Supplementary File 1

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Reprogramming of mouse fibroblasts into neural lineage cells using biomaterials

Fahsai Kantawong[1*], Chanidapa Saksiriwisitkul[1], Chanakan Riyapa[1], Suchalinee Limpakdee[1], Phenphichar Wanachantararak[2], Thasaneeya Kuboki[3]

[1] Department of Medical Technology, Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand
[2] The Dental Research Center, Faculty of Dentistry, Chiang Mai University, Chiang Mai 50200, Thailand
[3] Laboratory of Biomedical and Biophysical Chemistry, Institute for Materials Chemistry and Engineering, Kyushu University, Fukuoka, Japan

Table S1. List of primers used in this study

Target genes	Primer sequences (5'->3')
1. 18s rRNA	F: GGCCCTGTAATTGGAATGAGTC
	R: CCAAGATCCAACTACGAGCTT
2. GAPDH (Glyceraldehyde 3-phosphate dehydrogenase)	F: AAATCCCATCACCATCTTCCAGGAGC
	R: CATGGTTCACACCCATGACGAACA
3. VCAN (Versican)	F: AACATTTTTCAGGTGGTGAG
	R: GATGCAGAACTTGGAACTAT
4. Coll Type I (Type I collagen)	F: GATGGATTCCAGTTCGAGTATG
	R: GTTTGGGTTGCTTGTCTGTTTG
5. ALP (Alkaline phosphatase)	F: ACAAGCACTCCCACTTCATCTGGA
	R: TCACGTTGTTCCTGTTCAGCTCGT
6. ACAN (Aggrecan)	F: CTACGACGCCATCTGCTACA
	R: ACGAGGTCCTCACTGGTGAA
7. OCN (Osteocalcin)	F: GCAAGTAGCGCCAATCTAGG
	R: GCTTCACCCTCGAAATGGTA
8. OPN (Osteopontin)	F: GGACAGCCAGGACTCCATTG
	R: TGTGGGGACAACTGGAGTGAA
9. HDAC3 (Histone deacetylase 3)	F: TATGCAAGGCTTCACCAAGAG
	R: TCCGTATTTGTGGAAGGACAC
10. Kat2a (lysine acetyltransferase 2A)	F: CAGAATGTCTTTTCCCACCAG
	R: GGATTCAGCTCACACTCCATC
11. HAT1 (Histone acetyltransferase 1)	F: CAGATATATAAGGCTGACATGAC
	R: GCTGTAATATCAAGAACTGTAGG
12. NFIa (nuclear factor I a)	F: CAAGCCTCCAACCACATCAAC
	R: CTGTTTGACCACGATGTTTGCT
13. NFIb (nuclear factor I b)	F: CTCAGTGAGAAGCCCGAAATC
	R: CAGTCACGGTAAGCACAAAGT
14. SOX9 (SRY (sex determining region Y)-box 9)	F: CATCACCCGCTCGCAATAC

	R: CCGGCTGCGTGACTGTAGTA
15. Klf4 (Kruppel-like factor 4)	F: GAAATTCGCCCGCTCCGATGA
	R: CTGTGTGTTTGCGGTAGTGCC
16. Pou5f1 (POU domain, class 5, transcription factor 1)	F: GTGGAGGAAGCCGACAACAATG
	R: GCCTCATACTCTTCTCGTTGG
17. Nanog	F: AGAAATCCCTTCCCTCGCCA
	R: TGGTAGAAGAATCAGGGCTG
18. Notch1	F: TTACAGCCACCATCACAGCCACACC
	R: ATGCCCTCGGACCAATCAGA
19. Foxa2 (forkhead box protein A2)	F: CCGTTCTCCATCAACAACCT
	R: GGGGTAGTGCATCACCTGTT
20. Pou3f2 (POU domain, class 3, transcription factor 2)	F: AGAGCCCAAGGCAGAAAAGT
	R: GGCGCTCTGGTTAAAGGAG
21. Olig2 (Oligodendrocyte transcription factor2)	F: AGACCGAGCCAACACCAG
	R: AAGCTCTCGAATGATCCTTCTTT
22. Ptbp1 (polypyrimidine tract binding protein 1)	F: AAGAGCAGAGACTACACTCGA
	R: CTGCCGTCTGCCATCTGCACAA
23. Nkx2.2 (NK2 homeobox 2)	F: GCAGCGACAACCCCTACA
	R: ATTTGGAGCTCGAGTCTTGG
24. Pax6 (paired box gene 6)	F: AGTGAATGGGCGGAGTTATG
	R: ACTTGGACGGGAACTGACAC

