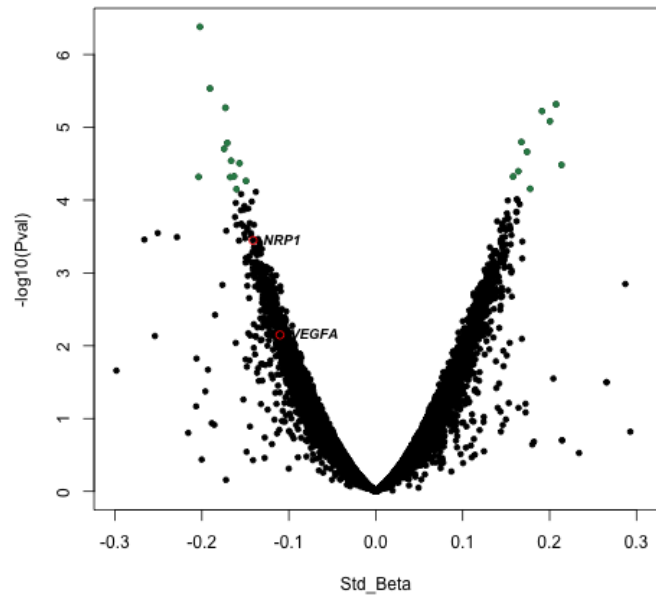
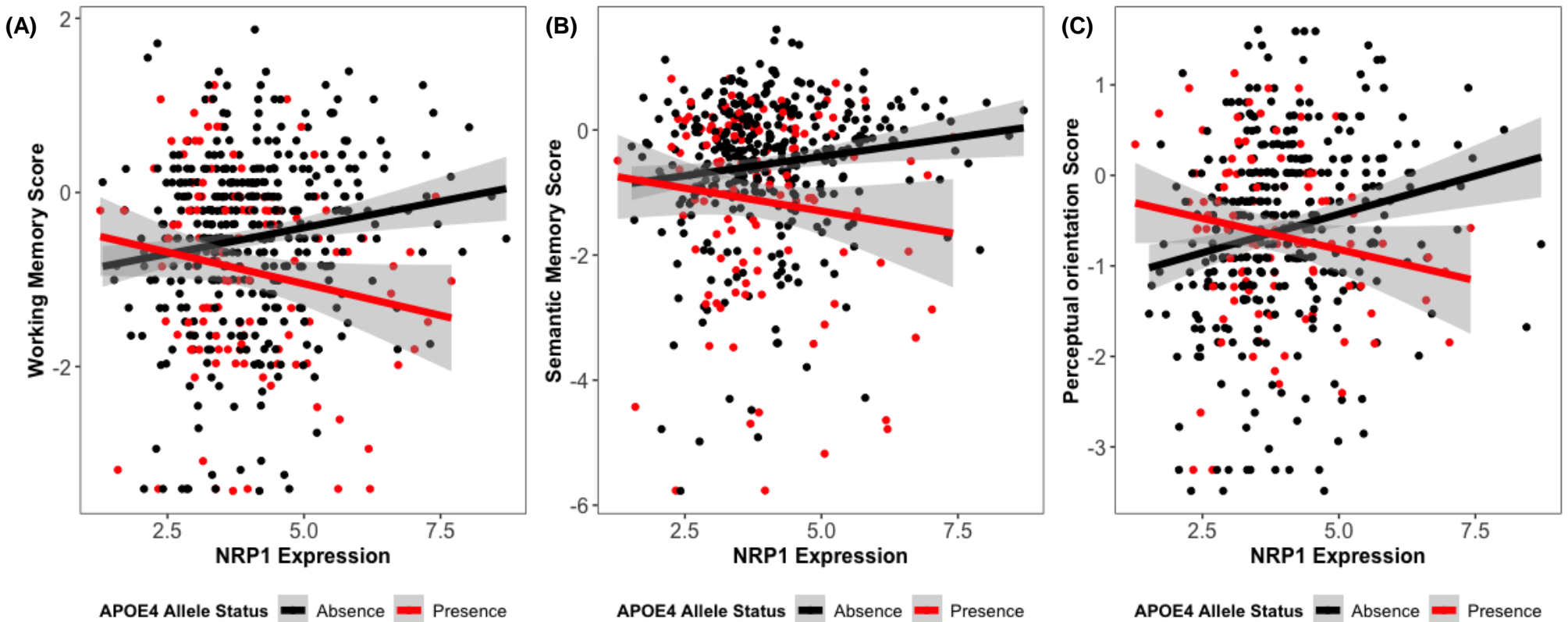


