

Supplementary information

**Evolutionary genetics and acclimatization
in nephrology**

In the format provided by the
authors and unedited

Supplementary Table 1 | CKD-associated GWAS genes under natural selection

GeneID	Coordinates	FayWu_H	Fst	FuLi_D	FuLi_F	iHS	Tajima_D	Statistic:Population values	statistic	GeneID
ACADL	chr2:211079830-211099830	-1.521	0.045	-6.716	-6.501	1.729	-2.465	FuLi_D:GIH:-6.716;FuLi_F:CHB:-6.501;GIH:-5.868	FuLi_D;FuLi_F	ACADL
ADAMTS3	chr4:73418842-73428842	-4.351	0.098	-6.922	-5.643	1.271	-2.3	FuLi_D:GIH:-6.922	FuLi_D	ADAMTS4
ADCY8	chr8:131820262-131830262	1.175	0.082	1.984	1.587	0.964	1.554	FuLi_D:ACB:1.984	FuLi_D	ADCY8
ADCY8	chr8:132033894-132043894	-1.198	0.038	-7.681	-6.132	1.169	-1.918	FuLi_D:CEU:-7.681;FuLi_F:CEU:-6.132	FuLi_D;FuLi_F	ADCY8
AFF3	chr2:100509100-100535888	-2.82	0.044	-8.011	-6.513	0.866	-2.09	FuLi_D:IBS:-8.011;FuLi_F:IBS:-6.513	FuLi_D;FuLi_F	AFF4
nonCoding86016;AF	chr22:36598663-36638663	-4.817	0.156	-3.407	-2.822	3.028	3.646	XPEHH:CEU2CHB:1.964	XPEHH	nonCoding86016;APOL3
OAS1	chr12:113360155-113370155	-4.694	0.223	-2.277	2.727	2.291	3.83	Fst:CEU2YRI:0.223	Fst	OAS2
RRAS2	chr11:14334826-14344826	-1.202	0.022	-7.841	-6.374	1.493	-1.951	FuLi_D:BEB:-7.841;FuLi_F:BEB:-6.374	FuLi_D;FuLi_F	RRAS3
PRR4;TAS2R14;PRH	chr12:11114200-11124200	-5.392	0.026	2.47	3.098	1.234	3.591	FuLi_D:PJL:2.47	FuLi_D	PRR4;TAS2R14;PRH1;ACO
PRR4;TAS2R50;TAS	chr12:11135776-11165776	-3.424	0.343	2.274	3.661	1.168	4.14	Fst:YRI2CHB:0.343	Fst	PRR4;TAS2R50;TAS2R14;
PRR4;TAS2R14;PRH	chr12:11195267-11268835	-1.383	0.095	-6.193	-4.635	5.769	2.066	iHS:ASW:5.452;BEB:5.513;CDX:5.269;CHB:5.49;CHS:5.73;ESN:3.99;FIN:4.304;GIH:5.246;GWD:3.574;IBS:3.199;ITU:5.388;JPT:5.769;KHV:5.632;LWK:3.331;MSL:4.226;PJL:5.287;STU:5.3;TSI:4.279;YRI:4.343	iHS	PRR4;TAS2R14;PRH1;ACO
PRR4;TAS2R14;PRH	chr12:11278835-11298835	-2.021	0.133	-2.412	2.943	2.712	3.713	XPEHH:YRI2CHB:2.809	XPEHH	PRR4;TAS2R14;PRH1;TAS
ATXN2;SH2B3	chr12:111713158-112011420	-4.041	0.139	-6.852	-5.614	5.128	-2.144	iHS:CEU:3.447;GBR:4.358;IBS:4.452;TSI:5.128	iHS	ATXN2;SH2B4
BCAS3	chr17:58759079-58821101	-5.578	0.134	-7.096	-5.946	3.298	-2.78	FuLi_F:CEU:-5.946;Tajima_D:IBS:-2.78;TSI:-2.633;XPEHH:CEU2YRI:3.073	FuLi_F;Tajima_D;XPEHH	BCAS3
BCAS3	chr17:59067495-59077495	-6.911	0.155	-5.111	-4.751	2.011	-2.628	FayWu_H:IBS:-6.911	FayWu_H	BCAS3
