Table S3a. Associations between serum sulfate and *SLC13A1* nonsense SNVs (n=977).

SNV covariate(s)	**β_{SNV} ± SE (mM)**	**β_{SNV}/ Mean$_{WT}$**	**P_{SNV}**	**h^2 ± SE**	**P_{h2}**	**%AVE**	**R^2**	**%TVE**
No SNVs	-	-	-	0.40 ± 0.07	1.8x10^{-16}	-	0.13	-
R12X	-0.096 ± 0.019	-0.27	2.9x10^{-7}	0.40 ± 0.07	7.5x10^{-15}	1	0.15	2
W48X	-0.096 ± 0.013	-0.27	1.3x10^{-12}	0.31 ± 0.07	6.0x10^{-9}	24	0.19	6
R12X **W48X**	-0.099 ± 0.018 -0.099 ± 0.013	-	2.7x10^{-8} 6.9x10^{-14}	0.28 ± 0.07	5.3x10^{-6}	31	0.22	9
Nonsense Carrier	-0.099 ± 0.011	-0.27	8.8x10^{-20}	0.28 ± 0.07	5.3x10^{-6}	31	0.22	9

SLC13A1 R12X and W48X genotyping was performed for all individuals for whom serum sulfate was measured. Analyses were adjusted for gender, study, and study-age. Abbreviations: SE, standard error; h^2, heritability; AVE, additive variance explained; TVE, total variance explained.

Table S3b. Associations between serum sulfate, and *SLC13A1* and *SLC26A1* SNVs (n=900).

SNV covariate(s)	**β_{SNV} ± SE (mM)**	**β_{SNV}/ Mean$_{WT}$**	**P_{SNV}**	**h^2 ± SE**	**P_{h2}**	**%AVE**	**R^2**	**%TVE**
No SNVs	-	-	-	0.44 ± 0.08	7.9x10^{-17}	-	0.10	-
N174S	0.012 ± 0.003	0.03	1.6x10^{-4}	0.43 ± 0.08	3.6x10^{-16}	2	0.12	2
R237C	0.015 ± 0.010	0.04	0.15	0.44 ± 0.08	1.6x10^{-16}	0	0.11	0
R12X (GWAS)	-0.088 ± 0.019	-	7.5x10^{-6}	0.42 ± 0.08	2.2x10^{-14}	3	0.13	2
W48X (GWAS)	-0.082 ± 0.015	-	2.7x10^{-8}	0.36 ± 0.08	1.6x10^{-10}	18	0.15	5
L348P (GWAS)	-0.046 ± 0.006	0.12	4.4x10^{-12}	0.43 ± 0.08	2.1x10^{-15}	3	0.15	5
R12X W48X L348P	-0.094 ± 0.018 -0.080 ± 0.014 -0.045 ± 0.006	-	3.5x10^{-7} 9.5x10^{-9} 9.7x10^{-13}	0.32 ± 0.08	2.9x10^{-7}	27	0.22	12
R12X W48X N174S R237C L348P	-0.091 ± 0.018 -0.076 ± 0.014 0.009 ± 0.003 0.008 ± 0.010 -0.045 ± 0.006	-	5.8x10^{-7} 5.3x10^{-8} 3.4x10^{-3} 0.40 9.2x10^{-13}	0.31 ± 0.08	6.4x10^{-7}	29	0.23	13

SLC13A1 N174S and R237C, and *SLC26A1* L348P genotyping was performed on 900 of the 977 individuals for whom serum sulfate was measured. Analyses were adjusted for gender, study, and study-age. Abbreviations: SE, standard error; h^2, heritability; AVE, additive variance explained; TVE, total variance explained.