iScience, Volume *26*

Supplemental information

Neocortical neuronal production and maturation defects in the TcMAC21 mouse model of Down syndrome

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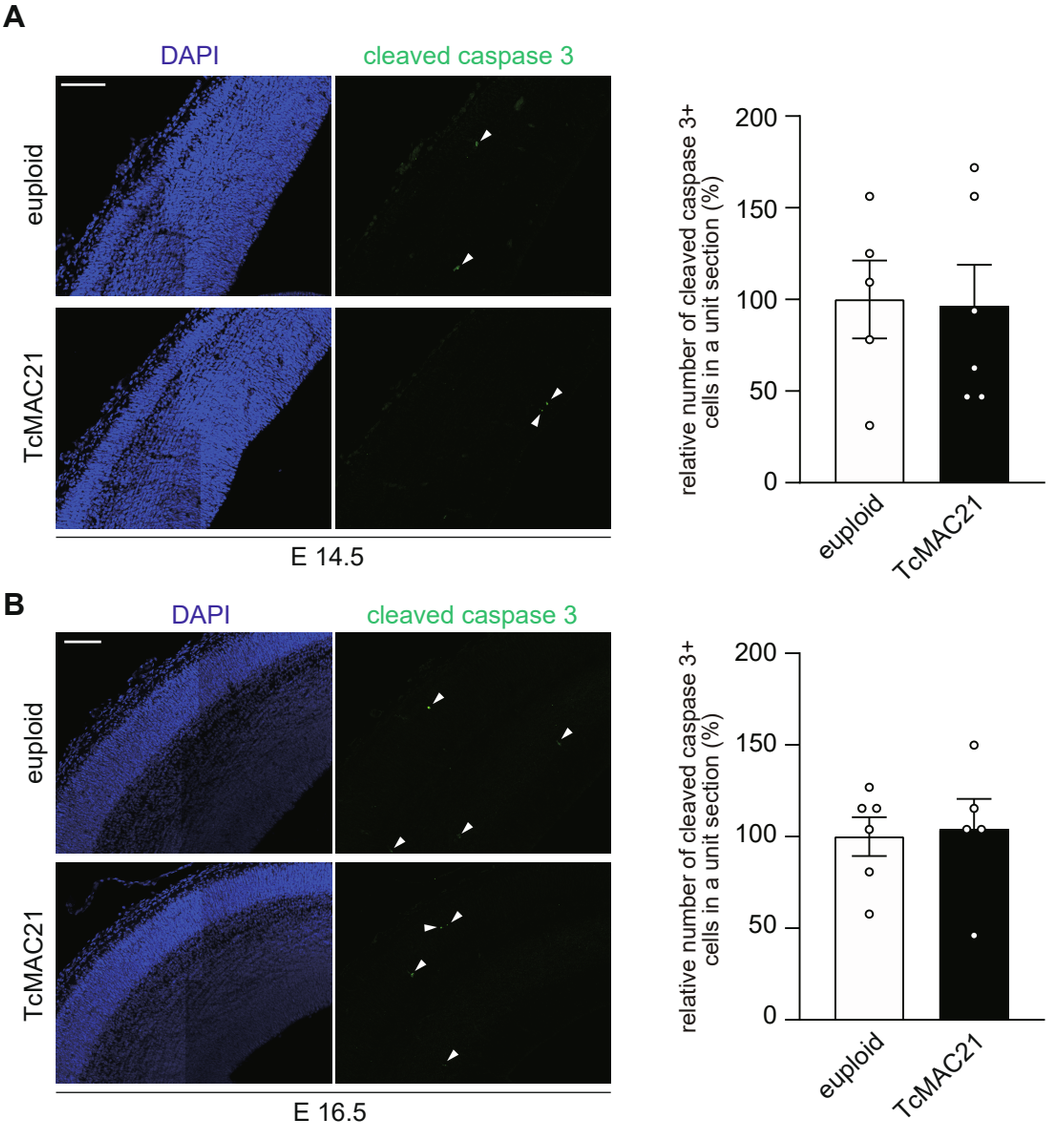
A
DAPI
cleaved caspase 3
euploid
TcMAC21
E 14.5
relative number of cleaved caspase 3+ cells in a unit section (%)
200
150
100
50
0
euploid
TcMAC21
B
DAPI
cleaved caspase 3
euploid
TcMAC21
E 16.5
relative number of cleaved caspase 3+ cells in a unit section (%)
200
150
100
50
0
euploid
TcMAC21