BCAS3	chr17:59157833-59177833	-2.56	0.104	-7.365	-6.401	2.385	-2.676	FuLi_D:STU:-6.577;TSI:-7.365;FuLi_F:IBS:-6.254;STU:-5.886;TSI:-6.401	FuLi_D;FuLi_F	BCAS3
C3orf67	chr3:58807879-58887186	-2.293	0.055	-6.657	-5.518	3.456	-2.555	iHS:BEB:3.456;JPT:3.369	iHS	C3orf67
C3orf67	chr3:58937298-58947298	-2.979	0.042	-5.296	-4.998	2.425	-2.263	FuLi_D:MSL:-5.296	FuLi_D	C3orf67
CCDC91	chr12:28426954-28570909	-2.183	0.06	-6.203	-5.496	3.246	-2.434	FuLi_D:ESN:-6.203;MSL:-6.202;FuLi_F:ESN:-5.423;MSL:-5.496;iHS:GIH:3.246;Tajima_D:MSL:-2.434	FuLi_D;FuLi_F;iHS;Tajima_D	CCDC92
ARMC9	chr2:232218238-232228238	-3.598	0.095	-6.228	-5.622	2.802	-2.72	Tajima_D:KHV:-2.72;PJL:-2.636	Tajima_D	ARMC10
SLC9B1;UBE2D3;CISD3	chr4:103774445-103868879	-2.926	0.064	-4.983	-3.841	3.37	2.203	iHS:CEU:3.37;IBS:3.174	iHS	SLC9B1;UBE2D3;CISD3
HDAC9	chr7:18477745-18487745	-5.143	0.03	-6.793	-5.937	1.474	-2.645	Tajima_D:TSI:-2.645	Tajima_D	HDAC9
HDAC9	chr7:18497745-18556976	-5.394	0.025	-7.058	-5.788	1.708	-2.524	FayWu_H:ACB:-5.394;FuLi_F:CEU:-5.788;Tajima_D:ACB:-2.524;ASW:-2.524;LWK:-2.452	FayWu_H;FuLi_F;Tajima_D	HDAC9
C9orf153	chr9:88844882-88864882	7.169	0.079	-3.529	11.097	0.858	34.961	Tajima_D:CEU:34.961;FIN:34.436	Tajima_D	C9orf154
SLC9A6	chrX:135086273-135096273	1.861	0.039	-5.473	-4.828	NA	-2.371	FuLi_D:GWD:-5.473	FuLi_D	SLC9A7
CCDC57	chr17:80077339-80087339	-3.667	0.208	-1.482	3.024	3.444	3.829	iHS:GIH:3.444	iHS	CCDC58
CCSER1	chr4:91061843-91071843	-1.873	0.126	-2.65	1.596	3.293	2.357	iHS:STU:3.293	iHS	CCSER2
CDH18	chr5:19774951-19784951	-1.362	0.029	-6.399	-5.355	1.405	-2.105	FuLi_D:GBR:-6.399	FuLi_D	CDH19
CNTNAP2	chr7:147365347-147375347	-8.089	0.057	-4.401	-4.164	1.303	-2.584	FayWu_H:BEB:-8.089;GBR:-7.594;ITU:-7.279;PJL:-6.913;STU:-7.284	FayWu_H	CNTNAP3
ANKRD17;COX18	chr4:73917184-73962806	-1.442	0.034	-6.551	-5.643	1.288	-2.171	FuLi_D:ESN:-6.551;FuLi_F:ESN:-5.643	FuLi_D;FuLi_F	ANKRD17;COX19
DDX17	chr22:38902128-38912128	-1.54	0.031	-5.816	-4.85	2.864	-1.815	FuLi_D:FIN:-5.816	FuLi_D	DDX18
WDTC1	chr1:27623350-27633350	-0.861	0.02	-6.435	-5.864	1.189	-2.497	FuLi_F:CDX:-5.864	FuLi_F	WDTC2
DTNA	chr18:32157991-32177991	-6.435	0.118	-6.494	-5.783	1.419	-2.718	Tajima_D:BEB:-2.718	Tajima_D	DTNA
DTWD2	chr5:118169069-118179069	-7.827	0.112	-3.758	-3.174	1.131	-2.319	FayWu_H:JPT:-7.827	FayWu_H	DTWD3
