

Supplementary Table S1. Media, primers, and antibodies used in this study.

Cerebral Organoid Neural Induction Medium (NIM)

ITEM	COMPANY	IDENTIFIER	STORAGE CONCENTRATION	FINAL CONCENTRATION
DMEM/F12	Thermo Fisher Scientific	Cat# 21331046	Basal medium	Basal medium
N-2 Supplement	Thermo Fisher Scientific	Cat# 17502048	100X	1X
GlutaMAX™	Thermo Fisher Scientific	Cat# 35050061	100X	1X
MEM Non-Essential AA	Thermo Fisher Scientific	Cat# 11140035	100X	1X
Heparin sodium salt	Sigma	Cat# H3149	1 mg/mL (in H ₂ O)	1 µg/mL
2-Mercaptoethanol	Sigma	Cat# M3148	10mM (in PBS)	0.05mM
ZellShield®	Minerva Biolabs	Cat# 13-0050	100X	1X

Cerebral Organoid Differentiation Medium without vitamin A (CODM-A)

ITEM	COMPANY	IDENTIFIER	STORAGE CONCENTRATION	FINAL CONCENTRATION
DMEM/F12	Thermo Fisher Scientific	Cat# 21331046	Basal medium	1/2 of Basal medium
Neurobasal™	Thermo Fisher Scientific	Cat# 21103049	Basal medium	1/2 of Basal medium
N-2 Supplement	Thermo Fisher Scientific	Cat# 17502048	100X	0.5X
Insulin	Sigma	Cat# I9278	10 mg/mL	2.5 µg/mL
GlutaMAX™	Thermo Fisher Scientific	Cat# 35050061	100X	1X
MEM Non-Essential AA	Thermo Fisher Scientific	Cat# 11140035	100X	0.5X
B-27™ Supplement minus vitamin A	Thermo Fisher Scientific	Cat# 12587010	50X	0.5X
2-Mercaptoethanol	Sigma	Cat# M3148	10mM (in PBS)	0.1mM
ZellShield®	Minerva Biolabs	Cat# 13-0050	100X	1X

Cerebral Organoid Differentiation Medium with vitamin A (CODM+A)

ITEM	COMPANY	IDENTIFIER	STORAGE CONCENTRATION	FINAL CONCENTRATION
DMEM/F12	Thermo Fisher Scientific	Cat# 21331046	Basal medium	1/2 of Basal medium
Neurobasal™	Thermo Fisher Scientific	Cat# 21103049	Basal medium	1/2 of Basal medium
N-2 Supplement	Thermo Fisher Scientific	Cat# 17502048	100X	0.5X
Insulin	Sigma	Cat# I9278	10 mg/mL	2.5 µg/mL
GlutaMAX™	Thermo Fisher Scientific	Cat# 35050061	100X	1X
MEM Non-Essential AA	Thermo Fisher Scientific	Cat# 11140035	100X	0.5X
B-27™ Supplement	Thermo Fisher Scientific	Cat# 17504044	50X	0.5X
2-Mercaptoethanol	Sigma	Cat# M3148	10mM (in PBS)	0.1mM
ZellShield®	Minerva Biolabs	Cat# 13-0050	100X	1X

Cerebral Organoid MEA cultivation medium

ITEM	COMPANY	IDENTIFIER	STORAGE CONCENTRATION	FINAL CONCENTRATION
BrainPhys™ Neuronal Medium	STEMCELL Technologies	Cat# 05790	Basal medium	Basal medium
N-2 Supplement	Thermo Fisher Scientific	Cat# 17502048	100X	1X
B-27™ Supplement	Thermo Fisher Scientific	Cat# 17504044	50X	1X
ZellShield®	Minerva Biolabs	Cat# 13-0050	100X	0.5X

qPCR primers

TARGET	NCBI GENE ID	FW SEQUENCE 5'-3'	RV SEQUENCE 5'-3'
<i>GAPDH</i>	2597	AGCCACATCGCTCAGACAC	GCCCAATACGACCAAATCC
<i>GFAP</i>	2670	CCGACAGCAGGTCCATGT	GTTGCTGGACGCCATTG
<i>MAP2</i>	4133	TTGGTGCCGAGTGAGAAGA	GTCTGGCAGTGGTTGGTTAA
<i>NEFM</i>	4741	GAAATCGCTGCGTACAGAAAAC	TAATGGCTGTCAGGGCCTCTT
<i>RBFOX3</i>	146713	TACGCAGCCTACAGATACGCTC	TGGTTCCAATGCTGTAGGTCGC
<i>SOX2</i>	6657	TACAGCATGTCTACTCGCAG	GAGGAAGAGGTAACCACAGGG
<i>TUBB3</i>	10381	TCAGCGTCTACTACAACGAGGC	GCCTGAAGAGATGTCCAAAGGC

Antibodies

ANTIBODY	COMPANY	IDENTIFIER	IHC DILUTION
β -Amyloid (D54D2)	Cell Signaling	Cat# 8243 RRID: AB_2797642	1:200
CTIP2	Cell Signaling	Cat# 12120 RRID: AB_2797823	1:200
NeuN	Millipore	Cat# MAB377 RRID: AB_2298772	1:200
MAP2	Millipore	Cat# AB5543 RRID: AB_571049	1:200
PAX6	Cell Signaling	Cat# 60433 RRID: AB_2797599	1:200
SOX2	Cell Signaling	Cat# 3579 RRID: AB_2195767	1:200
TUJ1	Aves Labs	Cat# TUJ-0020 RRID: AB_2313564	1:200
Hoechst 33342 Nucleic Acid Stain	Thermo Fisher Scientific	Cat# H3570 RRID: AB_3675235	1:1000
Donkey Anti- Chicken AF647	Jackson ImmunoResearch	Cat# 703-606-155 RRID: AB_2340380	1:400
Donkey Anti-Mouse AF488	Thermo Fisher Scientific	Cat# A-21202 RRID: AB_141607	1:400
Donkey Anti-Rabbit AF568	Thermo Fisher Scientific	Cat# A-10042 RRID: AB_2534017	1:400
Donkey Anti-Rabbit AF647	Thermo Fisher Scientific	Cat# A-31573 RRID: AB_2536183	1:400