Figure S1. Apoptotic cell death is not enhanced in the developing TcMAC21 neocortex, related to Figure 1.

The E14.5 (A) and E16.5 (B) brain sections were immunostained with an antibody against cleaved caspase 3. Nuclei were stained with DAPI. Images of the entire cerebral wall are shown. Arrowheads indicate cleaved caspase 3-positive cells. The graphs on the right show the relative number of cleaved caspase 3-positive cells. Data are presented as means ± SEM (for E14.5, n = 5 (euploid) and n = 6 (TcMAC21) from 3 dams, for E16.5, n = 6 (euploid) and n = 5 (TcMAC21) from 3 dams.). Scale bars: 100 μm.

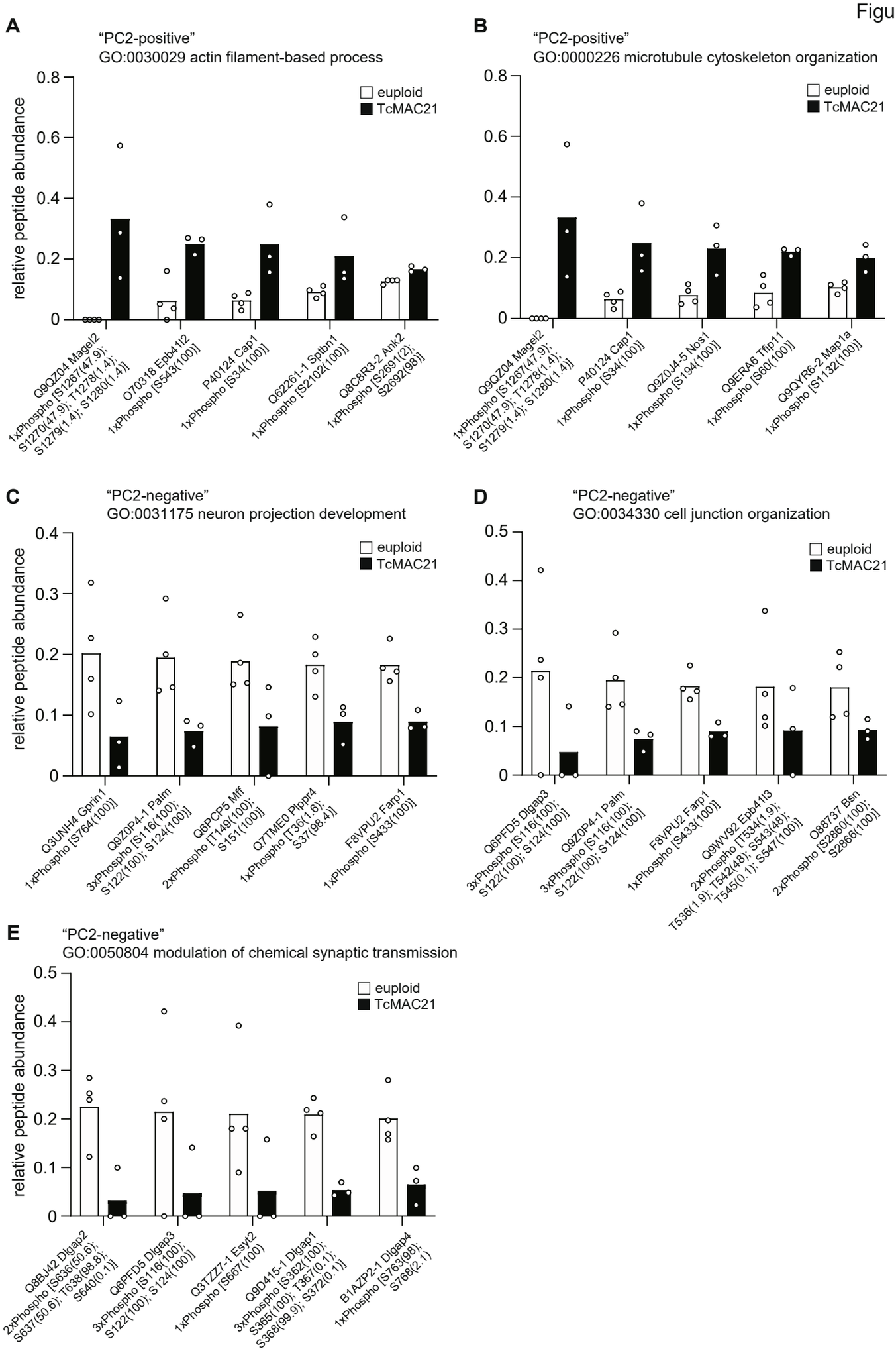
A
"PC2-positive"
GO:0030029 actin filament-based process
relative peptide abundance
euploid
TcMAC21
Q9QZ04 Magel2 1xPhospho [S1267(47.9); S1270(47.9); T1278(1.4); S1279(1.4); S1280(1.4)]
O70318 Epb41l2 1xPhospho [S543(100)]
P40124 Cap1 1xPhospho [S34(100)]
Q62261-1 Sptbn1 1xPhospho [S2102(100)]
Q8C8R3-2 Ank2 1xPhospho [S2691(2); S2692(98)]
B
"PC2-positive"
GO:0000226 microtubule cytoskeleton organization
Q9QZ04 Magel2 1xPhospho [S1267(47.9); S1270(47.9); T1278(1.4); S1279(1.4); S1280(1.4)]
P40124 Cap1 1xPhospho [S34(100)]
Q9Z0J4-5 Nos1 1xPhospho [S194(100)]