DTNBP1	chr6:15663330-15683330	-2.397	0.082	-8.243	-6.948	1.66	-2.504	FuLi_D:CDX:-6.637;CHB:-8.243;FuLi_F:CDX:-5.892;CHB:-6.948	FuLi_D;FuLi_F	DTNBP2
TAF12;RAB42	chr1:28919249-28929249	-1.447	0.023	-5.053	-4.395	1.375	-2.379	Tajima_D:MSL:-2.379	Tajima_D	TAF12;RAB43
CYP4F12;CYP4F3	chr19:15773081-15783081	-2.289	0.084	2.117	2.959	1.545	3.064	FuLi_D:STU:2.117	FuLi_D	CYP4F12;CYP4F4
FGF12	chr3:192198506-192208506	-3.609	0.111	-6.982	-6.131	2.009	-2.64	FuLi_F:TSI:-6.131;Tajima_D:TSI:-2.64	FuLi_F;Tajima_D	FGF13
DCAF12	chr9:34078991-34088991	1.342	0.065	-7.273	-5.505	0.878	1.587	FuLi_D:CHS:-7.273	FuLi_D	DCAF13
FGF12	chr3:192198506-192208506	-3.609	0.111	-6.982	-6.131	2.009	-2.64	FuLi_F:TSI:-6.131;Tajima_D:TSI:-2.64	FuLi_F;Tajima_D	FGF13
FHIT	chr3:59865677-59885677	-5.495	0.081	-5.914	-5.423	2.316	-2.687	Tajima_D:JPT:-2.687	Tajima_D	FHIT
nonCoding73618;nonCoding73618	chr15:45613662-45692398	-4.004	0.343	-3.124	2.377	1.772	2.865	Fst:CEU2CHB:0.343	Fst	nonCoding73618;nonCoding73618
GLI2	chr2:121693646-121723646	-5.966	0.195	-6.22	-5.616	2.844	-2.805	Tajima_D:CEU:-2.636;KHV:-2.805	Tajima_D	GLI3
HPCAL1	chr2:10473150-10483150	-5.566	0.091	2.294	1.851	0.803	1.488	FuLi_D:IBS:2.294	FuLi_D	HPCAL2

CKD-associated GWAS genes under natural selection

GeneID	Coordinates	FayWu_H	Fst	FuLi_D	FuLi_F	iHS	Tajima_D	Statistic:Population values	statistic	GeneID
LINC02210-CRHR1	chr17:43756461-43794501	-7.886	0.132	2.152	-4.561	1.164	-2.621	FayWu_H:GWD:-5.696;ITU:-6.66;JPT:-7.886;FuLi_D:IBS:2.152;Tajima_D:JPT:-2.621	FayWu_H;FuLi_D;Tajima_D	LINC02210-CRHR1
LINC02210-CRHR1	chr17:43795221-43815221	-5.496	0.118	-3.965	-3.514	1.87	3.213	FayWu_H:ESN:-5.496;YRI:-5.167	FayWu_H	LINC02210-CRHR1
CRHR1;LINC02210-	chr17:43890723-43900723	-8.931	0.134	-4.619	-4.306	1.273	2.878	FayWu_H:ASW:-4.828;GWD:-5.69;JPT:-8.931;STU:-6.752	FayWu_H	CRHR1;LINC02210-CRHR1
CRHR1;LINC02210-	chr17:43900808-43927762	-4.502	0.135	-6.915	-5.784	0.903	3.048	FuLi_D:JPT:-6.915;FuLi_F:JPT:-5.784	FuLi_D;FuLi_F	CRHR1;LINC02210-CRHR1
PHLPP1	chr18:60394354-60414354	-4.763	0.026	-6.699	-5.571	1.77	-2.356	FuLi_D:YRI:-6.699;FuLi_F:GWD:-5.123;YRI:-5.571	FuLi_D;FuLi_F	PHLPP1
PHLPP1	chr18:60444762-60454762	-5.275	0.027	-6.162	-5.575	2.273	-2.528	FayWu_H:ESN:-5.275;Tajima_D:ACB:-2.528;ESN:-2.34;GWD:-2.387;YRI:-2.38	FayWu_H;Tajima_D	PHLPP1
LPP	chr3:187955175-187965175	-4.047	0.038	-7.46	-5.263	1.168	-1.263	FuLi_D:CEU:-7.46	FuLi_D	LPP
