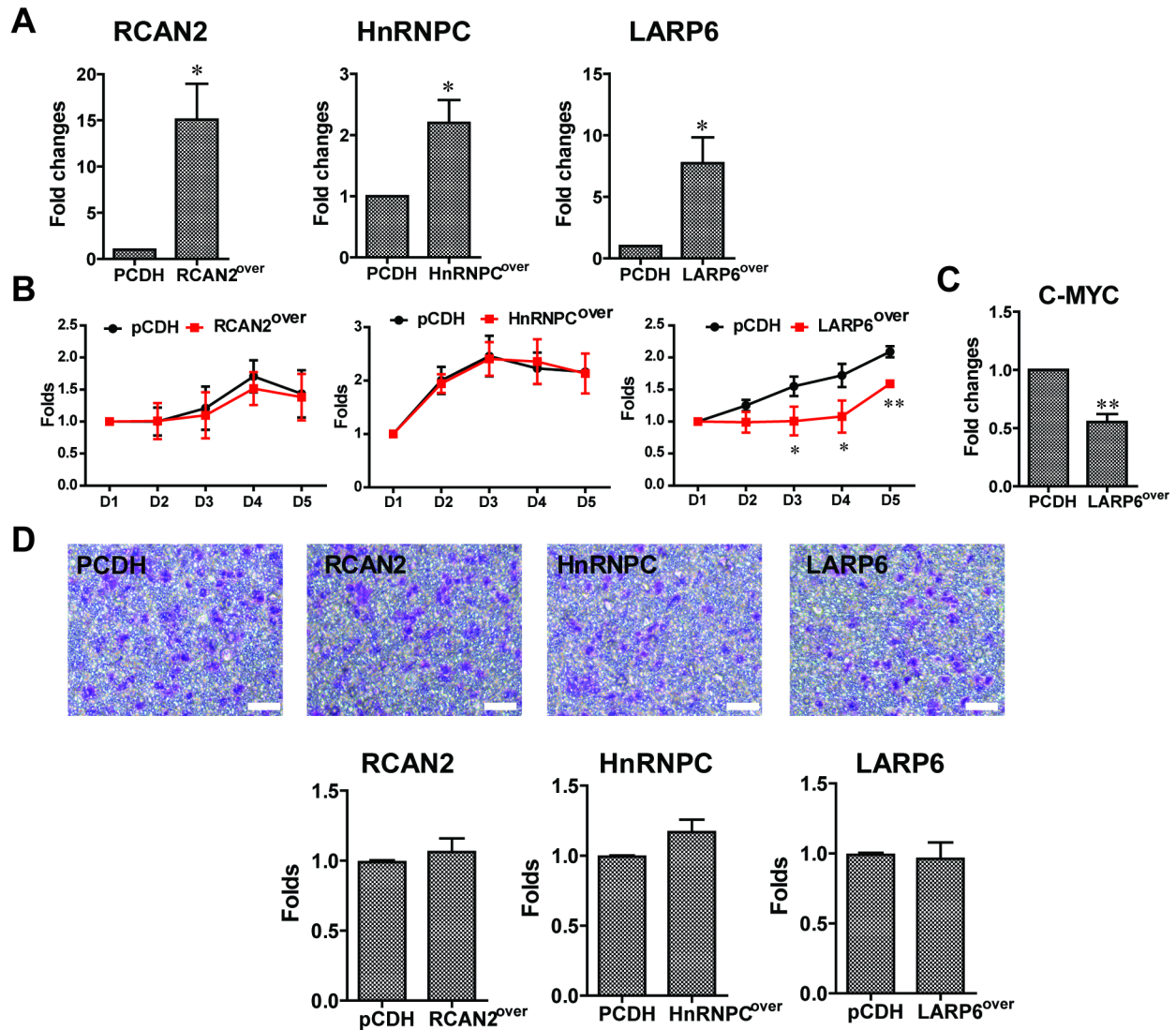


Supplementary Figure 1. Differentiation of H9-NCCs into peripheral neuron and mesenchymal stem cells. (A). Immunofluorescence staining of H9-NCC-differentiated neurons with peripheral neuron markers β -Tubulin III and Peripherin. (B) Morphology of mesenchymal stem cells (MSCs) differentiated from H9-NCC. (C) Alizarin Red staining of H9-NCCs-differentiated MSCs after cultured in osteogenic induction medium for 14 days. (D) Flow cytometry analysis of H9-NCCs-differentiated MSCs for expression of MSCs surfaces markers.