Table S1. (continue)

Target genes	Primer sequences (5'->3')
25. CD44	F: AGCAGCGGCTCCACCATCGAGA
	R: TCGGATCCATGAGTCACAGTG
26. Prom1 (prominin 1or CD133)	F: ATGGCTCTCGTATTCAGTGTCCTGCT
	R: TCAGTATCGAGACGGGCTTGTCATAACAG
27. β-III-tubulin (Class III β-tubulin)	F: CGCACGACATCTAGGACTGA
	R: TGAGGCCTCCTCTCACAAGT
28. MAP2 (microtubule-associated protein 2)	F: CCAAGGAGTCTGATTGCAGGA
	R: CCTCAACCACAGCTCAAATGC
29. GFAP (glial fibrillary acidic protein)	F: CATCCCAGGAGCCAGCA
	R: AGGTTGGTTTCATCTTGGAG
30. Nefl (neurofilament, light polypeptide)	F: TGGCCTTGGACATCGAGATTGCA
	R: GCTTCTCCTTCAGAGGGGGGC
31. SOX2 (SRY (sex determining region Y)-box 2)	F: TAGAGCTAGACTCCGGGCGATGA
	R: TTGCCTTAAACAAGACCACGAAA
32. RUNX2	F: GATGACACTGCCACCTCTGA
	R: GACTGGCGGGGTGTAAGTAA
33. Nestin	F: GTCTCAGGACAGTGCTGAGCCTTC
	R: TCCCCTGAGGACCAGGAGTCTC

Table S2. List of transcription factors that was studied in NIH/3T3 at 9 days culture

Gene	Expression (fold)	Marker
Klf4	**2.3 (brain)**	Neural Progenitor
Nanog	NE	
Sox2	NE	
Pou5f1	NE	
Pou3f1	NE	
NfIa	**2.0 (brain)**	Astrocyte
NfIb	**5.0 (brain)**	
Sox9	**5.5 (brain)***	
Notch1	NE	
Pax6	NE	Neural cell
Ptbp1	**3.4 (brain)**	
Foxa2	NE	Dopaminergic neuron
Nkx2.2	NE	Oligodendrocyte

Table S3. List of transcription factors that was studied in APCs and PDL cells at 1 week and 2 weeks culture

Gene	APC 1 week	PDL 1 week (N1)	PDL 2 weeks (N2)
1. SOX9	*	*	ND
2. SOX2	NE	NE	ND
3. Nkx2.2	NE	NE	ND
4. Foxa2	NE	NE	ND
5. Pou5f1	NE	NE	ND
6. RUNX2	NE	ND	ND
7. Nestin	NE	NE	ND
8. OPN	NE	ND	*
9. MAP2	NE	ND	ND
10. GFAP	NE	ND	ND
11. Tubulin	NE	ND	ND
12. Klf4	NE	NE	ND
13. Notch1	NE	NE	ND
14. Nanog	NE	NE	ND
15. Prom1	NE	NE	ND
16. Pou3f	NE	NE	ND
17. Olig2	ND	NE	ND
18. PAX6	ND	NE	ND
19. NFIa	ND	NE	ND
20. NFIb	ND	NE	ND
21. OCN	*	*	*
22. Collagen	ND	ND	*
23. ACAN	ND	NE	*
24. VCAN	ND	NE	*
25. ALP	NE	NE	*