LPP	chr3:188425123-188435123	-2.903	0.046	-5.879	-5.092	1.001	-2.417	Tajima_D:ACB:-2.417	Tajima_D	LPP
LRIG1	chr3:66551657-66561657	-4.061	0.062	-5.164	-4.918	2.125	-2.629	Tajima_D:IBS:-2.629	Tajima_D	LRIG2
LUZP2	chr11:24633620-24643620	-2.445	0.125	2.061	2.479	1.312	2.359	FuLi_D:LWK:2.061	FuLi_D	LUZP2
LUZP2	chr11:25020012-25094133	-3.632	0.277	-1.923	2.237	1.458	3.067	Fst:YRI2CHB:0.277	Fst	LUZP2
MPPED2	chr11:30578308-30588308	-1.307	0.062	-7.369	-5.945	0.999	-2.001	FuLi_D:TSI:-7.369	FuLi_D	MPPED3
MYO19	chr17:34874508-34897224	0.625	0.039	-6.705	-5.516	1.731	-1.773	FuLi_D:GIH:-6.705	FuLi_D	MYO20
NRG3	chr10:84042039-84196436	-4.36	0.129	-4.57	-3.645	3.466	3.256	iHS:BEB:3.456;GIH:3.466	iHS	NRG4
NFE2;HNRNPA1	chr12:54679667-54689667	-2.787	0.04	-5.802	-5.191	2.248	-2.441	FuLi_D:LWK:-5.802;FuLi_F:LWK:-5.191;Tajima_D:LWK:-2.441	FuLi_D;FuLi_F;Tajima_D	NFE2;HNRNPA2
NR1H4	chr12:100889813-100937784	-2.922	0.075	-7.501	-6.425	1.558	-2.606	FuLi_D:CEU:-7.501;GBR:-6.362;FuLi_F:CEU:-6.425;GBR:-5.617;Tajima_D:CEU:-2.606	FuLi_D;FuLi_F;Tajima_D	NR1H5
NRXN3	chr14:79156624-79166624	-2.289	0.036	-5.945	-4.889	1.614	-1.925	FuLi_D:LWK:-5.945;FuLi_F:LWK:-4.889	FuLi_D;FuLi_F	NRXN3
NRXN3	chr14:79685748-79695748	-6.72	0.055	-5.461	-5.027	1.538	-2.631	Tajima_D:FIN:-2.538;TSI:-2.631	Tajima_D	NRXN3
TNRC6C	chr17:75955578-75965578	-6.844	0.054	-5.786	-5.137	2.004	-2.508	FayWu_H:GIH:-6.844	FayWu_H	TNRC6C
NRXN1	chr2:50946332-50956332	-1.01	0.035	-6.092	-5.043	1.875	-2.044	FuLi_D:YRI:-6.092;FuLi_F:YRI:-5.043	FuLi_D;FuLi_F	NRXN2
ZNRF3	chr22:29340936-29350936	-2.941	0.045	-4.54	-4.219	2.14	-2.457	Tajima_D:ASW:-2.457	Tajima_D	ZNRF4
TNRC6B	chr22:40603489-40634595	-2.172	0.25	-3.05	-2.954	1.753	2.489	Fst:YRI2CHB:0.25	Fst	TNRC6B
TNRC6B	chr22:40709666-40719666	-1.71	0.054	-5.213	-4.737	1.542	-2.276	FuLi_F:MSL:-4.737	FuLi_F	TNRC6B
HNRNPD	chr4:83235670-83279350	-1.958	0.071	-3.149	-2.906	3.707	-1.458	iHS:YRI:3.707	iHS	HNRNPD
NREP	chr5:111262485-111282485	0.909	0.031	-5.32	-4.136	2.017	1.667	FuLi_D:MSL:-5.32	FuLi_D	NREP
NR3C1	chr5:142664620-142674620	-2.906	0.031	-5.566	-4.937	1.78	-2.228	FuLi_D:ESN:-5.566;FuLi_F:ESN:-4.937	FuLi_D;FuLi_F	NR3C2
ZNRF2	chr7:30335443-30375387	-2.325	0.044	-7.249	-6.268	1.44	-2.645	FuLi_D:TSI:-7.249;FuLi_F:TSI:-6.268;Tajima_D:TSI:-2.645	FuLi_D;FuLi_F;Tajima_D	ZNRF3
