	0.0874	PL
SNP_A-1664404	rs1025226	15	40001517	TSC248678	A	C	0.0871	PL
SNP_A-1664914	rs965921	4	150414854	TSC401261	C	T	0.0869	PL
SNP_A-1659220	rs10496116	2	64579948		A	C	0.0868	PL
SNP_A-1752377	rs874326	5	24355585	TSC204593	A	C	0.0868	PL
SNP_A-1728323	rs2637964	3	193222304	TSC742799	C	T	0.0868	PL
SNP_A-1668266	rs10519974	5	127501301		A	C	0.0867	PL

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1753989	rs266338	15	65111860		G	T	0.0864	PL
SNP_A-1752259	rs10256281	7	121624605		A	G	0.0851	PL
SNP_A-1712837			0	TSC128817	A	G	0.0848	PL
SNP_A-1674307	rs6767500	3	191793403		G	T	0.0847	PL
SNP_A-1701057	rs2292388	2	160560515		C	T	0.0846	PL
SNP_A-1674801	rs1709084	19	46294310		C	T	0.0843	PL
SNP_A-1710798	rs1359427	13	98436409	TSC499528	G	T	0.0833	PP
SNP_A-1641793	rs1011844	8	83545626	TSC92231	G	T	0.0772	PP
SNP_A-1738869	rs1383132	12	97110987	TSC546019	C	T	0.0763	PP
SNP_A-1734202	rs1899694	4	83325543	TSC940811	C	T	0.0751	PP
SNP_A-1736635	rs10492945	1	4084214		C	T	0.0692	PP
SNP_A-1705503	rs184941	5	110567791		A	G	0.0692	PP
SNP_A-1742153	rs2349733	2	202448571	TSC1467591	C	T	0.0667	PP
SNP_A-1657469	rs1477901	4	18249585	TSC700490	C	G	0.0661	PP
SNP_A-1757375	rs4711162	6	11101065		A	T	0.0653	PP
SNP_A-1736285	rs965979	2	57637042	TSC272739	G	T	0.0651	PP
SNP_A-1726240	rs1610214	16	55233389	TSC458726	A	T	0.0641	PP
SNP_A-1746250	rs10503459	8	13495032		C	G	0.0639	PP
SNP_A-1656967	rs10505927	12	24070940		C	T	0.0638	PP
SNP_A-1706005	rs1129555	10	113900711		C	T	0.0638	PP
SNP_A-1745672	rs2388959	1	80235110	TSC1589671	C	T	0.0623	PP
SNP_A-1748949	rs1405326	7	11580045	TSC591554	A	T	0.0621	PP
SNP_A-1705875	rs10489648	1	79476048		A	C	0.0619	PP
SNP_A-1663882	rs2223995	6	134977457	TSC1289605	A	C	0.0611	PP
SNP_A-1662308	rs2027148	13	79302300	TSC1085652	G	T	0.0609	PP
SNP_A-1665024	rs4356099	1	5094298		A	G	0.0604	PP
SNP_A-1668366	rs681803	10	6536928		A	T	0.0602	PP
SNP_A-1702339	rs10497257	2	165856335		C	T	0.0602	PP
SNP_A-1744973	rs1109009	20	2405788	TSC215684	G	T	0.0598	PP
SNP_A-1696068	rs564210	16	64314819	TSC812605	A	G	0.0597	PP
SNP_A-1655983	rs844656	1	169967492		A	C	0.0596	PP
SNP_A-1749629	rs1426241	18	2119992	TSC632881	A	G	0.0596	PP
SNP_A-1718239	rs4361555	5	143521724		C	T	0.0596	PP
SNP_A-1681326	rs10489653	1	79385022		C	T	0.0592	PP
SNP_A-1661894	rs10518600	4	132888375		C	T	0.0590	PP
SNP_A-1697180	rs30743	5	135360470		A	G	0.0588	PP
SNP_A-1705231	rs7679738	4	150480401		C	T	0.0586	PP
SNP_A-1675297	rs10509160	10	63245218		C	G	0.0585	PP
SNP_A-1742113	rs3886738	10	63234254	TSC49777	A	G	0.0585	PP

SNP.ID	dbSNP.RS.ID	Chromosome	Physical Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1656987	rs10509161	10	63245347		A	G	0.0585	PP
SNP_A-1758386	rs2140502	3	781930	TSC1157360	C	G	0.0584	PP
SNP_A-1748503	rs1382757	4	11913335	TSC545227	A	G	0.0582	PP
SNP_A-1689490	rs2585753	11	19852332		C	G	0.0577	PP
SNP_A-1676704	rs1343726	3	125349784	TSC41755	A	T	0.0572	PP
SNP_A-1698259	rs7573988	2	12182862		A	G	0.0571	PP
SNP_A-1728183	rs42258	5	135360698		C	G	0.0568	PP
SNP_A-1725944	rs2746967	22	35390989	TSC112982	A	C	0.0566	PP
SNP_A-1728781	rs7132962	12	78143204		C	T	0.0560	PP
SNP_A-1643828	rs1820073	5	148037789	TSC507677	A	G	0.0556	PP
SNP_A-1721153	rs10498067	2	220419019		C	T	0.0553	PP
SNP_A-1727266	rs10502052	11	104797071		C	T	0.0552	PP
SNP_A-1741603	rs782603	2	55761914		A	G	0.0551	PP
SNP_A-1674885	rs10511167	3	99695207		A	C	0.0551	PP
SNP_A-1708452	rs2858087	4	3305861		A	T	0.0550	PP
SNP_A-1706677	rs4244290	10	113117080		A	G	0.0548	PP
SNP_A-1684794	rs2853255	8	98035721		C	T	0.0546	PP
SNP_A-1654861	rs1398754	3	112927576	TSC578144	A	G	0.0546	PP
SNP_A-1749823	rs10514561	16	81328552		C	G	0.0546	PP
SNP_A-1711949	rs1112468	1	169985387	TSC45796	C	T	0.0543	PP
SNP_A-1738801	rs1488545	3	174966136	TSC720218	G	T	0.0543	PP
SNP_A-1710493	rs1834546	18	2135811	TSC632888	A	G	0.0542	PP
SNP_A-1643227	rs685058	18	2136395	TSC511037	A	G	0.0542	PP
SNP_A-1686718	rs10495231	1	221545130		A	G	0.0541	PP
SNP_A-1684328	rs6972136	7	18732621		C	T	0.0539	PP
SNP_A-1720519	rs943001	13	70578522	TSC364932	C	T	0.0534	PP
SNP_A-1694433	rs4129469	18	33788038	TSC59387	C	T	0.0533	PP
SNP_A-1756325	rs10511807	9	27750185		A	G	0.0746	TU
SNP_A-1711128	rs881501	10	25218621	TSC217617	C	T	0.0647	TU
SNP_A-1755772	rs1590384	6	93894155	TSC597607	C	G	0.0638	TU
SNP_A-1683190	rs10494192	1	117256744		C	T	0.0593	TU
SNP_A-1753867	rs7916535	10	25217750		C	T	0.0575	TU
SNP_A-1709429	rs321565	1	96368026	TSC597867	C	T	0.0566	TU
SNP_A-1725346	rs265360	6	129579569	TSC1208923	A	G	0.0566	TU
SNP_A-1752693	rs691728	10	18270772	TSC50850	C	G	0.0541	TU
SNP_A-1654199	rs3785315	16	63562896		C	T	0.0535	TU
SNP_A-1679610	rs221492	14	79161922	TSC630386	C	T	0.0534	TU
SNP_A-1723090	rs7035527	9	118580013		A	G	0.0529	TU
SNP_A-1673864	rs10498031	2	215757411		A	G	0.0527	TU
SNP_A-1698795	rs6626055	X	143331544		G	T	0.0523	TU

