

FoIR1: a novel cell surface marker for isolating midbrain dopamine neural progenitors and nascent dopamine neurons

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Running title: Purification of dopamine progenitors by FoIR1

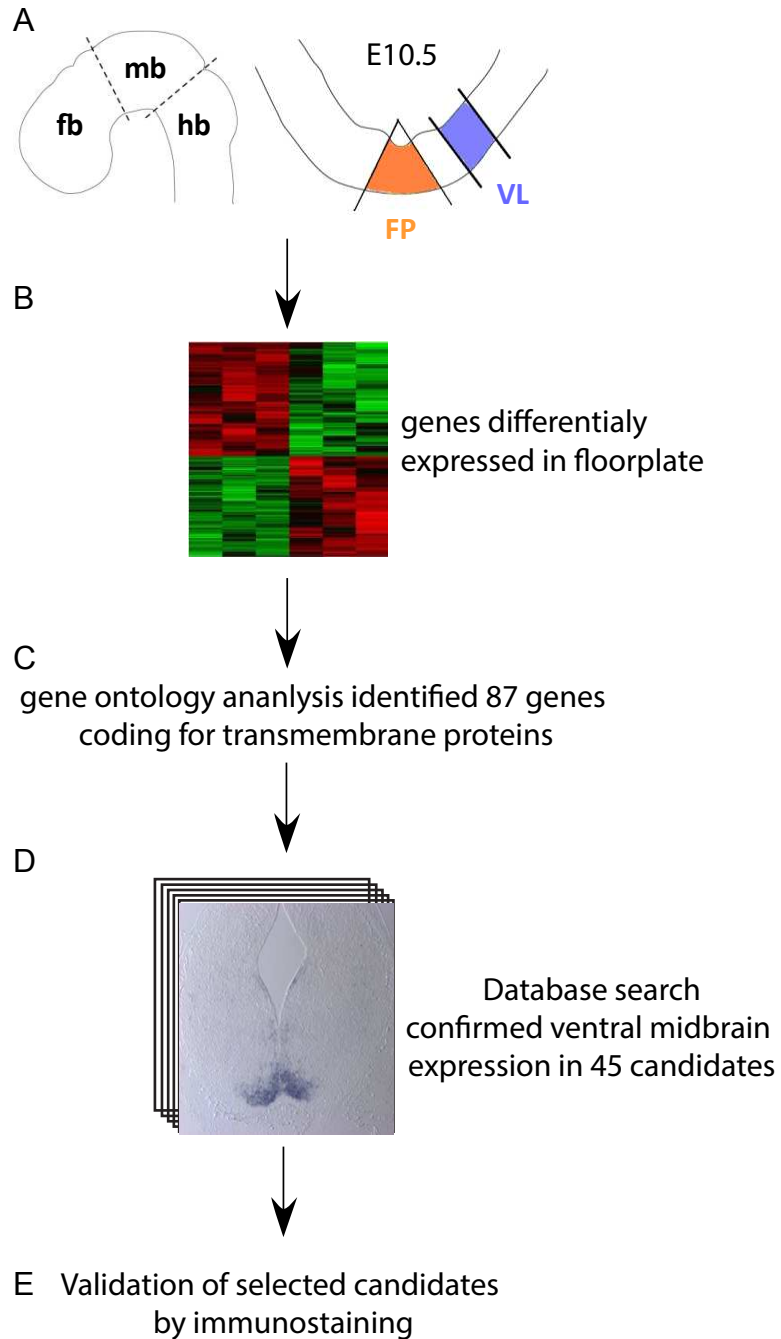
keywords: midbrain dopamine neurons, stem cells, surface marker, enrichment, cell sorting