NR6A1	chr9:127272821-127292821	-2.55	0.06	-7.719	-6.713	1.94	-2.622	FuLi_D:TSI:-7.719;FuLi_F:TSI:-6.713;Tajima_D:TSI:-2.622	FuLi_D;FuLi_F;Tajima_D	NR6A1
NR6A1	chr9:127351196-127476030	-5.306	0.056	-7.029	-5.948	4.183	-2.472	iHS:ACB:3.773;ESN:4.183;GWD:3.987;YRI:3.609	iHS	NR6A1
NRG3	chr10:84042039-84196436	-4.36	0.129	-4.57	-3.645	3.466	3.256	iHS:BEB:3.456;GIH:3.466	iHS	NRG4
PARP15	chr3:122298894-122308894	-2.073	0.044	2.071	3.067	1.136	3.527	FuLi_D:ACB:2.071	FuLi_D	PARP16
PLGRKT	chr9:5369625-5389625	9.826	0.059	-2.266	26.302	0.925	72.567	FuLi_F:BEB:12.091;CDX:15.515;CEU:15.751;FIN:16.4;GBR:17.05;IBS:26.302;ITU:17.025;KHV:15.434;PIL:26.152;STU:15.977;YRI:14.934;Tajima_D:BEB:36.277;CDX:40.397;CEU:44.763;CHB:32.429;FIN:46.398;GBR:44.455;GIH:35.815;IBS:71.045;ITU:48.362;KHV:39.83;PIL:72.567;STU:46.105;TSI:36.118;YRI:37.05	FuLi_F;Tajima_D	PLGRKT
PTPN13	chr4:87576857-87635731	-5.626	0.025	-6.645	-6.021	1.379	-2.454	Tajima_D:LWK:-2.454	Tajima_D	PTPN13
PTPN13	chr4:87705893-87715893	-7.519	0.065	-4.287	-4.063	1.753	-2.431	FayWu_H:JPT:-7.519	FayWu_H	PTPN13

CKD-associated GWAS genes under natural selection

GeneID	Coordinates	FayWu_H	Fst	FuLi_D	FuLi_F	iHS	Tajima_D	Statistic:Population values	statistic	GeneID
PTPRN2	chr7:157356240-157422739	8.451	0.057	-3.019	23.196	2.3	63.272	FuLi_F:ACB:19.044;ASW:19.753;BEB:17.568;CDX:17.342;CHB:15.91;CHS:15.342;ESN:23.196;FIN:15.794;GBR:15.313;GIH:17.291;GWD:19.378;IBS:15.043;ITU:17.053;JPT:17.66;KHV:17.938;LWK:21.122;MSL:21.47;PIL:15.995;STU:16.007;YRI:20.485;Tajima_D:ACB:51.571;ASW:55.878;BEB:47.763;CDX:48.208;CHB:42.685;CHS:47.128;ESN:63.272;FIN:42.431;GBR:41.443;GIH:46.624;GWD:52.375;IBS:40.204;ITU:46.24;JPT:47.54;KHV:48.354;LWK:57.921;MSL:58.937;PIL:43.961;STU:43.994;TSI:35.069;YRI:55.111	FuLi_F;Tajima_D	PTPRN2
PTPRN2	chr7:157452350-157826789	16.276	0.093	-4.784	60.05	1.606	165.448	FayWu_H:ACB:12.049;ASW:14.079;BEB:14.717;CDX:14.952;CEU:16.231;CHS:14.626;FIN:16.276;GBR:16.115;GIH:15.228;GWD:11.892;IBS:14.624;ITU:16.095;JPT:12.488;KHV:16.203;LWK:11.843;PIL:14.703;STU:14.568;TSI:15.775;FuLi_F:ACB:50.224;ASW:53.405;BEB:55.651;CDX:54.024;CEU:55.781;CHB:45.563;CHS:52.082;ESN:49.56;FIN:55.706;GBR:55.414;GIH:56.304;GWD:44.189;IBS:54.719;ITU:60.05;JPT:43.657;KHV:57.482;LWK:38.46;MSL:48.094;PIL:55.646;STU:53.734;TSI:55.603;YRI:47.472;Tajima_D:ACB:137.687;ASW:153.069;BEB:153.559;CDX:149.143;CEU:152.855;CHB:124.117;CHS:142.249;ESN:136.364;FIN:152.217;GBR:152.696;GIH:154.119;GWD:120.739;IBS:148.88;ITU:165.448;JPT:119.009;KHV:157.187;LWK:106.337;MSL:133.341;PIL:155.63;STU:150.248;TSI:151.53;YRI:129.031	FayWu_H;FuLi_F;Tajima_D	PTPRN2