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1694857	rs3896753	2	134611277	TSC354799	A	G	0.0519	TU
SNP_A-1651610	rs2882426	3	141267407	TSC1746832	C	T	0.0518	TU
SNP_A-1713456	rs552279	1	115781081	TSC920427	A	G	0.0517	TU
SNP_A-1661560	rs2172100	18	62025422	TSC1209106	C	T	0.0514	TU
SNP_A-1739315	rs7844485	8	138300468		C	T	0.0510	TU
SNP_A-1730425	rs10511456	9	4305442		A	G	0.0507	TU
SNP_A-1683114	rs2131137	3	163160825	TSC1141443	A	G	0.0499	TU
SNP_A-1686448	rs2041429	12	5245428	TSC1058184	A	C	0.0498	TU
SNP_A-1732836	rs10519437	5	115351623		A	G	0.0490	TU
SNP_A-1658372	rs2106440	7	112968744	TSC1106694	C	T	0.0485	TU
SNP_A-1703593	rs10268469	7	10596668		C	T	0.0484	TU
SNP_A-1708444	rs1922365	2	35235546	TSC978807	C	T	0.0483	TU
SNP_A-1646854	rs10513343	9	118579894		A	G	0.0481	TU
SNP_A-1650670	rs2241053	7	150703362		A	G	0.0478	TU
SNP_A-1719809	rs9299840	10	27601279		C	T	0.0478	TU
SNP_A-1754628	rs2389530	13	95348755	TSC1591403	A	G	0.0477	TU
SNP_A-1725004	rs6538425	12	92397291		C	G	0.0476	TU
SNP_A-1721928	rs9297840	8	133204059		A	G	0.0475	TU
SNP_A-1687982	rs10498032	2	215779991		A	T	0.0475	TU
SNP_A-1746945	rs315369	4	74093290	TSC542477	C	T	0.0474	TU
SNP_A-1705441		20	5889999	TSC1395476	G	T	0.0472	TU
SNP_A-1686526	rs10508006	13	92952411		A	G	0.0469	TU
SNP_A-1737391	rs1266922	6	51930256	TSC857912	A	G	0.0469	TU
SNP_A-1683832	rs9287830	2	164097697		A	G	0.0467	TU
SNP_A-1746460	rs2953300	2	51764024		C	T	0.0464	TU
SNP_A-1667662	rs7649994	3	8149097		C	T	0.0464	TU
SNP_A-1701547	rs10495995	2	50160564		A	G	0.0461	TU
SNP_A-1719655	rs3923926	15	28115352	TSC83680	A	G	0.0461	TU
SNP_A-1754344	rs10516709	4	85423820		A	G	0.0460	TU
SNP_A-1672724	rs996276	14	41688210	TSC1067458	A	G	0.0460	TU
SNP_A-1689426	rs763650	16	7669222	TSC65620	G	T	0.0460	TU
SNP_A-1669055	rs1846466	3	1167829	TSC741219	A	C	0.0460	TU
SNP_A-1746034	rs2418185	9	111801130	TSC1674266	G	T	0.0459	TU
SNP_A-1709955	rs287474	13	68173961	TSC757592	A	T	0.0459	TU
SNP_A-1720079	rs2191715	7	52090832	TSC1243178	A	G	0.0459	TU
SNP_A-1736735	rs1516174	2	51782992	TSC775566	A	G	0.0458	TU
SNP_A-1719495	rs10497080	2	151746307		A	G	0.0458	TU
SNP_A-1690309	rs925801	2	51783172	TSC241718	A	G	0.0457	TU
SNP_A-1690331	rs2998400	1	233927346		A	C	0.0457	TU
SNP_A-1689208	rs9308104	4	166667364		C	T	0.0454	TU

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1741713	rs2712271	1	118912206	TSC802412	A	C	0.0454	TU
SNP_A-1649016	rs10490134	2	169719456		A	G	0.0451	TU
SNP_A-1733292	rs950740	6	78962599	TSC998218	A	C	0.0451	TU
SNP_A-1665922	rs2006709	7	52157178	TSC230443	C	T	0.0450	TU
SNP_A-1752385	rs6965760	7	104727904		C	G	0.0449	TU
SNP_A-1706523	rs10502405	18	10807566		C	T	0.0449	TU
SNP_A-1682330	rs7868939	9	3745938		G	T	0.0447	TU
SNP_A-1678668	rs1919253	5	32545531	TSC973274	C	T	0.0868	TY
SNP_A-1743813	rs4975241	4	129884601		C	G	0.0822	TY
SNP_A-1748827	rs2080811	2	15674908	TSC1298225	A	G	0.0759	TY
SNP_A-1712471	rs1483775	8	87140908	TSC711099	C	T	0.0742	TY
SNP_A-1699737	rs1377248	8	78232429	TSC535229	C	G	0.0740	TY
SNP_A-1654127	rs2831242	21	28225903		C	G	0.0732	TY
SNP_A-1720885	rs1830267	7	144617298	TSC592851	A	C	0.0732	TY
SNP_A-1755150	rs1165156	6	25900957	TSC1180474	A	G	0.0722	TY
SNP_A-1718793	rs2323284	17	14350891	TSC1386851	C	T	0.0721	TY
SNP_A-1683212	rs658760	6	158594335		A	G	0.0720	TY
SNP_A-1675395	rs6131275	20	11790184		C	T	0.0718	TY
SNP_A-1751815	rs1959325	14	61529560	TSC1043008	A	G	0.0710	TY
SNP_A-1683564	rs2979508	8	30507986		C	T	0.0701	TY
SNP_A-1663882	rs2223995	6	134977457	TSC1289605	A	C	0.0699	TY
SNP_A-1715581	rs7908118	10	56883032		C	T	0.0694	TY
SNP_A-1687452	rs10507780	13	69595471		C	G	0.0684	TY
SNP_A-1646660	rs10495360	1	231714743		A	G	0.0679	TY
SNP_A-1685142	rs10490500	2	214882001		A	T	0.0677	TY
SNP_A-1652504	rs1867016	6	46333713	TSC863344	C	T	0.0676	TY
SNP_A-1746328	rs9294603	6	95221718		A	T	0.0670	TY
SNP_A-1754079	rs2828714	21	24322162		A	G	0.0657	TY
SNP_A-1669703	rs194611	6	82551071		A	T	0.0655	TY
SNP_A-1728239	rs1947300	8	35195174	TSC1022664	A	G	0.0648	TY
SNP_A-1643542	rs153819	5	14672992	TSC240017	C	T	0.0646	TY
SNP_A-1671608	rs871029	10	131183015	TSC139723	A	C	0.0642	TY
SNP_A-1642175	rs10500341	16	6304280		A	T	0.0636	TY
SNP_A-1642453	rs10517080	4	43454455		C	T	0.0634	TY
SNP_A-1749359	rs2209672	10	92020205	TSC1267160	A	G	0.0628	TY
SNP_A-1697643	rs7796345	7	12295049		A	G	0.0625	TY
SNP_A-1683492	rs10499295	6	156315586		G	T	0.0624	TY
SNP_A-1661444	rs10503980	8	35461026		A	G	0.0623	TY
SNP_A-1684330	rs813021	6	161204458		C	T	0.0623	TY
SNP_A-1711126	rs597805	17	14350482		A	C	0.0621	TY

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1749991	rs763501	7	11094356	TSC65347	A	T	0.0620	TY
SNP_A-1744817	rs10497890	2	208678805		C	T	0.0618	TY
SNP_A-1671452	rs10505806	12	17380031		A	T	0.0616	TY
SNP_A-1694721	rs1431301	18	36652337	TSC642759	A	G	0.0613	TY
SNP_A-1668654	rs7803078	7	10283433		A	G	0.0608	TY
SNP_A-1646548	rs6697701	1	172068187		C	T	0.0607	TY
SNP_A-1728777	rs1808870	4	80900456	TSC166349	G	T	0.0606	TY
SNP_A-1748301	rs2162061	15	60057020	TSC1194007	C	T	0.0604	TY
SNP_A-1686414	rs2304589	2	20023115		C	T	0.0603	TY
SNP_A-1719815	rs10485293	6	101307130		A	C	0.0597	TY
SNP_A-1668370	rs10519999	15	33493404		A	G	0.0591	TY
SNP_A-1668729	rs10500400	16	17031650		C	T	0.0580	TY
SNP_A-1707611	rs10512008	9	71110066		A	G	0.0578	TY
SNP_A-1689250	rs4786095	16	6304936		G	T	0.0574	TY
SNP_A-1724854	rs1845374	12	126520527	TSC731145	C	T	0.0574	TY
SNP_A-1737213	rs10496774	2	138123290		A	G	0.0573	TY
SNP_A-1678468	rs9294750	6	67960760		C	T	0.0572	TY
SNP_A-1667758	rs2979498	8	30494793		A	T	0.0570	TY
SNP_A-1705001	rs4786859	16	6305028		C	T	0.0569	TY
SNP_A-1645276	rs2147201	6	14087505	TSC1172347	A	G	0.0568	TY
SNP_A-1695387	rs9317052	13	58572030		G	T	0.0566	TY
SNP_A-1696572	rs953953	3	133717176	TSC65252	C	G	0.0565	TY
SNP_A-1711977	rs4786094	16	6304633		C	T	0.0564	TY
SNP_A-1704887	rs2714588	2	35586751		A	T	0.0563	TY
SNP_A-1643670	rs4786093	16	6304562		A	G	0.0563	TY
SNP_A-1720225	rs10500641	11	5426152		C	T	0.0562	TY
SNP_A-1667128	rs10496175	2	70065499		A	G	0.0561	TY
SNP_A-1746012	rs6894893	5	158375508		A	G	0.0918	TL
SNP_A-1690329	rs10521881	X	148081799		C	T	0.0848	TL
SNP_A-1720977	rs1925480	9	25101119	TSC984253	C	T	0.0782	TL
SNP_A-1705533	rs10503065	18	57942500		A	G	0.0755	TL
SNP_A-1683114	rs2131137	3	163160825	TSC1141443	A	G	0.0753	TL
SNP_A-1659088	rs10510622	3	29670592		A	G	0.0750	TL
SNP_A-1756146	rs1035293	7	132141562	TSC339630	A	G	0.0730	TL
SNP_A-1755178	rs7879592	X	148220463		C	T	0.0729	TL
SNP_A-1733066	rs10267826	7	132141753		C	T	0.0724	TL
SNP_A-1739189	rs2840256	X	148218180	TSC1221319	C	T	0.0723	TL
SNP_A-1750339	rs10483166	22	31598720		C	G	0.0718	TL
SNP_A-1726850	rs1928692	9	29315577	TSC989249	A	T	0.0712	TL
SNP_A-1656921	rs2018041	8	97712941	TSC164809	C	T	0.0711	TL