Supplementary Figure 2. Overexpression of LARP6 in H9-NCCs cultured in normal culture condition decreased the viability of H9-NCCs. (A) Real-time PCR verifications of overexpression of HnRNPC, LARP6, and RCAN2, respectively. (B) CCK-8 assay results showed that overexpression of LARP6 decreased the H9-NCC viability. (C) Expression of C-MYC was down-regulated in LARP6-overexpressed H9-NCCs. (D) Transwell showed that overexpression of three RBP genes did not affect the migratory abilities of H9-NCCs. * $P < 0.05$, ** $P < 0.01$. Scale bars, 100 μm .

Supplementary Table S1. Sequences of shRNA used in gene knockdown assays

shRNA sequence to knock down RFC	
Gene Names	Sequences (5'-3')
shRFC1	TTCACATTCTGAACACCGTCG
shRFC2	TATAACTGGAAGTCTGCTTGC GG
shRNAs Sequences to knock down RBPs in NCCs	
Names	Sequences (5'-3')
shRNA-LARP6	1. GCACATGCTTTGAAGTATTCA
	2. GCAAGATGCTCCTGGTCTATG
shRNA-HNRNPC	1. GAGATGTACGGGTCAGTAACA
	2. GGACCTACTGGATGATGATGA
shRNA-RCAN2	1. GGGACTGTTTCGGACTTATGA
	2. GCTCTACTTTGCACAGGTTCA

Supplementary Table S2. Sequences of primers used in real-time PCR analysis

Primers for human ESCs and NCCs markers	
Gene Names	Sequences (5'-3')
OCT4	F: CCCCTGGTGCCGTGAA
	R: GCAAATTGCTCGAGTTCTTTCTG
NANOG	F: ATGCCTCACACGGAGACTGT
	R: AAGTGGGTTGTTTGCCTTTG
SOX2	F: TTGCTGCCTCTTTAAGACTAGGA
	R: CTGGGGCTCAAACCTTCTCTC
HNK1	F: GAAAGCAGCCTCCTTCGAGAAC
	R: CCTCATTACCAGCACTGGCTT
PAX3	F: AGAAGGCCAAACACAGCATC
	R: TTCTGCGCTGTTTCCTCTTT
SOX9	F: CCCCAACAGATCGCCTACAG
	R: TTCTGGTGGTCGGTGTAGTC
SOX10	F: CACCTGCACAACGCTGAG
	R: CTTTCTTGCTGCATACGG
ZIC1	F: GCATCCCAGTTCGCTGCGCAA
	R: GGAGACACGATGGTGGGAGGCG
AP-2 α	F: ATTGACCTACAGTGCCCAGC
	R: ATGCTTTGGAAATTGACGGA
P75	F: GTATTCCGACGAGGCCAACC
	R: GTGTAATCCAACGGCCAGG
Primers for folate transporters	
Names	Sequences (5'-3')
RFC	F: GCTCCTACCAGTTCCTCGTG
	R: GGCAAAGAACGTGTTGACCC
FOLR	F: GACCACAGCTCTTTCTTCAGGGA
	R: TGTTGGTAGAACAGCAGGCAT
PCFT	F: TCACTCTACCCAGCCACTCT
	R: GACCTCCAGTTGCTTGGTGT

Primers for RBPs in mouse embryos	
Gene Names	Sequences (5'-3')
Hnrnmp	F: TTGCTGTTTGATAGACCGAT
	R: TAATCCCATGCCAATACCAC
Hnrnpc	F: ATCCTCGGTCCATGAATTCCC
	R: ATCCTCGCCAGCTACAGCA
Trmt1	F: CTCCTTCATGCTGGTTTCCGAGT
	R: TTCAGACAGCCGCTCCCGTTT
Larp6	F: GCCATTGTGGAGTTCGAGGA
	R: AGGGATCTGCTTAGGTGGGT
Ppil4	F: GATTCAGCCAGTCTGTTGC
	R: CAAATTGGCTGGTTTATCCTGT
Rcan2	F: TACATGCTATTGCGGTTCTGT
	R: TTTCTTGGATTTAGCGTCACC
Primers for RBPs in H9-NCCs	
RCAN2	F: GACTGGGCTGTCACTCGTTG
	R: TAGCTGGAACGTCACACAGTC
HNRNPC	F: AACCGAGGAAAAGCAGGTGT
	R: CTGACGTTTCGAGGGCACTA
LARP6	F: TCAGTGCGGATCCTCAAACC
	R: TTTGATGGCTGCTTCCACCT
HNRNPM	F: GCCCTTTGGTGGTGGTATG
	R: TCCCTGCTTTGCAATGATCT
TRMT1	F: CTCCCACGCCTGTAAGAAC
	R: AACTGAGAATGCGGAACG