PTPRN2	chr7:157852838-157991205	15.584	0.047	-2.9	47.352	1.111	125.872	FayWu_H:ACB:12.104;ASW:12.396;BEB:13.856;CDX:15.39;CEU:12.718;CHB:15.049;CHS:14.755;ESN:13.281;FIN:15.557;GBR:15.237;GIH:12.15;IBS:12.732;ITU:12.142;JPT:14.296;KHV:15.584;LWK:14.483;MSL:12.53;PIL:12.827;TSI:14.821;YRI:12.38;FuLi_F:ACB:34.961;ASW:33.356;BEB:40.85;CDX:19.138;CEU:25.019;CHB:25.632;CHS:26.922;ESN:47.352;FIN:38.328;GBR:27.818;GIH:25.529;GWD:32.814;IBS:40.399;ITU:18.406;JPT:24.305;KHV:22.514;LWK:35.494;MSL:26.081;PIL:41.263;STU:23.083;TSI:25.932;YRI:35.065;Tajima_D:ACB:92.626;ASW:91.743;BEB:112.442;CDX:48.518;CEU:69.558;CHB:66.92;CHS:70.461;ESN:125.872;FIN:104.415;GBR:77.414;GIH:70.851;GWD:86.865;IBS:109.657;ITU:49.622;JPT:63.448;KHV:62.737;LWK:94.865;MSL:72.938;PIL:115.125;STU:65.485;TSI:71.669;YRI:92.274	FayWu_H;FuLi_F;Tajima_D	PTPRN2
PTPRN2	chr7:158155619-158337038	15.217	0.063	0	0	2.168	0	FayWu_H:ACB:12.85;ASW:12.593;BEB:13.095;CEU:13.234;CHB:14.201;CHS:14.215;ESN:12.684;FIN:15.217;GBR:14.228;GIH:14.187;GWD:12.984;IBS:13.088;ITU:13.632;KHV:13.581;LWK:13.002;MSL:14.408;PIL:13.944;STU:13.682;TSI:12.883;YRI:12.428	FayWu_H	PTPRN2
LILRB1	chr19:55125038-55135038	-3.43	0.055	2.215	-3.306	1.759	1.759	FuLi_D:IBS:2.215	FuLi_D	LILRB2
DYNLRB1	chr20:33116144-33126144	-1.256	0.017	-6.496	-5.616	1.354	-2.099	FuLi_D:GBR:-6.496;FuLi_F:GBR:-5.616	FuLi_D;FuLi_F	DYNLRB2
RBM19	chr12:114317275-114327275	1.557	0.059	2.07	-3.762	1.692	2.688	FuLi_D:KHV:2.07	FuLi_D	RBM20
RNLS	chr10:90284810-90294810	-2.743	0.029	-5.447	-4.684	1.375	-1.86	FuLi_F:ESN:-4.684	FuLi_F	RNLS
ROBO1	chr3:79026766-79036766	-2.457	0.032	-6.779	-5.952	1.981	-2.37	FuLi_D:GIH:-6.779;FuLi_F:FIN:-5.02;GIH:-5.952	FuLi_D;FuLi_F	ROBO1
ROBO1	chr3:79164098-79174098	-1.429	0.024	-5.867	-5.087	1.439	-2.32	FuLi_D:ESN:-5.867;FuLi_F:ESN:-5.087	FuLi_D;FuLi_F	ROBO1
ROR1	chr1:64344304-64364304	-4.95	0.146	-6.038	-5.521	1.867	-2.654	Tajima_D:CHS:-2.654	Tajima_D	ROR2
RORA	chr15:61422898-61432898	-1.837	0.038	-5.897	-4.934	1.939	-2.161	FuLi_D:YRI:-5.897;FuLi_F:YRI:-4.934	FuLi_D;FuLi_F	RORA