SNP.ID	dbSNP.RS. ID	Chro mo some	Physical. Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1752313	rs10498939	6	85949248		G	T	0.0708	TL
SNP_A-1697869	rs10498952	6	86052655		A	C	0.0701	TL
SNP_A-1659927	rs2255496	6	102011159	TSC1620391	C	T	0.0686	TL
SNP_A-1685832	rs1866086	8	85234111	TSC861358	C	G	0.0683	TL
SNP_A-1724544	rs1790440	18	45972293	TSC1214982	C	T	0.0658	TL
SNP_A-1706013	rs2518221	6	102113261		C	G	0.0652	TL
SNP_A-1674419	rs2199654	3	28007923	TSC1257177	C	T	0.0649	TL
SNP_A-1758943	rs4720303	7	38598427		C	T	0.0645	TL
SNP_A-1689739	rs10520108	4	152579808		C	T	0.0643	TL
SNP_A-1678528	rs1370420	8	85230789	TSC521503	G	T	0.0642	TL
SNP_A-1712783	rs528917	6	109222788	TSC1012642	A	G	0.0641	TL
SNP_A-1748391	rs4901872	14	58430505		A	T	0.0640	TL
SNP_A-1752523	rs8038077	15	58791939		A	G	0.0640	TL
SNP_A-1655631	rs1851243	3	118236015	TSC785417	C	T	0.0637	TL
SNP_A-1683810	rs2108256	7	107631409	TSC1108879	A	G	0.0637	TL
SNP_A-1692190	rs6713210	2	170781694		A	C	0.0636	TL
SNP_A-1740309	rs10279367	7	38568007		C	T	0.0635	TL
SNP_A-1672834	rs966286	8	85231420	TSC273230	C	T	0.0627	TL
SNP_A-1677482	rs7839360	8	85232274		G	T	0.0625	TL
SNP_A-1671618	rs722152	12	92986614	TSC50381	A	G	0.0623	TL
SNP_A-1646246	rs10517563	4	153546283		A	G	0.0621	TL
SNP_A-1722914	rs9309560	2	80678695		A	G	0.0621	TL
SNP_A-1724414	rs6088033	20	30949712		C	T	0.0612	TL
SNP_A-1727961	rs7618185	3	118207770		A	C	0.0612	TL
SNP_A-1733292	rs950740	6	78962599	TSC998218	A	C	0.0607	TL
SNP_A-1674291	rs564896	2	20899161	TSC56584	C	T	0.0606	TL
SNP_A-1688496	rs920226	8	85217544	TSC233969	A	T	0.0604	TL
SNP_A-1659554	rs1346655	20	22342312	TSC473834	C	T	0.0604	TL
SNP_A-1641789	rs17771897	16	76126270		C	G	0.0604	TL
SNP_A-1660283	rs207389	4	18671688	TSC1202257	A	G	0.0602	TL
SNP_A-1753877	rs3779127	7	38566483		A	G	0.0600	TL
SNP_A-1650640	rs4921749	8	17215016		A	T	0.0598	TL
SNP_A-1671872	rs1918413	12	112691614	TSC972067	C	T	0.0598	TL
SNP_A-1646706	rs958380	2	224825329	TSC1093207	A	G	0.0598	TL
SNP_A-1667516	rs3796848	4	15685562		A	G	0.0598	TL
SNP_A-1679646	rs3966009	3	190752699	TSC1736196	C	T	0.0592	TL
SNP_A-1758152	rs1152033	X	97032367	TSC535593	C	G	0.0580	TL
SNP_A-1714723	rs10490226	2	50673878		A	T	0.0580	TL
SNP_A-1753103	rs6974138	7	74708138		C	G	0.0579	TL
SNP_A-1662460	rs3860737	5	20346806	TSC260138	A	G	0.0576	TL

SNP.ID	dbSNP.RS.ID	Chromosome	Physical Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1647128	rs4641920	2	226342742		C	T	0.0575	TL
SNP_A-1685698	rs2239475	X	123278808		C	G	0.0574	TL
SNP_A-1674735	rs10483838	14	71538250		A	G	0.0573	TL
SNP_A-1647486	rs2089051	11	19070682	TSC1309157	C	T	0.0573	TL
SNP_A-1693939	rs2057926	7	119486012	TSC1087371	C	T	0.0566	TL
SNP_A-1735468	rs3108305	3	191250342		C	T	0.0563	TL
SNP_A-1655577	rs9313794	5	158232438		C	G	0.0560	TL
SNP_A-1700853	rs1491192	10	133792769	TSC725725	A	G	0.0991	TK
SNP_A-1723220			0	TSC51066	A	G	0.0799	TK
SNP_A-1661380	rs10500655	11	5974681		C	G	0.0767	TK
SNP_A-1729298	rs1451634	4	152022702	TSC679775	C	T	0.0735	TK
SNP_A-1670432	rs10496754	2	137342777		C	T	0.0702	TK
SNP_A-1684396	rs9293886	6	63339439		G	T	0.0683	TK
SNP_A-1702089	rs9293882	6	63338825		C	T	0.0658	TK
SNP_A-1704621	rs1944984	18	55367670	TSC424994	C	G	0.0640	TK
SNP_A-1646866	rs2361105	9	647092	TSC1503038	C	G	0.0635	TK
SNP_A-1678826	rs10488280	7	22662503		G	T	0.0628	TK
SNP_A-1717649	rs10496573	2	122070442		A	G	0.0625	TK
SNP_A-1664590	rs1613194	X	144372556	TSC1004600	A	G	0.0624	TK
SNP_A-1744625	rs17148635	10	10763206		C	T	0.0622	TK
SNP_A-1654451	rs4905752	14	98235740		C	T	0.0622	TK
SNP_A-1725392	rs1327601	1	81517667	TSC812783	A	T	0.0621	TK
SNP_A-1727749	rs1975306	2	121923378	TSC450685	C	T	0.0614	TK
SNP_A-1662864	rs606443	12	119373350	TSC1602168	G	T	0.0607	TK
SNP_A-1658244	rs4880983	10	267232		A	C	0.0597	TK
SNP_A-1669861	rs2252968	9	127400671		C	T	0.0591	TK
SNP_A-1748955	rs10502386	18	8956144		A	C	0.0585	TK
SNP_A-1732610	rs1001675	5	174015652	TSC61006	C	T	0.0584	TK
SNP_A-1652226	rs212922	X	82502775		C	T	0.0578	TK
SNP_A-1708588	rs1448871	2	6893288	TSC674708	A	G	0.0571	TK
SNP_A-1666200	rs3782735	12	6755337		A	G	0.0568	TK
SNP_A-1653236	rs945658	9	1606639	TSC368958	G	T	0.0566	TK
SNP_A-1648010	rs1547335	9	29757868	TSC428760	A	T	0.0565	TK
SNP_A-1717735	rs2900544	9	112310028	TSC1785469	A	G	0.0564	TK
SNP_A-1666990	rs1467273	2	212891131	TSC383586	C	T	0.0562	TK
SNP_A-1701259	rs1443392	9	11596029	TSC664719	C	T	0.0561	TK
SNP_A-1743189	rs10520749	15	92708692		A	G	0.0557	TK
SNP_A-1708558	rs10499750	7	54612629		A	G	0.0556	TK
SNP_A-1662406	rs1375670	7	96166593	TSC532184	C	T	0.0556	TK
SNP_A-1657932	rs10493224	1	57650773		A	G	0.0554	TK

