

## Supplementary Files

### Supplementary Table

Supplementary Table 1 Annotation of ESRD associated loci identified with respect to expression quantitative trait loci (eQTL) based on GTEx/v8 databases

SNP	Position (hg38) <sup>1</sup>	Gene <sup>2</sup>	MAF <sup>3</sup>	A1 <sup>4</sup>	A2 <sup>5</sup>	Association with ESRD				Association with gene expression <sup>6</sup>				
						$\beta$	se	<i>P</i> _value	Sex_specific	$\beta$ <sup>7</sup>	se <sup>8</sup>	<i>P</i> _threshold <sup>9</sup>	<i>P</i> _value	Tissue
rs5967176	100715506	<i>TSPAN6</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.20	0.03	1.26E-04	6.10E-10	Esophagus Gastroesophageal Junction
rs5967176	100715506	<i>TSPAN6</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.17	0.03	2.22E-04	1.72E-10	Esophagus Muscularis
rs5967176	100715506	<i>TSPAN6</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.10	0.03	1.93E-04	4.53E-05	Lung
rs2858172	100719748	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.20	0.03	1.26E-04	2.24E-09	Esophagus Gastroesophageal Junction
rs2858172	100719748	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.17	0.03	2.22E-04	2.50E-10	Esophagus Muscularis
rs2858172	100719748	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.11	0.03	1.93E-04	2.42E-05	Lung

rs2858173	100720486	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.20	0.03	1.26E-04	2.24E-09	Esophagus Gastroesophageal Junction
rs2858173	100720486	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.17	0.03	2.22E-04	2.50E-10	Esophagus Muscularis
rs2858173	100720486	<i>TSPAN6</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.11	0.03	1.93E-04	2.42E-05	Lung
rs2858175	100723331	<i>TSPAN6</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.20	0.03	1.26E-04	2.24E-09	Esophagus Gastroesophageal Junction
rs2858175	100723331	<i>TSPAN6</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.17	0.03	2.22E-04	1.72E-10	Esophagus Muscularis
rs2858175	100723331	<i>TSPAN6</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.11	0.03	1.93E-04	2.42E-05	Lung
rs73250616	100738288	<i>TSPAN6</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	-0.20	0.03	1.26E-04	4.10E-09	Esophagus Gastroesophageal Junction
rs73250616	100738288	<i>TSPAN6</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	-0.17	0.03	2.22E-04	7.77E-10	Esophagus Muscularis
rs73250616	100738288	<i>TSPAN6</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	-0.10	0.03	1.93E-04	1.14E-04	Lung
rs4828051	100739928	<i>TSPAN6</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	-0.19	0.03	1.26E-04	1.60E-08	Esophagus Gastroesophageal Junction
rs4828051	100739928	<i>TSPAN6</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	-0.17	0.03	2.22E-04	1.54E-09	Esophagus Muscularis
rs4828051	100739928	<i>TSPAN6</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	-0.10	0.03	1.93E-04	1.10E-04	Lung

rs5967176	100715506	<i>NOX1</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.19	0.04	1.06E-04	1.48E-05	Brain Cerebellar Hemisphere
rs5967176	100715506	<i>NOX1</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.19	0.04	2.82E-04	7.99E-06	Nerve Tibial
rs2858172	100719748	<i>NOX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.19	0.04	1.06E-04	1.63E-05	Brain Cerebellar Hemisphere
rs2858172	100719748	<i>NOX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.20	0.04	2.82E-04	2.80E-06	Nerve Tibial
rs2858173	100720486	<i>NOX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.19	0.04	1.06E-04	1.63E-05	Brain Cerebellar Hemisphere
rs2858173	100720486	<i>NOX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.20	0.04	2.82E-04	2.80E-06	Nerve Tibial
rs2858175	100723331	<i>NOX1</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.19	0.04	1.06E-04	1.37E-05	Brain Cerebellar Hemisphere
rs2858175	100723331	<i>NOX1</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.20	0.04	2.82E-04	2.80E-06	Nerve Tibial
rs73250616	100738288	<i>NOX1</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.18	0.04	1.06E-04	4.08E-05	Brain Cerebellar Hemisphere
rs73250616	100738288	<i>NOX1</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.21	0.04	2.82E-04	1.40E-06	Nerve Tibial
rs4828051	100739928	<i>NOX1</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.18	0.04	1.06E-04	3.19E-05	Brain Cerebellar Hemisphere
rs4828051	100739928	<i>NOX1</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.21	0.04	2.82E-04	1.01E-06	Nerve Tibial
rs5967176	100715506	<i>CSTF2</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.14	0.02	2.65E-04	2.38E-11	Esophagus Mucosa
rs2858172	100719748	<i>CSTF2</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.14	0.02	2.65E-04	2.00E-11	Esophagus Mucosa
rs2858173	100720486	<i>CSTF2</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.14	0.02	2.65E-04	2.00E-11	Esophagus Mucosa
rs2858175	100723331	<i>CSTF2</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.14	0.02	2.65E-04	2.00E-11	Esophagus Mucosa