NE = non-expression
ND = not detect (the analysis was not performed)

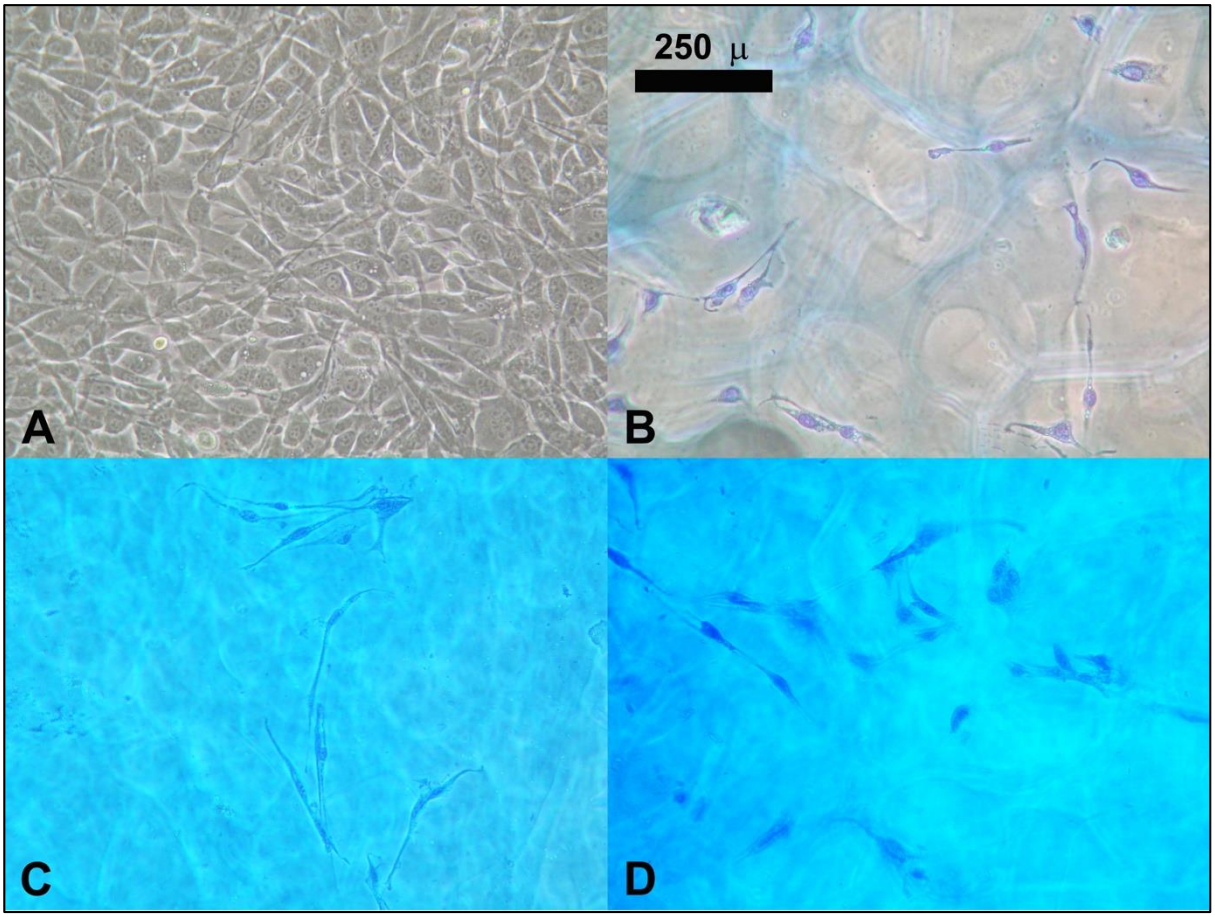

Fig. S1. NIH/3T3 1 day: A control (tissue culture plate), **B** gelatin, **C** gelatin+HA, **D** gelatin+HA+brain