SNP.ID	dbSNP.RS.ID	Chromosome	Physical.Position	TSC.ID	Allele A	Allele B	MI	Class
SNP_A-1689486	rs10492269	12	97786333		C	T	0.0554	TK
SNP_A-1677040	rs2612589	8	65526999		A	G	0.0545	TK
SNP_A-1680778	rs1917385	18	25987928	TSC970431	C	T	0.0544	TK
SNP_A-1696990	rs2760397	9	1675649	TSC1568141	A	G	0.0543	TK
SNP_A-1710740	rs479700	6	96549169		C	T	0.0539	TK
SNP_A-1736733	rs530608	4	122732440	TSC888775	A	G	0.0535	TK
SNP_A-1713416	rs10491448	5	87839752		A	T	0.0535	TK
SNP_A-1695279	rs2093162	6	63567926	TSC1315342	A	G	0.0532	TK
SNP_A-1733622	rs10514008	18	67147718		A	G	0.0532	TK
SNP_A-1656043	rs1113765	7	55663543	TSC75014	C	T	0.0532	TK
SNP_A-1654857	rs10497778	2	196804236		C	G	0.0527	TK
SNP_A-1642997	rs1316370	8	27236982	TSC23123	A	G	0.0526	TK
SNP_A-1707417	rs3847499	10	122077823	TSC1603775	C	T	0.0525	TK
SNP_A-1724004	rs10495991	2	50139515		C	T	0.0522	TK
SNP_A-1722992	rs1932302	13	89262521	TSC995762	C	T	0.0522	TK
SNP_A-1725312	rs3827693	13	30611522		C	T	0.0521	TK
SNP_A-1666772	rs4103989	18	62509065	TSC554252	C	G	0.0520	TK
SNP_A-1737265	rs908015	4	6340210	TSC188274	A	C	0.0520	TK
SNP_A-1664882	rs10493387	1	65933954		A	G	0.0520	TK
SNP_A-1652040	rs7040733	9	11599017		C	G	0.0519	TK
SNP_A-1752273	rs1179966	14	36403105		C	T	0.0516	TK
SNP_A-1666578	rs293057	5	94243085		C	T	0.0515	TK
SNP_A-1684208	rs10489311	1	172281783		A	G	0.0514	TK
SNP_A-1738835	rs9318302	13	23547781		C	T	0.0514	TK
SNP_A-1742243	rs1351950	3	4180623	TSC484208	A	G	0.0514	TK
SNP_A-1694617	rs10510953	3	66461689		C	T	0.0514	TK
SNP_A-1684704	rs1516391	3	2697320	TSC775922	C	T	0.0512	TK

APPENDIX B

Decision tree illustration

An R interface to Weka (Version 3.7.1). Weka is a collection of machine learning algorithms for data mining tasks written in Java, containing tools for data pre-processing, classification, regression, clustering, association rules, and visualization. Both the R interface and Weka itself are contained in the RWeka package. For more information on Weka see <http://www.cs.waikato.ac.nz/~ml/weka/>.

Table B.1 demonstrate example data set which use in R weka package.

Table B.1: Example data using in Rweka package

	SNP_A. 1641789	SNP_A. 1641793	SNP_A. 1642175	...	SNP_A. 1642453	Class
TH.HM.000106	AB	BB	BB	...	AB	HM
TH.HM.000109	NoCall	BB	BB	...	BB	HM
TH.HM.000110	AB	NoCall	BB	...	AB	HM
TH.HM.000111	AB	BB	BB	...	BB	HM
TH.HM.000120	AB	BB	AB	...	AB	HM
...	...	...	...	...	...	...
TH.TK.000136	NoCall	BB	BB	...	AA	TK

R script for RWeka running

```
>library(RWeka)

## Identify a decision tree.
>m.SNP <- J48(Class ~ ., data = D)

## print and summary
>m.SNP

>summary(m.SNP) # calls evaluate_Weka_classifier()

>x<-table(D$Class, predict(m.SNP)) # by hand
```

The tree was evaluated and gets the summary result in Appendix Figure 2 and confusion matrix in Figure B.1.

Correctly Classified Instances	230	89.8438 %
Incorrectly Classified Instances	26	10.1563 %
Kappa statistic	0.89	
Mean absolute error	0.0196	
Root mean squared error	0.0991	
Relative absolute error	13.824 %	
Root relative squared error	37.1806 %	
Coverage of cases (0.95 level)	100 %	
Mean rel. region size (0.95 level)	10.7272 %	
Total Number of Instances	256	

Figure B.1: Decision tree summary from Rweka package

Table B.2: Confusion matrix from R program

	HM	KA	LW	MA	MO	PL	PP	TK	TL	TN	TU	TY	YA
HM	20	0	0	0	0	0	0	0	0	0	0	0	0
KA	0	19	0	0	1	0	0	0	0	0	0	0	0
LW	0	3	14	0	1	0	0	0	1	0	0	0	0
MA	0	0	0	18	0	0	0	0	0	1	0	0	0
MO	0	0	1	0	18	0	0	0	0	0	0	0	0
PL	0	0	0	0	0	20	0	0	0	0	0	0	0
PP	0	0	0	0	0	0	20	0	0	0	0	0	0
TK	0	0	1	0	0	0	1	18	0	0	0	0	0
TL	0	0	1	0	0	1	0	0	17	0	0	1	0
TN	0	0	0	0	0	0	0	0	0	19	0	1	0
TU	0	0	0	1	0	0	1	1	0	0	17	0	0
TY	0	0	1	0	0	0	0	0	1	1	0	17	0
YA	1	1	0	0	0	0	0	1	1	0	1	1	13

When J48 () function was run, the decision tree will be identified. In order to visualize the tree in graph, we use Graphviz and get the tree (see Figure B.2 (a-d)).

Graphviz (<http://www.graphviz.org>) is open source graph visualization software providing several main graph layout programs, of which dot makes hierarchical or layered drawings of directed graphs, and hence is typically most suitable for visualizing classification trees.

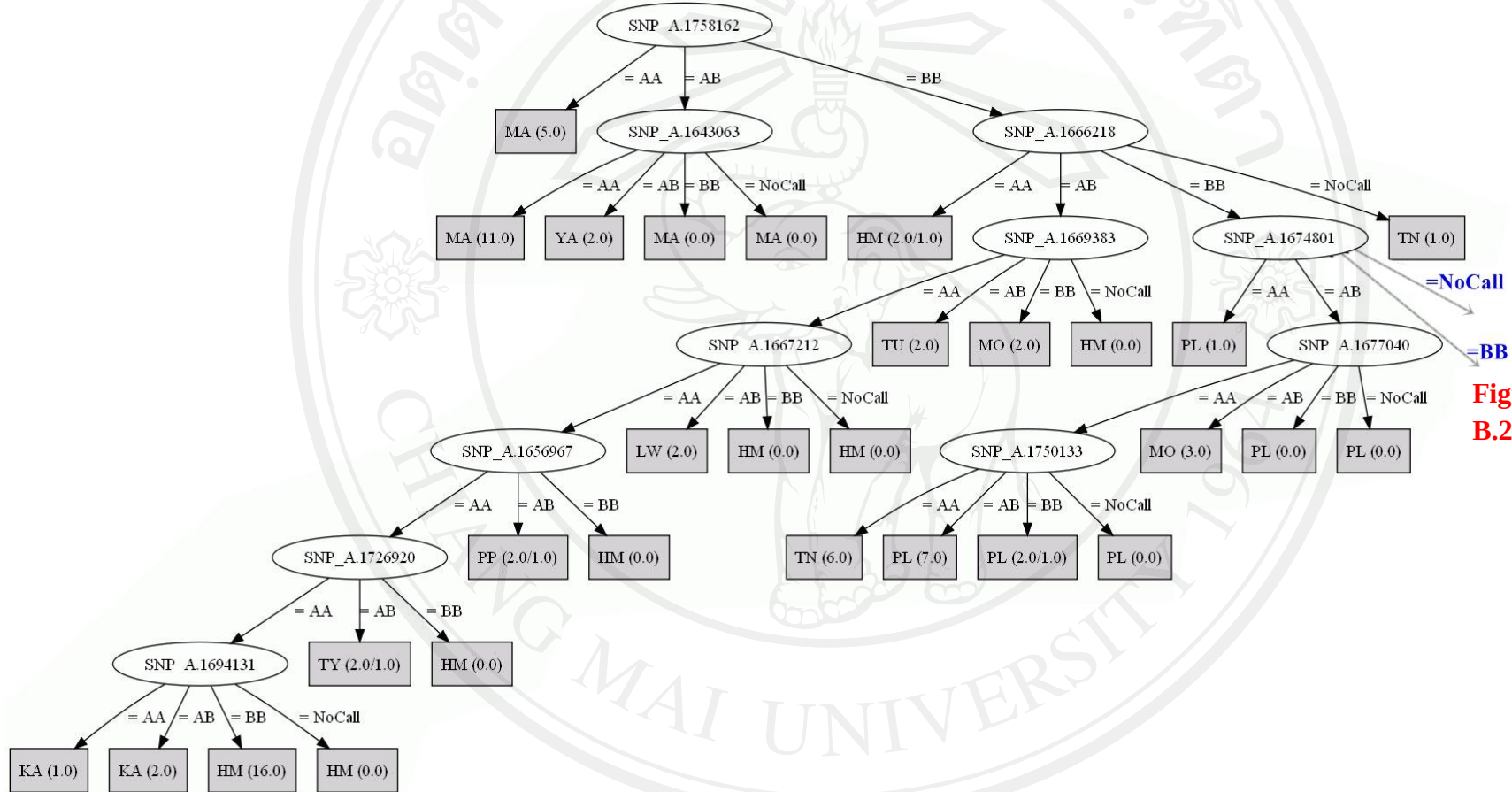


Figure B.2 (b)