rs73250616	100738288	<i>CSTF2</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	-0.15	0.02	2.65E-04	2.34E-12	Esophagus Mucosa
rs4828051	100739928	<i>CSTF2</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	-0.15	0.02	2.65E-04	5.88E-13	Esophagus Mucosa
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.19	0.02	2.88E-04	3.75E-21	Adipose Subcutaneous
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.29	0.02	1.77E-04	3.70E-31	Adipose Visceral Omentum
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.47	0.03	1.66E-04	2.78E-41	Artery Aorta
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.16	0.02	2.41E-04	1.69E-14	Artery Tibial
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.44	0.04	6.42E-05	5.79E-19	Brain Anterior cingulate cortex BA24
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.40	0.04	8.84E-05	1.65E-21	Brain Caudate basal ganglia
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.25	0.04	1.30E-04	3.83E-10	Brain Cerebellar Hemisphere
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.27	0.04	1.29E-04	8.25E-12	Brain Cerebellum
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.45	0.03	9.79E-05	2.59E-28	Brain Cortex
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.46	0.04	7.39E-05	1.99E-24	Brain Frontal Cortex BA9
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.34	0.05	6.06E-05	2.79E-10	Brain Hippocampus

rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.24	0.05	5.49E-05	4.08E-07	Brain Hypothalamus Brain Nucleus
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.37	0.04	1.08E-04	7.54E-17	accumbens basal ganglia
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.33	0.03	8.56E-05	4.85E-17	Brain Putamen basal ganglia
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.22	0.03	1.16E-04	2.00E-11	Breast Mammary Tissue
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.10	0.02	1.22E-04	1.60E-06	Colon Sigmoid
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.17	0.02	1.46E-04	4.39E-11	Colon Transverse
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.07	0.02	2.36E-04	8.29E-05	Esophagus Muscularis
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.45	0.04	6.46E-05	3.66E-23	Liver
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.34	0.06	3.74E-05	1.47E-07	Minor Salivary Gland
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.11	0.02	2.97E-04	9.86E-09	Muscle Skeletal
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.11	0.01	3.21E-04	2.43E-13	Nerve Tibial
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.25	0.05	4.50E-05	6.86E-06	Ovary
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.56	0.04	1.23E-04	3.18E-37	Pancreas
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.18	0.04	6.63E-05	3.30E-05	Prostate
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.09	0.02	2.86E-04	1.93E-07	Skin Not Sun Exposed Suprapubic

rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.08	0.01	3.50E-04	8.81E-08	Skin Sun Exposed Lower leg
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.16	0.03	1.27E-04	1.78E-08	Spleen
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.28	0.03	9.80E-05	1.05E-15	Stomach
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.12	0.02	1.71E-04	7.94E-10	Testis
rs5967176	100715506	<i>SYTL4</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	0.60	0.02	3.77E-04	2.30E-100	Thyroid
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.19	0.02	2.88E-04	1.13E-21	Adipose Subcutaneous
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.29	0.02	1.77E-04	1.60E-31	Adipose Visceral Omentum
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.47	0.03	1.66E-04	1.02E-40	Artery Aorta
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.16	0.02	2.41E-04	3.32E-14	Artery Tibial
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.44	0.04	6.42E-05	5.79E-19	Brain Anterior cingulate cortex BA24
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.40	0.04	8.84E-05	1.16E-20	Brain Caudate basal ganglia
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.25	0.04	1.30E-04	5.68E-10	Brain Cerebellar Hemisphere
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.27	0.04	1.29E-04	9.74E-12	Brain Cerebellum
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.45	0.03	9.79E-05	3.65E-28	Brain Cortex
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.46	0.04	7.39E-05	4.48E-24	Brain Frontal Cortex BA9

rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.34	0.05	6.06E-05	2.29E-10	Brain Hippocampus
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.24	0.05	5.49E-05	4.08E-07	Brain Hypothalamus
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.37	0.04	1.08E-04	1.67E-16	Brain Nucleus accumbens basal ganglia
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.33	0.03	8.56E-05	3.29E-17	Brain Putamen basal ganglia
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.22	0.03	1.16E-04	3.38E-11	Breast Mammary Tissue
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.10	0.02	1.22E-04	1.19E-06	Colon Sigmoid
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.18	0.02	1.46E-04	1.93E-12	Colon Transverse
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.07	0.02	2.36E-04	5.23E-05	Esophagus Muscularis
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.45	0.04	6.46E-05	3.66E-23	Liver
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.35	0.06	3.74E-05	7.50E-08	Minor Salivary Gland
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.11	0.02	2.97E-04	7.38E-09	Muscle Skeletal
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.11	0.01	3.21E-04	1.16E-13	Nerve Tibial
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.25	0.05	4.50E-05	1.24E-05	Ovary
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.57	0.04	1.23E-04	5.18E-38	Pancreas
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.18	0.04	6.63E-05	1.48E-05	Prostate
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.09	0.02	2.86E-04	1.25E-07	Skin Not Sun Exposed Suprapubic

rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.08	0.01	3.50E-04	3.87E-08	Skin Sun Exposed Lower leg
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.16	0.03	1.27E-04	2.08E-08	Spleen
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.28	0.03	9.80E-05	1.01E-15	Stomach
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.12	0.02	1.71E-04	5.98E-10	Testis
rs2858172	100719748	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.60	0.02	3.77E-04	1.31E-103	Thyroid
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.19	0.02	2.88E-04	1.13E-21	Adipose Subcutaneous
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.29	0.02	1.77E-04	1.60E-31	Adipose Visceral Omentum
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.47	0.03	1.66E-04	1.02E-40	Artery Aorta
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.16	0.02	2.41E-04	3.32E-14	Artery Tibial
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala Brain Anterior cingulate cortex BA24
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.44	0.04	6.42E-05	5.79E-19	Brain Caudate basal ganglia
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.40	0.04	8.84E-05	1.16E-20	Brain Cerebellar Hemisphere
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.25	0.04	1.30E-04	5.68E-10	Brain Cerebellum
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.27	0.04	1.29E-04	9.74E-12	Brain Cortex
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.45	0.03	9.79E-05	3.65E-28	Brain Frontal Cortex BA9

rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.34	0.05	6.06E-05	2.29E-10	Brain Hippocampus
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.24	0.05	5.49E-05	4.08E-07	Brain Hypothalamus
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.37	0.04	1.08E-04	1.67E-16	Brain Nucleus accumbens basal ganglia
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.33	0.03	8.56E-05	3.29E-17	Brain Putamen basal ganglia
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.22	0.03	1.16E-04	3.38E-11	Breast Mammary Tissue
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.10	0.02	1.22E-04	1.19E-06	Colon Sigmoid
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.18	0.02	1.46E-04	1.93E-12	Colon Transverse
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.07	0.02	2.36E-04	5.23E-05	Esophagus Muscularis
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.45	0.04	6.46E-05	3.66E-23	Liver
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.35	0.06	3.74E-05	7.50E-08	Minor Salivary Gland
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.11	0.02	2.97E-04	7.38E-09	Muscle Skeletal
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.11	0.01	3.21E-04	1.16E-13	Nerve Tibial
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.25	0.05	4.50E-05	1.24E-05	Ovary
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.57	0.04	1.23E-04	5.18E-38	Pancreas
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.18	0.04	6.63E-05	1.48E-05	Prostate
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.09	0.02	2.86E-04	1.25E-07	Skin Not Sun Exposed Suprapubic

rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.08	0.01	3.50E-04	3.87E-08	Skin Sun Exposed Lower leg
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.16	0.03	1.27E-04	2.08E-08	Spleen
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.28	0.03	9.80E-05	1.01E-15	Stomach
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.12	0.02	1.71E-04	5.98E-10	Testis
rs2858173	100720486	<i>SYTL4</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.60	0.02	3.77E-04	1.31E-103	Thyroid
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.19	0.02	2.88E-04	1.13E-21	Adipose Subcutaneous
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.29	0.02	1.77E-04	1.53E-31	Adipose Visceral Omentum
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.47	0.03	1.66E-04	1.02E-40	Artery Aorta
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.16	0.02	2.41E-04	3.61E-14	Artery Tibial
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala Brain Anterior cingulate cortex BA24
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.44	0.04	6.42E-05	5.79E-19	Brain Caudate basal ganglia
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.39	0.04	8.84E-05	4.47E-20	Brain Cerebellar Hemisphere
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.27	0.04	1.29E-04	9.74E-12	Brain Cerebellum
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.45	0.03	9.79E-05	3.65E-28	Brain Cortex
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.46	0.04	7.39E-05	5.63E-24	Brain Frontal Cortex BA9

rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.34	0.05	6.06E-05	1.59E-10	Brain Hippocampus
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.24	0.05	5.49E-05	3.48E-07	Brain Hypothalamus
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.37	0.04	1.08E-04	1.67E-16	Brain Nucleus accumbens basal ganglia
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.33	0.03	8.56E-05	3.29E-17	Brain Putamen basal ganglia
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.22	0.03	1.16E-04	3.38E-11	Breast Mammary Tissue
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.10	0.02	1.22E-04	1.19E-06	Colon Sigmoid
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.18	0.02	1.46E-04	2.54E-12	Colon Transverse
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.07	0.02	2.36E-04	5.99E-05	Esophagus Muscularis
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.45	0.04	6.46E-05	3.66E-23	Liver
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.35	0.06	3.74E-05	7.50E-08	Minor Salivary Gland
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.11	0.02	2.97E-04	6.75E-09	Muscle Skeletal
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.11	0.01	3.21E-04	1.16E-13	Nerve Tibial
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.25	0.05	4.50E-05	1.24E-05	Ovary
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.57	0.04	1.23E-04	5.18E-38	Pancreas
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.18	0.04	6.63E-05	1.48E-05	Prostate
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.09	0.02	2.86E-04	1.25E-07	Skin Not Sun Exposed Suprapubic

rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.08	0.01	3.50E-04	3.87E-08	Skin Sun Exposed Lower leg
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.16	0.03	1.27E-04	2.08E-08	Spleen
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.28	0.03	9.80E-05	1.01E-15	Stomach
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.12	0.02	1.71E-04	5.98E-10	Testis
rs2858175	100723331	<i>SYTL4</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	0.60	0.02	3.77E-04	1.31E-103	Thyroid
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.19	0.02	2.88E-04	1.06E-20	Adipose Subcutaneous
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.29	0.02	1.77E-04	2.38E-31	Adipose Visceral Omentum
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.47	0.03	1.66E-04	2.11E-39	Artery Aorta
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.14	0.03	5.55E-05	5.43E-05	Artery Coronary
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.15	0.02	2.41E-04	8.67E-13	Artery Tibial
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.44	0.04	6.42E-05	3.77E-18	Brain Anterior cingulate cortex BA24
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.38	0.04	8.84E-05	5.87E-19	Brain Caudate basal ganglia
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.25	0.04	1.30E-04	4.63E-10	Brain Cerebellar Hemisphere
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.27	0.04	1.29E-04	2.00E-11	Brain Cerebellum
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.43	0.04	9.79E-05	6.08E-25	Brain Cortex

rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.46	0.04	7.39E-05	3.24E-23	Brain Frontal Cortex BA9
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.34	0.05	6.06E-05	3.12E-10	Brain Hippocampus
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.24	0.05	5.49E-05	1.65E-06	Brain Hypothalamus
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.36	0.04	1.08E-04	1.11E-15	Brain Nucleus accumbens basal ganglia
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.33	0.03	8.56E-05	3.56E-17	Brain Putamen basal ganglia
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.21	0.03	1.16E-04	7.38E-11	Breast Mammary Tissue
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.10	0.02	1.22E-04	4.81E-07	Colon Sigmoid
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.18	0.02	1.46E-04	1.11E-12	Colon Transverse
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.07	0.02	2.36E-04	1.01E-04	Esophagus Muscularis
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.45	0.04	6.46E-05	1.30E-22	Liver
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.34	0.06	3.74E-05	9.51E-08	Minor Salivary Gland
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.11	0.02	2.97E-04	2.79E-08	Muscle Skeletal
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.11	0.01	3.21E-04	2.41E-13	Nerve Tibial
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.25	0.05	4.50E-05	5.75E-06	Ovary
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.57	0.04	1.23E-04	2.50E-38	Pancreas
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.19	0.04	6.63E-05	8.19E-06	Prostate

rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.09	0.02	2.86E-04	1.25E-07	Skin Not Sun Exposed Suprapubic Skin Sun
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.08	0.01	3.50E-04	1.80E-07	Exposed Lower leg
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.16	0.03	1.27E-04	5.09E-08	Spleen
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.27	0.03	9.80E-05	7.93E-15	Stomach
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.12	0.02	1.71E-04	7.37E-10	Testis
rs73250616	100738288	<i>SYTL4</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	0.59	0.02	3.77E-04	1.16E-97	Thyroid
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.19	0.02	2.88E-04	1.34E-20	Adipose Subcutaneous
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.30	0.02	1.77E-04	1.64E-32	Adipose Visceral Omentum
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.47	0.03	1.66E-04	1.05E-40	Artery Aorta
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.15	0.03	5.55E-05	2.23E-05	Artery Coronary
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.15	0.02	2.41E-04	4.54E-13	Artery Tibial
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.47	0.06	4.21E-05	2.02E-11	Brain Amygdala
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.44	0.04	6.42E-05	3.77E-18	Brain Anterior cingulate cortex BA24
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.38	0.04	8.84E-05	5.87E-19	Brain Caudate basal ganglia
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.25	0.04	1.30E-04	5.25E-10	Brain Cerebellar Hemisphere

