

Supplementary Table 8. Heritability enrichment in tissues and cell types for MS susceptibility

Tissue	Tissue category	Coefficient	Coefficient (s.e)	Coefficient P	FDR
A10.549.Lymphoid.Tissue	Blood or Immune	8.7E-08	1.3E-08	5.0E-12	1E-09
A15.382.520.604.700.Spleen	Blood or Immune	8.0E-08	1.2E-08	3.9E-11	4E-09
A10.549.400.Lymph.Nodes	Blood or Immune	7.5E-08	1.2E-08	9.4E-11	6E-09
A15.382.490.555.567.Lymphocytes	Blood or Immune	8.4E-08	1.4E-08	2.6E-09	1E-07
A15.145.229.637.555.Leukocytes..Mononuclear	Blood or Immune	8.7E-08	1.5E-08	5.7E-09	2E-07
Cells_EBV-transformed_lymphocytes	Blood or Immune	5.5E-08	9.9E-09	1.8E-08	6E-07
A15.145.229.Blood.Cells	Blood or Immune	8.2E-08	1.5E-08	2.1E-08	6E-07
A11.118.637.555.567.569.T.Lymphocytes	Blood or Immune	8.3E-08	1.5E-08	2.3E-08	6E-07
Spleen	Blood or Immune	7.0E-08	1.3E-08	8.1E-08	2E-06
A15.145.Blood	Blood or Immune	7.7E-08	1.5E-08	8.6E-08	2E-06
A15.382.520.604.800.Palatine.Tonsil	Blood or Immune	6.2E-08	1.2E-08	4.0E-07	7E-06
A02.835.583.443.800.800.Synovial.Fluid	Blood or Immune	7.0E-08	1.4E-08	4.4E-07	7E-06
A15.145.229.637.555.567.569.200.CD4.Positive.T.Lymphocytes	Blood or Immune	5.8E-08	1.2E-08	9.9E-07	2E-05
A11.118.637.555.567.569.200.700.T.Lymphocytes..Regulatory	Blood or Immune	5.1E-08	1.2E-08	1.6E-05	2E-04
A15.382.490.555.567.537.Killer.Cells..Natural	Blood or Immune	4.9E-08	1.2E-08	3.2E-05	4E-04
Whole_Blood	Blood or Immune	4.4E-08	1.1E-08	4.8E-05	6E-04
Lung	Other	3.8E-08	1.0E-08	1.0E-04	1.2E-03
A11.118.637.555.567.562.440.Precursor.Cells..B.Lymphoid	Blood or Immune	4.4E-08	1.2E-08	1.4E-04	1.6E-03
A15.382.490.555.567.622.Lymphocytes..Null	Blood or Immune	4.8E-08	1.4E-08	2.1E-04	2.2E-03
A11.118.637.Leukocytes	Blood or Immune	5.1E-08	1.5E-08	3.5E-04	3.4E-03
A15.378.316.580.Monocytes	Blood or Immune	4.4E-08	1.3E-08	3.5E-04	3.4E-03
A11.118.637.555.567.562.B.Lymphocytes	Blood or Immune	4.1E-08	1.2E-08	4.6E-04	4.3E-03
A14.724.Pharynx	Other	3.0E-08	9.8E-09	9.9E-04	8.9E-03
Small_Intestine_Terminal_Ileum	Digestive	3.7E-08	1.2E-08	1.3E-03	0.011
A15.382.Immune.System	Blood or Immune	3.8E-08	1.2E-08	1.3E-03	0.011
A15.382.812.Mononuclear.Phagocyte.System	Blood or Immune	3.9E-08	1.3E-08	1.3E-03	0.011
Cervix_Endocervix	Other	2.3E-08	8.7E-09	3.3E-03	0.025
A15.382.812.260.Dendritic.Cells	Blood or Immune	3.3E-08	1.2E-08	3.6E-03	0.026
A15.145.300.Fetal.Blood	Blood or Immune	3.7E-08	1.4E-08	4.0E-03	0.028