Figure B.2 (a): Decision tree visualization from Graphviz

Figure B.2 (c)

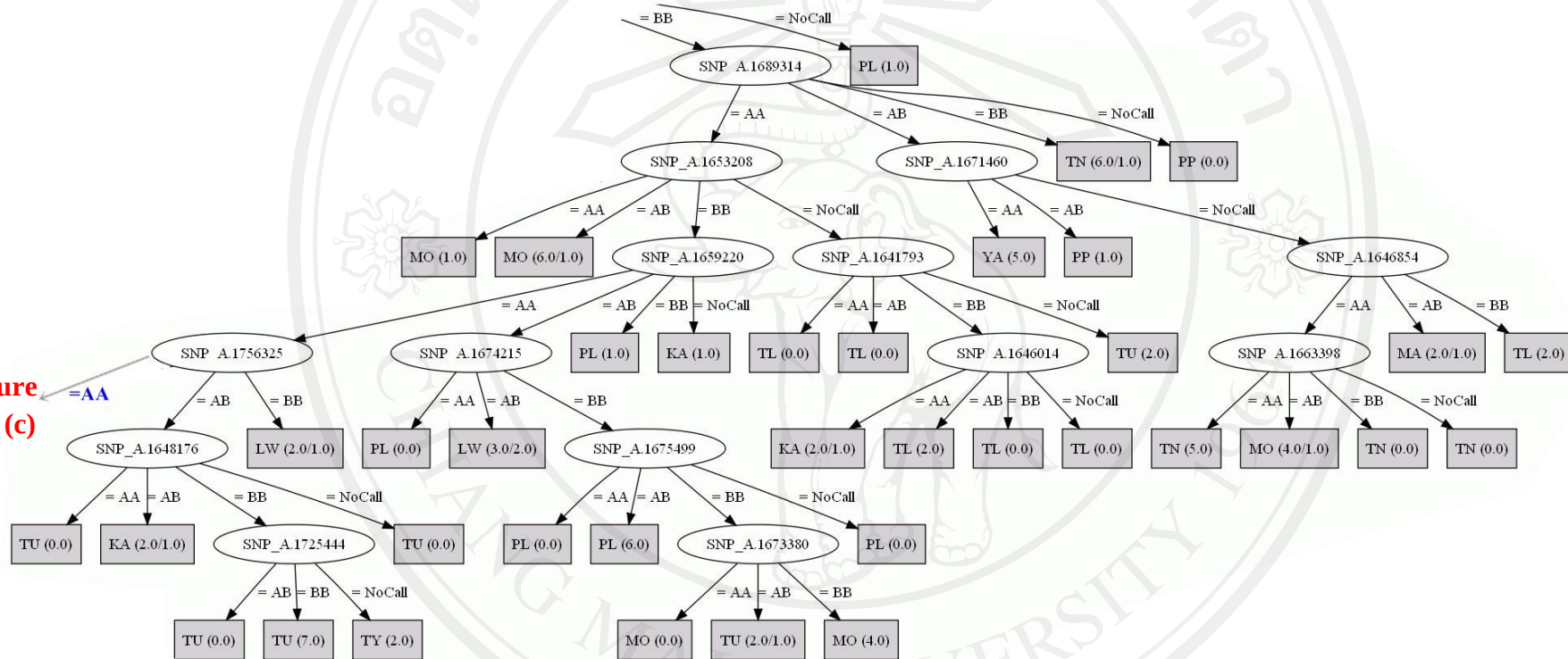


Figure B.2 (b): Decision tree visualization from Graphviz

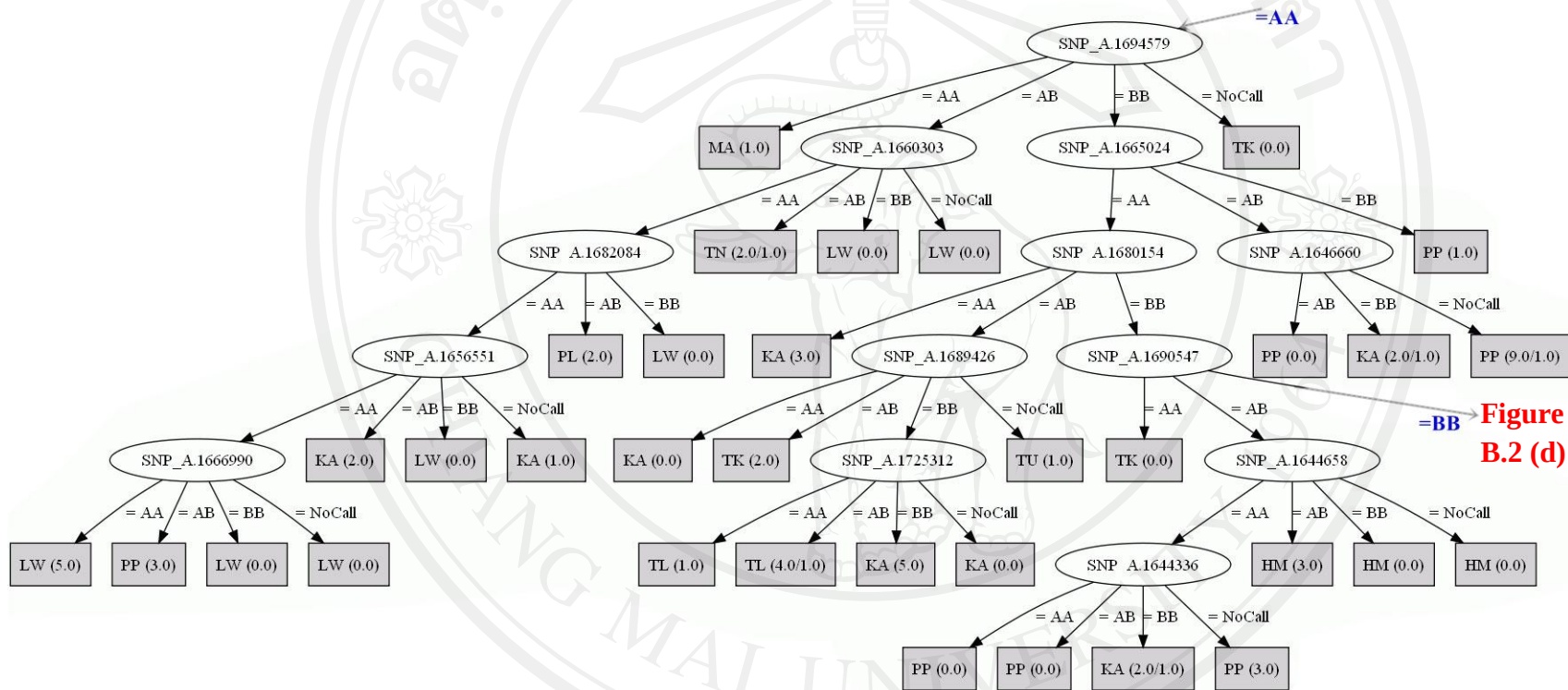


Figure B.2 (d)

