Fig. S1. (a) Immunofluorescence of human foreskin fibroblast cells with fibroblast marker FSP1, neuronal stem cell markers NESTIN and Sox2, and neuronal markers TUJ1 and DCX. Scale bar, 50 μm. (b) Percentage of human foreskin fibroblast cells positive for FSP1, NESTIN and Sox2, and TUJ1 and DCX. mRNA levels of (c) key fibroblast markers assessed by qRT-PCR on day two. (d) Representative bright-field image of induced human foreskin cells incubated in NM containing FCY at day 12. Scale bar, 100 μm.
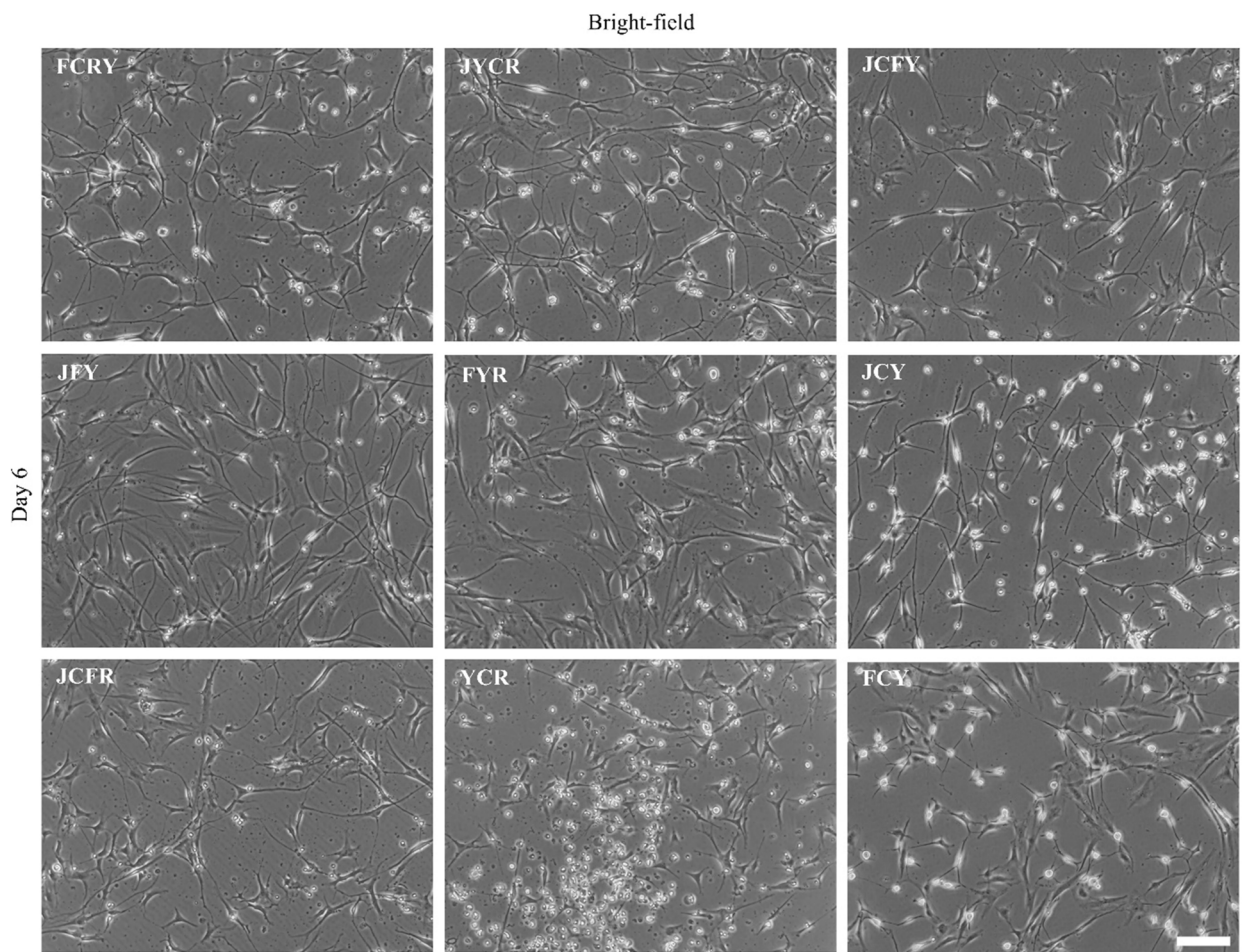
Bright-field