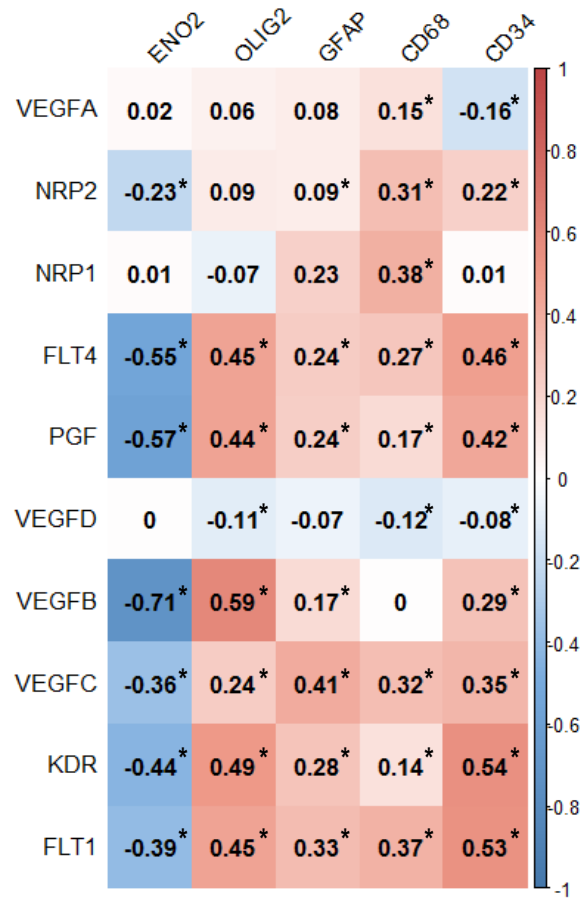
Gene interactions with APOE4 on global cognition



Supplemental Figure 1. Volcano plot of gene expression x *APOE*-ε4 allele interaction results. Genes with p.fdr<0.1 are colored in green.



Supplemental Figure 2. (A) *NRP1* expression associations with working memory performance at the final psychological assessment, stratified by *APOE-ε4* allele status. Overall interaction: *NRP1* \times *APOE-ε4*, $\beta=-0.28$, $p.fdr=0.02$; *APOE-ε4* carriers, $\beta=-0.17$, $p=0.03$; *APOE-ε4* non-carriers, $\beta=0.128$, $p=7E-04$. (B) *NRP1* expression associations with cross-sectional semantic memory, stratified by *APOE-ε4* allele status. Overall interaction: *NRP1* \times *APOE-ε4*, $\beta=-0.31$, $p.fdr=0.03$; *APOE-ε4* carriers, $\beta=-0.19$, $p=0.096$; *APOE-ε4* non-carriers, $\beta=0.12$, $p=0.006$. (C) *NRP1* expression associations with endpoint perceptual orientation scores, stratified by *APOE-ε4* allele status. Overall interaction: *NRP1* \times *APOE-ε4*, $\beta=-0.28$, $p.fdr=0.028$; *APOE-ε4* carriers, $\beta=-0.11$, $p=0.19$; *APOE-ε4* non-carriers, $\beta=0.17$, $p=2E-04$.



Supplemental Figure 3. Correlation matrix for VEGF family gene expression and cell-type marker expression. *ENO2*, neurons; *OLIG2*, oligodendrocytes; *GFAP*, astrocytes; *CD34*, endothelial cells; *CD38*, microglia. *P<0.05, Pearson's correlation

Supplementary Table 1. *VEGF* associations with *APOE* genotype

Gene	β	SE	P
<i>FLT4</i>	0.10	0.06	0.09
<i>FLT1</i>	0.62	0.38	0.10
<i>NRP1</i>	-0.19	0.13	0.14
<i>KDR</i>	0.05	0.04	0.23
<i>PGF</i>	0.18	0.16	0.26
<i>VEGFC</i>	0.02	0.03	0.50
<i>VEGFD</i>	0.02	0.03	0.57
<i>VEGFA</i>	0.31	1.00	0.75
<i>NRP2</i>	-0.01	0.07	0.86
<i>VEGFB</i>	-0.40	2.67	0.88