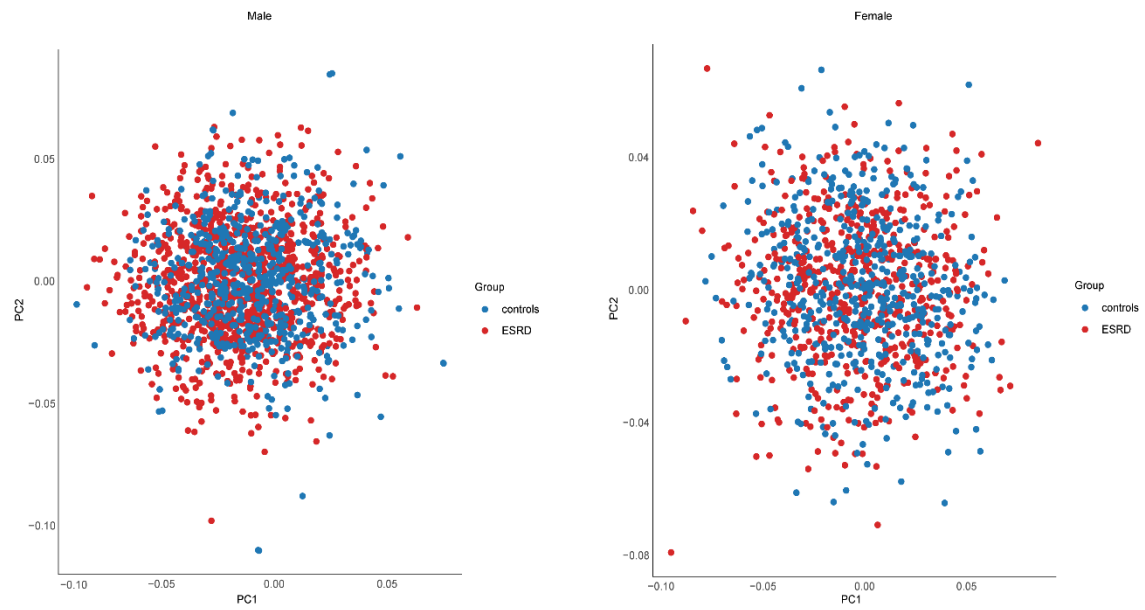
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.27	0.04	1.29E-04	2.00E-11	Brain Cerebellum
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.44	0.04	9.79E-05	1.36E-25	Brain Cortex
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.46	0.04	7.39E-05	9.90E-24	Brain Frontal Cortex BA9
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.34	0.05	6.06E-05	3.12E-10	Brain Hippocampus
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.24	0.05	5.49E-05	9.90E-07	Brain Hypothalamus
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.36	0.04	1.08E-04	7.24E-16	Brain Nucleus accumbens basal ganglia
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.33	0.03	8.56E-05	3.56E-17	Brain Putamen basal ganglia
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.22	0.03	1.16E-04	2.29E-11	Breast Mammary Tissue
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.11	0.02	1.22E-04	2.29E-07	Colon Sigmoid
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.18	0.02	1.46E-04	8.02E-13	Colon Transverse
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.07	0.02	2.36E-04	8.52E-05	Esophagus Muscularis
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.45	0.04	6.46E-05	5.09E-23	Liver
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.34	0.06	3.74E-05	9.51E-08	Minor Salivary Gland
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.11	0.02	2.97E-04	1.31E-08	Muscle Skeletal
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.11	0.01	3.21E-04	3.67E-13	Nerve Tibial
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.25	0.05	4.50E-05	5.75E-06	Ovary

rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.58	0.04	1.23E-04	3.67E-40	Pancreas
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.19	0.04	6.63E-05	8.19E-06	Prostate
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.09	0.02	2.86E-04	9.94E-08	Skin Not Sun Exposed Suprapubic Skin Sun
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.08	0.01	3.50E-04	1.05E-07	Exposed Lower leg
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.16	0.03	1.27E-04	2.96E-08	Spleen
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.27	0.03	9.80E-05	1.44E-14	Stomach
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.12	0.02	1.71E-04	1.67E-09	Testis
rs4828051	100739928	<i>SYTL4</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	0.59	0.02	3.77E-04	1.67E-96	Thyroid Skin Sun
rs5967176	100715506	<i>ARMCX1</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.06	0.02	4.94E-04	3.57E-04	Exposed Lower leg Skin Sun
rs2858172	100719748	<i>ARMCX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.06	0.02	4.94E-04	4.40E-04	Exposed Lower leg Skin Sun
rs2858173	100720486	<i>ARMCX1</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.06	0.02	4.94E-04	4.40E-04	Exposed Lower leg Skin Sun
rs2858175	100723331	<i>ARMCX1</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.06	0.02	4.94E-04	4.40E-04	Exposed Lower leg
rs5967176	100715506	<i>PCDH19</i>	0.38	A	G	-0.212	0.052	4.28E-05	male	-0.16	0.04	1.70E-04	3.74E-05	Lung
rs2858172	100719748	<i>PCDH19</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.16	0.04	1.70E-04	3.54E-05	Lung