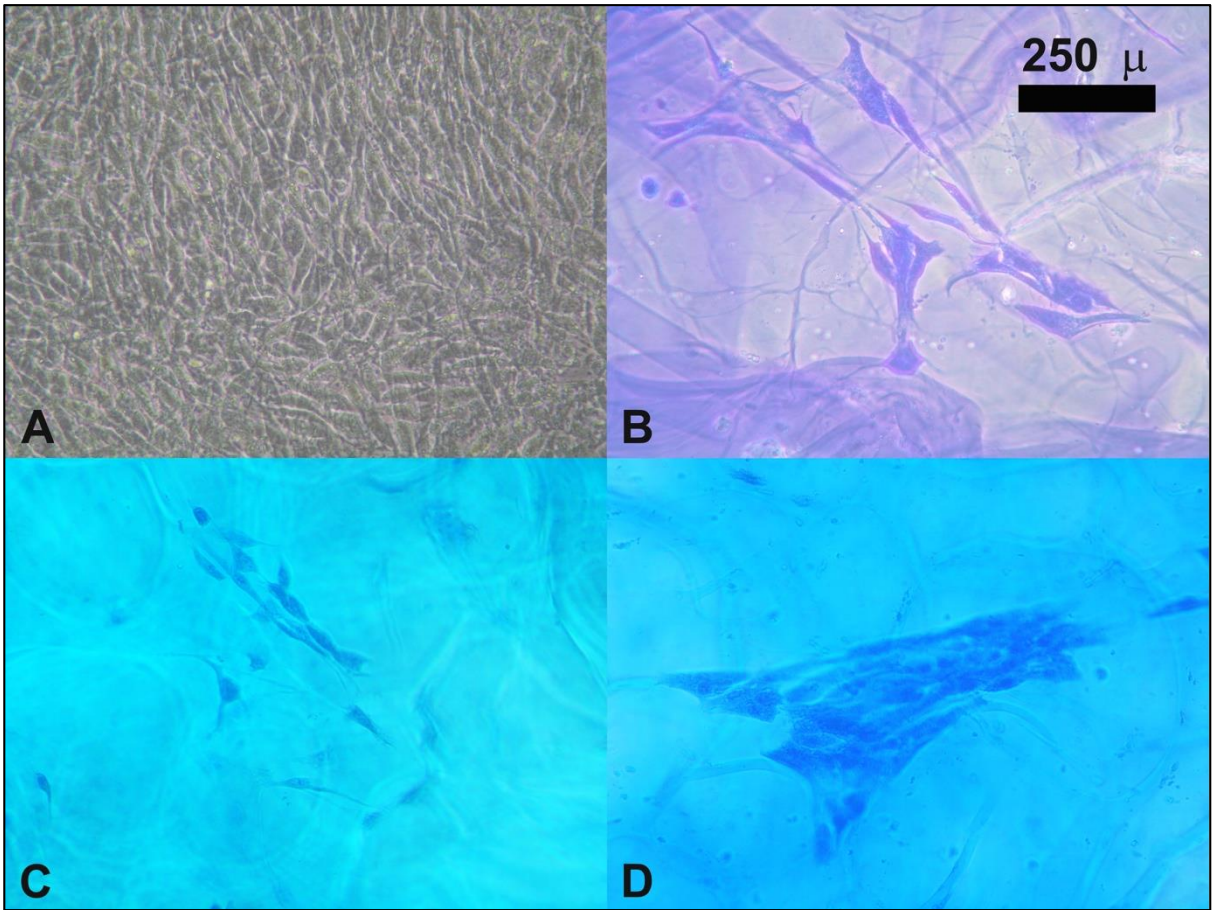

Fig. S2 NIH/3T3 14 days: A control (tissue culture plate), **B** gelatin, **C** gelatin+HA, **D** gelatin+HA+brain