Supplementary Table 2. VEGF x APOE expression on Cognition

Gene	Cross-Sectional				Longitudinal			
	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>VEGFC</i>	-8.37E-04	4.67E-04	0.07	0.47	-9.40E-05	4.96E-05	0.06	0.54
<i>NRP2</i>	-2.13E-04	1.28E-04	0.10	0.47	-2.03E-05	1.37E-05	0.14	0.54
<i>FLT1</i>	-3.61E-05	2.44E-05	0.14	0.47	-2.59E-06	2.47E-06	0.29	0.67
<i>FLT4</i>	-1.77E-04	2.01E-04	0.38	0.78	-2.04E-05	2.13E-05	0.34	0.67
<i>NRP1</i>	-6.60E-05	8.76E-05	0.45	0.78	-1.31E-05	9.36E-06	0.16	0.54
<i>VEGFB</i>	1.89E-06	2.82E-06	0.50	0.78	1.02E-07	2.97E-07	0.73	0.81
<i>PGF</i>	2.82E-05	4.81E-05	0.56	0.78	2.69E-06	5.21E-06	0.61	0.76
<i>VEGFD</i>	-1.16E-04	2.53E-04	0.65	0.78	-6.48E-06	2.72E-05	0.81	0.81
<i>VEGFA</i>	-6.15E-06	1.61E-05	0.70	0.78	-1.47E-06	1.76E-06	0.40	0.67
<i>KDR</i>	-4.27E-05	2.52E-04	0.87	0.87	-1.62E-05	2.71E-05	0.55	0.76

Supplementary Table 3. APOE-ε4 stratified VEGF expression associations with AD Diagnosis

Gene	Interaction				APOE-ε4 Carriers				APOE-ε4 Non-Carriers			
	β	SE	P	p.fdr	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>NRP1</i>	0.77	0.27	3.70E-03	0.037	0.45	0.24	0.06	0.24	-0.31	0.12	0.01	0.03
<i>NRP2</i>	-1.11	0.44	0.01	0.06	-0.86	0.40	0.03	0.24	0.19	0.20	0.35	0.58
<i>VEGFA</i>	0.07	0.04	0.08	0.17	0.07	0.04	0.08	0.24	-0.01	0.01	0.65	0.73
<i>PGF</i>	-0.29	0.16	0.08	0.17	-0.07	0.14	0.59	0.85	0.18	0.09	0.047	0.16
<i>VEGFB</i>	-0.02	0.01	0.07	0.17	1.76E-03	0.01	0.84	0.86	0.02	0.01	6.66E-04*	0.01
<i>FLT1</i>	0.08	0.09	0.38	0.64	0.14	0.08	0.10	0.24	0.02	0.04	0.52	0.73
<i>FLT4</i>	-0.29	0.45	0.53	0.66	0.07	0.39	0.86	0.86	0.42	0.23	0.07	0.17
<i>VEGFD</i>	-0.55	0.82	0.50	0.66	-0.57	0.72	0.43	0.72	0.20	0.41	0.62	0.73
<i>KDR</i>	-0.21	0.70	0.76	0.85	0.28	0.68	0.68	0.85	0.08	0.33	0.80	0.80
<i>VEGFC</i>	0.10	1.21	0.93	0.93	0.93	1.14	0.41	0.72	0.49	0.47	0.30	0.58

Boldface signifies $P \leq 0.05$. *denotes results that were significant after adjusting for all models tested for main outcomes (cognition, diagnosis)

Supplementary Table 4. *VEGF* x *APOE*- ϵ 4 interactions on working memory performance

Gene	Interaction				<i>APOE</i> - ϵ 4 Carriers				<i>APOE</i> - ϵ 4 Non-Carriers			
	β	SE	P	p.fdr	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>NRP1</i>	-0.29	0.08	2.46E-04	2.46E-03	-0.17	0.08	0.03	0.26	0.13	0.04	6.87E-04	0.01
<i>VEGFA</i>	-0.03	0.01	0.02	0.09	-0.02	0.01	0.05	0.26	0.01	4.73E-03	0.29	0.60
<i>KDR</i>	0.49	0.26	0.06	0.19	0.42	0.27	0.12	0.30	-0.10	0.12	0.42	0.60
<i>VEGFB</i>	0.01	0.00	0.16	0.40	5.93E-04	3.94E-03	0.88	0.93	-4.86E-03	1.80E-03	0.01	0.04
<i>FLT4</i>	-0.16	0.16	0.31	0.53	-0.26	0.16	0.10	0.30	-0.08	0.08	0.36	0.60
<i>FLT1</i>	-0.03	0.03	0.32	0.53	-0.03	0.02	0.21	0.42	-3.49E-03	0.01	0.79	0.79
<i>NRP2</i>	-0.04	0.15	0.81	0.94	0.02	0.15	0.89	0.93	0.06	0.07	0.42	0.60
<i>PGF</i>	-0.01	0.06	0.85	0.94	-0.04	0.06	0.57	0.93	-0.01	0.03	0.72	0.79
<i>VEGFD</i>	0.12	0.30	0.68	0.94	-0.03	0.29	0.93	0.93	-0.16	0.15	0.27	0.60
<i>VEGFC</i>	-0.02	0.38	0.96	0.96	-0.14	0.40	0.73	0.93	-0.06	0.17	0.72	0.79

Boldface signifies $P \leq 0.05$.

