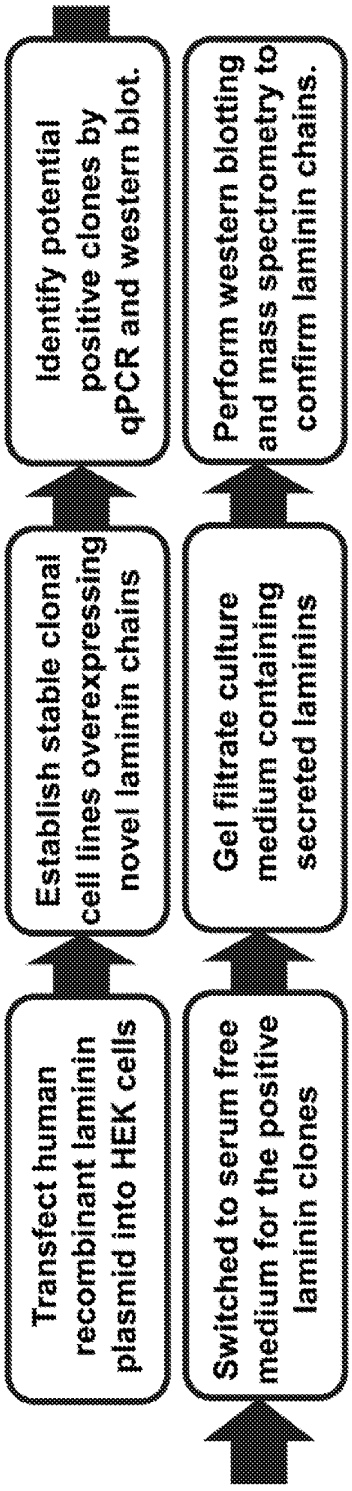

Transfect human recombinant laminin plasmid into HEK cells
Switched to serum free medium for the positive laminin clones
Establish stable clonal cell lines overexpressing novel laminin chains
Gel filtrate culture medium containing secreted laminins
Identify potential positive clones by qPCR and western blot.
Perform western blotting and mass spectrometry to confirm laminin chains.

FIG. 1A

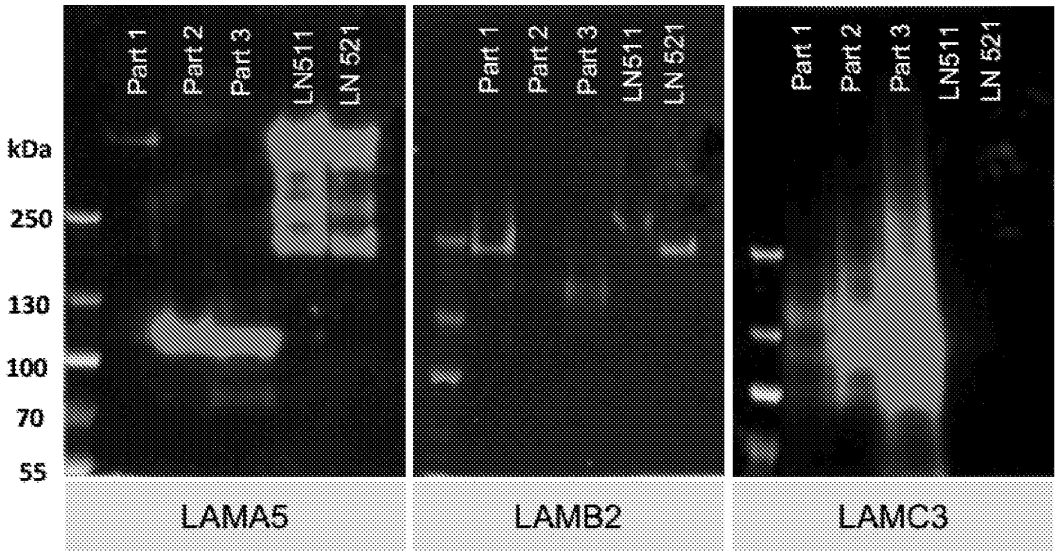

Part 1
Part 2
Part 3
LN511
LN 521
kDa
250
130
100
70
55
LAMA5
LAMB2
LAMC3

FIG. 1B

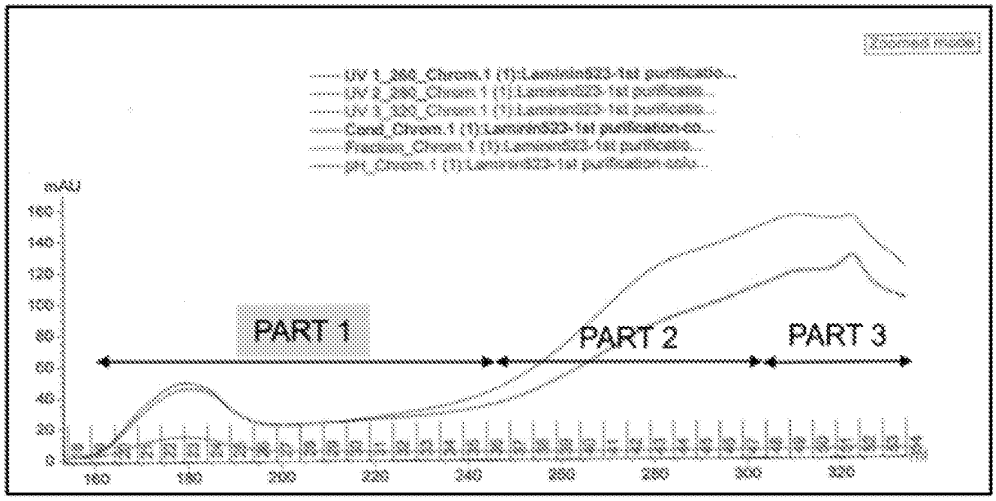

mAU
PART 1
PART 2
PART 3

FIG. 1C

LC-MS/MS results of LN523 clone 1

Accession	Description	Score	Coverage	# Proteins	# Unique Peptides	# Peptides	# PSMs	Area	# AAs	MW [kDa]	calc. pI
O15230	Laminin subunit alpha-5 OS=Homo sapiens GN=LAMA5 PE=1 SV=8 - [LAMA5_HUMAN]	663.89	6.25%	1	18	18	20	7.94E+07	3695	399.5	7.02
P55268	Laminin subunit beta-2 OS=Homo sapiens GN=LAMB2 PE=1 SV=2 - [LAMB2_HUMAN]	1352.19	33.26%	1	36	36	47	2.57E+08	1798	195.9	6.52
Q9Y6N6	Laminin subunit gamma-3 OS=Homo sapiens GN=LAMC3 PE=1 SV=3 - [LAMC3_HUMAN]	27.82	2.22%	1	1	2	2	2.39E+07	1575	171.1	6.58

FIG. 1D

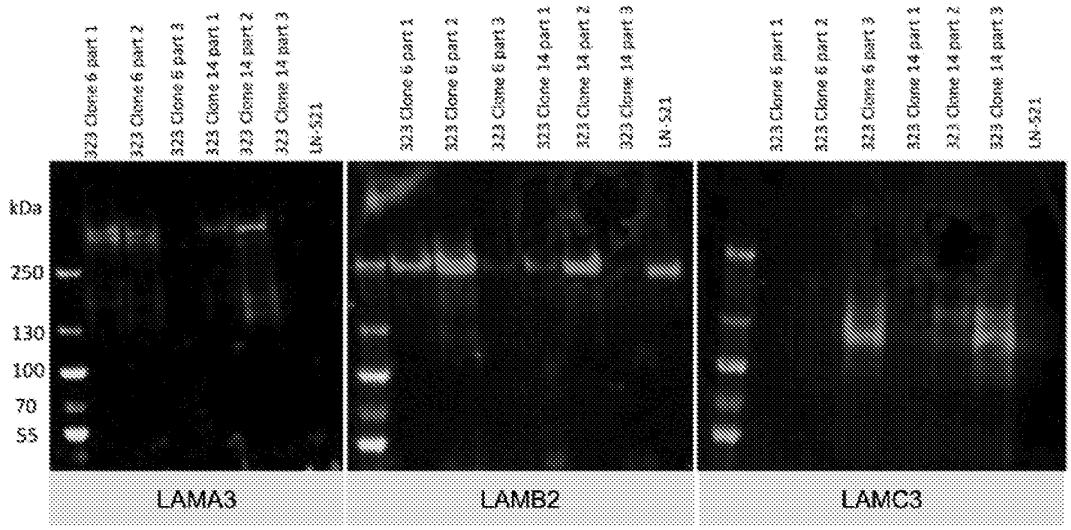

323 Clone 6 part 1
323 Clone 6 part 2
323 Clone 6 part 3
323 Clone 14 part 1
323 Clone 14 part 2
323 Clone 14 part 3
LN-521
kDa
250
130
100
70
55
LAMA3
LAMB2
LAMC3