Supplemental information

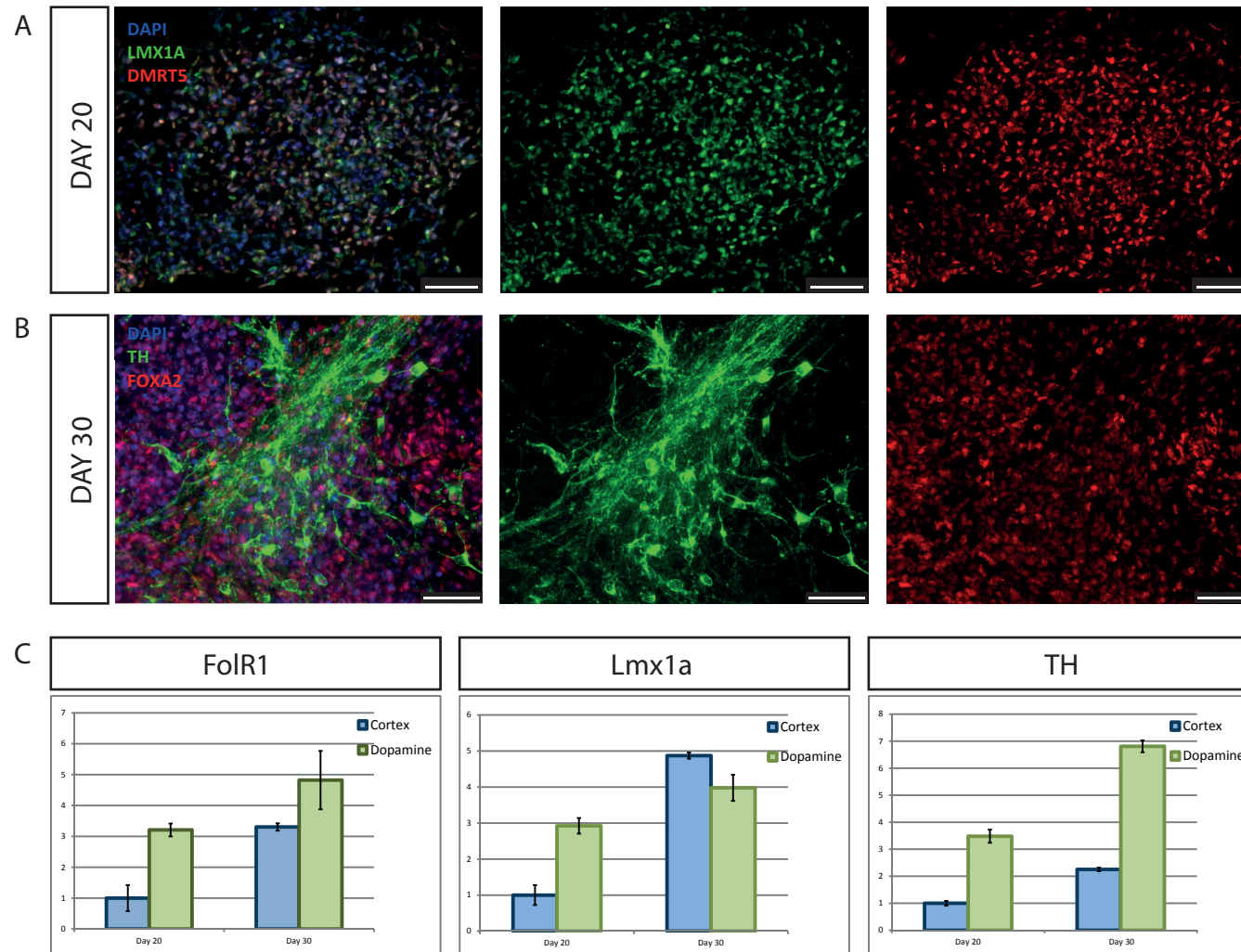
FolR1: a novel cell surface marker for isolating committed midbrain dopamine neural progenitors and nascent dopamine neurons