Supplementary Table 5. *VEGF* x *APOE-ε4* interactions on semantic memory performance

Gene	Interaction				<i>APOE-ε4</i> Carriers				<i>APOE-ε4</i> Non-Carriers			
	β	SE	P	p.fdr	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>NRP1</i>	-0.31	0.10	3.35E-03	0.03	-0.19	0.12	0.10	0.24	0.13	0.05	0.01	0.03
<i>VEGFA</i>	-0.04	0.01	0.01	0.04	-0.03	0.02	0.04	0.21	0.01	0.01	0.37	0.62
<i>KDR</i>	0.74	0.34	0.03	0.09	0.81	0.39	0.04	0.21	0.10	0.15	0.48	0.69
<i>FLT4</i>	-0.37	0.21	0.07	0.19	-0.40	0.22	0.08	0.24	-0.04	0.10	0.73	0.73
<i>VEGFD</i>	0.48	0.37	0.20	0.33	0.36	0.41	0.38	0.64	-0.17	0.18	0.32	0.62
<i>VEGFB</i>	0.01	4.98E-03	0.19	0.33	0.00	0.01	0.97	0.97	-0.01	0.00	0.00	0.03
<i>FLT1</i>	-0.04	0.03	0.25	0.35	-0.04	0.04	0.29	0.58	0.01	0.02	0.73	0.73
<i>NRP2</i>	0.06	0.19	0.76	0.84	0.12	0.21	0.56	0.70	0.08	0.09	0.33	0.62
<i>VEGFC</i>	0.20	0.50	0.69	0.84	0.06	0.58	0.91	0.97	-0.08	0.21	0.71	0.73
<i>PGF</i>	-0.01	0.08	0.92	0.92	-0.07	0.09	0.45	0.65	-0.05	0.04	0.16	0.54

Boldface signifies $P \leq 0.05$.

Supplementary Table 6. *VEGF* x *APOE-ε4* interactions on perceptual orientation

Gene	Interaction				<i>APOE-ε4</i> Carriers				<i>APOE-ε4</i> Non-Carriers			
	β	SE	P	p.fdr	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>NRP1</i>	-0.28	0.09	2.77E-03	0.03	-0.11	0.08	0.19	0.63	0.17	0.04	1.58E-04	1.58E-03
<i>NRP2</i>	-0.13	0.16	0.44	0.82	0.07	0.14	0.60	0.96	0.21	0.08	0.01	0.04
<i>FLT4</i>	-0.24	0.19	0.20	0.82	-0.23	0.16	0.15	0.63	0.01	0.10	0.92	0.96
<i>VEGFD</i>	-0.15	0.33	0.65	0.82	-0.05	0.28	0.87	0.96	0.07	0.17	0.67	0.95
<i>VEGFB</i>	2.70E-03	4.41E-03	0.54	0.82	-3.05E-03	3.89E-03	0.43	0.96	-4.50E-03	2.12E-03	0.03	0.11
<i>VEGFC</i>	-0.22	0.47	0.64	0.82	-0.30	0.42	0.49	0.96	0.01	0.20	0.96	0.96
<i>KDR</i>	0.28	0.30	0.35	0.82	0.43	0.27	0.11	0.63	0.19	0.14	0.17	0.33
<i>FLT1</i>	-0.02	0.03	0.60	0.82	4.73E-03	0.03	0.86	0.96	0.02	0.02	0.11	0.27
<i>VEGFA</i>	-4.01E-03	0.01	0.75	0.83	3.88E-03	0.01	0.72	0.96	0.01	0.01	0.20	0.33
<i>PGF</i>	0.01	0.07	0.87	0.87	6.78E-04	0.06	0.99	0.99	-0.01	0.03	0.76	0.95

Boldface signifies $P \leq 0.05$.

Supplementary Table 7. *VEGF* x *APOE*- ϵ 4 interactions on episodic memory and perceptual speed

Gene	Episodic Memory				Perceptual Speed			
	β	SE	P	p.fdr	β	SE	P	p.fdr
<i>VEGFA</i>	-0.03	0.01	0.03	0.16	-4.31E-03	0.01	0.75	0.90
<i>NRP1</i>	-0.22	0.10	0.03	0.16	-0.15	0.10	0.15	0.74
<i>VEGFB</i>	0.01	4.56E-03	0.08	0.19	0.00	4.32E-03	0.78	0.90
<i>FLT1</i>	-0.06	0.03	0.06	0.19	-0.02	0.03	0.51	0.90
<i>KDR</i>	0.51	0.32	0.11	0.22	0.18	0.31	0.55	0.90
<i>NRP2</i>	0.24	0.18	0.19	0.27	0.02	0.18	0.90	0.90
<i>FLT4</i>	-0.27	0.20	0.18	0.27	-0.11	0.19	0.55	0.90
<i>PGF</i>	0.02	0.07	0.77	0.96	0.01	0.07	0.90	0.90
<i>VEGFD</i>	0.01	0.37	0.98	0.98	0.64	0.35	0.07	0.68
<i>VEGFC</i>	0.01	0.49	0.98	0.98	0.20	0.47	0.68	0.90