A15.378.316.Bone.Marrow.Cells	Blood or Immune	3.3E-08	1.3E-08	5.5E-03	0.037
A15.382.490.315.583.Neutrophils	Blood or Immune	2.9E-08	1.2E-08	9.5E-03	0.063
A15.382.680.Phagocytes	Blood or Immune	2.6E-08	1.3E-08	0.025	0.158
A15.382.812.522.Macrophages	Blood or Immune	2.3E-08	1.2E-08	0.028	0.172
Adipose_Visceral_(Omentum)	Adipose	1.7E-08	8.7E-09	0.029	0.172
Brain_Frontal_Cortex_(BA9)	CNS	1.3E-08	7.2E-09	0.033	0.181
A05.360.319.679.256.Cervix.Uteri	Other	2.0E-08	1.1E-08	0.033	0.181
A03.556.124.684.Intestine..Small	Digestive	2.2E-08	1.2E-08	0.034	0.181
A08.186.211.730.317.357.352.435.Hypothalamo.Hypophyseal.System	CNS	2.2E-08	1.2E-08	0.034	0.181
Breast_Mammary_Tissue	Other	1.3E-08	7.7E-09	0.049	0.256
Brain_Anterior_cingulate_cortex_(BA24)	CNS	1.1E-08	6.7E-09	0.050	0.256
A15.145.229.637.555.567.562.725.Plasma.Cells	Blood or Immune	1.9E-08	1.2E-08	0.056	0.279
A11.872.040.Adult.Stem.Cells	Other	1.4E-08	9.2E-09	0.070	0.338
A03.556.249.124.Ileum	Digestive	1.8E-08	1.2E-08	0.071	0.338
A05.810.890.Urinary.Bladder	Other	1.7E-08	1.3E-08	0.098	0.455
A11.872.190.Embryonic.Stem.Cells	Other	1.3E-08	1.0E-08	0.111	0.493
Bladder	Other	9.7E-09	8.0E-09	0.113	0.493
Nerve_Tibial	Other	9.0E-09	7.5E-09	0.115	0.493
Esophagus_Gastroesophageal_Junction	Digestive	1.0E-08	8.5E-09	0.116	0.493
Esophagus_Muscularis	Digestive	1.0E-08	8.5E-09	0.118	0.493
A10.690.Muscles	Musculoskeletal-connective	1.1E-08	9.4E-09	0.120	0.493
Brain_Amygdala	CNS	7.7E-09	6.9E-09	0.130	0.521
A08.186.211.730.317.357.Hypothalamus	CNS	1.2E-08	1.1E-08	0.149	0.577
Cervix_Ectocervix	Other	8.4E-09	8.0E-09	0.149	0.577
A03.556.500.760.Salivary.Glands	Digestive	1.2E-08	1.2E-08	0.157	0.585
A03.556.500.760.464.Parotid.Gland	Digestive	1.2E-08	1.2E-08	0.160	0.585
A06.407.312.Gonads	Endocrine	9.5E-09	9.7E-09	0.162	0.585
A11.872.Stem.Cells	Other	1.0E-08	1.0E-08	0.163	0.585
Brain_Hypothalamus	CNS	6.3E-09	6.7E-09	0.174	0.614
Testis	Endocrine	7.3E-09	8.3E-09	0.188	0.655
A11.627.340.360.Granulocyte.Precursor.Cells	Blood or Immune	1.2E-08	1.4E-08	0.196	0.669
A07.231.Blood.Vessels	Cardiovascular	9.8E-09	1.2E-08	0.201	0.676
A09.371.729.Retina	CNS	6.5E-09	7.9E-09	0.207	0.679
Fallopian_Tube	Other	7.6E-09	9.4E-09	0.209	0.679
A03.556.124.526.767.Rectum	Digestive	8.7E-09	1.1E-08	0.217	0.694
Prostate	Other	7.4E-09	9.9E-09	0.226	0.712

Thyroid	Endocrine	7.0E-09	9.4E-09	0.230	0.713
