Online Supplementary material for

"Refining genome-wide linkage intervals using GWAS identifies several loci influencing NEO Personality Dimensions."

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Supplementary Table 1. Descriptive statistics of the study samples

Trait	**ERF**				**NTR**				**QIMR_adolescent**				**QIMR_adult**			
descriptives	Mean	Median	Sd*	Range	Mean	Median	Sd*	range	Mean	Median	Sd*	range	Mean	Median	Sd*	range
Neuroticism	18.95	18.0	7.98	0-47	17.54	17	7.44	0-46	26.5	26	6.6	8-45	19.9	19	8.1	0-46
Extraversion	28.19	28.0	6.48	5-48	29.04	29	5.97	8-48	28.4	29	5.9	8-45	27.7	28	6.2	4-47
Openness	21.48	21.0	5.63	1-40	24.56	24	5.64	5-43	22.5	23	5.8	0-43	26.1	26	6.2	6-48
Agreeableness	31.71	32.0	5.49	8-48	32.78	33	4.66	13-47	28.4	28	5.1	10-48	32.1	32	5.5	14-48
conscientiousness	34.58	35.0	5.68	11-48	32.82	33	5.25	12-48	29.3	29	5.6	8-47	33.4	34	6.1	12-48

* standard deviation

Supplementary Table 2: Description of the studies included in the Genome-wide association study

Study sample	**ethnicity**	**%women**	**N**	**NEO assessment**	**Genotyping platform**	**Average age (sd) years**
1. SardiNIA	Italian	57	3972	NEO-PI-R	Affymetrix 10k and 500k	42.8(17.0)
2. NTRNESDA	Dutch	66	3540	NEO-FFI	Perlegen 600k	44.1(13.0)
3. ERF	Dutch	56	2400	NEO-FFI	Illumina 6k, 317k and 370k, Affymetrix 250k	49.3(14.9)
4. SAGE	American	60	1600	NEO-FFI	Illumina 1M	39.6(9.0)
5. HBCS	Finnish	60	1443	NEO	Illumina 610k	63.3(3.0)
6. QIMR- adults	Australian	56	1349	NEO-FFI	274,604 common SNPs from Illumina 610K/ 370K/ 317K	45.4(13.0)
7. QIMR - adolescents	Australian	57	1090	NEO-FFI/NEO-PI-R	Illumina 610k	19.4(3.0)
8. LBC36	UK	50	888	NEO-FFI	Illumina 610k	69.6(1.0)
9. BSLA	American	46	848	NEO-PI-R	Illumina 550k	68.5(17.0)
10. EGP	*Estonian*	*67*	*600*	*NEO-PI-3*	*Illumina 370k*	45.7(16.0)