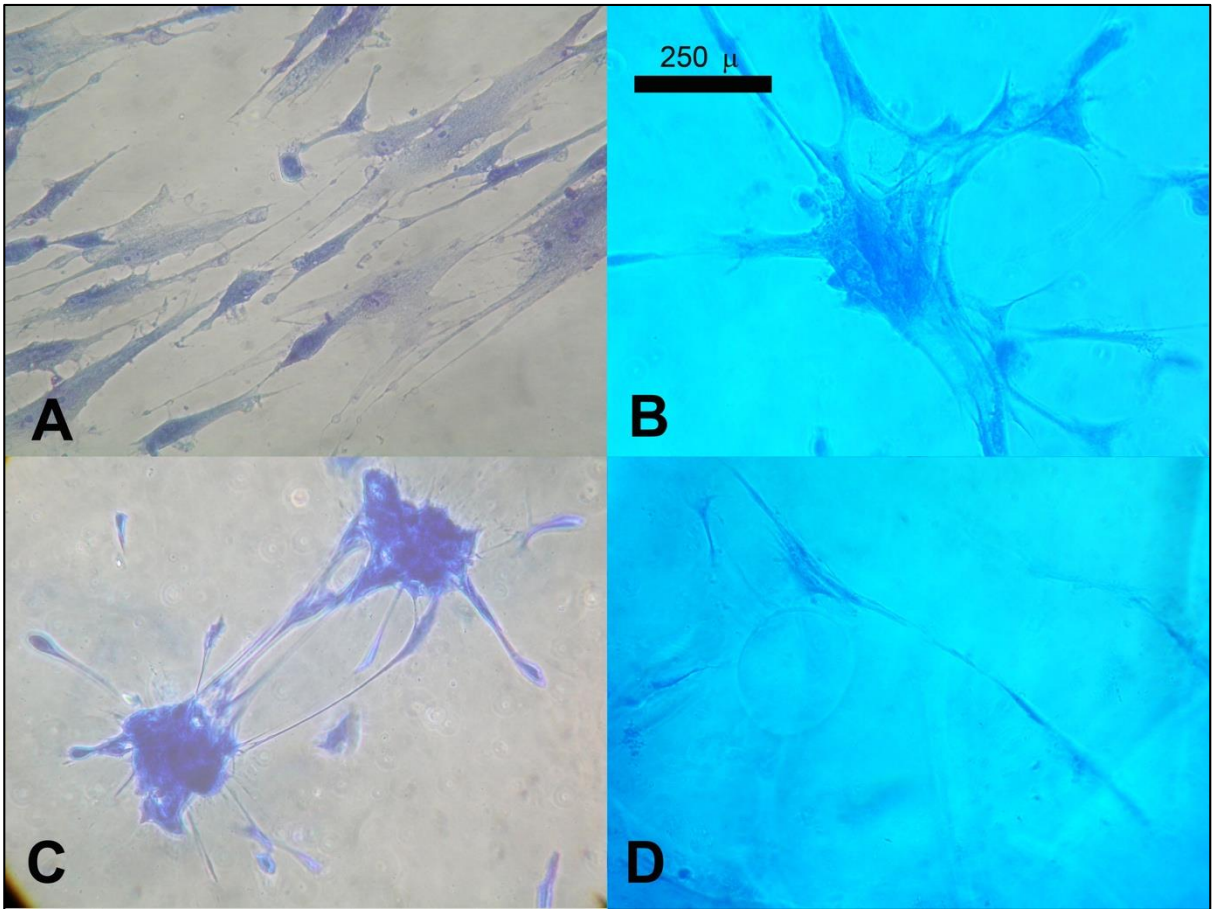

Fig. S3. PDL cells: A control (tissue culture plate), **B** gelatin (7 days), **C** gelatin+HA (7 days), **D** gelatin+HA+brain (2 weeks).