FIG. 1E

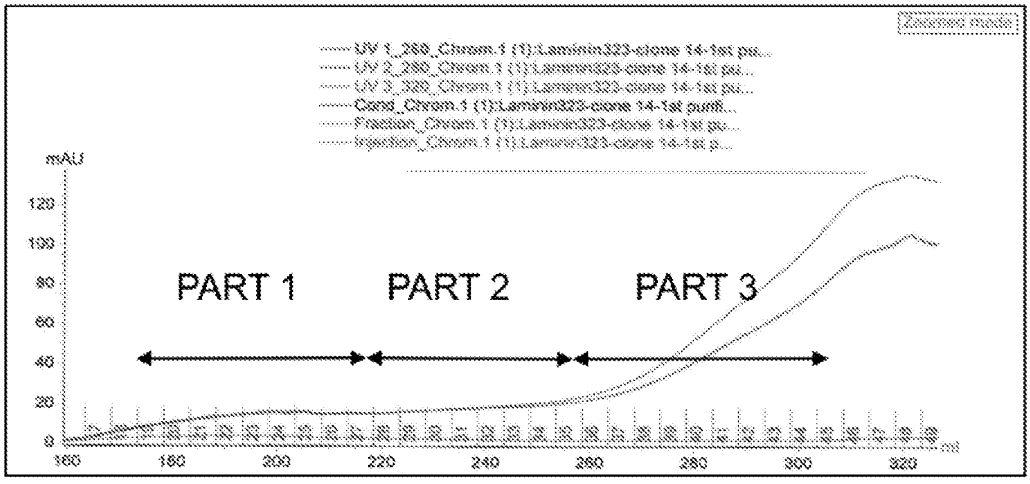

mAU
PART 1
PART 2
PART 3
ml

FIG. 1F

LC-MS/MS results of LN323 clone 14

ccession	Description	Score	Coverage	# Proteins	# Unique Peptides	# Peptides	# PSMs	Area	# AAs	MW [kDa]	calc. pI
Q16787	Laminin subunit alpha-3 OS=Homo sapiens GN=LAMA3 PE=1 SV=2 - [LAMA3_HUMAN]	794.34	16.77%	1	39	39	43	3.58E+08	3333	366.4	7.24
P55268	Laminin subunit beta-2 OS=Homo sapiens GN=LAMB2 PE=1 SV=2 - [LAMB2_HUMAN]	1238.86	38.21%	2	50	50	67	1.74E+09	1798	195.9	6.52
Q9Y6N6	Laminin subunit gamma-3 OS=Homo sapiens GN=LAMC3 PE=1 SV=3 - [LAMC3_HUMAN]	90.27	5.33%	1	4	6	7	1.73E+08	1575	171.1	6.58

FIG. 1G

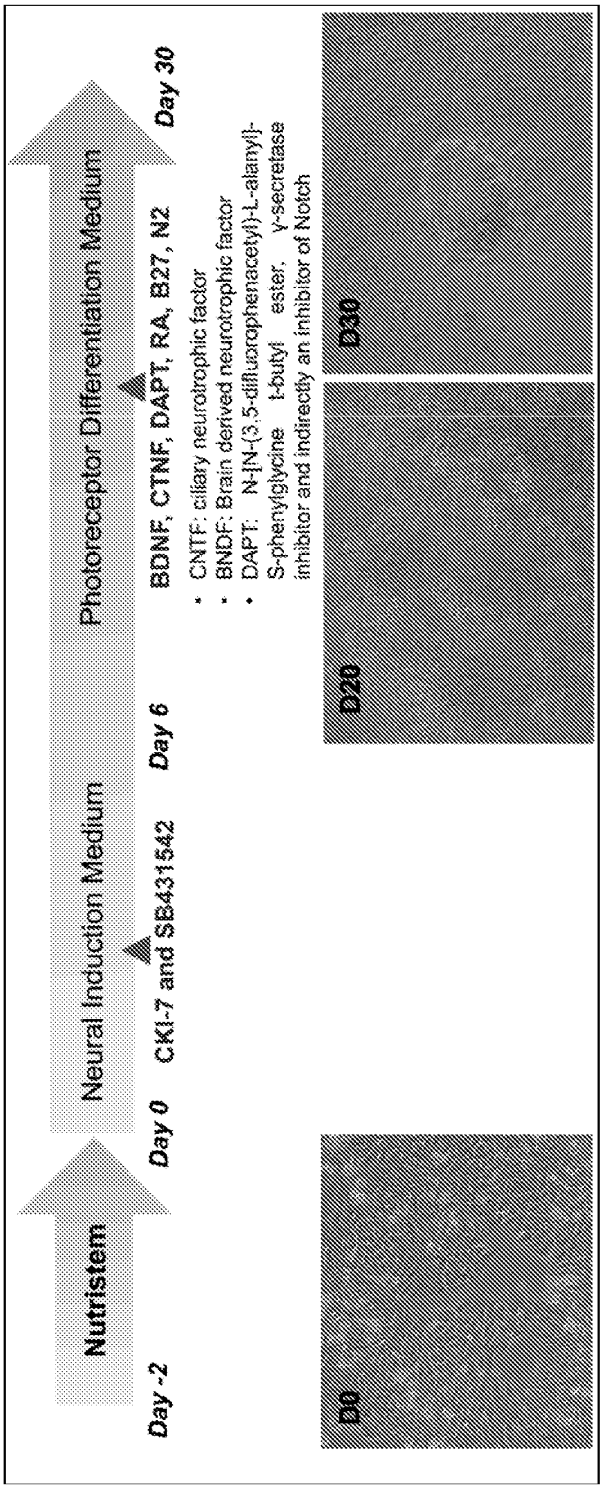
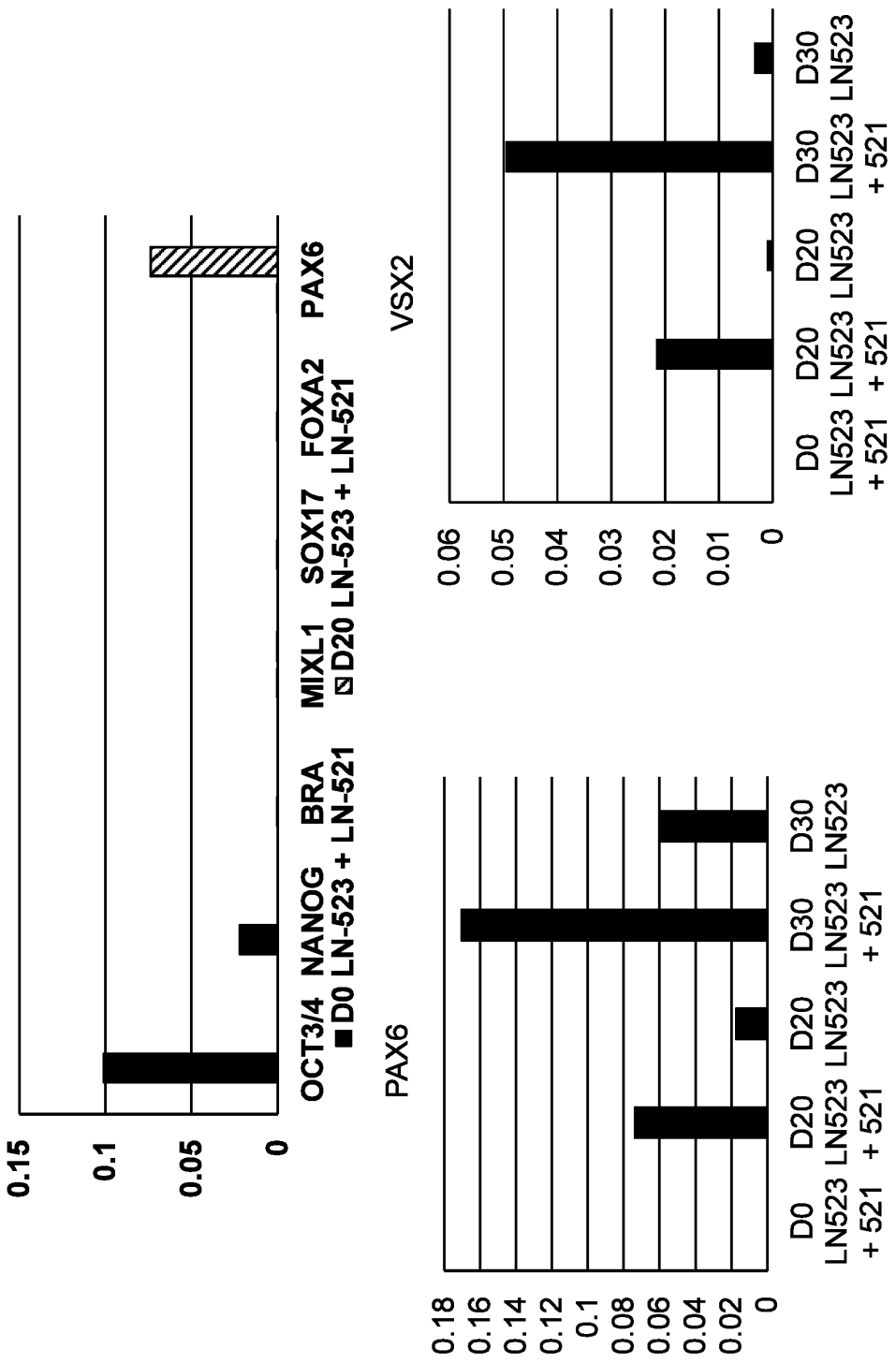
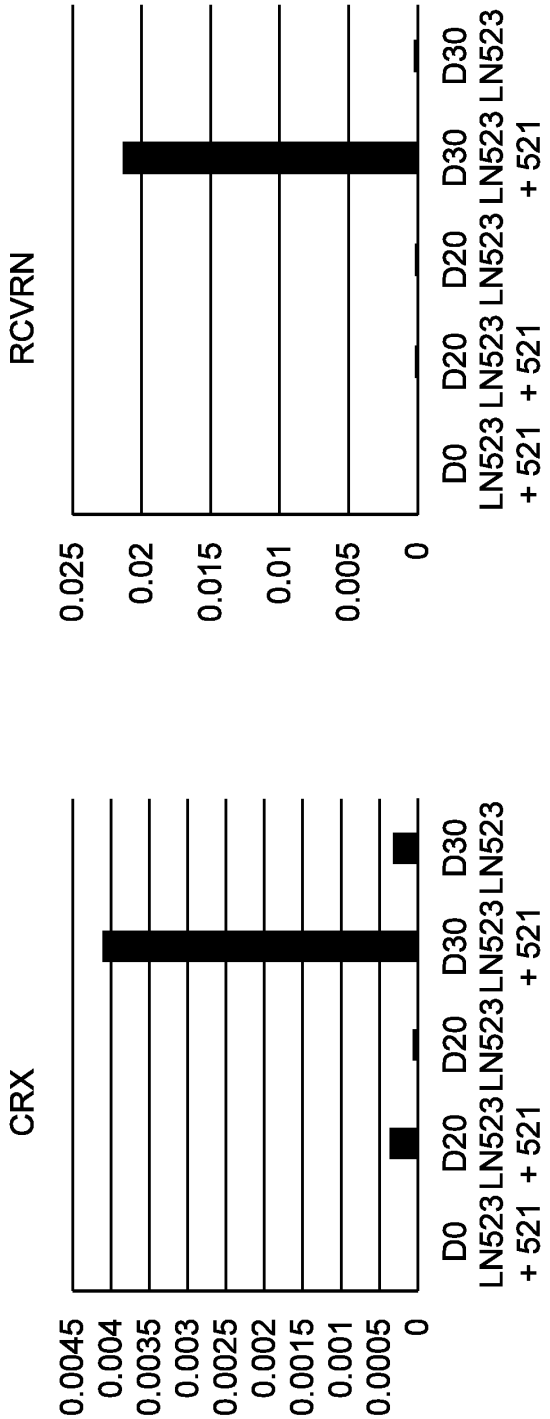