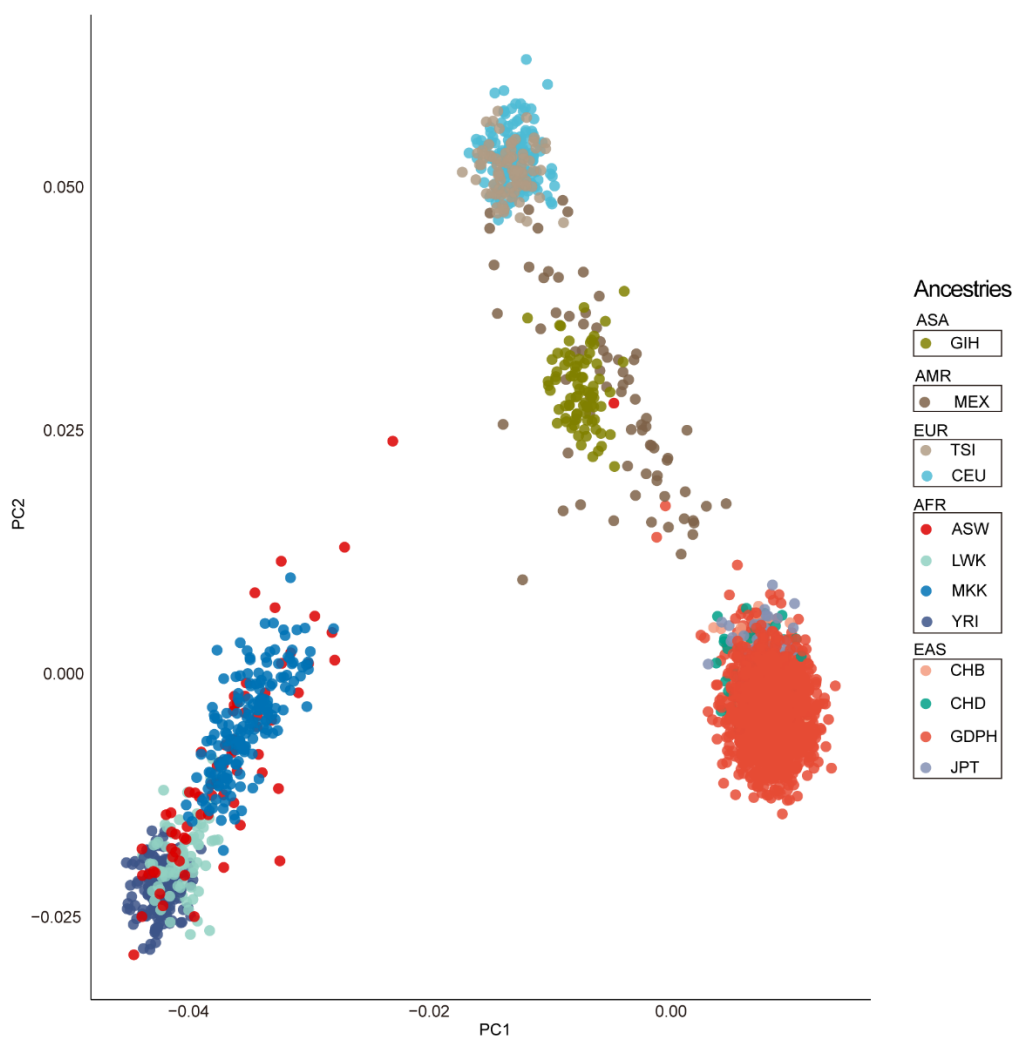
rs2858173	100720486	<i>PCDH19</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	-0.16	0.04	1.70E-04	3.54E-05	Lung
rs2858175	100723331	<i>PCDH19</i>	0.36	A	G	-0.218	0.052	2.98E-05	male	-0.16	0.04	1.70E-04	3.54E-05	Lung
rs73250616	100738288	<i>PCDH19</i>	0.36	C	T	-0.225	0.052	1.71E-05	male	-0.15	0.04	1.70E-04	1.17E-04	Lung
rs4828051	100739928	<i>PCDH19</i>	0.36	A	G	-0.225	0.052	1.71E-05	male	-0.16	0.04	1.70E-04	4.63E-05	Lung
rs2858172	100719748	<i>RPL36A</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.04	0.01	4.04E-04	3.57E-04	Cells Cultured fibroblasts
rs2858173	100720486	<i>RPL36A</i>	0.36	T	C	-0.220	0.052	2.47E-05	male	0.04	0.01	4.04E-04	3.57E-04	Cells Cultured fibroblasts

1. Position: Genomic position of the variant (hg38).
2. Gene: Gene symbol associated with the eQTL signal.
3. MAF: Minor allele frequency.
4. A1: Effect allele (A1).
5. A2: Non-effect allele (A2).
6. Association with gene expression: eQTL effect estimates obtained from the GTEx v8 database, reflecting the impact of genetic variants on gene expression levels.
7.  $\beta$ : Estimated effect size (regression coefficient) of the minor allele on gene expression levels.
8. se: Standard error of the estimated effect size.
9. P\_threshold: Gene- and tissue-specific significance threshold based on permutation-derived empirical p-values and transcriptome-wide false discovery rate (FDR) control.

