

Table S3 Estimated associations between estimated cell proportions and disease onset

Disease	celltype	beta	pvalue	pvalue_BH_adjusted
Depression	Astros	0.0149263	0.0000453	0.00013605
Depression	Ex	-0.0083531	0.09985207	0.1497781
Depression	Inhib	-0.0012931	0.77274112	0.77274112
Depression	Micro/Macro	-0.0813159	1.4E-11	8.41E-11
Depression	OPCs	0.012165	0.31081261	0.37297514
Depression	Oligos	-0.0241809	0.01422398	0.02844795
T2DM	acinar cell	0.08815277	0.000048	0.0000601
T2DM	duct epithelial cell	0.02854482	0.18388685	0.20431873
T2DM	endothelial cell	-0.007497	0.6965193	0.6965193
T2DM	leukocyte	0.18952528	2.43E-20	8.09E-20
T2DM	mesenchymal cell	-0.1177216	5.37E-12	1.34E-11
T2DM	alpha cell	-0.0891535	4.2E-32	4.2E-31
T2DM	delta cell	0.46284649	1.29E-08	2.15E-08
T2DM	PP cell	0.07912458	2.4E-24	1.2E-23
T2DM	epsilon cell	0.06026002	0.0000166	0.0000237
T2DM	beta cell	-0.0934183	8.28E-10	1.66E-09
BMI_SAT	ASPC	-2.5206373	0.0000251	0.0000879
BMI_SAT	LEC	-0.5787909	0.0000325	0.0000911
BMI_SAT	SMC	-1.8940729	1.98E-15	1.39E-14
BMI_SAT	adipocyte	0.42717806	0.08177199	0.09992988
BMI_SAT	b_cell	0.36271171	0.08565418	0.09992988
BMI_SAT	dendritic_cell	-1.0478956	0.00097532	0.00227575
BMI_SAT	endothelial	-0.5510547	0.04201812	0.06536153
BMI_SAT	macrophage	0.91635848	0.01407122	0.02462464
BMI_SAT	mast_cell	-0.331978	0.29510977	0.29510977
BMI_SAT	monocyte	-0.1780562	0.0688645	0.0964103
BMI_SAT	neutrophil	0.88858945	0.00000441	0.0000206
BMI_SAT	nk_cell	-0.7457971	0.00464793	0.00929586
BMI_SAT	pericyte	1.56269901	1.05E-26	1.47E-25
BMI_SAT	t_cell	0.7761544	0.2199484	0.2368675
BMI_VAT	ASPC	-2.3715172	7.74E-08	0.00000031
BMI_VAT	LEC	0.51661108	0.0879814	0.14077023
BMI_VAT	SMC	-1.668411	0.000000072	0.00000031
BMI_VAT	adipocyte	3.13875499	0.000000337	0.00000108
BMI_VAT	b_cell	0.29994788	0.56956918	0.56956918
BMI_VAT	dendritic_cell	0.64209449	0.02653845	0.0530769
BMI_VAT	endometrium	0.25992169	0.54524255	0.56956918
BMI_VAT	endothelial	-1.241894	0.0000224	0.0000597
BMI_VAT	macrophage	-1.5529495	0.03721374	0.06615777
BMI_VAT	mast_cell	0.26461289	0.16866498	0.22488664
BMI_VAT	mesothelium	3.5562746	1.53E-27	1.22E-26
BMI_VAT	monocyte	-0.2451652	0.01356738	0.03101115

BMI_VAT neutrophil	-0.1569556	0.42631367	0.52469375
BMI_VAT nk_cell	-0.1612575	0.56275374	0.56956918
BMI_VAT pericyte	11.2124811	5.94E-50	9.5E-49
BMI_VAT t_cell	-0.3307736	0.14645031	0.21301864

Note: pvalue_BH_adjusted indicates the qvalue after multiple testing correction by Benjamini-Hochberg method;Astros is the abbreviation for Astrocytes, Ex is the abbreviation for Excitatory neuron, Inhib is the abbreviation for Inhibitory neuron, MicroMacro is the abbreviation for Microglia/Macrophage, OPCs is the abbreviation for Oligodendrocyte precursor; ASPC is the abbreviation for Adipose stem and precursor cell, LEC is the abbreviation for Lymphatic endothelial cell, SMC is the abbreviation for Smooth muscle cell.