Nutristem
Day -2
Day 0
Neural Induction Medium
CKI-7 and SB431542
Day 6
Photoreceptor Differentiation Medium
BDNF, CTNF, DAPT, RA, B27, N2
Day 30
CNTF: ciliary neurotrophic factor
BNDF: Brain derived neurotrophic factor
DAPT: N-[N-(3,5-difluorophenacetyl)-L-alanyl]-S-phenylglycine t-butyl ester, γ-secretase inhibitor and indirectly an inhibitor of Notch
D0
D20
D30

FIG. 2A

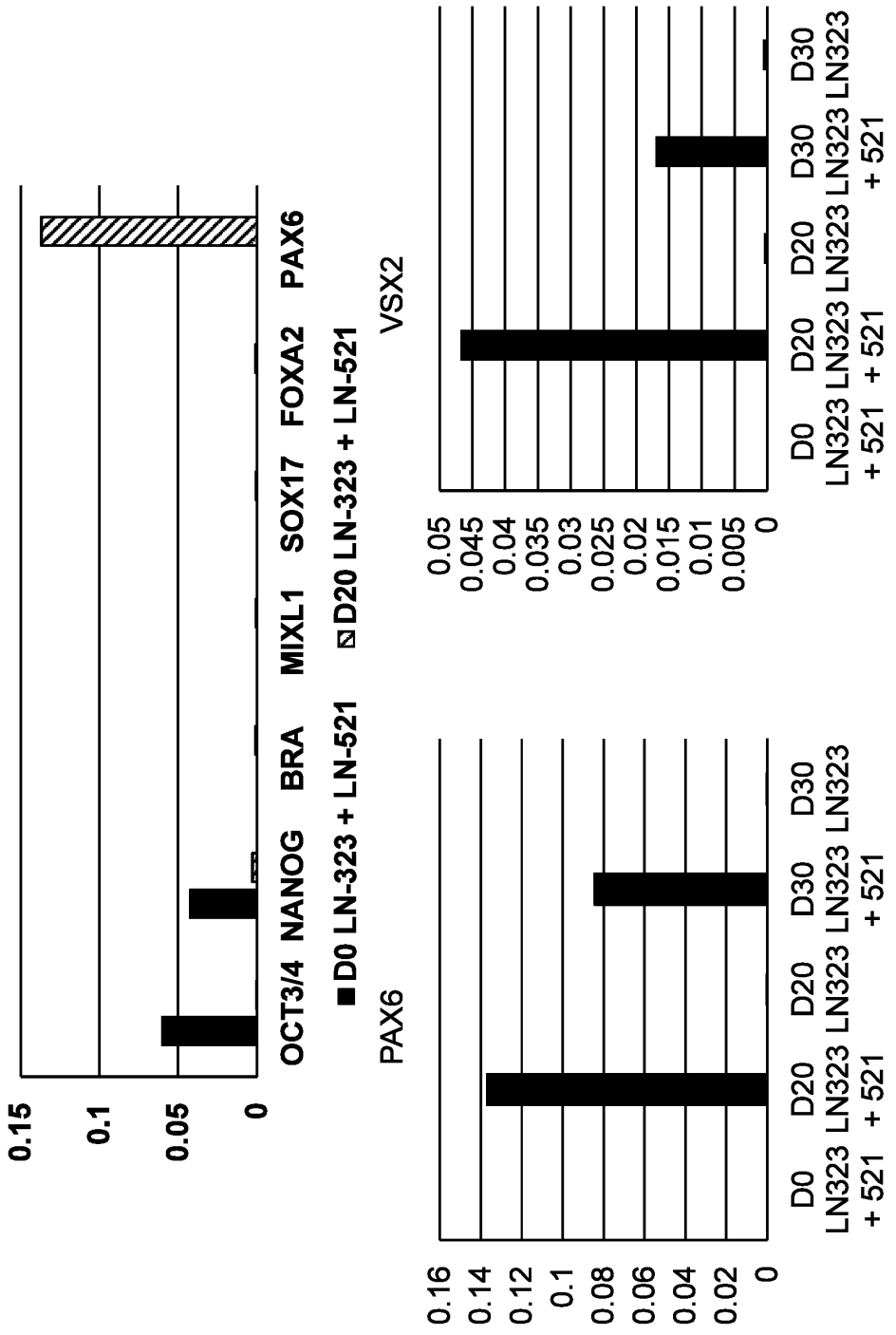


LN-523 + LN-521

FIG. 2B

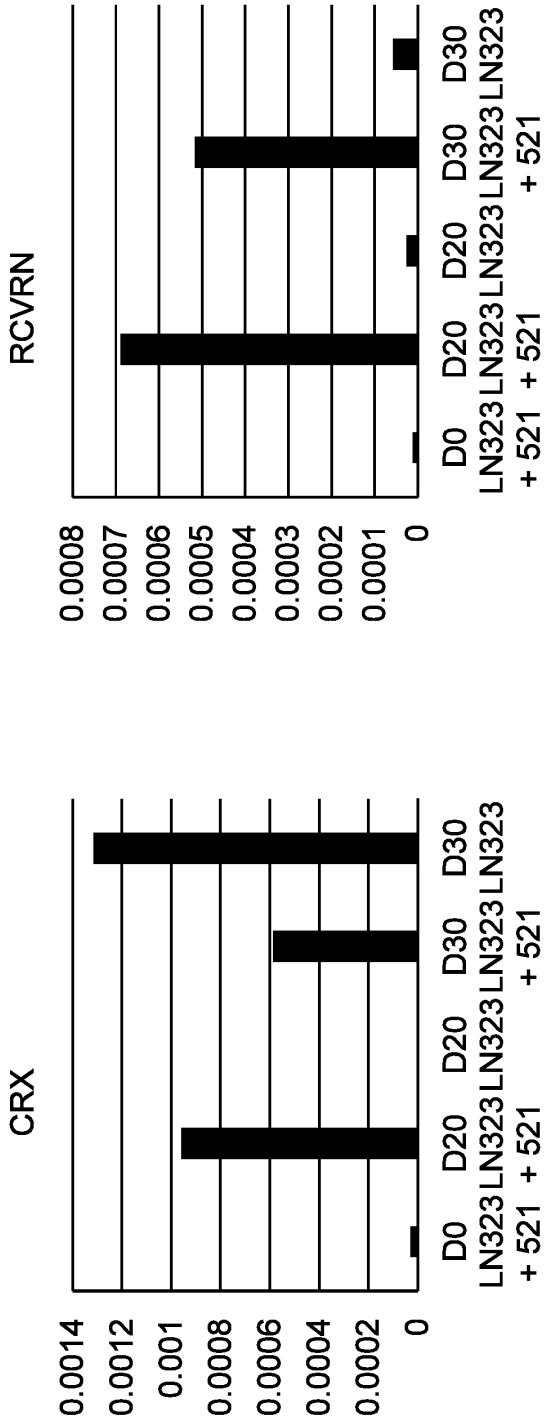