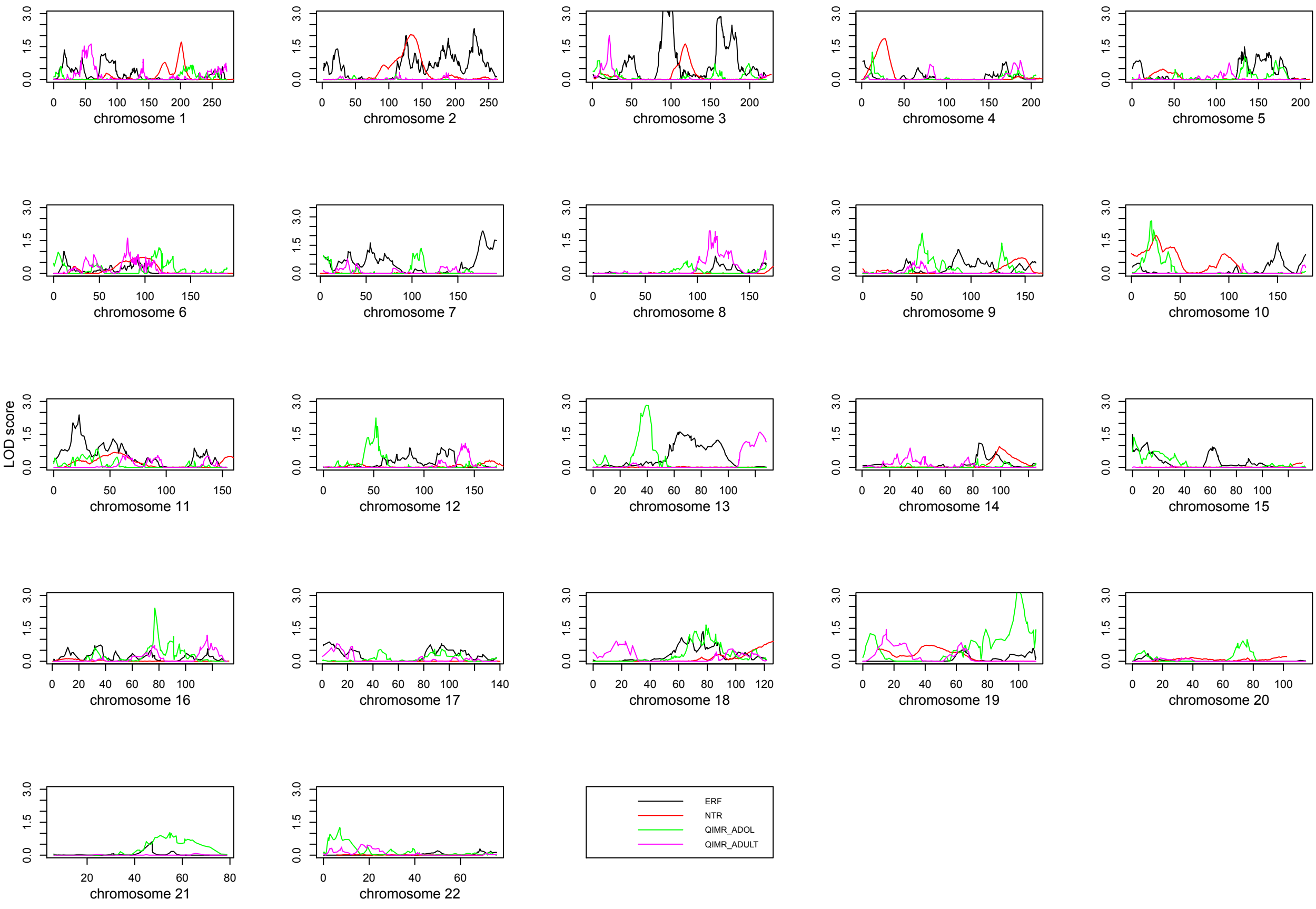
Supplementary Table 3: Power of the variance components linkage analysis to detect quantitative trait loci (QTL) with effect sizes of 1%, 5% and 10% at 1% and 5% levels of significance

	majorQTL																			
	10%								**5%**								**1%**			
	Power(α = 0.01)				**Power(α = 0.05)**				**Power(α = 0.01)**				**Power(α = 0.05)**				**Power(α = 0.05)**			
Cohort / **Trait**	ERF	NTR	QIMR adol	QIMR adult	ERF	NTR	QIMR adol	QIMR adult	ERF	NTR	QIMR adol	QIMR adult	ERF	NTR	QIMR adol	QIMR adult	ERF	NTR	QIMR adol	QIMR adult
neuroticism	0.242	.128	0.143	0.123	0.492	.324	0.350	0.317	0.066	.042	0.045	0.041	0.205	.147	0.155	0.145	0.070	.064	0.064	0.063
extraversion	0.243	.114	0.092	0.117	0.495	.300	0.258	0.305	0.066	.039	0.034	0.040	0.206	.140	0.126	0.142	0.070	.063	0.061	0.063
openness	0.242	.145	0.114	0.122	0.493	.354	0.301	0.314	0.066	.046	0.039	0.041	0.205	.157	0.140	0.145	0.070	.065	0.063	0.063
agreeableness	0.239	.114	0.107	0.114	0.489	.300	0.287	0.301	0.065	.039	0.037	0.039	0.203	.140	0.135	0.140	0.069	.063	0.062	0.063
conscientiousness	0.245	.124	0.095	0.115	0.496	.318	0.265	0.302	0.067	.041	0.035	0.039	0.206	.145	0.128	0.141	0.070	.063	0.061	0.063

