

**Supplementary Table SIII** An association analysis under recessive model between four SNPs and semen parameters in fertile men, and young men from the general population in Japan.

SNP	Semen Parameter	Fertile		Young		Combined		Heterogeneity	
		$\beta$ (SE)	P	$\beta$ (SE)	P	$\beta$ (SE) [model] <sup>a</sup>	P <sub>meta</sub>	P <sub>het</sub>	I <sup>2</sup> (%)
rs7867029	Conc.	−0.40 (0.71)	0.57	0.098 (0.47)	0.84	−0.057 (0.39) [F]	0.89	0.56	0.0
	Vol.	0.069 (0.083)	0.41	0.083 (0.062)	0.18	0.078 (0.049) [F]	0.12	0.89	0.0
	TSN	−0.55 (1.39)	0.69	0.37 (0.82)	0.65	0.13 (0.71) [F]	0.85	0.57	0.0
	TMSN	−0.85 (1.09)	0.43	0.33 (0.67)	0.63	0.0019 (0.57) [F]	1.00	0.36	0.0
	Motility (%)	−3.21 (4.07)	0.43	−0.31 (2.31)	0.89	−1.01 (2.01) [F]	0.61	0.54	0.0
rs12870438	Conc.	3.55 (1.81)	0.051	−0.049 (0.82)	0.95	1.39 (1.76) [R]	0.43	0.070	69.4
	Vol.	0.20 (0.21)	0.35	0.073 (0.11)	0.50	0.098 (0.095) [F]	0.30	0.59	0.0
	TSN	<b>7.80 (3.54)</b>	<b>0.028</b>	0.82 (1.42)	0.56	3.55 (3.41) [R]	0.30	0.067	70.2
	TMSN	2.59 (2.78)	0.35	0.73 (1.16)	0.53	1.01 (1.07) [F]	0.35	0.54	0.0
	Motility (%)	−15.96 (10.40)	0.13	2.42 (3.98)	0.54	−4.26 (8.84) [R]	0.63	0.099	63.3
rs7174015	Conc.	−0.029 (0.29)	0.92	−0.092 (0.19)	0.63	−0.073 (0.16) [F]	0.65	0.85	0.0
	Vol.	0.013 (0.034)	0.71	0.0090 (0.025)	0.72	0.010 (0.020) [F]	0.61	0.93	0.0
	TSN	−0.082 (0.56)	0.88	−0.051 (0.33)	0.88	−0.059 (0.28) [F]	0.84	0.96	0.0
	TMSN	0.063 (0.40)	0.87	0.026 (0.27)	0.92	0.037 (0.22) [F]	0.87	0.94	0.0
	Motility (%)	1.07 (1.65)	0.52	0.12 (0.93)	0.90	0.35 (0.81) [F]	0.67	0.61	0.0
rs724078	Conc.	0.29 (0.48)	0.55	<b>−0.71 (0.32)</b>	<b>0.025</b>	−0.28 (0.50) [R]	0.57	0.084	66.6
	Vol.	−0.053 (0.056)	0.35	0.060 (0.042)	0.15	0.010 (0.056) [R]	0.85	0.11	61.6
	TSN	0.24 (0.94)	0.80	−0.62 (0.55)	0.26	−0.40 (0.48) [F]	0.41	0.43	0.0
	TMSN	0.45 (0.75)	0.54	−0.42 (0.45)	0.35	−0.19 (0.39) [F]	0.63	0.32	0.9
	Motility (%)	4.55 (2.79)	0.10	0.38 (1.56)	0.81	1.37 (1.36) [F]	0.31	0.19	41.2

Data are shown as the estimated liner regression statistic  $\beta$ , standard error (SE) and P-value with adjustments for age, BMI and ejaculation abstinence. Motility and total motile sperm number were additionally adjusted for time from masturbation to test. The sperm concentration, semen volume, total sperm number and total motile sperm number were processed using square-root-transformed values. Bold numbers indicate P-values of <0.05.

Conc., sperm concentration; Vol., semen volume; TSN, total sperm numbers; TMSN, total motile sperm numbers; P<sub>het</sub>, P-value for heterogeneity.

<sup>a</sup>The  $\beta$ -coefficient and its SE were summarized using an inverse variance-weighted meta-analysis under fixed-effects model [F] or the DerSimonian and Laird method under random-effects model [R].