LN-523 + LN-521
FIG. 2C

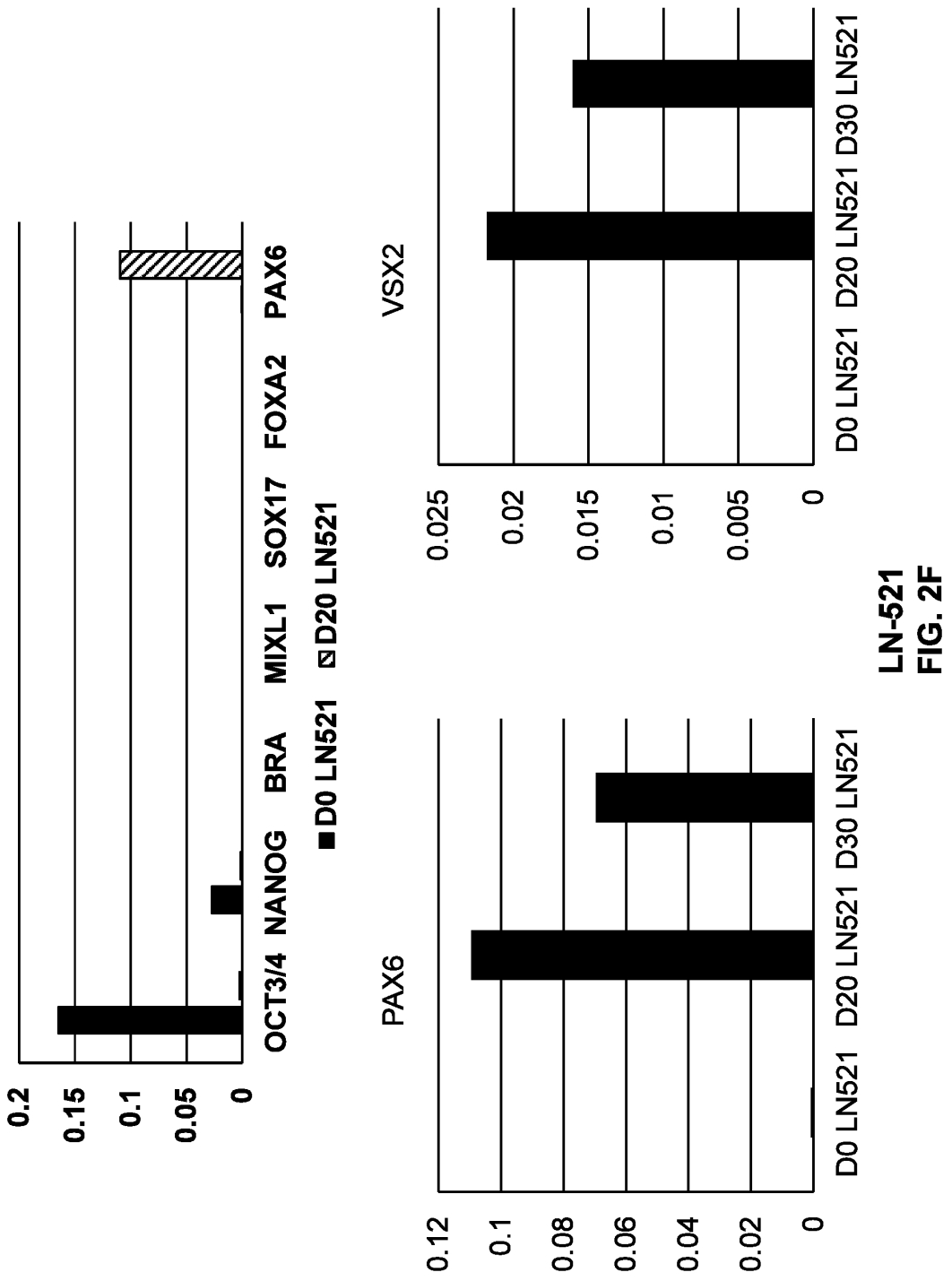


LN-323 + LN-521

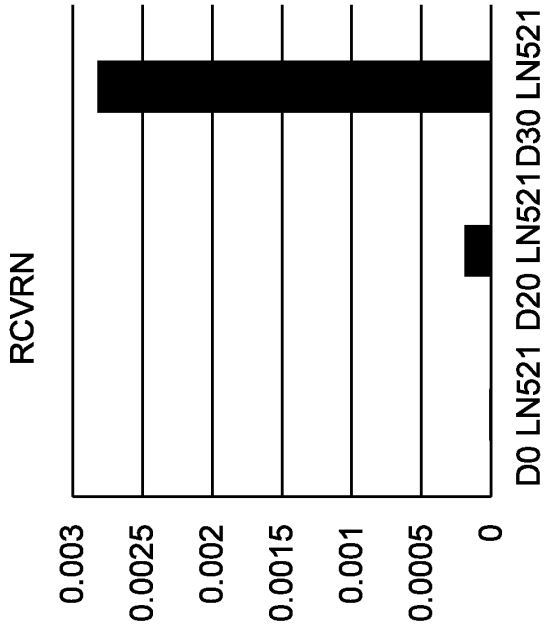
FIG. 2D

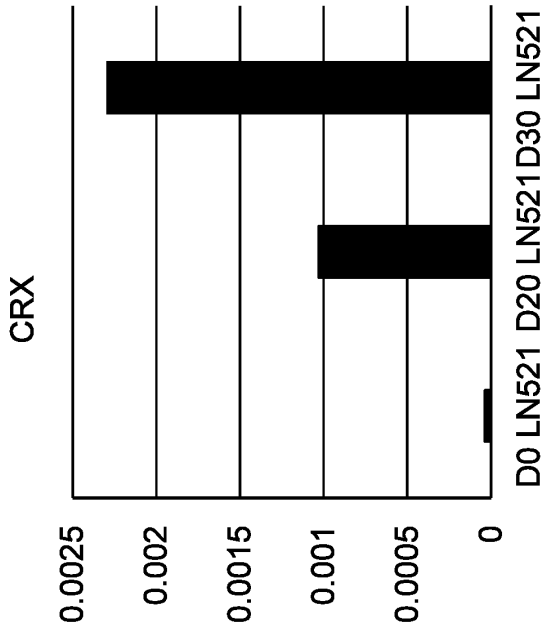


LN-323 + LN-521
FIG. 2E

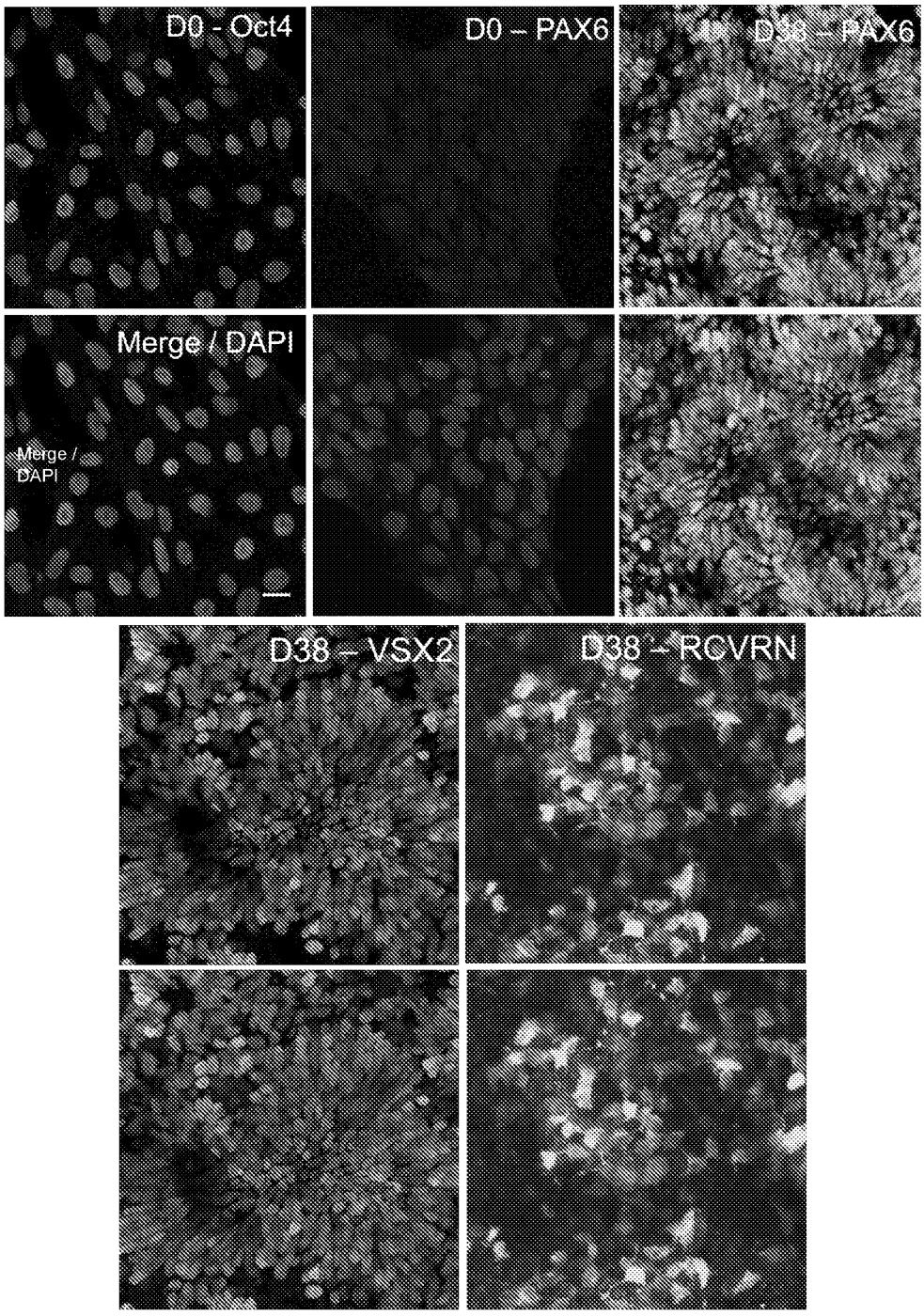

0.2
0.15
0.1
0.05
0
OCT3/4 NANOG BRA MIXL1 SOX17 FOXA2 PAX6
D0 LN521 D20 LN521
PAX6
0.12
0.1
0.08
0.06
0.04
0.02
0
D0 LN521 D20 LN521 D30 LN521
VSX2
0.025
0.02
0.015
0.01
0.005
0
D0 LN521 D20 LN521 D30 LN521