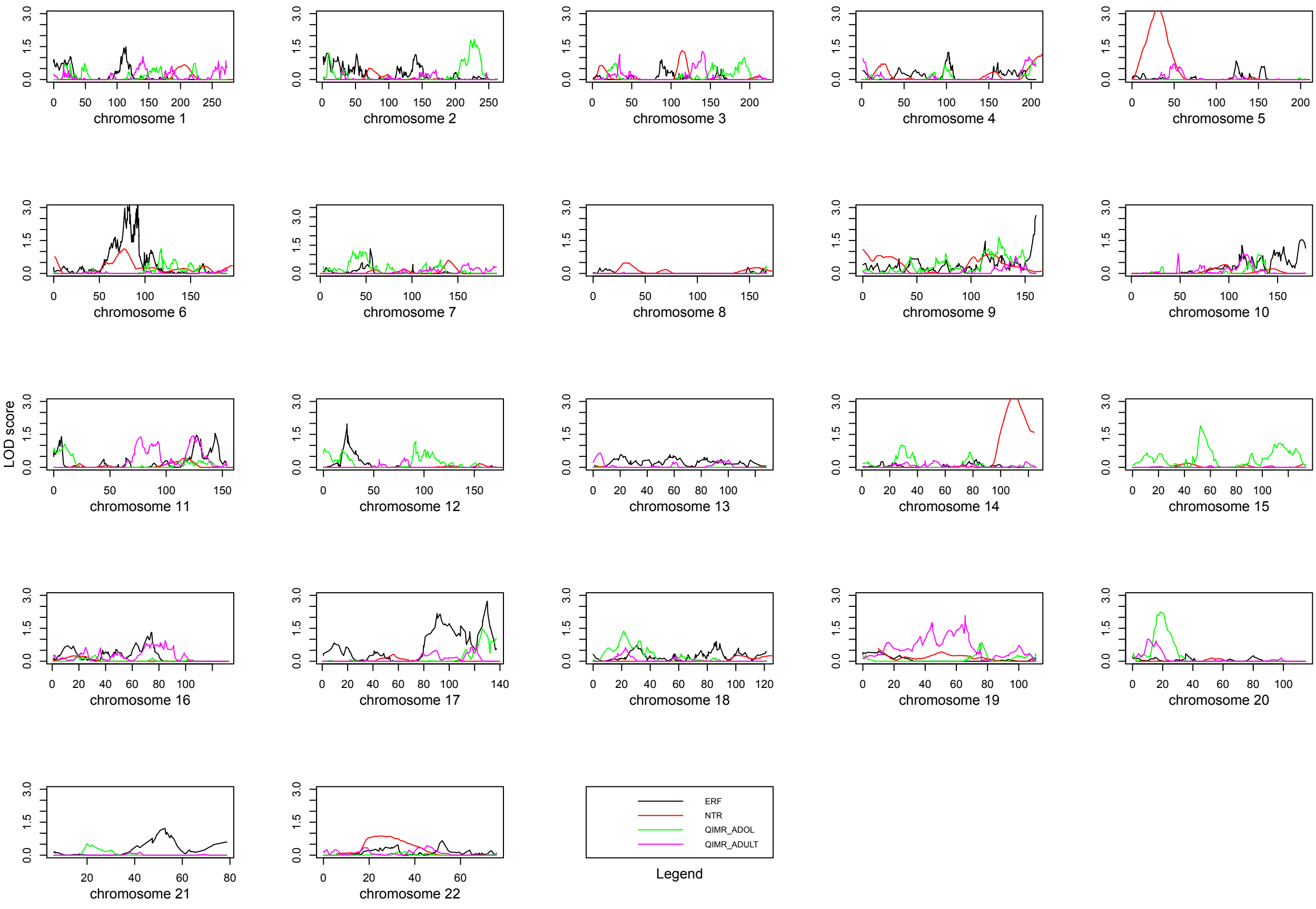
Supplementary table 4: A comparison of LOD scores between independent scans at the regions with significant and suggestive linkage signals in at least one scan