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FigS1



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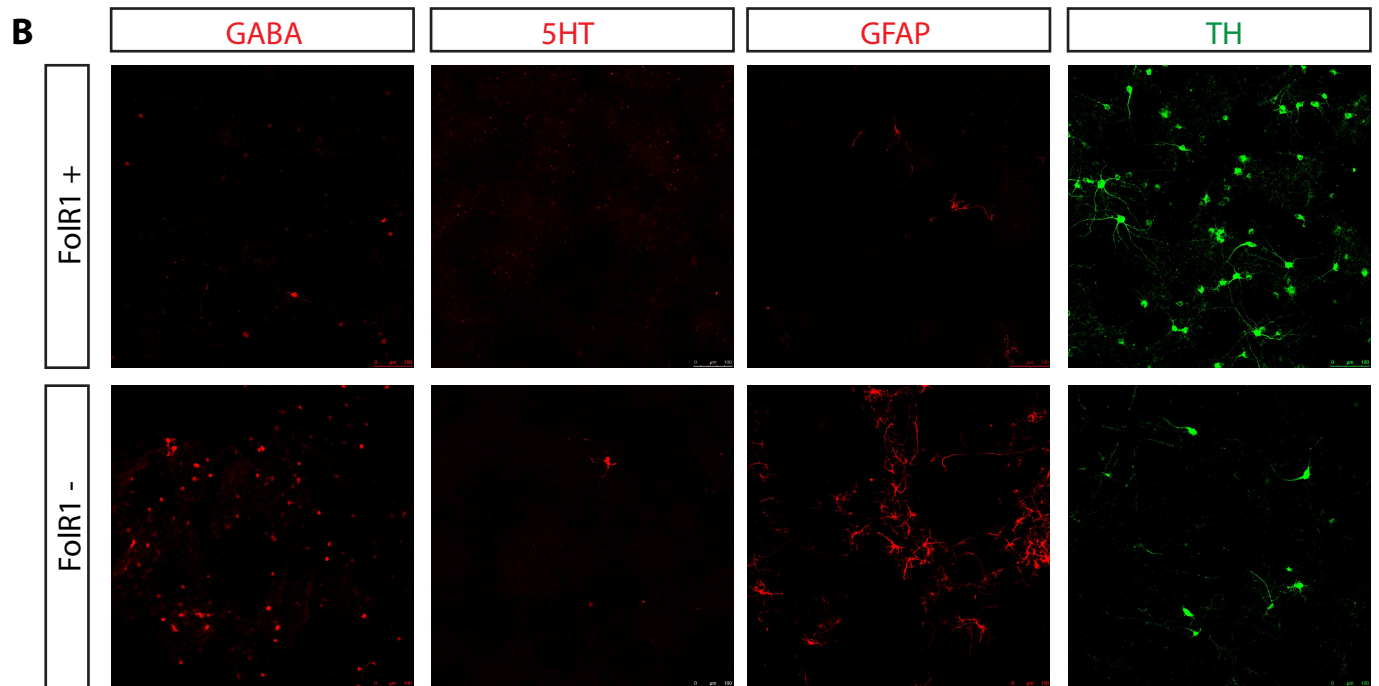
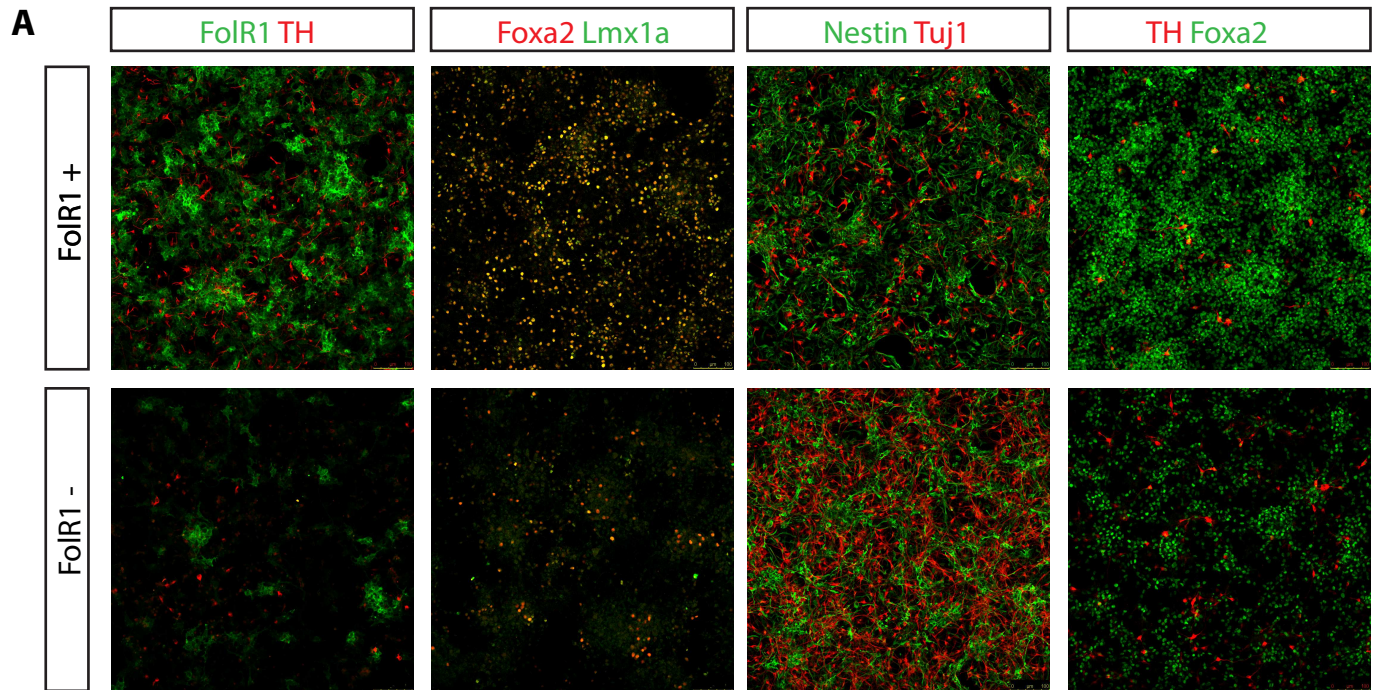