LN-521
FIG. 2F

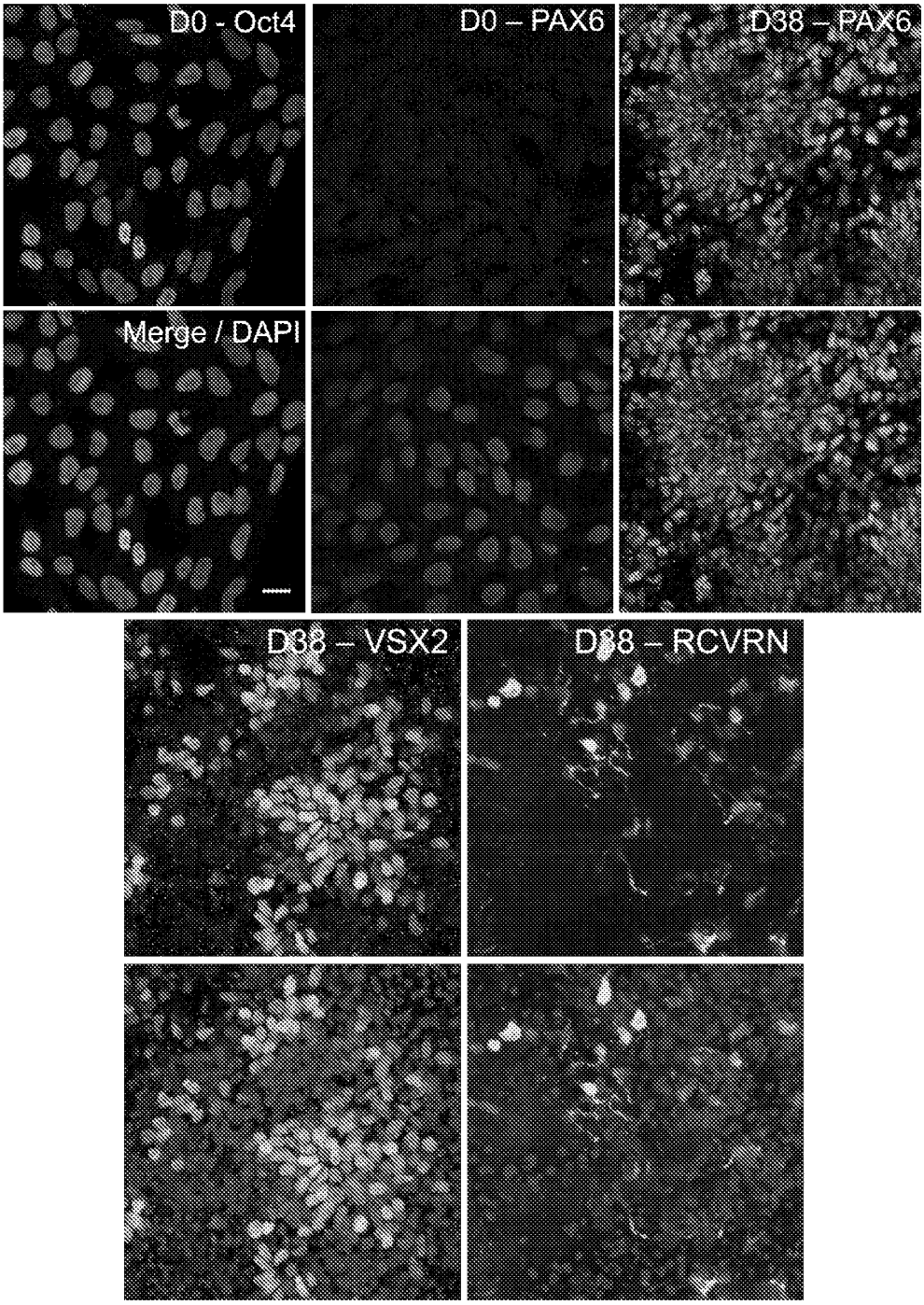

RCVRN
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
D0 LN521 D20 LN521 D30 LN521


CRX
0.0025
0.002
0.0015
0.001
0.0005
0
D0 LN521 D20 LN521 D30 LN521

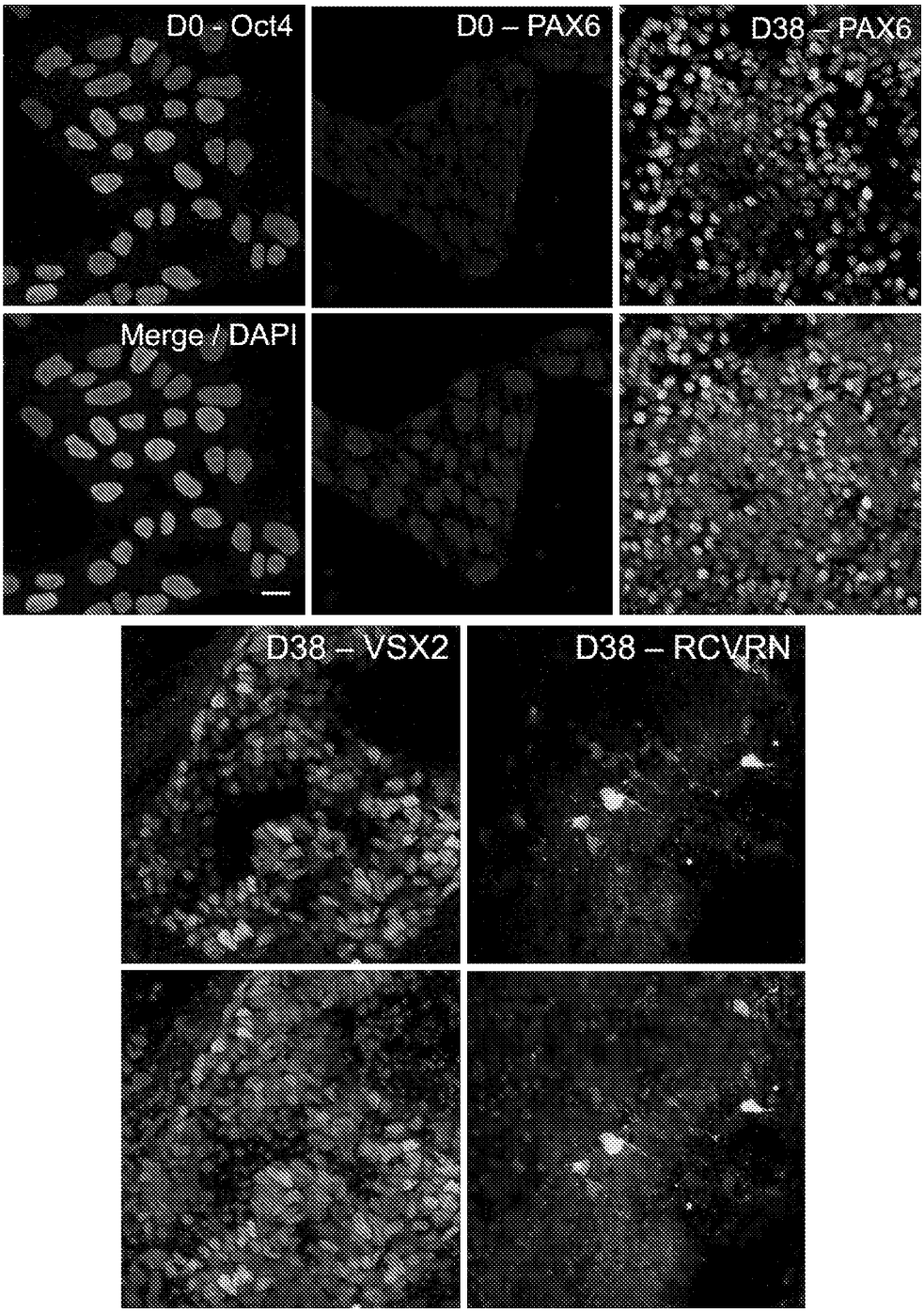
LN-521
FIG. 2G



LN-523 + LN-521 FIG. 3A



LN-323 + LN-521 FIG. 3B



LN-521 FIG. 3C

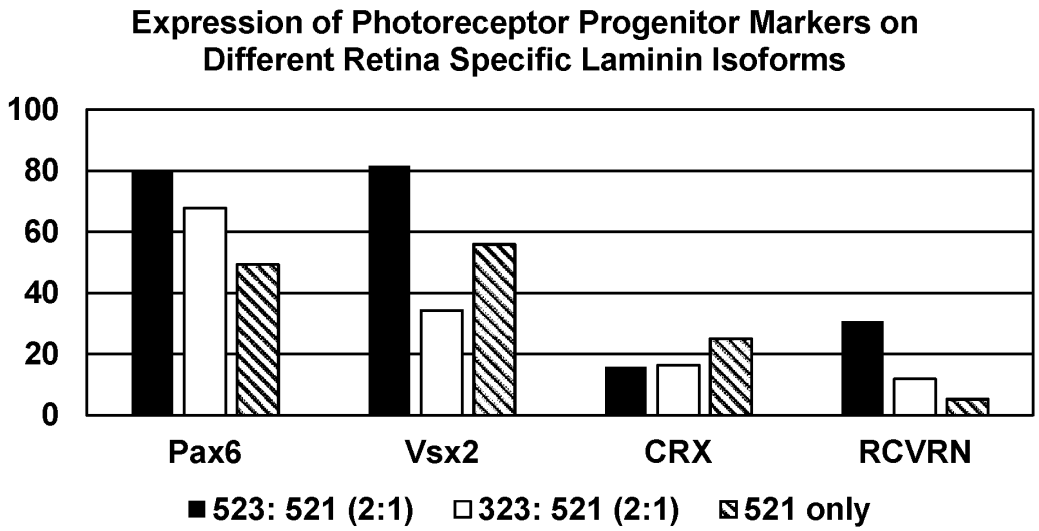

Expression of Photoreceptor Progenitor Markers on Different Retina Specific Laminin Isoforms
100
80
60
40
20
0
Pax6
Vsx2
CRX
RCVRN
523: 521 (2:1)
323: 521 (2:1)
521 only