Supplementary Table 8. *VEGF* x *APOE-ε4* interactions on AD-related pathology

Note: Used square root of continuous variables (amyloid, tangles, nft, neuritic plaques)

Gene	Amyloid				Tangles				NFT				Neuritic Plaques			
	β	SE	DF	P	β	SE	DF	P	β	SE	DF	P	β	SE	DF	P
<i>FLT1</i>	-0.04	0.03	514	0.17	0.02	0.03	514	0.58	-3.0E-03	0.01	518	0.74	7.3E-04	0.01	518	0.95
<i>KDR</i>	-0.24	0.28	516	0.38	-0.39	0.31	516	0.20	-0.09	0.09	520	0.34	-0.01	0.13	520	0.91
<i>NRP1</i>	0.06	0.09	514	0.53	-0.01	0.10	514	0.90	-0.02	0.03	518	0.57	0.04	0.04	518	0.35
<i>VEGFA</i>	0.01	0.01	514	0.58	-0.01	0.01	514	0.31	-3.3E-03	3.8E-03	518	0.40	4.6E-03	0.01	518	0.39
<i>PGF</i>	0.03	0.07	513	0.66	0.10	0.07	513	0.18	0.01	0.02	517	0.76	0.01	0.03	517	0.81
<i>VEGFB</i>	-2.3E-03	4.1E-03	515	0.58	0.01	4.4E-03	515	0.23	5.3E-04	1.4E-03	519	0.70	6.5E-04	1.8E-03	519	0.72
<i>FLT4</i>	0.07	0.18	513	0.70	0.19	0.19	513	0.32	-0.02	0.06	517	0.79	0.03	0.08	517	0.73
<i>NRP2</i>	-0.05	0.17	515	0.79	-0.19	0.18	515	0.30	-0.10	0.05	519	0.07	-0.08	0.07	519	0.29
<i>VEGFC</i>	-0.13	0.42	514	0.75	-0.37	0.46	514	0.42	-0.17	0.14	518	0.21	-0.01	0.19	518	0.97
<i>VEGFD</i>	0.02	0.33	516	0.96	0.21	0.36	516	0.56	0.08	0.11	520	0.47	3.9E-03	0.15	520	0.98

Supplementary Table 9. VEGF x APOE-ε4 interactions on nonAD-related pathology

Gene	TDP-43				CAA				Atherosclerosis				Arteriolosclerosis			
	β	SE	DF	P	β	SE	DF	P	β	SE	DF	P	β	SE	DF	P
<i>FLT4</i>	0.28	0.15	462	0.059	-0.42	0.31	503	0.17	-0.05	0.30	511	0.87	0.06	0.31	512	0.85
<i>VEGFB</i>	4.7E-03	3.4E-03	465	0.17	4.4E-03	0.01	505	0.54	-7.9E-04	0.01	513	0.91	-4.9E-03	0.01	514	0.49
<i>NRP2</i>	-0.17	0.13	464	0.19	-0.05	0.29	505	0.88	-0.40	0.28	513	0.15	-0.31	0.28	514	0.27
<i>FLT1</i>	0.02	0.02	463	0.32	4.9E-03	0.05	504	0.92	-3.7E-03	0.05	512	0.94	0.03	0.05	513	0.55
<i>NRP1</i>	0.04	0.07	463	0.53	-0.08	0.15	504	0.61	-0.05	0.14	512	0.72	0.01	0.16	513	0.92
<i>PGF</i>	0.03	0.05	462	0.54	0.14	0.11	503	0.21	-0.04	0.11	511	0.68	-0.22	0.11	512	0.05
<i>VEGFA</i>	1.1E-03	0.01	463	0.90	0.03	0.02	504	0.12	-0.01	0.02	512	0.57	0.01	0.02	513	0.48
<i>VEGFC</i>	-0.02	0.32	463	0.95	-0.83	0.73	504	0.25	1.10	0.72	512	0.13	0.91	0.76	513	0.23
<i>VEGFD</i>	0.01	0.27	465	0.96	0.01	0.57	506	0.99	3.6E-03	0.55	514	0.99	0.18	0.59	515	0.76
<i>KDR</i>	-0.01	0.23	465	0.97	-0.07	0.48	506	0.88	0.19	0.46	514	0.68	-0.08	0.50	515	0.87

