

Supplemental information to the study

Decreased BOLD fluctuations in lateral temporal cortices of premature born adults,

by Jing Shang et al.

Supplemental methods:

Description of participants: MRI-based brain abnormalities

	VP/VLBW	FT
Cysts	1	1
T2 hyperintensity	4	1
Meningioma (left occipital)	-	1
Polymicrogyria	1	-
Ventriculomegaly	3	-
Focal dysplasia (corpus callosum)	1	-
Total	10	3

Supplemental results: control of global brain signal removal

Our approach on ALFF is based on global brain signal removal. As this preprocessing step might confound our finding of ALFF changes in premature born adults, we controlled this step by omitting global brain signal removal. We found again reduced ALFF in lateral temporal cortices of premature born adults (Figure S1 below), demonstrating that this finding is not confounded by our preprocessing strategy. Furthermore, we demonstrated that ALFF reductions, based on preprocessing without global brain signal removal, were overlapping but independent from VBM reductions in the temporal cortices (the same analysis as described the main text but without global brain signal removal), demonstrating that the functional nature of ALFF reductions in the temporal cortices was not confounded by global brain signal removal (Figure S2).

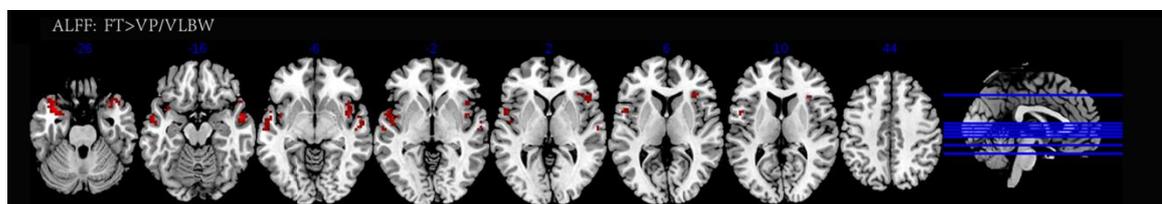


Figure S1: ALLF analysis without global signal correction showed reduced ALFF in premature born adults in temporal cortices (two-sample t-test, $p < 0.05$, FWE corrected).

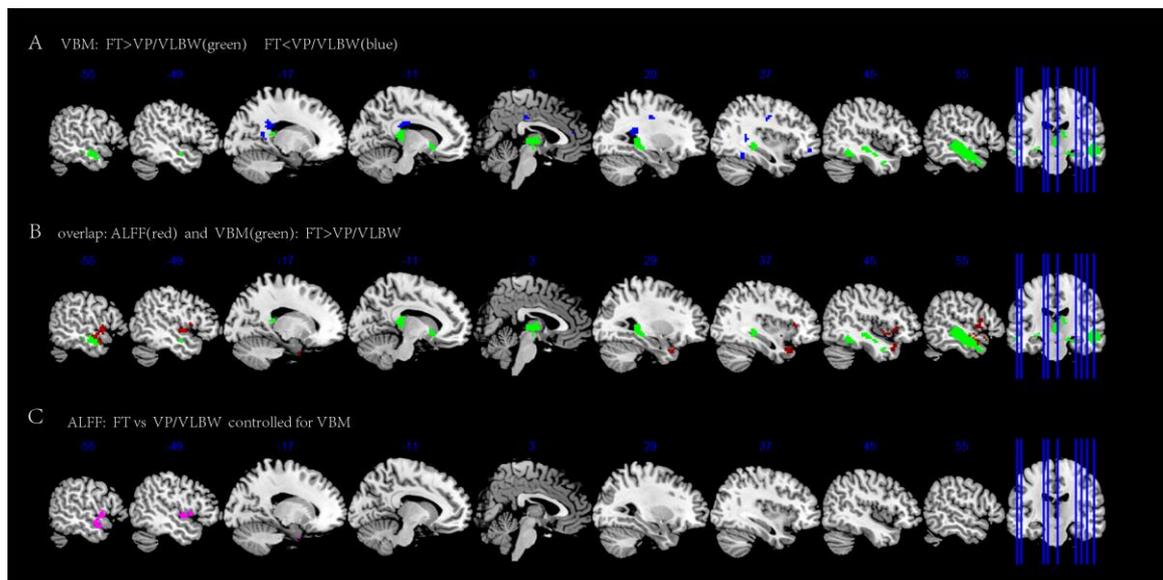


Figure S2: ALLF analysis without global signal correction together with VBM analysis showed that reduced ALFF (Fig R3) in premature born adults overlapped (Panel B) with reduced VBM values (Panel A) in temporal cortices. Furthermore, reduced ALFF was still present after voxel-wise control of VBM changes (Panel C; two-sample t-test, $p < 0.05$, FWE corrected), indicating the functional nature of ALFF reductions after premature birth.

Supplemental table:

Table S1. Aberrant brain gray matter volume in very preterm / very low birth weight (VP/VLBW) and full-term(FT) adults.

Brain region	BA	Cluster size	T values	MNI			p value
				X	Y	Z	
FT born > VP/VLBW born							
MTG(R)	21	3178	-10.72	57	-10	-18	<0.001
			-9.52	66	0	-21	
			-9.32	60	6	-26	
Thalamus(R)	-	3578	-9.18	17	-30	15	<0.001
			-7.55	9	-6	16	
			-6.89	33	-36	0	
Fusiform gyrus(R)	37	395	-7.05	50	-51	-14	<0.001
			-7.01	50	-40	-18	
Thalamus(L)	-	763	-8.62	-18	-36	13	<0.001
			-6.65	-33	-40	-3	
			-5.45	-27	-31	-9	
MTG(L)	21	690	-7.83	-62	3	-23	<0.001
			-7.39	-54	-6	-17	
			-5.52	-68	-9	-15	
PCC(L)	23	166	-7.53	-9	-46	15	<0.001
Frontal pole(L)	10	133	-7.15	-39	42	-23	<0.001
Hippocampus (R)	36	67	-5.54	18	-18	-14	0.004
			-4.95	26	-18	-18	
FT born < VP/VLBW born							
ACC	32	93	6.84	8	42	16	<0.001
			5.30	-5	41	15	
PCC(L)	30	1294	6.75	-32	-46	10	<0.001
			6.66	-17	-42	28	
			6.16	-14	-33	25	
aPFC(R)	10	46	7.53	35	45	-9	0.002
Fusiform gyrus(R)	37	83	5.69	35	-48	-17	0.010
vmPFC(L)	11	28	5.53	-8	50	-32	0.004
Temporal pole(L)	38	45	5.78	-33	24	-33	0.001

Abbreviation: ACC: anterior cingulate, PCC: precuneus, MTG: middle temporal gyrus, aPFC: anterior medial prefrontal cortex, vmPFC: ventral medial prefrontal cortex
 Statistical testing: two-sample t-test of voxel-based morphometry, controlled for gender, scanner, $p < 0.05$, FWE-corrected.