FIG. 3D

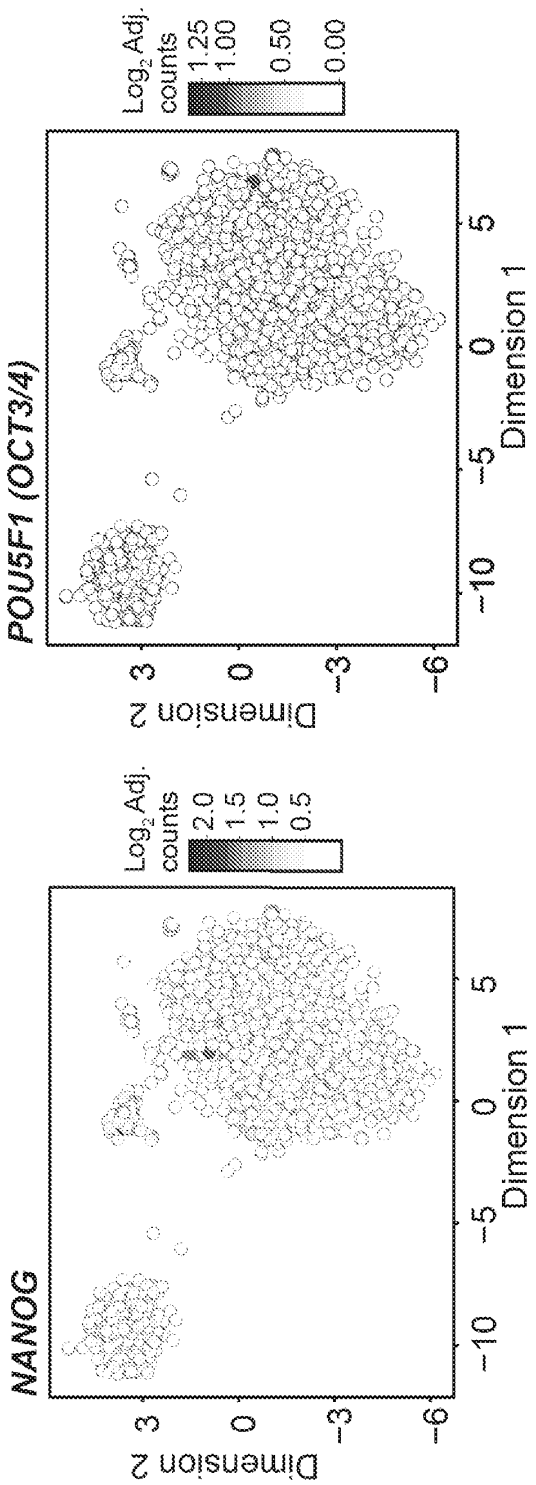

NANOG
Log2 Adj. counts
2.0
1.5
1.0
0.5
Dimension 2
3
0
−3
−6
Dimension 1
−10
−5
0
5

FIG. 4A

POU5F1 (OCT3/4)
Log2 Adj. counts
1.25
1.00
0.50
0.00
Dimension 2
3
0
−3
−6
Dimension 1
−10
−5
0
5

FIG. 4B

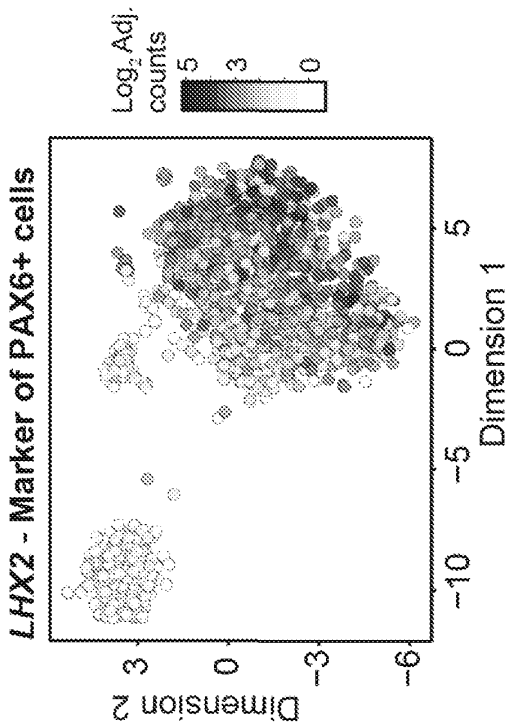

LHX2 - Marker of PAX6+ cells
Log2 Adj. counts
5
3
0
Dimension 2
3
0
−3
−6
−10
−5
0
5
Dimension 1

FIG. 4D

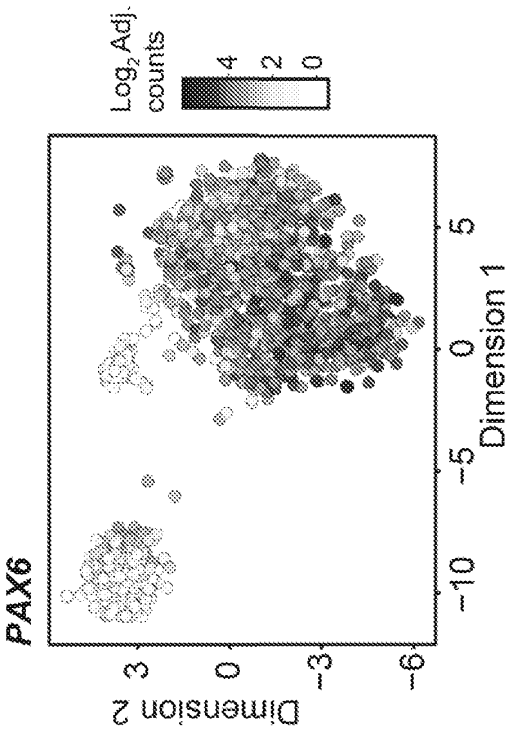

PAX6
Log2 Adj. counts
4
2
0
Dimension 2
3
0
−3
−6
−10
−5
0
5
Dimension 1

FIG. 4C

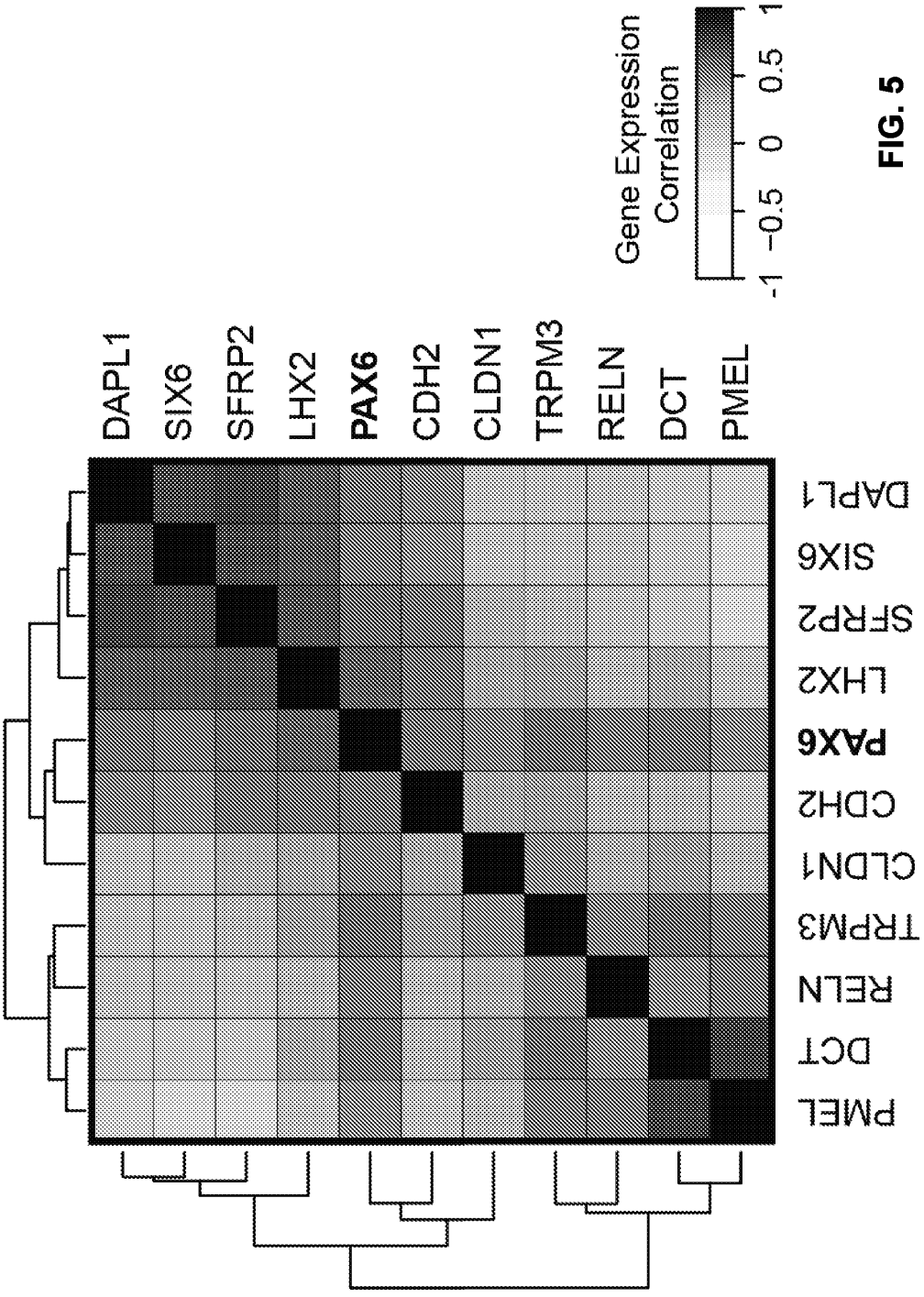

Gene Expression Correlation
1
0.5
0
−0.5
−1
DAPL1
SIX6
SFRP2
LHX2
PAX6
CDH2
CLDN1
TRPM3
RELN
DCT
PMEL