Q9ERA6 Tfip11 1xPhospho [S60(100)]
Q9QYR6-2 Map1a 1xPhospho [S1132(100)]
C
"PC2-negative"
GO:0031175 neuron projection development
Q3UNH4 Gprin1 1xPhospho [S764(100)]
Q9Z0P4-1 Palm 3xPhospho [S116(100); S122(100); S124(100)]
Q6PCP5 Mff 2xPhospho [T149(100); S151(100)]
Q7TME0 Plppr4 1xPhospho [T36(1.6); S37(98.4)]
F8VPU2 Farp1 1xPhospho [S433(100)]
D
"PC2-negative"
GO:0034330 cell junction organization
Q6PFD5 Dlgap3 3xPhospho [S116(100); S122(100); S124(100)]
Q9Z0P4-1 Palm 3xPhospho [S116(100); S122(100); S124(100)]
F8VPU2 Farp1 1xPhospho [S433(100)]
Q9WV92 Epb41l3 2xPhospho [T534(1.9); T536(1.9); T542(48); S543(48); T545(0.1); S547(100)]
O88737 Bsn 2xPhospho [S2860(100); S2866(100)]
E
"PC2-negative"
GO:0050804 modulation of chemical synaptic transmission
Q8BJ42 Dlgap2 2xPhospho [S636(50.6); S637(50.6); T638(98.8); S640(0.1)]
Q6PFD5 Dlgap3 3xPhospho [S116(100); S122(100); S124(100)]
Q3TZZ7-1 Esyt2 1xPhospho [S667(100)]
Q9D415-1 Dlgap1 3xPhospho [S362(100); S365(100); T367(0.1); S368(99.9); S372(0.1)]
B1AZP2-1 Dlgap4 1xPhospho [S763(98); S768(2.1)]

Figure S2. Alterations in phospho-peptide levels of selected proteins included in enriched GO terms, related to Figure 4.