Table S1, Membrane coding genes preferentially expressed in the floor plate of mouse E10.5 midbrain

Probe Set ID	Entrez Gene	Gene Symbol
1419393_at	27409	Abcg5
1425102_a_at	70008	Ace2
1425103_at	70008	Ace2
1450658_at	100048332 /// 23794	Adamts5 /// LOC100048332
1429022_at	11517	Adcyap1r1
1426300_at	11658	Alcam
1448213_at	16952	Anxa1
1419091_a_at	12306	Anxa2
1443823_s_at	98660	Atp1a2
1440397_at	12293	Cacna2d1
1451499_at	320405	Cadps2
1418094_s_at	12351	Car4
1423286_at	12404	Cbln1
1421195_at	12425	Cckar
1423760_at	12505	Cd44
1450288_at	12563	Cdh6
1435190_at	12661	Chl1
1457008_at	108015	Chrn4
1441165_s_at	64085	Clstn2
1429210_at	237759	Col23a1
1424131_at	12835	Col6a3
1419017_at	53419	Corin
1429413_at	70574	Cpm
1453009_at	65969	Cubn
1426990_at	13405	Dmd
1452270_s_at	13599	Ecel1
1417307_at	13617	Ednra
1448665_at	13649	Egfr
1422586_at	140580	Elmo1
1433525_at	18606	Enpp2
1424932_at	18606	F2r1
1446610_at	14063	Fcgrt
1415894_at	14132	Folr1
1448136_at	14275	Folr2
1448931_at	14276	Ghr
1416978_at	14600	Gpr120
1450995_at	14600	Gpr37
1451648_a_at	107221	Gprc5c
1417962_s_at	14763	Hcrtr1 /// LOC100046129 /// LOC100048817
1460675_at	140559	Igsf8