FIG. 5

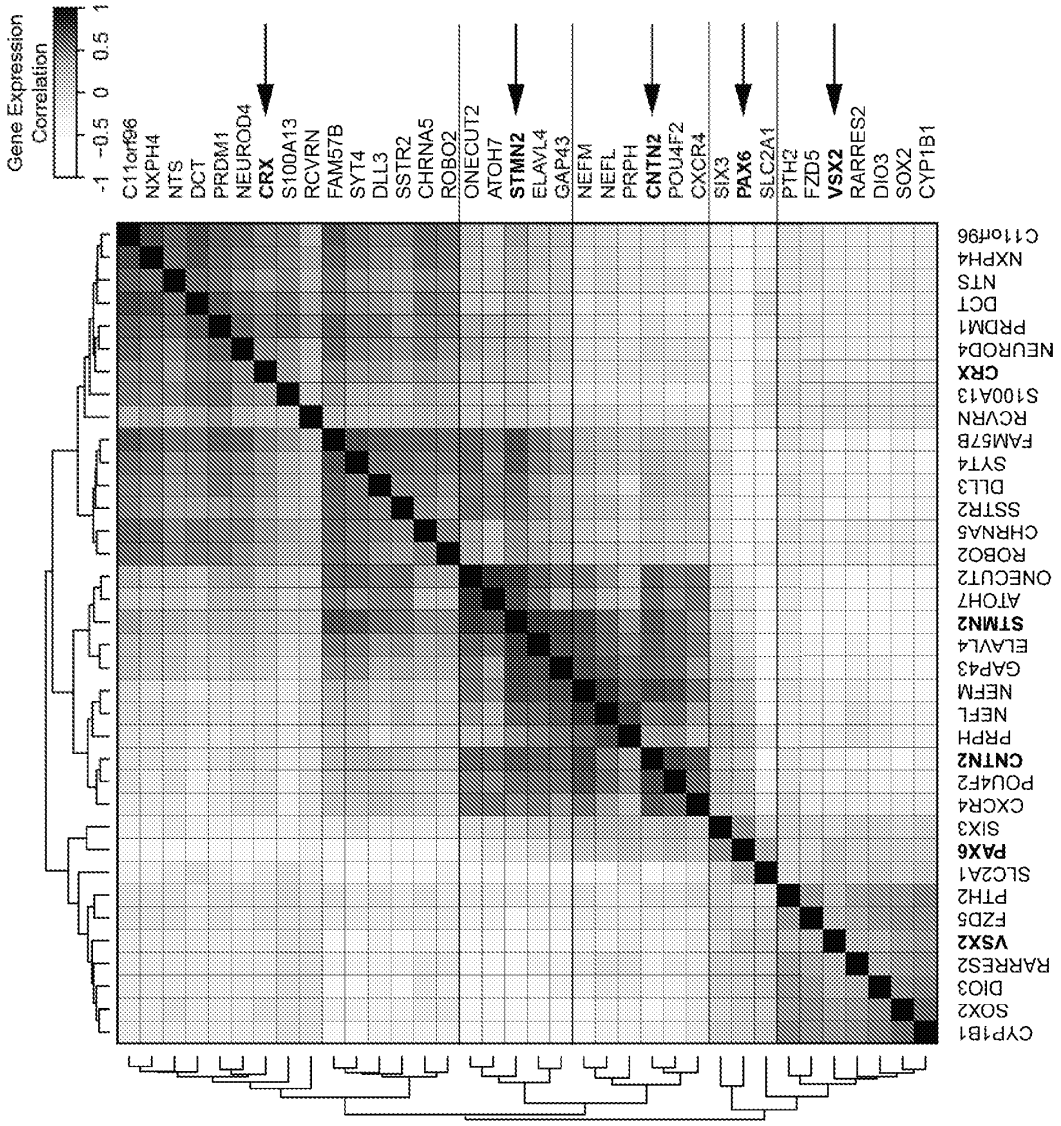

Gene Expression Correlation
-1 -0.5 0 0.5 1
C11orf96
NXPH4
NTS
DCT
PRDM1
NEUROD4
CRX
S100A13
RCVRN
FAM57B
SYT4
DLL3
SSTR2
CHRNA5
ROBO2
ONECUT2
ATOH7
STMN2
ELAVL4
GAP43
NEFM
NEFL
PRPH
CNTN2
POU4F2
CXCR4
SIX3
PAX6
SLC2A1
PTH2
FZD5
VSX2
RARRES2
DIO3
SOX2
CYP1B1

FIG. 6

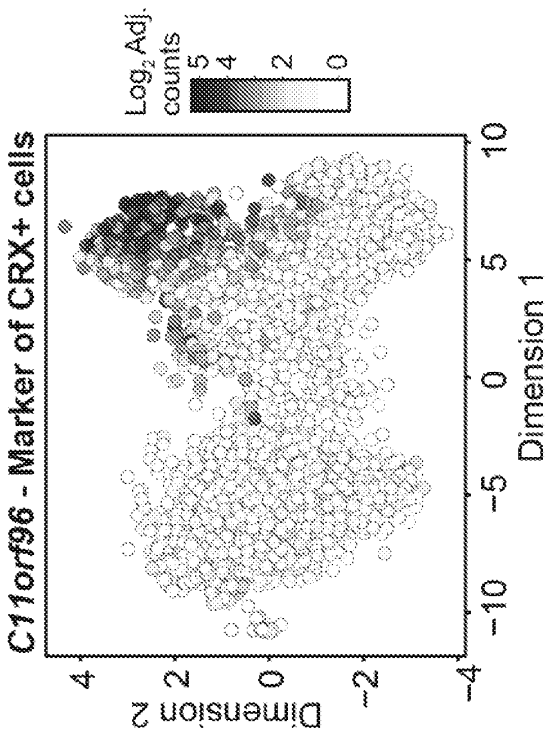

C11orf96 - Marker of CRX+ cells
Log2 Adj. counts
5
4
2
0
Dimension 2
4
2
0
−2
−4
Dimension 1
10
5
0
−5
−10

FIG. 7B

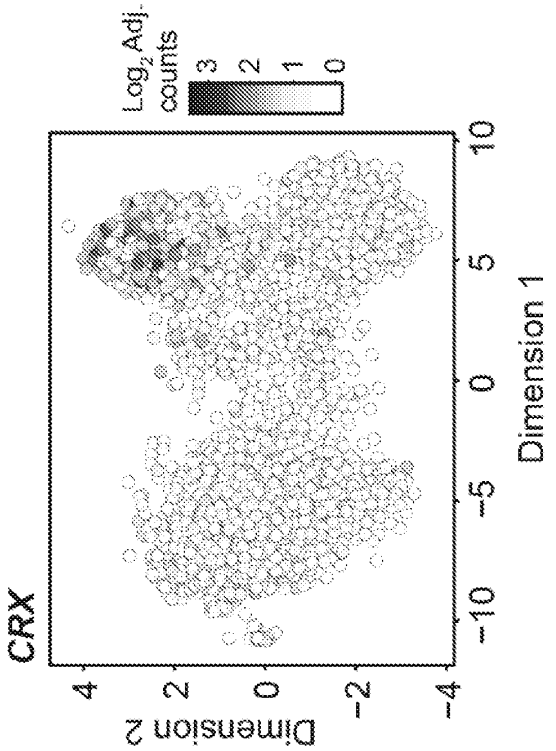

CRX
Log2 Adj. counts
3
2
1
0
Dimension 2
4
2
0
−2
−4
Dimension 1
10
5
0
−5
−10

FIG. 7A

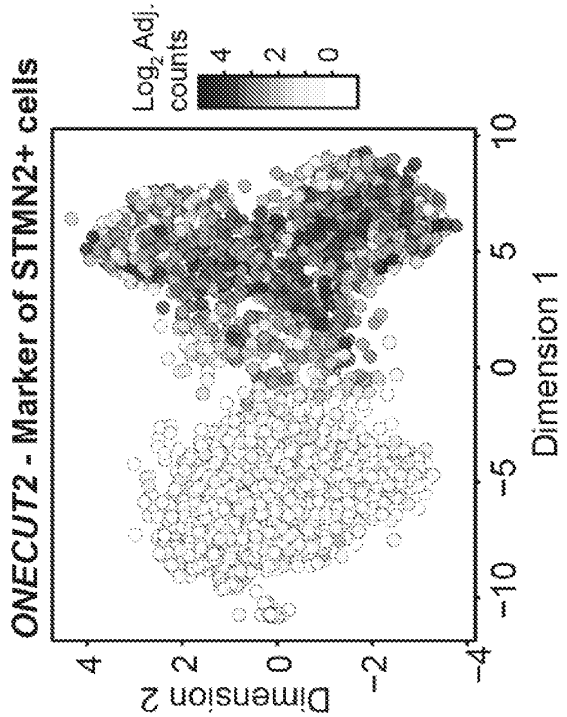

ONECUT2 - Marker of STMN2+ cells
Log2 Adj. counts
4
2
0
Dimension 2
4
2
0
−2
−4
Dimension 1
10
5
0
−5
−10