Muscle_Skeletal	Musculoskeletal-connective	6.1E-09	8.9E-09	0.247	0.746
A10.336.707.Prostate	Endocrine	5.8E-09	8.7E-09	0.252	0.746
A11.436.275.Endothelial.Cells	Other	7.5E-09	1.1E-08	0.255	0.746
A11.872.700.500.Induced.Pluripotent.Stem.Cells	Other	5.9E-09	9.1E-09	0.259	0.746
A11.872.378.590.817.Megakaryocyte.Erythroid.Progenitor.Cells	Blood or Immune	7.1E-09	1.1E-08	0.261	0.746
A08.186.211.132.810.428.200.Cerebellum	CNS	4.7E-09	7.4E-09	0.263	0.746
A06.407.312.782.Testis	Endocrine	4.9E-09	7.8E-09	0.266	0.746
A14.724.557.Nasopharynx	Other	5.2E-09	9.2E-09	0.284	0.778
Brain_Hippocampus	CNS	3.7E-09	6.6E-09	0.285	0.778
Brain_Cortex	CNS	3.7E-09	6.7E-09	0.293	0.782
A15.145.846.Serum	Blood or Immune	5.6E-09	1.1E-08	0.297	0.782
A08.186.211.865.428.Metencephalon	CNS	3.7E-09	7.1E-09	0.301	0.782
A08.186.211.730.885.287.249.487.Corpus.Striatum	CNS	4.3E-09	8.2E-09	0.302	0.782
Ovary	Other	4.3E-09	8.6E-09	0.310	0.795
A11.443.Erythroid.Cells	Blood or Immune	5.0E-09	1.1E-08	0.322	0.814
A03.556.249.249.356.668.Colon..Sigmoid	Digestive	5.4E-09	1.2E-08	0.326	0.814
A11.329.372.600.Macrophages..Alveolar	Blood or Immune	4.4E-09	1.0E-08	0.336	0.831
A02.633.567.850.Quadriceps.Muscle	Musculoskeletal-connective	3.9E-09	9.8E-09	0.344	0.841
A05.360.319.114.630.Ovary	Other	3.5E-09	9.6E-09	0.356	0.860
A11.872.378.590.635.Granulocyte.Macrophage.Progenitor.Cells	Blood or Immune	4.4E-09	1.2E-08	0.361	0.861
A03.556.875.875.Stomach	Digestive	3.7E-09	1.2E-08	0.373	0.872
A06.407.Endocrine.Glands	Endocrine	2.8E-09	8.9E-09	0.376	0.872
Adipose_Subcutaneous	Adipose	2.6E-09	8.4E-09	0.379	0.872
A02.165.Cartilage	Musculoskeletal-connective	2.6E-09	9.7E-09	0.392	0.894
A07.231.908.Veins	Cardiovascular	2.4E-09	1.1E-08	0.413	0.911
Uterus	Other	1.9E-09	8.9E-09	0.417	0.911
Brain_Cerebellar_Hemisphere	CNS	1.3E-09	6.3E-09	0.418	0.911
A03.556.124.Intestines	Digestive	2.4E-09	1.2E-08	0.422	0.911
A08.186.211.730.885.287.500.571.735.Visual.Cortex	CNS	1.4E-09	6.9E-09	0.422	0.911
A02.835.232.834.151.Cervical.Vertebrae	Musculoskeletal-connective	1.0E-09	9.5E-09	0.458	0.934
A08.186.211.132.Brain.Stem	CNS	5.0E-10	6.4E-09	0.469	0.934
A08.186.211.464.Limbic.System	CNS	6.2E-10	8.1E-09	0.469	0.934
Artery_Coronary	Cardiovascular	5.6E-10	8.0E-09	0.472	0.934
Kidney_Cortex	Other	6.6E-10	9.8E-09	0.473	0.934
A03.556.249.249.209.Cecum	Digestive	6.6E-10	1.1E-08	0.476	0.934