1451501_a_at	70355	Il1rap
1450875_at	16180	Irs1
1452947_at	16180	Itga3
1421844_at	16367	Itgb5
1421997_s_at	16419	Kcnj10
1455158_at	16419	Kcnq5
1417534_at	16513	Kctd4
1457587_at	17311	Kitl
1420537_at	17311	Lama2
1441801_at	17311	Lifr
1426152_a_at	16880	LOC100047693 /// Pvr13
1426285_at	100047693 /// 58998	Lpl
1454984_at	100047693 /// 58998	Lsr
1421132_at	16956	Myo16
1421133_at	16956	Ncam2
1423331_a_at	54135	Negr1
1415904_at	244281	Notch2
1451255_at	320840	Nrcam
1445532_at	18129	Nrp1
1455556_at	18186	Nrp2
1434709_at	18186	Odz3
1418084_at	18187	P2rx6
1448943_at	18187	Pcdh8
1448944_at	23965	Pdk1
1429178_at	228026	Pkp2
1456925_at	228026	Plxdc2
1435836_at	67448	Pvr13
1449799_s_at	67448	Pygl
1418912_at	58998	Rab15
1449270_at	110095	Ralgps2
1448673_at	78255	Rgnef
1417230_at	110596	Scn11a
1428789_at	110596	Sgms1
1419457_at	24046	Sirpa
1419458_at	208449	Slc1a3
1420784_at	19261	Slc24a3
1436499_at	20512	Slc4a4
1436869_at	20512	Slc6a15
1416985_at	94249	Steap2
1424308_at	74051	Sv2b
1426712_at	74051	Synpo
1428636_at	64176	Syt12
1444290_at	104027	Thbd
1434800_at	171180	Tm4sf1

1435687_at	21809	Tmem47
1422878_at	17112	Vldlr

Table S2. PCR primers sequence

GENE	FORWARD	REVERSE
GAPDH	5-atgacatcaagaaggtggtg'-3'	5'-cataccaggaaatgagcttg-3'
FoIR1	5- gaggctcagacaaggattgc-3'	5'-gtgggtgtggggaagtagaa-3'
Lmx1a	5'-gagaccacctgcttctaccg-3'	5'-gcccgcataacaaactcatt-3'
TH	5'-gagtacaccgccgaggagattg-3'	5-gcggatatactgggtgcactgg-3'

Legends for supplemental figures and table.

Fig S1 Gene expression profiling for ventral midbrain surface markers

A, Isolation of floor plate and ventrolateral tissue from E10.5 mouse midbrain; B, RNA microarray analysis for identifying genes preferentially expressed in the floorplate; C, identify genes coding for plasma membrane protein according to gene ontology database, D, Image database search to validate midbrain expression; E, Selection of the genes with best expression patterns and commercially available antibodies for immunohistochemical validation on E10.5 mouse midbrain sections.

Fig S2 Expression of FoIR1 in hESC-derived mesDA cells

A, Day 20 culture double stained for mesDA neural progenitor marker LMX1A and DMRT5; B, day 30 culture stained for TH and FOXA2; C, RT-PCR analysis of day 20 and day 30 hESC differentiation cultures following mesDA and cortical differentiation protocols, respectively.

Fig S3 Immunostaining of FoIR1+ and FoIR1- cells after magnetic sorting

Day 13 cultures were processed for MACs using 1/200 antibody dilution and were cultured for a further 1 and 7 days, respectively. A, 1 day post-sort cultures stained for midbrain markers; B, 7 day post-sort cultures immunostained for markers for Astrocytes (GFAP) and markers for other neuronal neurotransmitter type (GABA, 5HT and TH).

Table S1: Membrane proteins preferentially expressed in E10.5 floor plate

Gene ontology analysis generated a list of membrane coding genes preferentially expressed in the floor plate of E10.5 mouse midbrain brains. Raw data obtained by microarray using the Affymetrix.GeneChip.Mouse430-2. The genes which midbrain expression is confirmed by image data search are labelled in bold.