Fig. S2. Representative bright-field images of cells at day 6 treated with various chemical combinations after two days of neural induction. Scale bar, 50 μm.
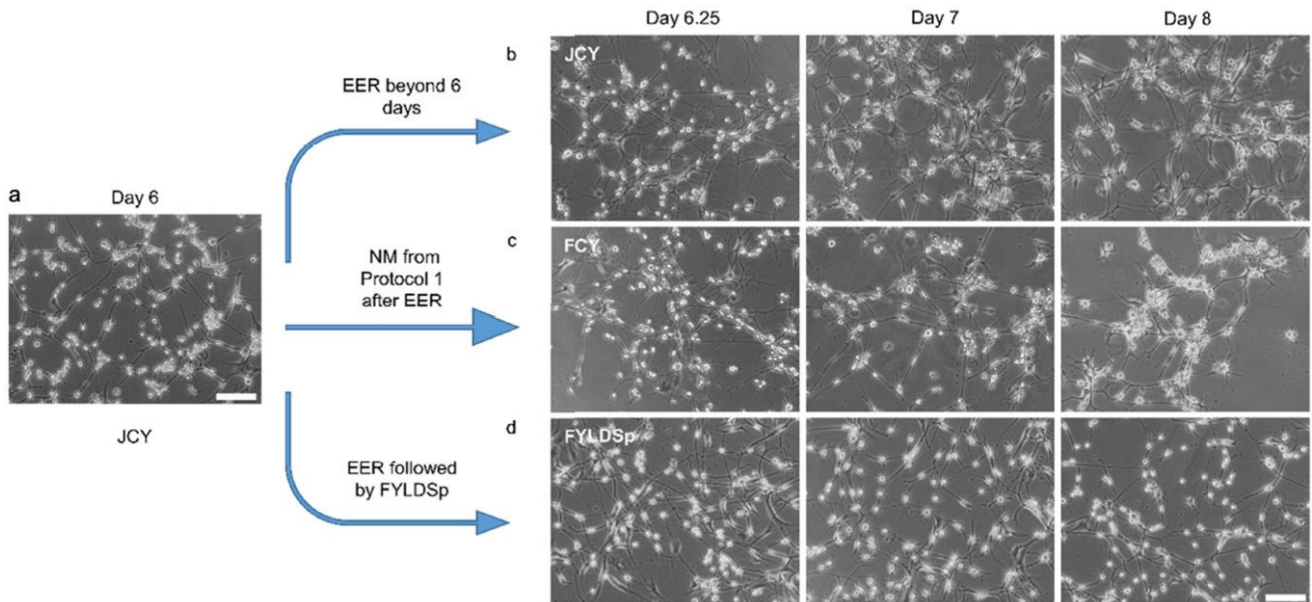
Fig. S3. (a) Representative bright-field image of cells at day 6 after EER. Scale bar, 50 μm. (b) Treatment of cells at day 6 with the maturation cocktail of protocol 1 for two days. (c) Extended treatment of cells at day 6 with JCY. (d) Treatment of JCY treated cells at day 6 with the new maturation cocktail FYLDSp.

Table S1. List of primers used in qRT-PCR analysis

Primer name	Forward primer (5′-3′)	Reverse primer (5′-3′)
ascl1	CAAGAGAGCGCAGCCTTAG	GCAAAAGTCAGTGCTGAACG
brn2	AATAAGGCAAAAGGAAAGCAACT	CAAAACACATCATTACACCTGCT
myt1	CAATGGAAAGGGATTTTAAGCA	TTTGAGATTATGTACCAACGTTAGATG
neuroD1	GTTATTGTGTTGCCTTAGCACTTC	AGTGAAATGAATTGCTCAAATTGT
ngn2	TCAGACATGGACTATTGGCAG	GGGACAGGAAAGGGAACC
col1A	GAGGGCCAAGACGAAGACATC	CAGATCACGTCATCGCACAAC
dkk3	CTGGGAGCTAGAGCCTGATG	TCATACTCATCGGGGACCTC
thy1	ATCGCTCTCCTGCTAACAGTC	CTCGTACTGGATGGGTGAACT
cgf	CATCTCCACCCGGGTTACCAA	AGTACGGATGCACTTTTTGC
cdh2	AGTCAGTCGGAAAGTGAGCAG	ACATCAGCTATCCGTTCCTTCT