Supplementary Table 9 cont. VEGF x APOE-ε4 interactions on nonAD-related pathology

Gene	Hippocampal Sclerosis				Gross infarcts				Microinfarcts			
	β	SE	DF	P	β	SE	DF	P	β	SE	DF	P
<i>FLT1</i>	0.16	0.10	514	0.099	0.07	0.06	519	0.28	0.02	0.06	519	0.69
<i>KDR</i>	1.53	0.94	516	0.101	-0.18	0.71	521	0.80	0.23	0.61	521	0.70
<i>FLT4</i>	0.75	0.61	513	0.22	0.08	0.42	518	0.86	0.29	0.37	518	0.44
<i>PGF</i>	0.15	0.21	513	0.47	0.10	0.16	518	0.52	-0.07	0.14	518	0.62
<i>VEGFC</i>	-0.97	1.47	514	0.51	-0.50	1.00	519	0.62	1.26	0.88	519	0.15
<i>VEGFD</i>	0.65	1.29	516	0.62	-1.29	0.86	521	0.13	-0.38	0.69	521	0.59
<i>NRP2</i>	-0.26	0.60	515	0.66	0.16	0.39	520	0.68	0.21	0.35	520	0.55
<i>VEGFA</i>	-0.02	0.04	514	0.67	3.1E-03	0.03	519	0.91	0.01	0.02	519	0.84
<i>NRP1</i>	-0.09	0.33	514	0.79	0.04	0.22	519	0.85	-0.02	0.20	519	0.91
<i>VEGFB</i>	-1.7E-03	0.01	515	0.90	-0.01	0.01	520	0.59	1.7E-03	0.01	520	0.84

Supplementary Table 10. VEGFA and NRP1 isoform x APOE-ε4 interactions on cross-sectional global cognition

Isoform	Protein-coding	β	SE	P.fdr	Isoform	Protein-coding	β	SE	P.fdr
<i>VEGFA-212</i>	No	-1.37	0.37	0.007	<i>NRP1-214</i>	Yes	1.17	0.61	0.10
<i>VEGFA-211</i>	No	-1.07	0.36	0.028	<i>VEGFA-201</i>	Yes	-0.55	0.30	0.13
<i>NRP1-202</i>	Yes	-4.42	1.53	0.028	<i>NRP1-210</i>	Yes	-0.53	0.40	0.29
<i>NRP1-201</i>	Yes	-0.37	0.13	0.028	<i>VEGFA-218</i>	Yes	-1.86	1.48	0.32
<i>VEGFA-205</i>	Yes	-0.05	0.02	0.028	<i>VEGFA-222</i>	Yes	-0.27	0.27	0.47
<i>VEGFA-216</i>	No	-0.22	0.08	0.030	<i>NRP1-212</i>	Yes	0.96	1.24	0.56
<i>VEGFA-207</i>	Yes	-3.32	1.28	0.033	<i>VEGFA-204</i>	Yes	-0.22	0.29	0.56
<i>NRP1-208</i>	Yes	-9.13	3.55	0.033	<i>VEGFA-209</i>	Yes	-0.11	0.15	0.56
<i>NRP1-209</i>	Yes	-1.12	0.44	0.033	<i>NRP1-203</i>	Yes	3.40	4.88	0.57
<i>NRP1-205</i>	Yes	-1.79	0.72	0.033	<i>VEGFA-206</i>	Yes	0.10	0.16	0.60
<i>VEGFA-214</i>	No	-0.37	0.15	0.041	<i>NRP1-207</i>	Yes	-0.06	0.11	0.60
<i>VEGFA-215</i>	No	-0.08	0.03	0.053	<i>VEGFA-225</i>	Yes	-0.05	0.48	0.95
<i>NRP1-204</i>	Yes	1.90	0.98	0.10	<i>NRP1-213</i>	Yes	-0.15	2.80	0.96

Boldface signifies corrected P.fdr≤0.05.

P.fdr column contains p-values corrected for 26 tests using the false discovery rate (FDR).

Supplementary Table 11. Cross-sectional *VEGF* x *APOE-ε4* interactions on global cognition adjusted for cell-type effects

Note: ENO2 was used as the marker for neurons, CD68 for microglia, OLIG2 for oligodendrocytes, GFAP for astrocytes, and CD34 for endothelial cells.

