



A genome-wide investigation into the underlying genetic architecture of personality traits and overlap with psychopathology

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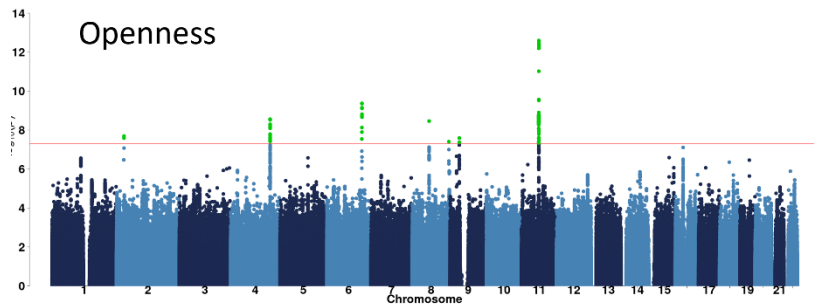
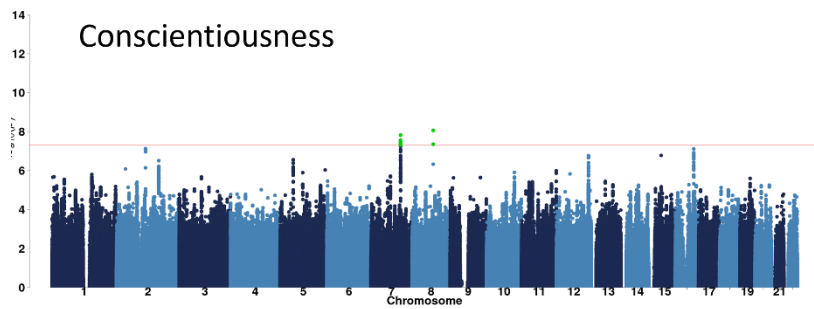
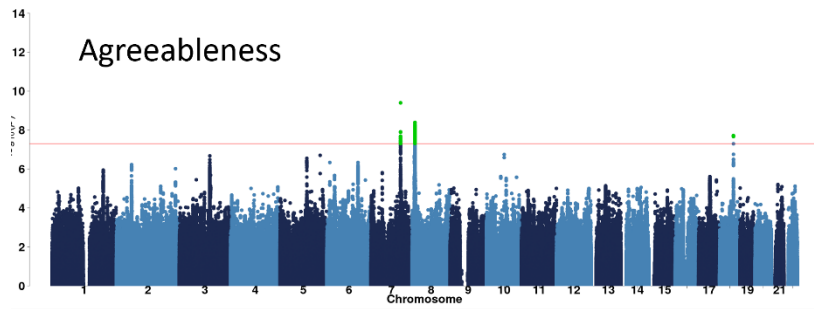
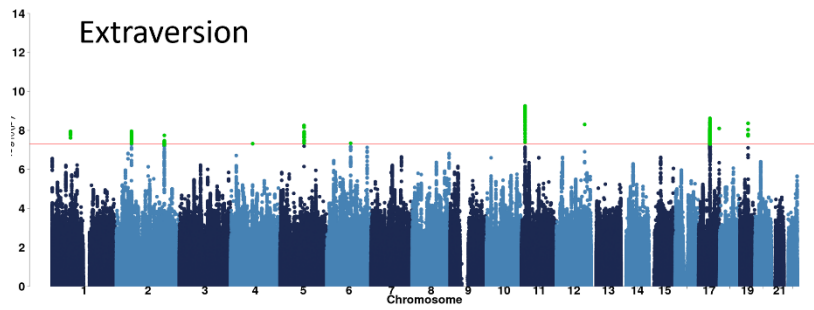
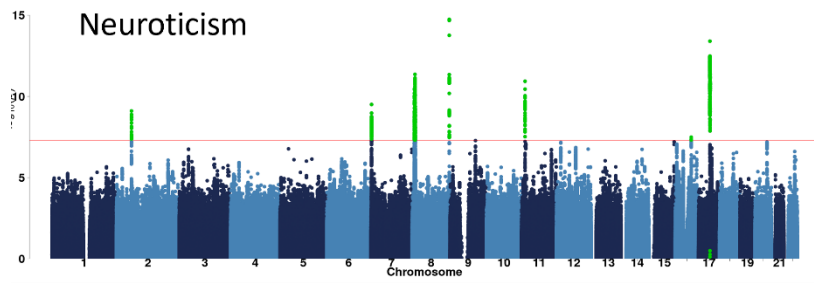


