Supplemental material for

"*The association of children's mathematic abilities with both adults' cognitive abilities and intrinsic fronto-parietal networks is altered in preterm born individuals*"

by Bäuml, JG. et al.

Supplemental Tables

Supplementary Figure

Table S1 Result of ANCOVA of behavioral data

Dependent Variable: Full-Scale IQ (26 years)

	df	F	p
group	1,136	0.171	0.680
Math (8 years)	**1,136**	**9.076**	**0.003**
IQ (8 years)	**1,136**	**55.334**	**<0.001**
group * Math (8 years)	**1,136**	**4.265**	**0.041**
group * IQ (8 years)	1,136	.635	0.427
sex	1,136	2.614	0.108

R-square = ,553 (corrected R-square = ,533)

df = degrees of freedom

Table S2 Results of ANCOVA of intranetwork intrinsic functional connectivity

		Anatomical	Cluster		Peak-voxel (MNI coordinates)			df	Max.
	L/R*	Region	Size (k)	p (AlphaSim)	x	y	z		F*/T
		Harvard-Oxford-Cortical Atlas							
left FPN									
Interaction Group x Math	R	Angular Gyr	13	0.005	57	-58	16	1, 139	***22.25**
	R	Sup Front Gyr	11	0.015	0	38	40	1, 139	***17.34**
post-hoc t-test									
PT>T	R	Angular Gyr	17	0.001	57	-58	16	139	**4.72**
T>PT	R	Sup Front Gyr	16	0.001	0	38	40	139	**4.16**
right FPN									
Main effect Group	R	Angular Gyr	12	0.009	51	-55	43	1,139	***23.44**
	R	Cingulate Gyr	12	0.009	9	-37	28	1,139	***20.04**
	R	Lat Occipital Cort	9	0.045	51	-64	34	1,139	***15.93**
post-hoc t-test									
PT>T	R	Angular Gyr	14	0.003	51	-55	43	139	**4.84**
	R	Cingulate Gyr	20	<0.001	9	-37	28	139	**4.48**
	R	Lat Occipital Cort	12	0.009	51	-64	34	139	**3.99**
Main effect IQ	R	Cuneus	9	0.045	9	-76	25	1,139	***18.50**
post-hoc t-test									
IQ negative	R	Cuneus	12	0.009	9	-76	25	139	**4.30**
Interaction Group x IQ	R	Supramarginal Gyr	9	0.045	48	-43	46	1,139	***17.33**
post-hoc t-test									
T>PT	R	Supramarginal	15	0.002	48	-43	46	139	**4.16**

		Gyr							
Interaction Group x Math	L	Lat Occipital Cort	9	0.045	-45	-64	1	1, 139	***16.63**
post-hoc t-test									
PT>T	L	Lat Occipital Cort	14	0.003	-45	-64	1	139	**4.08**
LVN									
Interaction Group x IQ	R	Thalamus	10	0.027	3	-7	10	1,139	***17.35**
	L	Angular Gyr	11	0.015	-54	-52	13	1,139	***13.52**
post-hoc t-test									
T>PT	R	Thalamus	17	0.001	3	-7	10	139	**4.17**
	L	Angular Gyr	16	0.001	-54	-52	13	139	**3.68**

*test results are based on F-statistics

Abbreviations: k = cluster size; MNI= Montreal Neurological Institute; df = degrees of freedom; F = F-statistics; T = T-statistics; p = p-values; FPN = fronto-parietal network; LVN = lateral visual network; Gyr = Gyrus; Cort = Cortex; Sup = Superior; Front = Frontal; Lat = Lateral

Table S3 Right fronto-parietal iFC which is distinctively associated with children's mathematic abilities in term and preterm subjects is linked with adults' general cognitive abilities

	Preterm		Term	
Control variables	**r***	**p**	**r***	**p**
Scanner, sex, IQ8	0.40	0.001	-0.21	0.093
Scanner, sex, Math8	0.13	0.311	-0.15	0.225