Part 1: Correction for ENO2 levels

Gene	Cross-sectional Results			Cross-sectional Results - ENO2 Covariate			Cross-sectional Results - Adjusted for ENO2		
	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr
<i>NRP1</i>	-0.29	0.08	0.004	-0.29	0.08	0.003	-0.29	0.08	0.004
<i>VEGFA</i>	-0.03	0.01	0.026	-0.03	0.01	0.016	-0.03	0.01	0.026
<i>FLT1</i>	-0.06	0.03	0.12	-0.06	0.03	0.09	-0.07	0.03	0.041
<i>FLT4</i>	-0.24	0.16	0.30	-0.25	0.16	0.32	-0.43	0.20	0.07
<i>VEGFB</i>	0.01	0.004	0.30	0.01	0.00	0.34	0.01	0.01	0.23
<i>KDR</i>	0.29	0.26	0.43	0.29	0.25	0.42	0.31	0.28	0.46
<i>VEGFD</i>	0.24	0.31	0.62	0.28	0.30	0.51	0.23	0.30	0.57
<i>PGF</i>	-0.02	0.06	0.81	-0.03	0.06	0.75	-0.07	0.08	0.48
<i>VEGFC</i>	-0.14	0.39	0.81	-0.13	0.39	0.75	-0.21	0.42	0.68
<i>NRP2</i>	0.02	0.15	0.88	0.05	0.15	0.75	0.02	0.16	0.91

Boldface signifies corrected P.fdr \leq 0.05.

P.fdr column contains p-values corrected for 10 tests using the false discovery rate (FDR).

Part 2: Adjusting for expression of other cell-type markers

Gene	Cross-sectional Results			Cross-sectional Results - OLIG2, GFAP, CD68, and CD34 Covariates			Cross-sectional Results - Adjusted for OLIG2			Cross-sectional Results - Adjusted for GFAP			Cross-sectional Results - Adjusted for CD68			Cross-sectional Results - Adjusted for CD34		
	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr
<i>NRP1</i>	-0.29	0.08	0.004	-0.30	0.08	0.003	-0.29	0.08	0.004	-0.30	0.09	0.005	-0.25	0.08	0.028	-0.29	0.08	0.003
<i>VEGFA</i>	-0.03	0.01	0.026	-0.03	0.01	0.031	-0.03	0.01	0.027	-0.02	0.01	0.13	-0.02	0.01	0.14	-0.03	0.01	0.011
<i>FLT1</i>	-0.06	0.03	0.12	-0.07	0.03	0.057	-0.08	0.03	0.036	-0.04	0.03	0.31	-0.04	0.03	0.30	-0.06	0.03	0.18
<i>FLT4</i>	-0.24	0.16	0.30	-0.22	0.17	0.43	-0.29	0.18	0.24	-0.14	0.17	0.68	-0.13	0.17	0.63	-0.27	0.19	0.28
<i>VEGFB</i>	0.01	0.004	0.30	0.01	0.00	0.43	0.01	0.00	0.24	0.01	0.00	0.31	0.01	0.00	0.30	0.01	0.00	0.22
<i>KDR</i>	0.29	0.26	0.43	0.19	0.27	0.73	0.34	0.28	0.39	0.39	0.26	0.31	0.32	0.26	0.44	0.45	0.29	0.23
<i>VEGFD</i>	0.24	0.31	0.62	0.15	0.31	0.79	0.25	0.30	0.60	0.22	0.31	0.68	0.18	0.31	0.70	0.22	0.31	0.68
<i>PGF</i>	-0.02	0.06	0.81	-0.04	0.07	0.73	-0.04	0.07	0.66	0.01	0.06	0.82	0.00	0.06	1.00	-0.02	0.07	0.84
<i>VEGFC</i>	-0.14	0.39	0.81	-0.13	0.42	0.85	-0.13	0.40	0.83	0.24	0.41	0.69	0.08	0.41	0.93	0.10	0.43	0.84
<i>NRP2</i>	0.02	0.15	0.88	0.01	0.16	0.97	0.02	0.15	0.87	0.04	0.16	0.82	0.15	0.16	0.58	0.03	0.15	0.84

Supplementary Table 12. Longitudinal *VEGF* x *APOE-ε4* interactions on global cognition adjusted for cell-type effects

Note: *ENO2* was used as the marker for neurons, *CD68* for microglia, *OLIG2* for oligodendrocytes, *GFAP* for astrocytes, and *CD34* for endothelial cells.