Figure S1: Manhattan plots of all 5 personalities GWAS performed in the MVP (EUR) cohort. Reported P-values are two-sided and not corrected for multiple testing. Genome-wide significance threshold ($P\text{-value} < 5E-08$), depicted by red line is used to define the significant variants.



Figure S2: Genetic correlation matrix among the 5 personality traits calculated from the MVP (EUR) cohort only. The heritability value of the respective trait is written in parenthesis.

35. How well do the following statements describe your personality? I see myself as someone who:

	Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
is reserved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is generally trusting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tends to be lazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is relaxed, handles stress well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
has few artistic interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is outgoing, sociable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tends to find fault with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
does a thorough job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gets nervous easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
has an active imagination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure S3: The figure shows the 10-item questionnaire of Big five Inventory used to assign personality type to MVP cohort participants, as part of question 35 of MVP personality survey [1].

Supplementary Tables

Table S1: Personality heritability in MVP African ancestry cohort

Trait	h2 (se)	P-value
Neuroticism	0.0447 (0.0129)	0.00053
Extraversion	0.033 (0.0108)	0.00224
Agreeableness	0.0424 (0.0114)	0.00019
Conscientiousness		Not significant
Openness		Not significant

Table S2: Genetic correlations between different data cohorts/studies (European ancestry)

Trait	Source 1	h2 (se)	Source 2	h2 (se)	rG (se)
Neuroticism	MVP	0.06 (0.004)	Nagel <i>et al.</i>	0.07 (0.003)	0.80 (0.02)
Extraversion	MVP	0.07 (0.004)	GPC-II	0.07 (0.003)	0.89 (0.09)
Agreeableness	MVP	0.04 (0.004)	GPC-I	0.01 (0.03)	0.72 (0.99)
Conscientiousness	MVP	0.05 (0.008)	GPC-I	0.08 (0.03)	0.59 (0.17)
Openness	MVP	0.05 (0.01)	GPC-I	0.13 (0.03)	0.63 (0.12)

Table S3: Common genes associated with neuroticism and extraversion

Gene	Direction of effect in neuroticism	Direction of effect in extraversion	eQTL associated with mood instability
CRHR1	-	+	Yes
MAPT	-	+	yes
MAPT-AS1	+	-	Yes
PLEKHM1	-	+	Yes
KANSL1	+	-	Yes

LIN02210	+	-	No
SPPL2C	+	-	No
ARHGAP27	+	-	No
ARL17A	+	-	No

Table S4: Outcome of sensitivity analysis with MRLap

Trait	Exposure	Outcome	No. of instruments	Observed Beta	P	Corr. Beta	Corr. P
Neuroticism	MDD	Neuro	61	0.784	5.850E-57	0.94	4.169e-56
	Neuro	MDD	64	0.445	2.004E-61	0.529	6.036E-49
	ANX	Neuro	58	0.303	4.785E-14	0.531	7.781E-14
	Neuro	ANX	102	0.471	3.142E-46	0.548	1.129E-40
Agreeableness	MDD	Agree	70	-0.321	3.644E-11	-0.396	2.946E-10
	Agree	MDD	33	-0.15	3.736E-04	-0.373	8.859E-04
	ANX	Agree	58	-0.241	2.903E-13	-0.350	1.763E-08
	Agree	ANX	24	-0.297	6.878E-05	-0.662	1.769E-02

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