FIG. 7D

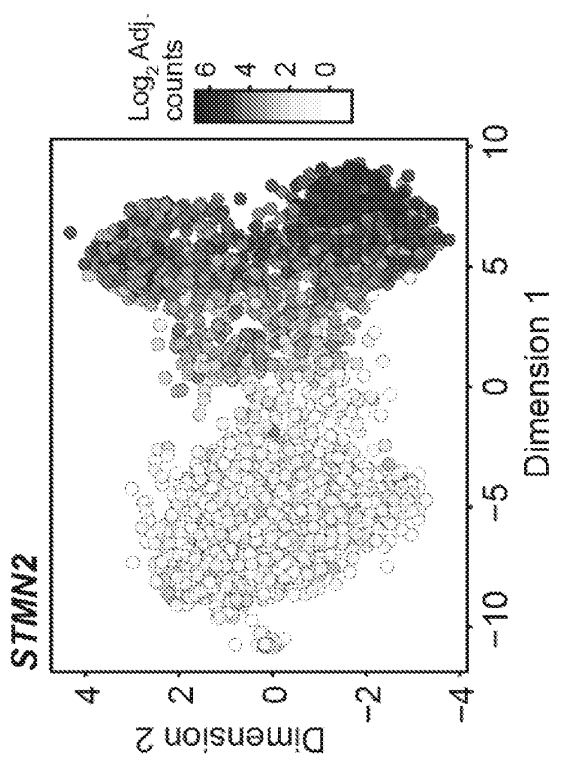

STMN2
Log2 Adj. counts
6
4
2
0
Dimension 2
4
2
0
−2
−4
Dimension 1
10
5
0
−5
−10

FIG. 7C

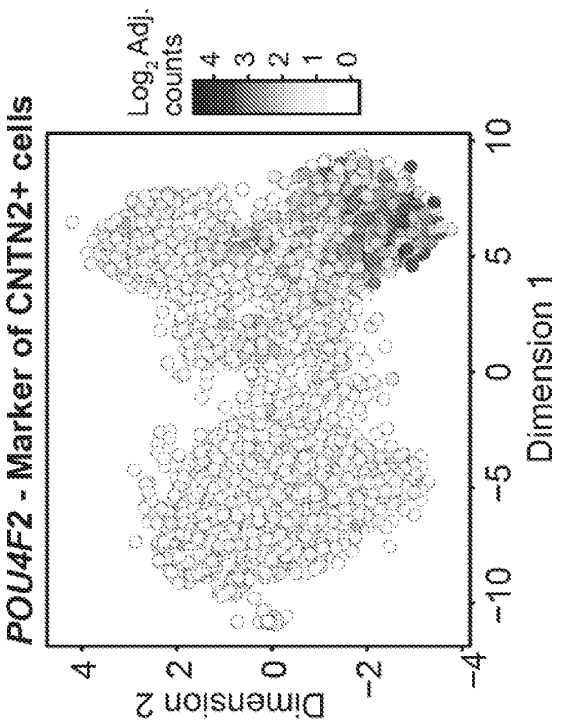

POU4F2 - Marker of CNTN2+ cells
Log2 Adj. counts
4
3
2
1
0
Dimension 2
4
2
0
−2
−4
−10
−5
0
5
10
Dimension 1

FIG. 7F

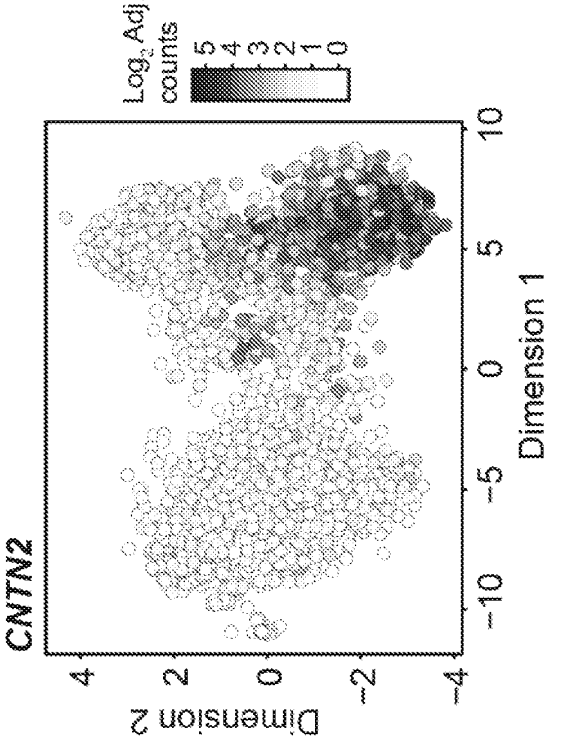

CNTN2
Log2 Adj. counts
5
4
3
2
1
0
Dimension 2
4
2
0
−2
−4
−10
−5
0
5
10
Dimension 1

FIG. 7E

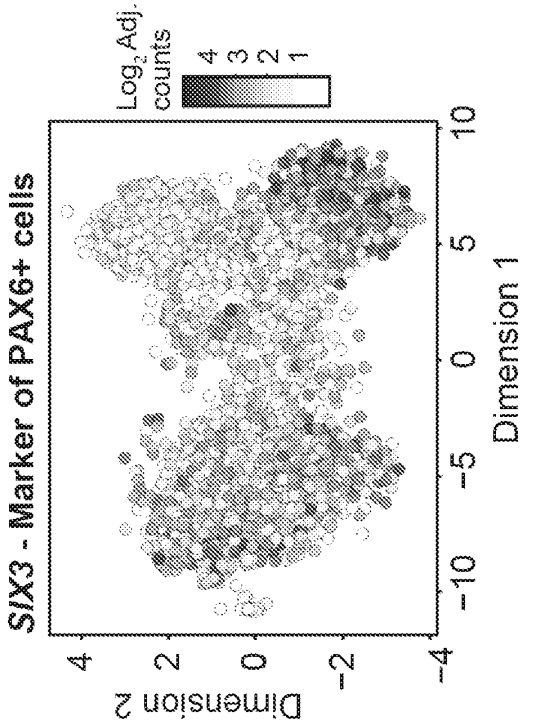

SIX3 - Marker of PAX6+ cells
Log2 Adj. counts
4
3
2
1
Dimension 2
4
2
0
−2
−4
−10
−5
0
5
10
Dimension 1

FIG. 7H

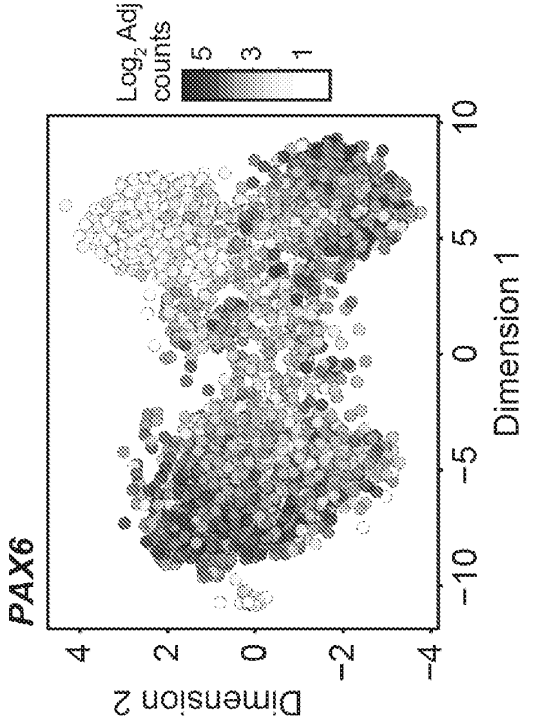

PAX6
Log2 Adj. counts
5
3
1
Dimension 2
4
2
0
−2
−4
−10
−5
0
5
10
Dimension 1

FIG. 7G

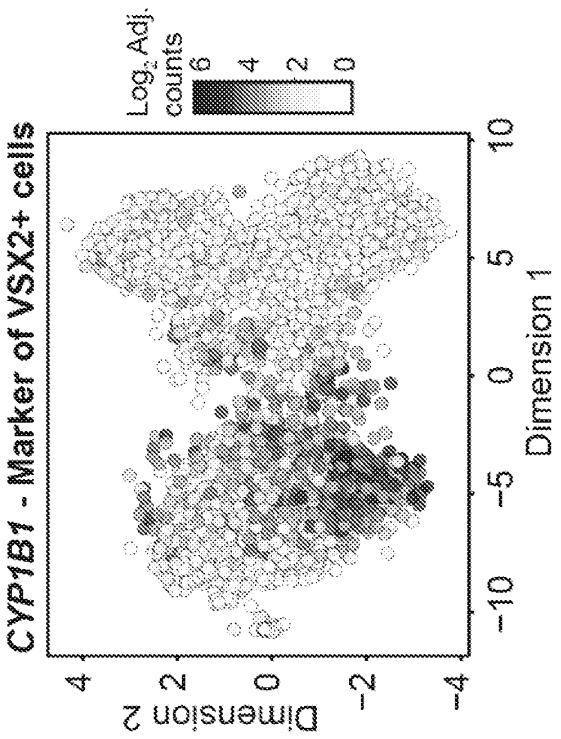

CYP1B1 - Marker of VSX2+ cells
Log2 Adj. counts
6
4
2
0
Dimension 2
4
2
0
−2
−4
Dimension 1
−10
−5
0
5
10

FIG. 7J

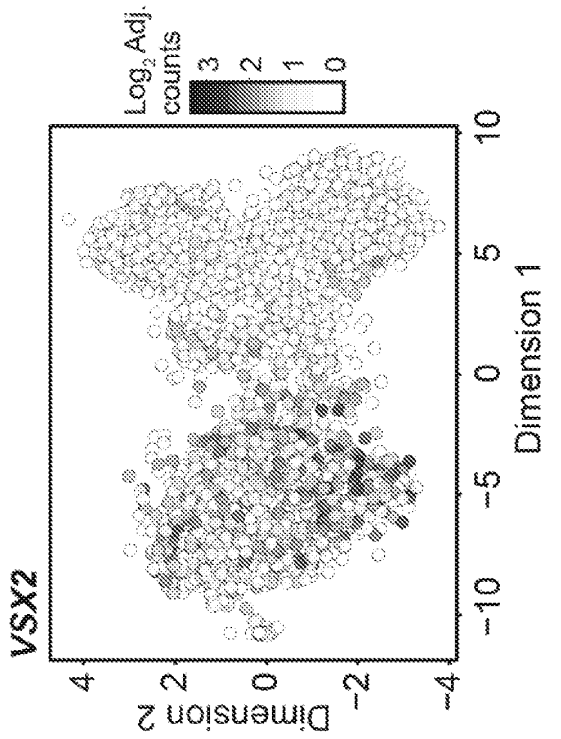

VSX2
Log2 Adj. counts
3
2
1
0
Dimension 2
4
2
0
−2
−4
Dimension 1
−10
−5
0
5
10

FIG. 7I