Figure B.2(c): Decision tree visualization from Graphviz

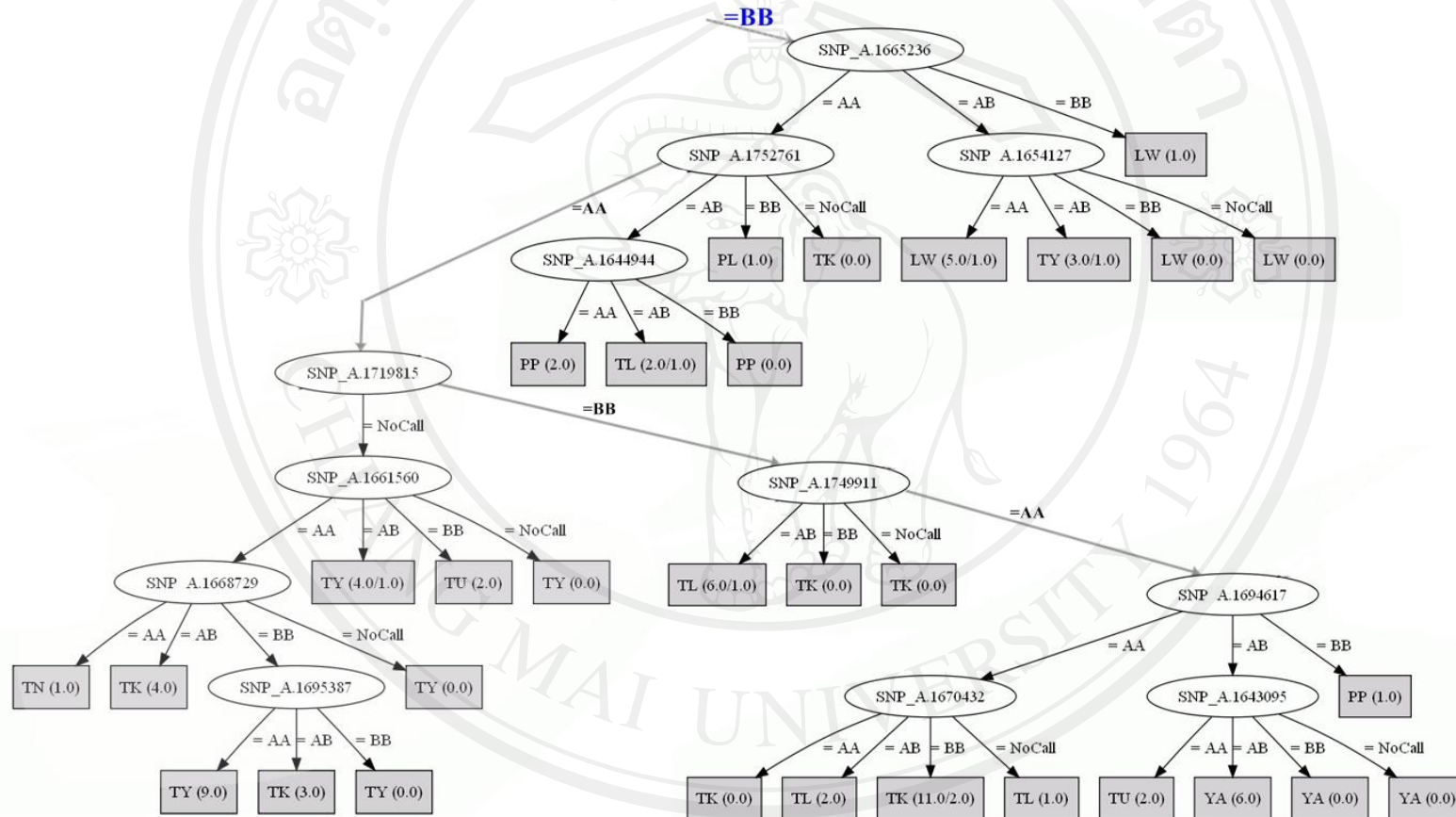


Figure B.2(d): Decision tree visualization from Graphviz

APPDENDIX C

Correspondence analysis in R language

The data, which two-way table of non-negative data, are usually frequencies.

The ca package of R program can see detail at [http:// cran.r-project. org/ web/ packages/ca/index.html](http://cran.r-project.org/web/packages/ca/index.html).

Table C.1: Example of SNP genotype frequency using in correspondence analysis

	AA1	AB1	BB1	NoCall1	AA2	AB2	BB2	...
KA	1	5	13	1	8	7	5	...
HM	7	10	3	0	2	3	15	...
YA	10	8	1	0	5	5	0	...
LW	0	1	18	0	2	8	9	...
TN	6	11	3	0	7	9	3	...
MA	15	4	0	0	0	0	19	...
MO	7	9	3	0	15	4	0	...
PP	1	10	4	5	0	11	0	...
PL	8	8	1	3	1	3	15	...
TU	2	7	9	2	1	0	15	...
TY	18	0	0	2	3	10	1	...
TL	15	4	0	1	8	11	1	...
TK	1	15	2	2	0	14	6	...

R script for ca running

```

S <- read.table('new60SNP.txt', header=TRUE)

ca(S)

summary(ca(S))

R> plot(ca(S), mass = TRUE, contrib = "absolute", map = "rowgreen",
arrows = c(FALSE, TRUE))

```

Table C.2: Result of correspondence analysis from R program

Principal inertias (eigenvalues):

dim	value	%	cum%	scree plot
1	0.086366	25.1	25.1	*****
2	0.037343	10.8	35.9	*****
3	0.035305	10.2	46.1	*****
4	0.029409	8.5	54.7	*****
5	0.027711	8.0	62.7	*****
6	0.024705	7.2	69.9	****
7	0.020745	6.0	75.9	**
8	0.018671	5.4	81.3	**
9	0.017758	5.2	86.4	*
10	0.016973	4.9	91.4	*
11	0.015722	4.6	95.9	*
12	0.014044	4.1	100.0	

Total: 0.344752 100.0

1	KA	78	35	63	-74	20	5	64	15	9
2	HM	78	475	82	-128	46	15	-393	429	323
3	YA	74	314	65	-125	51	13	-283	263	159
4	LW	74	31	63	-85	24	6	45	7	4
5	TN	78	299	93	-14	0	0	350	299	256
6	MA	74	1000	231	1033	996	916	-65	4	9
7	MO	74	84	60	-102	37	9	-114	47	26
8	PP	78	120	53	-50	11	2	159	109	53
9	PL	78	189	86	-60	10	3	262	180	143
10	TU	78	40	42	-85	39	7	10	0	0
11	TY	78	29	62	-73	19	5	52	10	6
12	TL	78	66	51	-99	44	9	-70	22	10
13	TK	78	53	50	-102	47	9	-37	6	3

Columns:

	name	mass	qlt	inr	k=1	cor	ctr	k=2	cor	ctr
1	V1	1	325	0	70	93	0	110	232	0
2	V2	0	222	0	-378	20	0	-1187	201	1
3	V3	0	382	1	-339	103	0	-557	279	2
4	V4	0	152	0	-241	18	0	662	134	0
5	V5	1	157	0	78	139	0	-28	17	0
6	V6	0	29	0	-283	19	0	201	10	0
7	V7	0	150	0	-288	150	0	-15	0	0
8	V8	0	412	0	-227	38	0	711	374	0
...										
2808	V3008	0	278	0	-46	0	0	1809	277	0

APPENDIX D

Genetic distance calculation and visualization

1. Population Distance from PEAS software

PEAS for windows are freely available for academic user from the web page <http://www.picb.ac.cn/~xushua/index.files/Software.htm>.

The user can find all the PEAS component programs separate executables in the PEAS directory, the following Figure D.1 shows the overall structure of the PEAS component programs.

The POP_dis sub program in PEAS software (Figure D.2) provide including Wright's F_{ST} , F_{ST} distance, Nei's standard distance, Nei's DA distance and Cavalli-Sforza's DC distance. Input file example of the software is shown in Table D.1. The program generates also output files which can be recognized by MEGA and PHYLIP programs for further processing.

Table D.1: Input file example using in PEAS software

20							
752							
dbSNP_ID	Chromosome	Position	Strand	Allele	HM.000106	...	
rs1024116	18	73561374	+	C/T	H	...	
rs10510090	10	122964760	+	A/G	A	...	
rs10250746	7	7301411	+	A/G	U	...	
rs6508962	19	33798612	+	A/G	B	...	
rs2183493	13	57989044	+	A/G	H	...	
rs446815	11	115324874	+	C/T	A	...	