Table S2. List of antibodies used in this study

Primary antibody	Company (Catalog No.)	Dilution ratio	Species	Secondary antibody	Company (catalog No.)	Dilution ratio
Anti-Nestin	Genetex (GTX630201)	1 : 300	Mouse	Goat Anti-Mouse IgG H&L (Alexa Fluor 488)	Thermofisher (A-11029)	1 : 500
Anti-Sox2	Abcam (ab97959)	1 : 300	Rabbit	Goat Anti-Mouse IgG H&L (Alexa Fluor 546)	Thermofisher (A-11010)	1 : 500
Anti-Tuj1	R&D SYSTEMS (MAB1195)	1 : 300	Mouse	Goat Anti-Mouse IgG H&L (Alexa Fluor 488)	Thermofisher (A-11029)	1 : 500
Anti-FSP1	Abcam (ab218512)	1 : 300	Rabbit	Goat Anti-Mouse IgG H&L (Alexa Fluor 546)	Thermofisher (A-11010)	1 : 500
Anti-NeuN	Millipore (MAB377)	1 : 100	Mouse	Goat Anti-Mouse IgG H&L (Alexa Fluor 488)	Thermofisher (A-11029)	1 : 500
Anit-DCX	Abcam (ab18723)	1 : 300	Rabbit	Goat Anti-Mouse IgG H&L (Alexa Fluor 546)	Thermofisher (A-11010)	1 : 500
Anti-MAP2	Millipore (ab5622)	1 : 300	Rabbit	Goat Anti-Mouse IgG H&L (Alexa Fluor 546)	Thermofisher (A-11010)	1 : 500
Anit-Syn1	Millipore (ab1543)	1 : 300	Rabbit	Goat Anti-Mouse IgG H&L (Alexa Fluor 546)	Thermofisher (A-11010)	1 : 500
Anti-vGLUT1	Millipore (MAB5502)	1 : 300	Mouse	Goat Anti-Mouse IgG H&L (Alexa Fluor 488)	Thermofisher (A-11029)	1 : 500

Table S3. List of previous publications on fibroblast to neuron direct conversion using small molecules

Sr. No.	Cell origin	Small molecules	Neuronal induction time (d)	Neuronal conversion efficiency	Characterization	Ref.
1	Human newborn foreskin fibroblasts	CHIR99021, LDN193189, SB431542, RG108, dorsomorphin, DMH1, parnate, SU5402, forskolin, Y27632, DAPT, purmorphamine, ISX9, IBET151, SU16F, and P7C3-A20.	10	>91±1.2% DCX$^+$/TUJ1$^+$	TUJ1$^+$, Tau$^+$, NeuN$^+$, MAP2a$^+$, vGLUT1$^+$, GABA$^+$,	(7)
2	Human foreskin Fibroblast	Forskolin, RepSox, SP600125, CHIR99021, GO6983, Y-27632, ISX-9 and I-BET151	7	>80% TUJ1$^+$	TUJ1$^+$, Tau$^+$, NeuN$^+$, MAP2a$^+$, vGLUT1$^+$, GABA$^+$,	(17)
3	Human Fibroblast	Valpoic Acid, CHIR99021, Repsox, Forskolin, GO6983, SP600125, Y26732	7	~22% TUJ1$^+$/DCX$^+$	TUJ1$^+$, DCX$^+$, NeuN$^+$, MAP2a$^+$, vGLUT1$^+$, Syn1$^+$	(18)
4	Mouse embryonic Fibroblast	Forskolin, ISX-9, CHIR99021, iBET-151	16	>90% TUJ1$^+$	TUJ1$^+$, Tau$^+$, NeuN$^+$, MAP2a$^+$, vGLUT1$^+$, GABA$^+$,	(19)
5	Human IMR-90 fibroblasts	Valpoic Acid, Kenpaullone, Forskolin Repsox, Y-26732	7	94.74±0.60% TUJ1$^+$	MAP2$^+$, NeuN$^+$, Syn1$^+$, DA$^+$, TH$^+$, DDC$^+$, DAT$^+$, NURR1$^+$,	(20)
6	Human MRC-5 lung fibroblast cells	Valpoic Acid, CHIR99021, Repsox, Forskolin, DMH1, SP600125, Y26732	7	~90% TUJ1+	TUJ1$^+$, Tau$^+$, NeuN$^+$, MAP2a$^+$,	(21)
7	Human foreskin Fibroblast	JQ-1(+), Trichostatin A, Repsox, Forskolin, CHIR99021, Y26732	2	91±2% TUJ1$^+$ and 76±7% DCX$^+$ (2 days) 91±3% MAP2$^+$ (6 days)	TUJ1$^+$, DCX$^+$, NeuN$^+$, MAP2$^+$, vGLUT1$^+$, Syn1$^+$,	This study