*Partial correlation (separated for preterm and term born individuals) between right fronto-parietal intra-network iFC and full-scale IQ at 26 years of age controlling for scanner, sex and IQ (IQ8) and mathematic abilities at eight years (Math8), respectively

Table S4 Spatial multiple regression using GIFT-toolbox

Networks Allen et al. 2011*	Networks Bäuml et al. 2015	R	p
IC 34	**IC 32 (left FPN)**	0.268	< 0.0001
IC 60	**IC 19 (right FPN)**	0.262	< 0.0001
IC 68	**IC 35 (ECN)**	0.101	< 0.0001
IC39	**IC 25 (LVN)**	0.165	< 0.0001

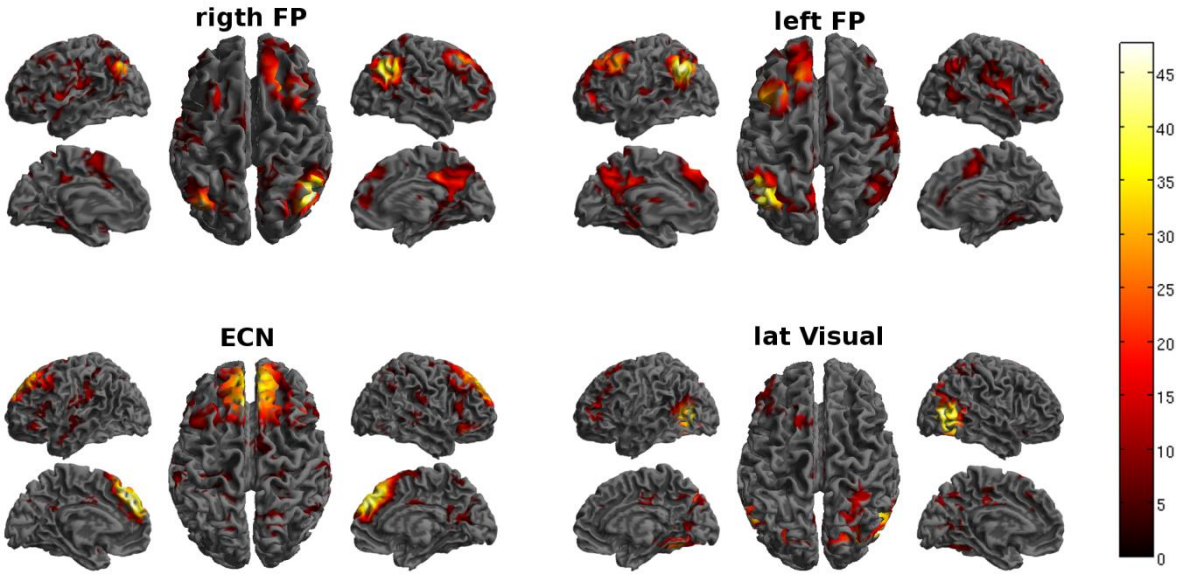
* cp. Figure 4A in Allen et al. 2011

Abbreviations: FPN = fronto-parietal network; ECN = executive control network; LVN = lateral visual network

Table S5. Cerebral injury based on neuroradiological diagnostics of MRI scans of preterm and term born adults

	PT	FT
brain cysts		
pineal	1	1
other	-	1
T2 hyperintensity		
periventricular	3	1
other	1	1
polymicrogyria	1	-
ventriculomegaly	2	-
focal dysplasia (corpus callosum)	1	-

Figure S1. The four networks of interest



One sample t-tests (p<0.05, FWE-corrected) of each network using all 146 subjects are displayed in five representative views. The color bar reflects the magnitude of t-values with brighter colors indicating higher t-values. The right side of the image corresponds to the right side of the brain.

Abbreviations: right/left FPN = right/left fronto-parietal network; ECN = executive control network; LVN = lateral visual network

Figure S2. Right fronto-parietal iFC which is distinctively associated with children's mathematic abilities in term and preterm subjects is linked with adults' general cognitive abilities