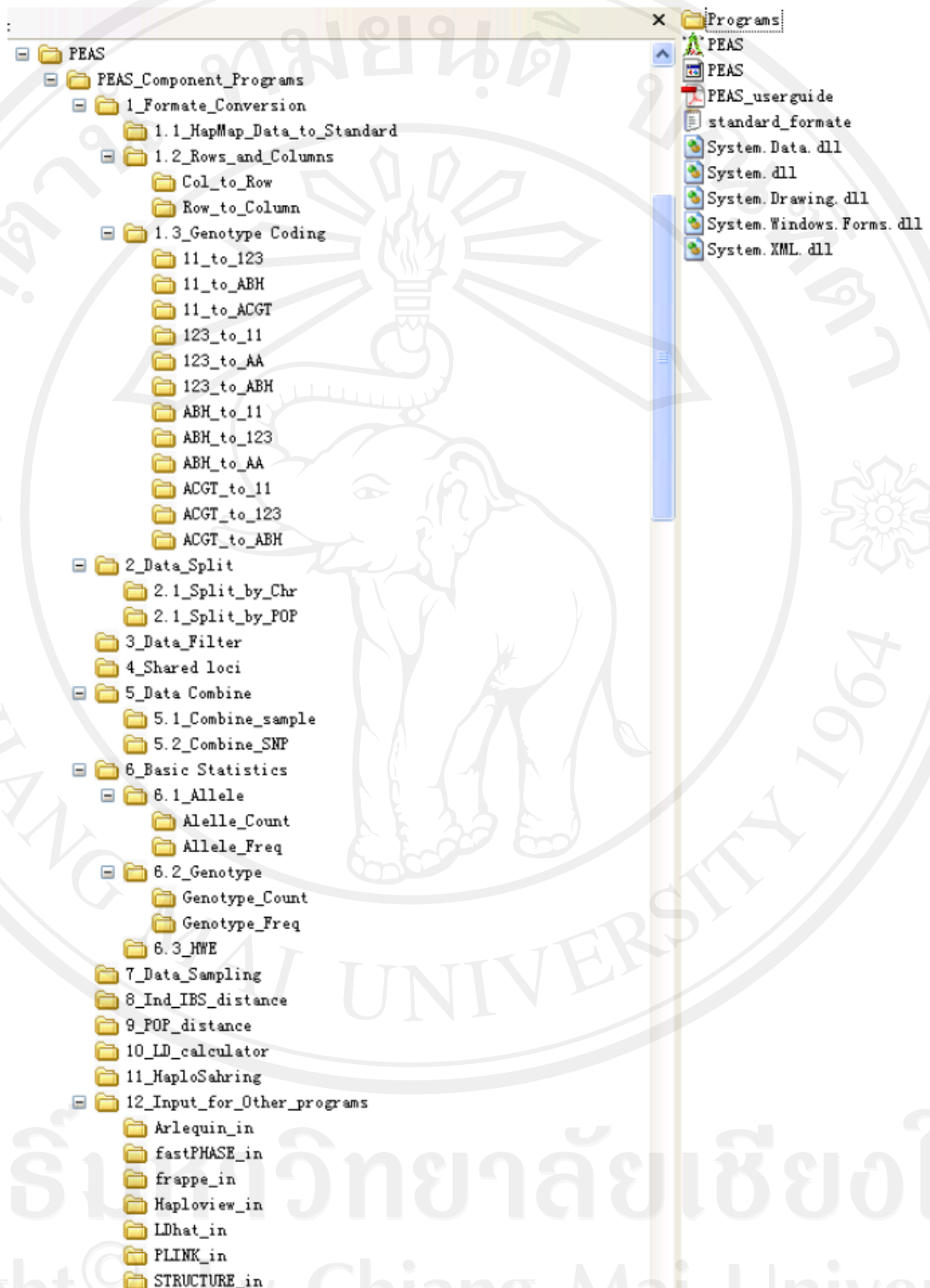


Figure D.1: PEAS component program

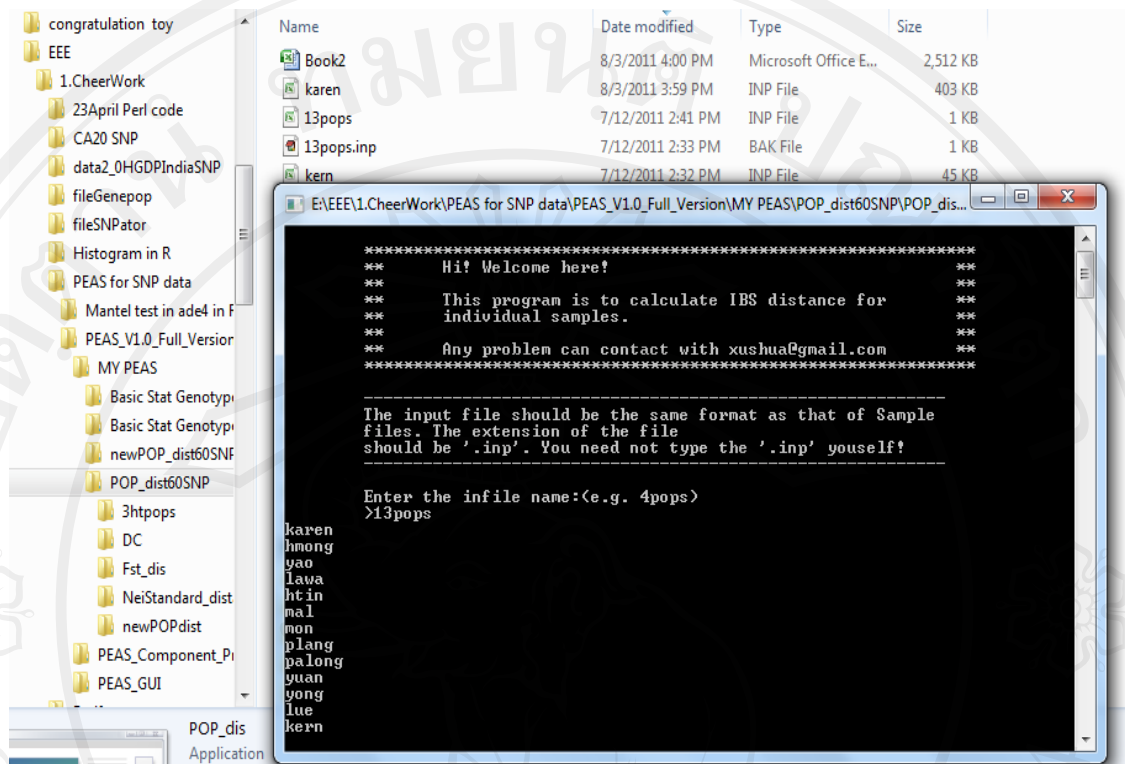


Figure D.2: Procedure for PEAS program running

2. Phylogenetic tree analysis with MEGA 5

MEGA5 is the free program available from <http://www.megasoftware.net>.

Using the distance matrix output file from the PEAS software is the input file for MEGA5. The Neighbor joining tree construction see Figure D.3.

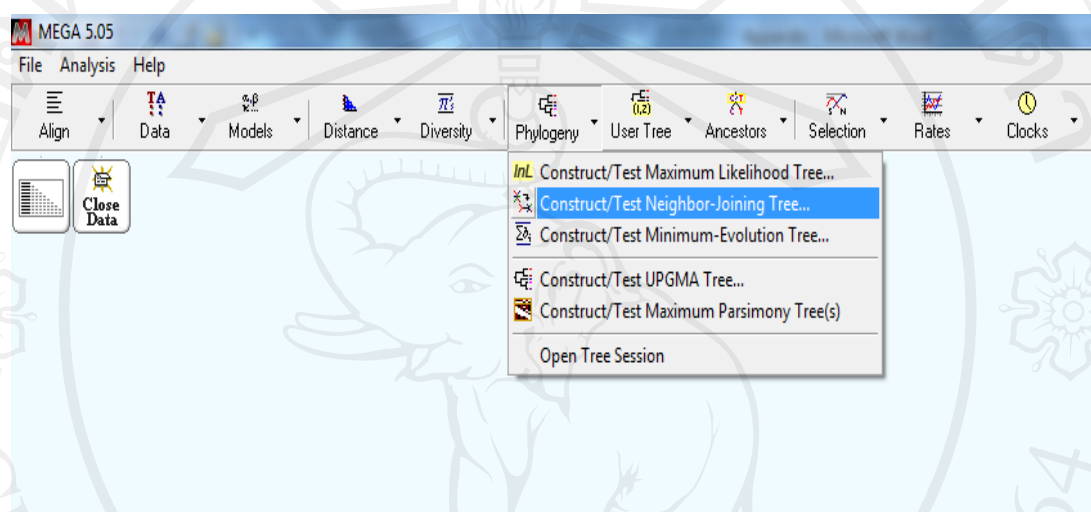


Figure D.3: Phylogenetic tree construction in MEGA5

Start program with choose file menu

----> file ----> open data file

--> choose input file (.meg)

The display of genetic distances between populations are shown.

----> phylogeny ----> Construct/Test Neighbor-Joining Tree..

The tree is shown.