Part 1: Adjusting for *ENO2* expression

Gene	Longitudinal Results			Longitudinal Results - <i>ENO2</i> Covariate			Longitudinal Results - Adjusted for <i>ENO2</i>		
	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr
<i>NRP1</i>	-0.02	0.01	0.44	-0.02	0.01	0.46	-0.01	0.01	0.57
<i>KDR</i>	0.04	0.03	0.44	0.04	0.03	0.46	0.04	0.03	0.57
<i>VEGFB</i>	0.001	4.16E-04	0.44	5.9E-04	4.2E-04	0.46	4.0E-04	6.1E-04	0.64
<i>VEGFA</i>	-0.002	0.001	0.44	-1.6E-03	1.2E-03	0.46	-1.5E-03	1.2E-03	0.57
<i>VEGFD</i>	0.04	0.03	0.57	0.04	0.03	0.56	0.03	0.03	0.57
<i>NRP2</i>	0.01	0.02	0.82	0.01	0.02	0.83	0.01	0.02	0.73
<i>VEGFC</i>	0.02	0.04	0.87	0.02	0.04	0.86	1.1E-03	0.05	0.98
<i>FLT4</i>	-0.01	0.02	0.90	-0.01	0.02	0.90	-0.03	0.02	0.57
<i>FLT1</i>	-4.65E-04	0.003	0.92	-4.3E-04	2.9E-03	0.93	-2.1E-03	3.2E-03	0.64
<i>PGF</i>	0.001	0.01	0.92	6.1E-04	0.01	0.93	-0.01	0.01	0.57

Part 2: Adjusting for expression of other cell-type markers

Gene	Longitudinal Results			Longitudinal Results - <i>OLIG2</i> , <i>GFAP</i> , <i>CD68</i> , and <i>CD34</i> Covariates			Longitudinal Results - Adjusted for <i>OLIG2</i>			Longitudinal Results - Adjusted for <i>GFAP</i>		
	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr
<i>NRP1</i>	-0.02	0.01	0.44	-0.02	0.01	0.64	-0.01	0.01	0.49	-0.02	0.01	0.53
<i>KDR</i>	0.04	0.03	0.44	0.04	0.03	0.64	0.05	0.03	0.49	0.05	0.03	0.53
<i>VEGFB</i>	0.001	4.16E-04	0.44	5.7E-04	4.4E-04	0.64	7.3E-04	5.2E-04	0.49	5.6E-04	4.2E-04	0.53
<i>VEGFA</i>	-0.002	0.001	0.44	-1.3E-03	1.2E-03	0.64	-1.5E-03	1.2E-03	0.49	-1.2E-03	1.2E-03	0.53
<i>VEGFD</i>	0.04	0.03	0.57	0.03	0.03	0.64	0.04	0.03	0.56	0.04	0.03	0.53
<i>NRP2</i>	0.01	0.02	0.82	0.01	0.02	0.73	0.01	0.02	0.71	0.01	0.02	0.62
<i>VEGFC</i>	0.02	0.04	0.87	0.03	0.05	0.73	0.02	0.05	0.71	0.05	0.05	0.53
<i>FLT4</i>	-0.01	0.02	0.90	-1.4E-03	0.02	0.94	-0.01	0.02	0.71	-1.3E-03	0.02	0.95
<i>FLT1</i>	-4.65E-04	0.003	0.92	-8.3E-04	3.2E-03	0.94	-1.8E-03	3.3E-03	0.71	7.8E-04	3.0E-03	0.88
<i>PGF</i>	0.001	0.01	0.92	-6.4E-04	0.01	0.94	-2.1E-03	0.01	0.79	2.8E-03	0.01	0.87

Part 3: Adjusting for expression of other cell-type markers

Gene	Longitudinal Results			Longitudinal Results - Adjusted for <i>CD68</i>			Longitudinal Results - Adjusted for <i>CD34</i>		
	β	SE	P.fdr	β	SE	P.fdr	β	SE	P.fdr
<i>NRP1</i>	-0.02	0.01	0.44	-0.01	0.01	0.49	-0.01	0.01	0.37
<i>KDR</i>	0.04	0.03	0.44	0.04	0.03	0.49	0.05	0.03	0.37
<i>VEGFB</i>	0.001	4.16E-04	0.44	6.2E-04	4.2E-04	0.49	6.7E-04	4.4E-04	0.37
<i>VEGFA</i>	-0.002	0.001	0.44	-1.2E-03	1.2E-03	0.51	-1.7E-03	1.2E-03	0.37
<i>VEGFD</i>	0.04	0.03	0.57	0.04	0.03	0.51	0.03	0.03	0.62
<i>NRP2</i>	0.01	0.02	0.82	0.02	0.02	0.49	0.01	0.02	0.71
<i>VEGFC</i>	0.02	0.04	0.87	0.04	0.05	0.54	0.04	0.05	0.64
<i>FLT4</i>	-0.01	0.02	0.90	-6.3E-04	0.02	0.98	-0.01	0.02	0.94
<i>FLT1</i>	-4.65E-04	0.003	0.92	6.9E-05	3.0E-03	0.98	-2.6E-04	3.3E-03	0.94
<i>PGF</i>	0.001	0.01	0.92	2.2E-03	0.01	0.94	6.0E-04	0.01	0.94