A11.627.635.Myeloid.Progenitor.Cells	Blood or Immune	5.3E-10	1.1E-08	0.481	0.934
Brain_Substantia_nigra	CNS	2.2E-11	6.8E-09	0.499	0.934
A07.231.908.670.874.Umbilical.Veins	Cardiovascular	-1.3E-10	9.7E-09	0.505	0.934
A10.690.467.Muscle..Smooth	Musculoskeletal-connective	-2.8E-10	9.4E-09	0.512	0.934
A05.360.319.114.373.Fallopian.Tubes	Other	-3.7E-10	9.6E-09	0.515	0.934
A05.360.319.679.Uterus	Other	-3.5E-10	8.8E-09	0.516	0.934
A11.329.171.Chondrocytes	Musculoskeletal-connective	-4.1E-10	9.9E-09	0.516	0.934
A11.872.378.Hematopoietic.Stem.Cells	Blood or Immune	-5.8E-10	1.2E-08	0.520	0.934
Artery_Tibial	Cardiovascular	-4.9E-10	8.0E-09	0.524	0.934
A03.556.Gastrointestinal.Tract	Digestive	-8.2E-10	1.2E-08	0.528	0.934
A08.186.211.464.710.225.Entorhinal.Cortex	CNS	-5.7E-10	7.9E-09	0.528	0.934
A10.615.789.Serous.Membrane	Other	-7.7E-10	9.8E-09	0.531	0.934
A08.186.211.730.885.287.500.670.Parietal.Lobe	CNS	-7.4E-10	7.5E-09	0.539	0.934
Brain_Caudate_(basal_ganglia)	CNS	-6.4E-10	6.4E-09	0.540	0.934
A03.556.249.249.356.Colon	Digestive	-1.3E-09	1.2E-08	0.543	0.934
A11.872.190.260.Embryoid.Bodies	Other	-1.1E-09	9.6E-09	0.546	0.934
A08.186.211.Brain	CNS	-9.2E-10	7.7E-09	0.548	0.934
A11.620.520.Myocytes..Smooth.Muscle	Musculoskeletal-connective	-1.2E-09	9.5E-09	0.549	0.934
A02.835.583.443.800.Synovial.Membrane	Musculoskeletal-connective	-1.2E-09	9.4E-09	0.551	0.934
A10.615.284.473.Chorion	Other	-1.3E-09	9.9E-09	0.551	0.934
Brain_Cerebellum	CNS	-1.1E-09	6.2E-09	0.573	0.962
Brain_Putamen_(basal_ganglia)	CNS	-1.6E-09	6.7E-09	0.594	0.979
Colon_Transverse	Digestive	-2.7E-09	1.1E-08	0.600	0.979
A11.627.624.249.Monocyte.Macrophage.Precursor.Cells	Blood or Immune	-3.0E-09	1.2E-08	0.601	0.979
A11.436.294.064.Glucagon.Secreting.Cells	Other	-2.9E-09	1.1E-08	0.604	0.979
A05.360.319.Genitalia..Female	Other	-2.5E-09	9.3E-09	0.607	0.979
A05.360.319.679.490.Endometrium	Other	-2.9E-09	8.9E-09	0.629	0.997
A11.872.580.Mesenchymal.Stem.Cells	Other	-3.2E-09	9.5E-09	0.633	0.997
A03.734.414.Islets.of.Langerhans	Other	-3.6E-09	1.0E-08	0.637	0.997
A07.231.114.Arteries	Cardiovascular	-3.6E-09	1.0E-08	0.640	0.997
Pituitary	Endocrine	-3.7E-09	1.0E-08	0.646	0.997
A14.549.167.646.Periodontium	Other	-4.7E-09	1.2E-08	0.657	0.997

Brain_Nucleus_accumbens_(basal_ganglia)	CNS	-2.8E-09	6.5E-09	0.663	0.997