Table D.2: Input file example using in MEGA5

```

#mega
!13

#KA      #HM      #YA      #LW      #TN      #MA      ...
0.085706
0.066568 0.065675
0.072037 0.093986 0.079669
0.089979 0.105811 0.088228 0.096356
0.16497 0.185458 0.170283 0.180519 0.177348
0.065955 0.073941 0.059353 0.069424 0.083411 0.165915
0.065727 0.078711 0.067704 0.064827 0.07595 0.16216 ...
0.572076 0.5872 0.590402 0.569755 0.581568 0.62883 ...
0.06536 0.074728 0.062181 0.069425 0.079208 0.168454 ...
...      ...      ...      ...      ...      ...

```

This input file example obtain from PEAS software

3. Multidimensional scaling analysis in R language

The distance between populations which calculated from PEAS software is used for graph visualization.

We can apply classical scaling to the distance matrix for populations using the R function `cmdscale()` (<http://stat.ethz.ch/R-manual/R-patched/library/stats/html/cmdscale.html>), see below.

```
> loc <- cmdscale(y, eig=TRUE)
> loc
$points
      [,1]      [,2]
[1,] 0.09104107 -0.021724301
[2,] 0.10163211 -0.036602528
[3,] 0.10570782 -0.026592666
[4,] 0.08793360 -0.039044318
[5,] 0.09517892 -0.028271985
[6,] 0.10831304  0.148206534
[7,] 0.08601467 -0.018056986
[8,] 0.08459090 -0.014676972
[9,] -0.47220678 -0.011137860
[10,] 0.15464140 -0.004168030
[11,] 0.16199698 -0.001671179
[12,] 0.16349036 -0.005695704
[13,] 0.16679008 -0.012218033

$eig
[1] 0.40055316 0.02767521

$х
NULL

$ac
[1] 0

$GOF
[1] 0.8150201 0.9606896
```

Point for plotting in 2 dimensions

The two-dimensional solution can be plotted by extracting. The coordinates from the points element of the y object. We use `plot()` function as below.

```
> plot(ax, ay, type = "n", xlab = "Coordinate 1",
      ylab = "Coordinate 2", main = "cmdscale(y)

> plot(ax, ay, type = "p", col="blue"
> text(ax, ay, label=colums(y), cex=0.6)
```

The example graph result show in Figure D.4

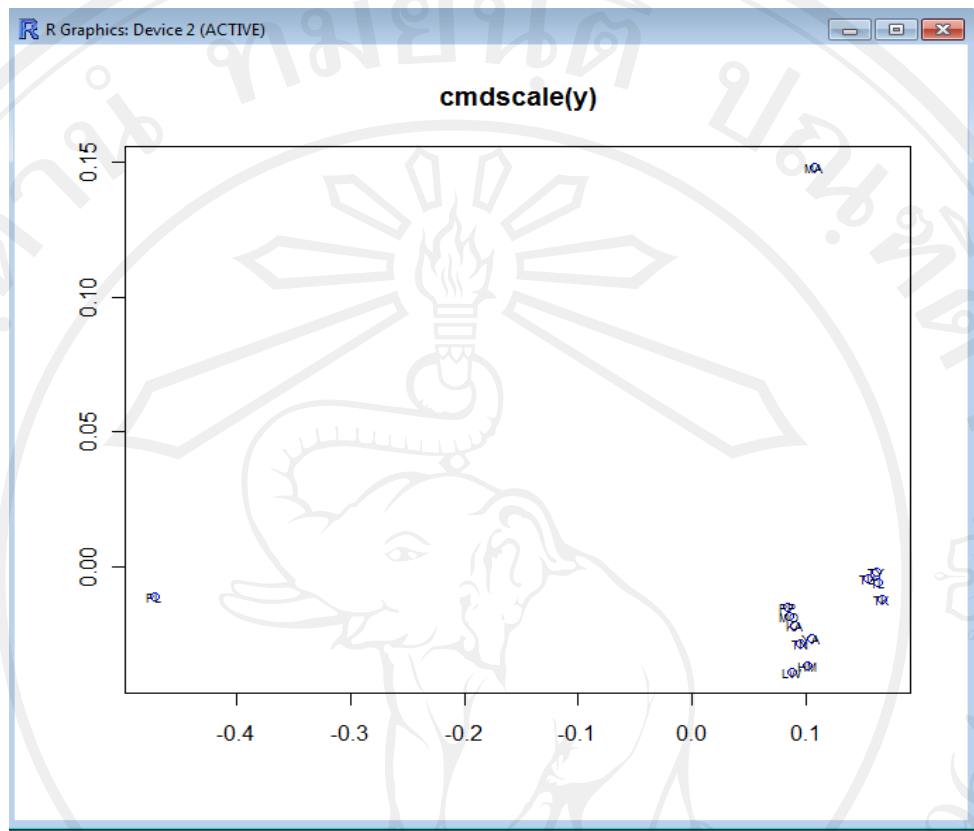
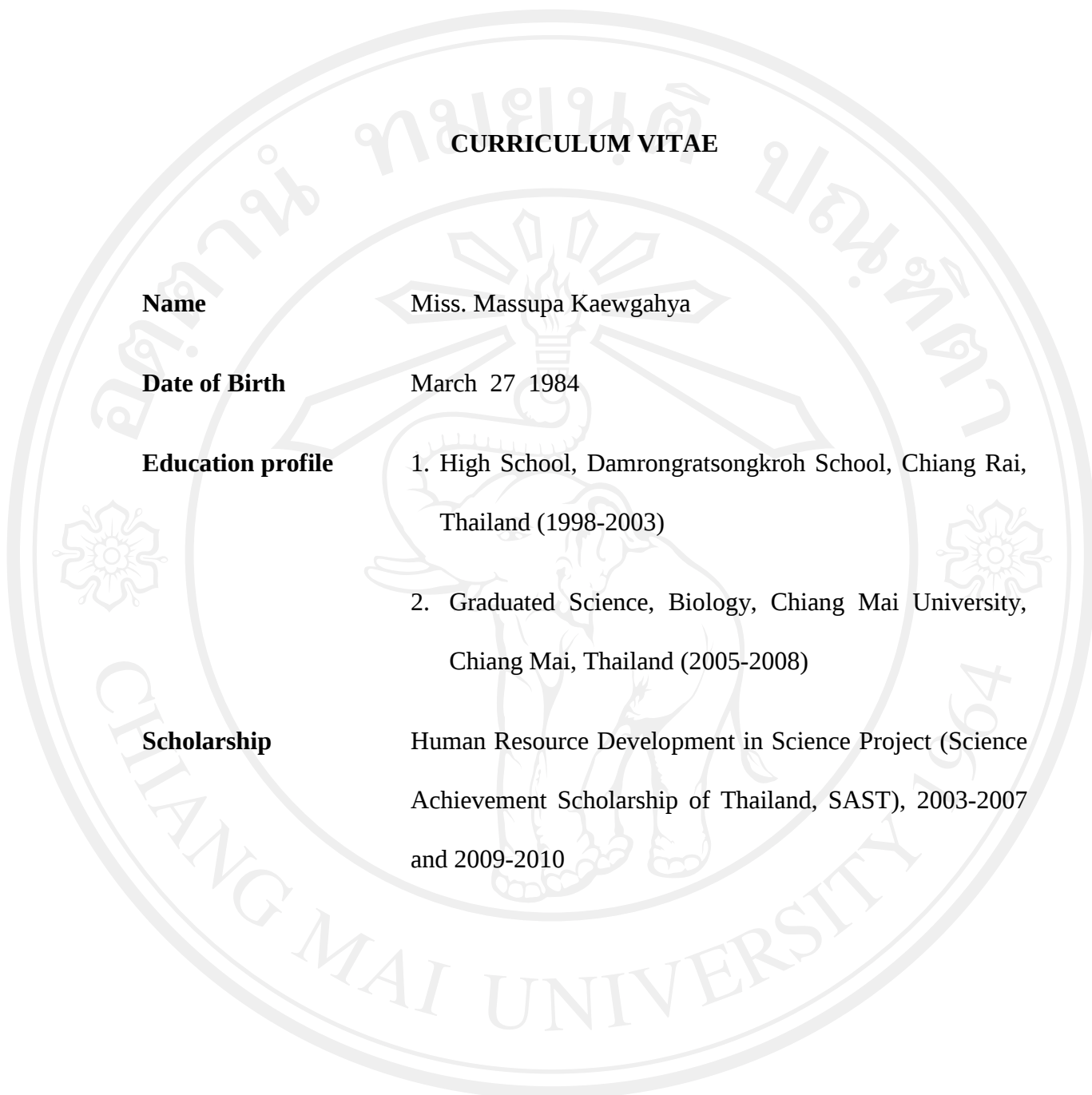


Figure D.4: Relationship visualization and two-dimension graph



CURRICULUM VITAE

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