Study/trait	Chr.	Cyto-band	Marker	Position	MAF	Max Lod	Lod ERF	Lod NTR	Lod QIMR-Adol.	Lod QIMR-adults
Neuroticism										
ERF	2	2q14	rs400960	114501627	0.27	2.01	***2.01***	1.66	0.00	0.08
	2	2q36	rs921280	225676062	0.34	2.32	***2.32***	0.03	0.00	0.01
	3	3p14	rs1490265	67534733	0.28	4.67	***4.67***	0.38	0.00	0.00
	7	7q36.3	rs1657290	154396352	0.39	2.26	***2.26***	0.00	0.00	0.00
	11	11p15.2	rs730414	13415430	0.34	2.39	***2.39***	0.30	0.60	0.00
QIMR_adolescents	10	10p14	rs2439903	6831860	0.03	2.38	0.07	0.01	***2.38***	0.00
	12	12p11.2	rs2043623	29519283	0.45	2.25	0.10	0.00	***2.25***	0.00
	13	13q13	rs980285	37937932	0.36	2.83	0.27	0.00	***2.83***	0.18
	19	19q13.3	rs628604	59223436	0.30	3.55	0.57	0.01	***3.55***	0.00
QIMR_adult	3	3p26	rs4686140	7604004	0.45	2.00	0.03	0.02	0.08	***2.00***
	8	8q22.3	rs1460239	105880541	0.44	1.95	0.79	0.00	0.07	***1.95***
NTR	2	2q14	D2S347	123966279	NA	2.03	***2.01***	***2.03***	0.00	0.33
Extraversion										
ERF	6	6q14	rs770906	83140060	0.39	3.13	***3.13***	0.24	0.00	0.02
	12	12p13	rs2518144	8650712	0.39	1.98	***1.98***	0.00	0.60	0.00
	17	17q25.3	rs1696754	75560132	0.12	2.74	***2.74***	0.00	1.48	0.73
QIMR_adolescents	20	20p12	rs906935	5710065	0.33	2.24	0.17	0.00	***2.24***	0.93
QIMR_adult	19	19q13.1	rs993983	44843320	0.37	2.08	0.00	0.43	0.25	***2.08***
NTR	5	5q11.1	D5S817	11638487	NA	3.21	0.28	***3.21***	0.00	0.33
	14	14q32	ATGG002	98290290	NA	3.30	0.09	***3.30***	0.11	0.25
Openness										
ERF	7	7p14	rs343024	35267253	0.38	3.18	***3.18***	0.03	0.29	0.16
	10	10p15	rs3814595	3191679	0.22	1.92	***1.92***	0.20	0.00	0.01
	11	11q25	rs1824832	134313007	0.10	2.05	***2.05***	0.52	0.01	0.54
	12	12q23	rs746035	103494378	0.39	2.85	***2.85***	***1.96***	0.31	0.11
	15	15q23	rs2439378	64733880	0.46	2.16	***2.16***	0.04	0.54	0.71
QIMR_adolescents	8	8q21	rs729336	85457677	0.43	2.17	0.28	0.45	***2.17***	0.01
	11	11q24	rs930983	122339624	0.42	2.55	0.37	0.00	***2.55***	0.01
	15	5q13	rs952121	25875398	0.47	2.96	0.02	0.92	***2.96***	0.01
QIMR_adult	4	4q25	rs2046895	112466681	0.41	2.44	0.51	0.00	0.00	***2.44***
NTR	12	12q24	D12S324	125191038	NA	1.96	0.76	***1.96***	0.66	0.20
Agreeableness										
ERF	4	4q32	rs2054210	164139469	0.49	2.20	***2.20***	0.26	0.63	0.00
	12	12q24	rs6486532	129261499	0.48	2.70	***2.70***	0.06	0.52	0.32
QIMR_adolescents	3	3p25	rs709160	12501402	0.50	3.67	0.86	0.01	***3.67***	0.00
	15	15q13	rs970408	24540078	0.09	4.07	0.09	0.01	***4.07***	0.00
	15	15q14	rs1055356	32935394	0.43	3.52	0.64	0.01	***3.52***	0.25
Conscientiousness										
ERF	2	2q37.1	rs1868455	232103905	0.34	2.78	*2.78*	0.45	1.34	0.12
	2	2q22.1	rs1402810	139217540	0.21	3.15	***3.15***	0.38	0.54	0.02
	6	6p22	rs760848	18113568	0.33	2.56	***2.56***	0.01	0.00	0.63
	22	22q13	rs139316	37824263	0.50	2.02	***2.02***	0.09	0.12	0.02
QIMR_adolescents	7	7p22	rs1127460	652008	0.24	2.66	0.86	0.01	***2.66***	0.02
	8	8q24.2	rs760327	134572411	0.39	2.63	0.58	0.50	***2.63***	0.27
	9	9p23	rs1322304	10513383	0.49	1.94	0.54	0.01	***1.94***	0.20
	19	19p13	rs271828	18203477	0.43	1.92	0.27	0.00	***1.92***	0.02
QIMR_adult	9	9p21	rs702223	23803840	0.36	2.28	0.73	0.01	0.14	***2.28***
NTR	7	7q31	D7S486	115681910	NA	2.89	1.52	***2.89***	0.71	0.11