A06.407.071.140.Adrenal.Cortex	Endocrine	-4.3E-09	1.0E-08	0.666	0.997
Heart_Left_Ventricle	Cardiovascular	-4.1E-09	8.3E-09	0.690	0.997
Adrenal_Gland	Endocrine	-4.8E-09	9.2E-09	0.698	0.997
Esophagus_Mucosa	Digestive	-4.8E-09	9.1E-09	0.703	0.997
Artery_Aorta	Cardiovascular	-4.6E-09	8.3E-09	0.710	0.997
A11.872.653.Neural.Stem.Cells	CNS	-5.4E-09	9.7E-09	0.713	0.997
Vagina	Other	-5.0E-09	8.5E-09	0.722	0.997
Minor_Salivary_Gland	Other	-5.5E-09	9.0E-09	0.728	0.997
A11.329.629.Osteoblasts	Musculoskeletal-connective	-5.0E-09	8.3E-09	0.728	0.997
Skin_Sun_Exposed_(Lower_leg)	Other	-5.3E-09	8.2E-09	0.739	0.997
A11.329.Connective.Tissue.Cells	Musculoskeletal-connective	-6.5E-09	1.0E-08	0.740	0.997
A04.411.Lung	Other	-6.6E-09	1.0E-08	0.745	0.997
A03.734.Pancreas	Other	-7.0E-09	1.1E-08	0.747	0.997
A08.186.211.464.405.Hippocampus	CNS	-5.3E-09	7.7E-09	0.756	0.997
A08.186.211.730.885.287.500.Cerebral.Cortex	CNS	-5.3E-09	7.4E-09	0.761	0.997
Liver	Liver	-6.7E-09	9.4E-09	0.763	0.997
A11.329.830.Stromal.Cells	Musculoskeletal-connective	-6.4E-09	8.8E-09	0.768	0.997
A10.272.497.Epidermis	Other	-7.5E-09	1.0E-08	0.770	0.997
A05.360.Genitalia	Other	-6.6E-09	8.6E-09	0.779	0.997
A03.620.Liver	Liver	-7.6E-09	9.9E-09	0.780	0.997
A03.556.875.Upper.Gastrointestinal.Tract	Digestive	-9.0E-09	1.1E-08	0.792	0.997
A08.186.211.730.885.287.500.270.Frontal.Lobe	CNS	-6.3E-09	7.2E-09	0.810	0.997
Skin_Not_Sun_Exposed_(Suprapubic)	Other	-7.9E-09	8.7E-09	0.818	0.997
A11.436.397.Keratinocytes	Other	-1.0E-08	1.1E-08	0.828	0.997
A03.556.124.369.Intestinal.Mucosa	Digestive	-1.0E-08	1.0E-08	0.842	0.997
A08.186.211.730.317.Diencephalon	CNS	-9.7E-09	9.4E-09	0.850	0.997
A14.549.885.Tongue	Other	-9.8E-09	9.4E-09	0.853	0.997
Cells_Transformed_fibroblasts	Other	-9.7E-09	9.2E-09	0.855	0.997
A06.407.071.Adrenal.Glands	Endocrine	-1.1E-08	1.0E-08	0.858	0.997
A11.436.348.Hepatocytes	Liver	-1.1E-08	1.0E-08	0.859	0.997
A11.436.329.Granulosa.Cells	Endocrine	-1.0E-08	9.0E-09	0.867	0.997
Colon_Sigmoid	Digestive	-9.7E-09	8.6E-09	0.871	0.997
A06.407.900.Thyroid.Gland	Endocrine	-9.7E-09	8.4E-09	0.877	0.997
A04.531.520.Nasal.Mucosa	Other	-1.3E-08	1.1E-08	0.878	0.997
A05.360.319.679.690.Myometrium	Musculoskeletal-connective	-1.0E-08	8.5E-09	0.884	0.997
A05.810.453.324.Kidney.Cortex	Other	-1.1E-08	9.2E-09	0.884	0.997
A03.556.875.500.Esophagus	Digestive	-1.3E-08	1.1E-08	0.888	0.997