## Supplementary Figures

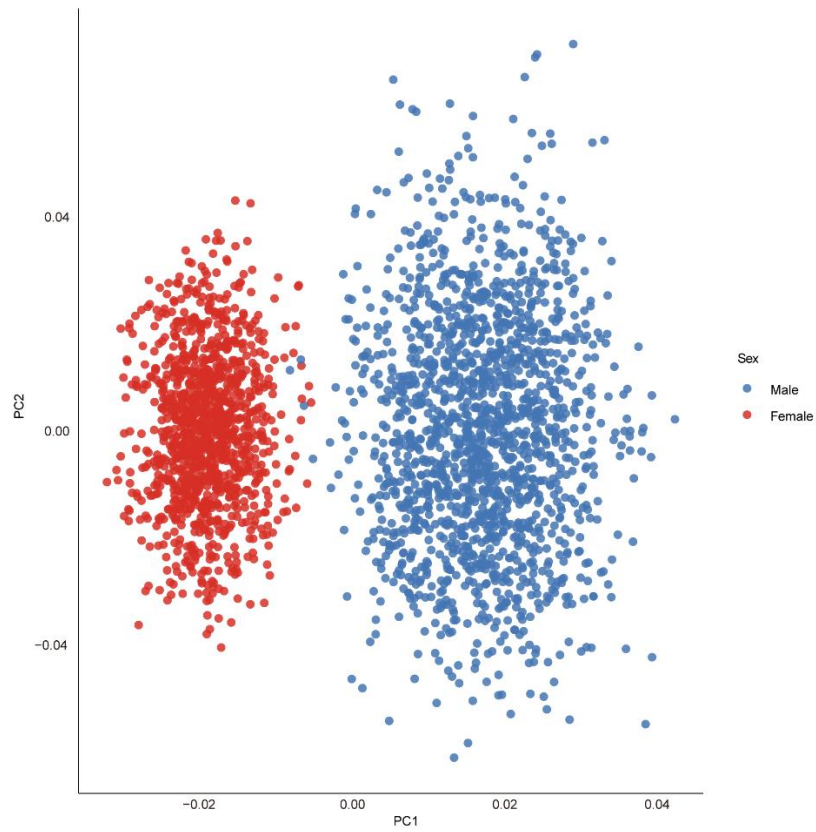


**Supplementary Fig 1.** Principal component analysis (PCA) based on X chromosome genotype data for **a)** the male cohort ( $n = 1,623$ ) and **b)** the female cohort ( $n = 1,127$ ). No clear population stratification was observed between ESRD cases and healthy controls in either sex.



**Supplementary Fig 2.** Principal component analysis (PCA) comparing the GDPH cohort (N = 2,750) to reference populations from the HapMap 3 Project (N = 1,301).

PCA Results confirm that the GDPH are consistent with the expected population ancestries. ASW (African Ancestry in Southwest US), CEU (Utah residents with Northern and Western European ancestry), CHB (Han Chinese in Beijing, China), CHD (Chinese in Metropolitan Denver, Colorado), GDPH (Guangdong People's Hospital, China), GIH (Gujarati Indians in Houston, Texas), JPT (Japanese in Tokyo, Japan), LWK (Luhya in Webuye, Kenya), MEX (Mexican Ancestry in Los Angeles, California), MKK (Maasai in Kinyawa, Kenya), TSI (Toscani in Italy), and YRI (Yoruba in Ibadan, Nigeria). These populations are categorized based on the following ancestries: AFR (African), EUR (European), EAS (East Asian), SAS (South Asian), and AMR (Admixed American)



**Supplementary Fig 3.** Principal component analysis (PCA) of X chromosome genotype data in the GDPH cohort (N = 2,750). The analysis shows clear stratification between male and female individuals.