Supplementary Figure 1. Results of individual linkage scans for the 22 autosomes for neuroticism

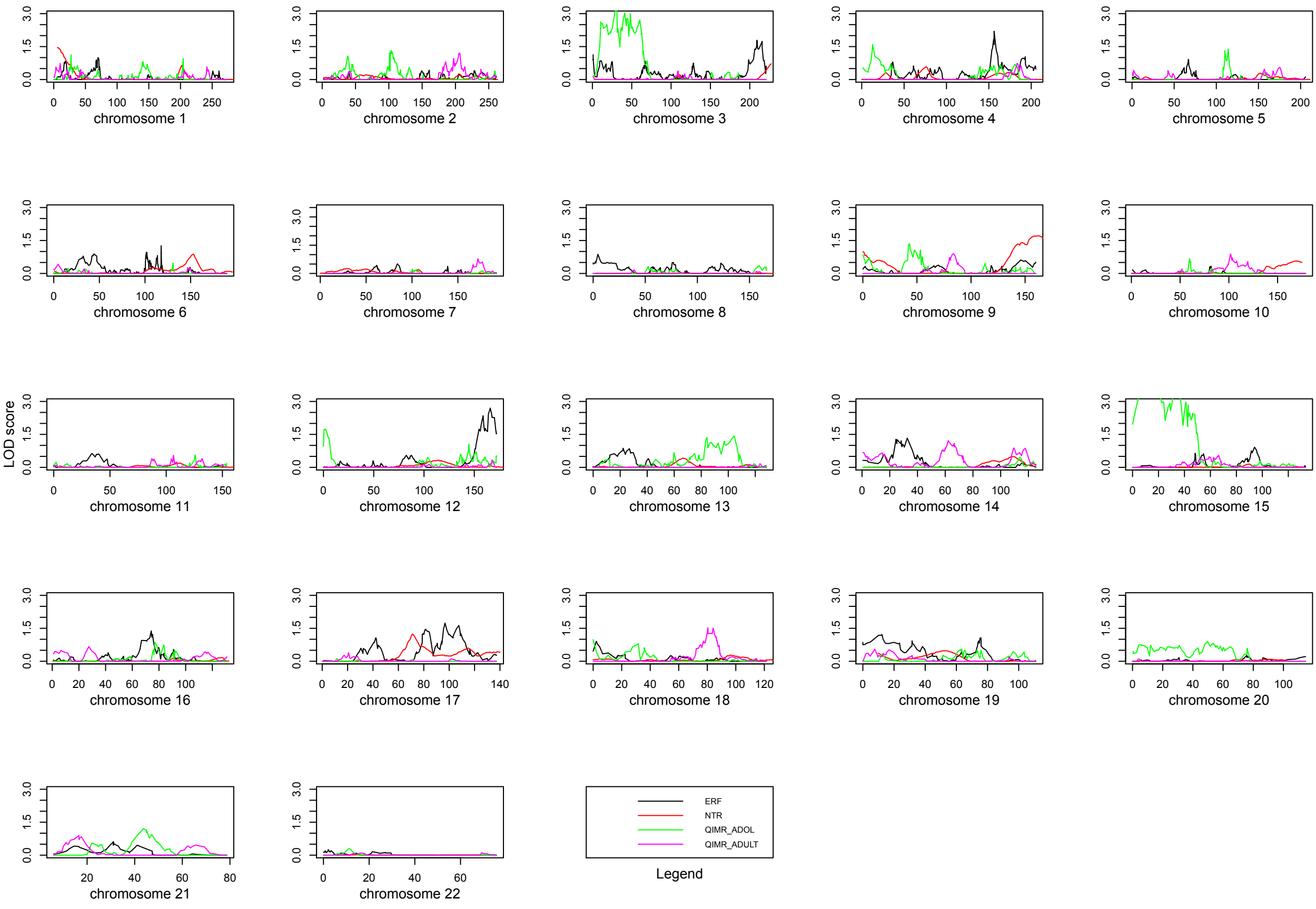


Supplementary Figure 2. Results of individual linkage scans for the 22 autosomes for extraversion



Supplementary Figure 3. Results of individual linkage scans for the 22 autosomes for openness

Supplementary Figure 4. Results of individual linkage scans for the 22 autosomes for agreeableness



Supplementary Figure 5. Results of individual linkage scans for the 22 autosomes for conscientiousness