A05.360.444.Genitalia..Male	Other	-9.1E-09	7.4E-09	0.891	0.997
A08.186.211.653.Mesencephalon	CNS	-9.7E-09	7.4E-09	0.905	0.997
A11.329.114.Adipocytes	Adipose	-1.2E-08	9.0E-09	0.906	0.997
Stomach	Digestive	-1.2E-08	9.1E-09	0.907	0.997
A05.360.490.Germ.Cells	Other	-1.2E-08	8.7E-09	0.910	0.997
A10.165.450.300.Cicatrix	Musculoskeletal-connective	-1.2E-08	8.6E-09	0.917	0.997
A05.810.453.Kidney	Other	-1.2E-08	8.7E-09	0.921	0.997
A10.165.114.830.500.750.Subcutaneous.Fat..Abdominal	Adipose	-1.3E-08	9.2E-09	0.926	0.997
A08.186.211.730.885.287.249.Basal.Ganglia	CNS	-1.0E-08	7.0E-09	0.930	0.997
A05.360.444.492.362.Foreskin	Other	-1.2E-08	7.9E-09	0.933	0.997
A10.165.114.830.750.Subcutaneous.Fat	Adipose	-1.4E-08	9.0E-09	0.938	0.997
A07.541.358.100.Atrial.Appendage	Cardiovascular	-1.0E-08	6.7E-09	0.940	0.997
A15.145.229.188.Blood.Platelets	Blood or Immune	-1.3E-08	8.3E-09	0.944	0.997
A09.371.Eye	Other	-1.6E-08	9.9E-09	0.947	0.997
A10.615.550.Mucous.Membrane	Other	-1.9E-08	1.1E-08	0.955	0.997
A11.436.Epithelial.Cells	Other	-1.8E-08	1.0E-08	0.956	0.997
A10.165.450.300.425.Keloid	Musculoskeletal-connective	-1.5E-08	8.4E-09	0.959	0.997
A07.541.510.110.Aortic.Valve	Cardiovascular	-1.5E-08	8.2E-09	0.962	0.997
Brain_Spinal_cord_(cervical_c-1)	CNS	-1.2E-08	6.8E-09	0.966	0.997
Heart_Atrial_Appendage	Cardiovascular	-1.4E-08	7.5E-09	0.968	0.997
A11.382.Endocrine.Cells	Endocrine	-1.8E-08	9.1E-09	0.973	0.997
A10.272.Epithelium	Other	-2.0E-08	1.0E-08	0.976	0.997
A07.541.560.Heart.Ventricles	Cardiovascular	-1.5E-08	7.6E-09	0.979	0.997
A14.549.Mouth	Other	-2.0E-08	9.5E-09	0.981	0.997
Pancreas	Other	-1.7E-08	8.2E-09	0.981	0.997
A10.615.Membranes	Other	-2.1E-08	9.8E-09	0.984	0.997
A07.541.358.Heart.Atria	Cardiovascular	-1.5E-08	7.0E-09	0.985	0.997
A14.549.167.Dentition	Other	-2.0E-08	8.9E-09	0.986	0.997
A05.360.319.887.Vulva	Other	-2.0E-08	9.3E-09	0.986	0.997
A17.815.Skin	Other	-2.1E-08	9.3E-09	0.986	0.997

A10.615.550.599.Mouth.Mucosa	Other	-2.2E-08	9.8E-09	0.988	0.997
A11.329.228.Fibroblasts	Musculoskeletal-connective	-1.9E-08	8.3E-09	0.988	0.997
A07.541.Heart	Cardiovascular	-1.8E-08	7.5E-09	0.992	0.997
A11.497.497.600.Oocytes	Other	-2.6E-08	8.8E-09	0.998	0.998

Tissue type groups correspond to the legend of Figure 1. FDR column contains the adjusted coefficient p-value using the Benjamini-Hochberg procedure
 CNS, central nervous system; s.e. standard error