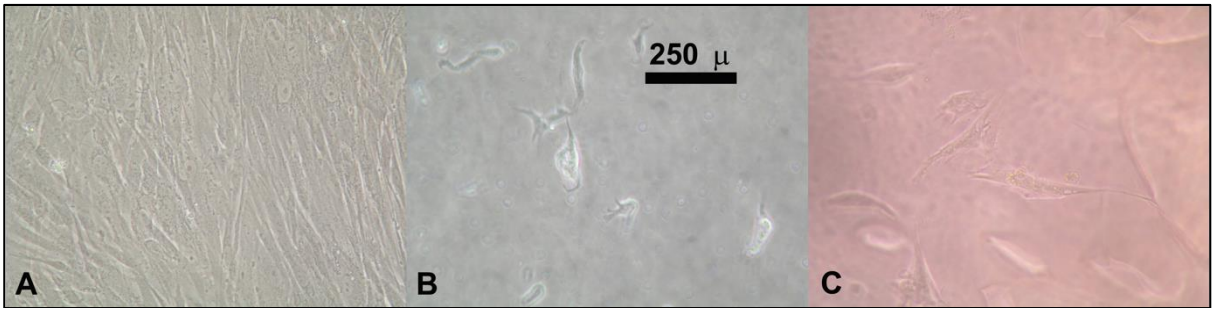

Fig. S4. APCs: A control (tissue culture plate), **B** gelatin (1 day), **C** gelatin (7 days)

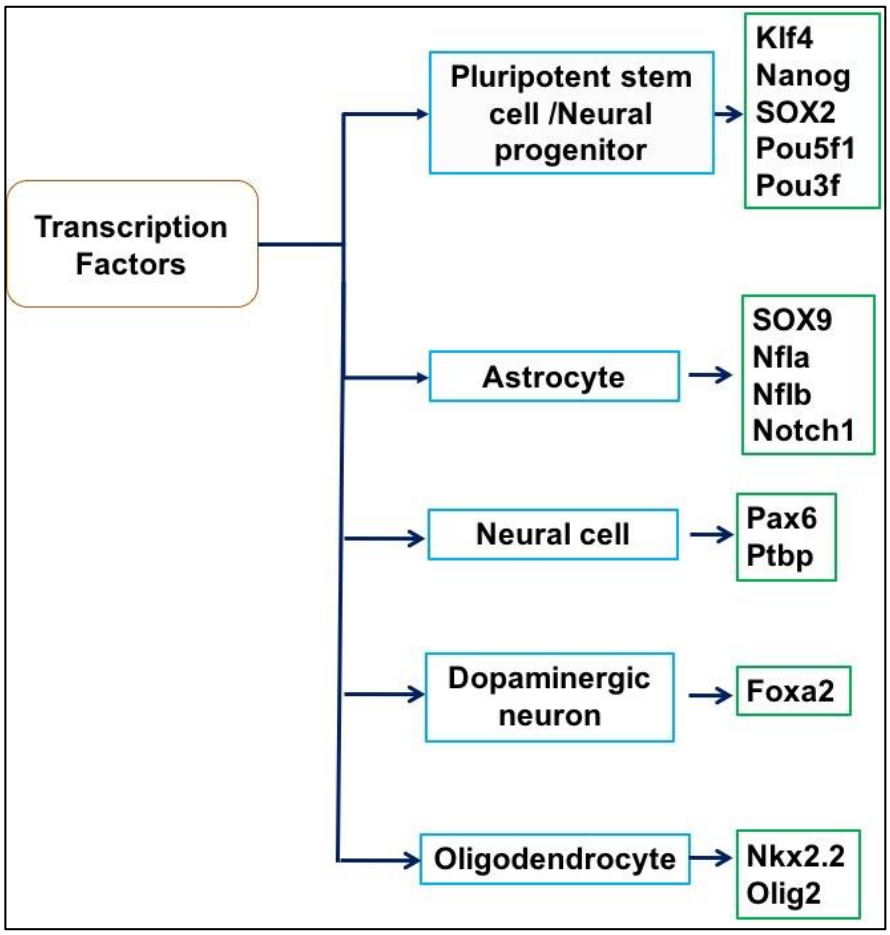

Fig. S5. Diagram showed the important of each transcription factors and lineage specification.