(A)-(E) Relative phospho-peptide levels of selected proteins are shown with Uniprot ID and gene symbol. The probability of phosphorylation in each residue is presented in brackets.

Table S7. List of test statistics and p values, related to Figures 1-4 and S1.

Figure	Comparison	t value	P value
Figure 1C	SOX2+ E14.5 euploid vs TcMAC21	0.5115	0.855912
	SOX2+ E16.5 euploid vs TcMAC21	0.7697	0.537093
	TBR2+ E14.5 euploid vs TcMAC21	5.272	0.002771
	TBR2+ E16.5 euploid vs TcMAC21	4.278	0.015628
Figure 1E	apical PH3+ E14.5 euploid vs TcMAC21	7.59	0.000275
	apical PH3+ E16.5 euploid vs TcMAC21	3.015	0.036723
	basal PH3+ E14.5 euploid vs TcMAC21	4.559	0.006257
	basal PH3+ E16.5 euploid vs TcMAC21	3.935	0.015628
Figure 1G	MGE VZ surface euploid vs TcMAC21	4.204	0.007699
	CGE VZ surface euploid vs TcMAC21	0.07032	0.945217
	MGE ex-VZ surface euploid vs TcMAC21	6.406	0.000933
	CGE ex-VZ surface euploid vs TcMAC21	1.666	0.411268
Figure 1I	VZ E14.5 euploid vs TcMAC21	9.665	0.000255
	SVZ E14.5 euploid vs TcMAC21	0.7653	0.844216
	IZ+CP E14.5 euploid vs TcMAC21	6.976	0.000745
	VZ E16.5 euploid vs TcMAC21	6.559	0.001364
	SVZ E16.5 euploid vs TcMAC21	1.056	0.537093
	IZ E16.5 euploid vs TcMAC21	4.612	0.015628
Figure 1J	E14.5 euploid vs TcMAC21	7.436	0.00031
	E16.5	9.499	0.001364

	euploid vs TcMAC21		
Figure 2E	E14.5 TBR1+ euploid vs TcMAC21	5.703	0.004279
	E16.5 TBR1+ euploid vs TcMAC21	8.658	0.000057
	P0.5 TBR1+ euploid vs TcMAC21	6.174	0.001091
	E16.5 CTIP2+ euploid vs TcMAC21	6.223	0.000822
	P0.5 CTIP2+ euploid vs TcMAC21	3.64	0.008509
	P0.5 SATB2+ euploid vs TcMAC21	8.82	0.000264
Figure 3D	SATB2+ euploid vs TcMAC21	5.953	0.003266
	CTIP2+ euploid vs TcMAC21	7.633	0.000214
	TBR1+ euploid vs TcMAC21	7.377	0.000378
	PV+ euploid vs TcMAC21	5.152	0.009779
	SOM+ euploid vs TcMAC21	5.486	0.009779
	VIP+ euploid vs TcMAC21	0.06488	0.949742
	CR+ euploid vs TcMAC21	0.7886	0.836952
	ALDH1L1+ euploid vs TcMAC21	1.398	0.665953
	OLIG2+ euploid vs TcMAC21	0.958	0.836952
	GSTπ+ euploid vs TcMAC21	2.488	0.305533
	GSTπ/OLIG2+ euploid vs TcMAC21	4.504	0.012372
	IBA1+ euploid vs TcMAC21	0.9501	0.836952
Figure S1	E14.5 cleaved caspase 3+ euploid vs TcMAC21	0.1173	0.9092
	E16.5 cleaved caspase 3+ euploid vs TcMAC21	0.1943	0.8515