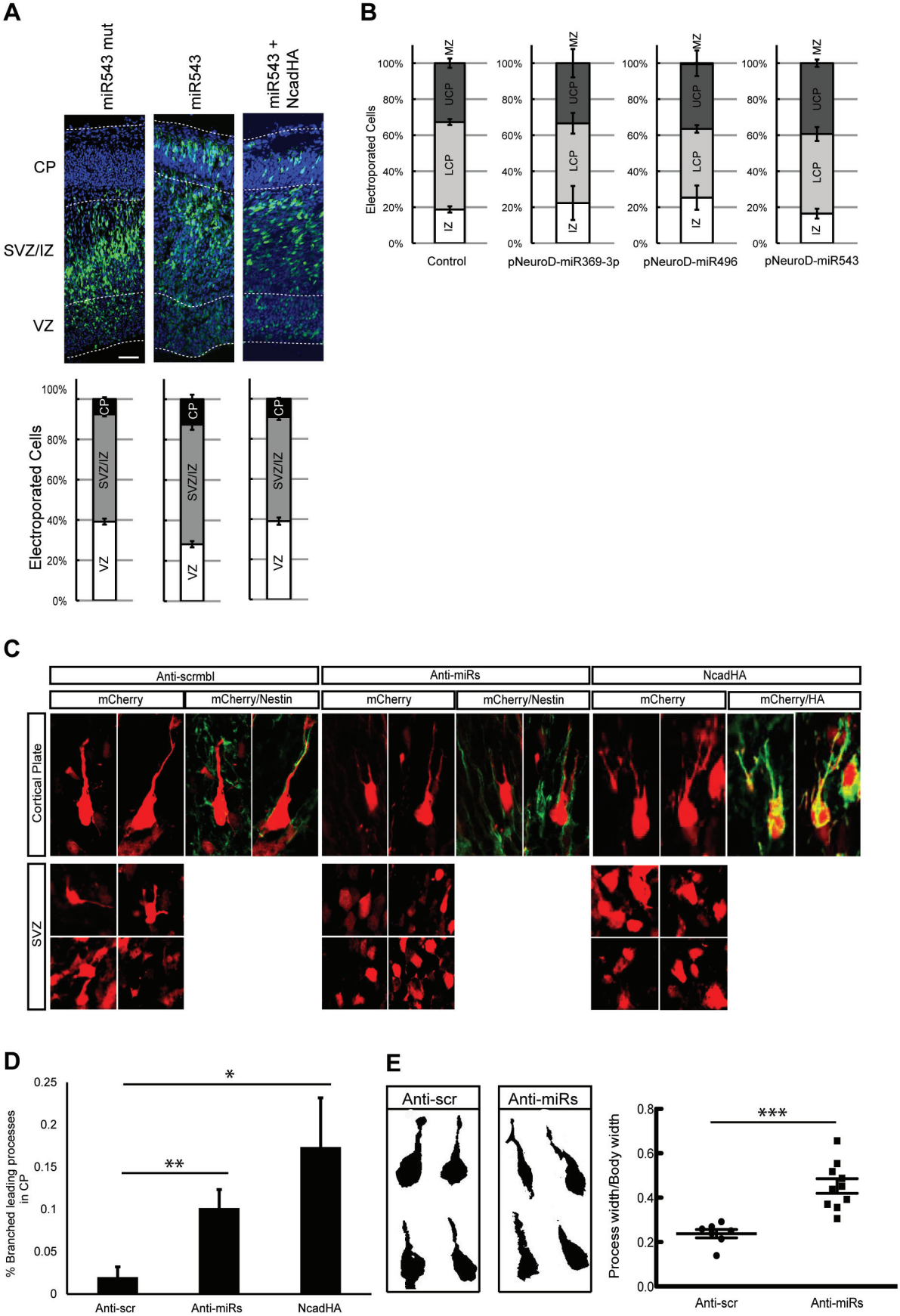
A
miR543 mut
miR543
miR543 + NcadHA
CP
SVZ/IZ
VZ
Electroporated Cells
100%
80%
60%
40%
20%
0%
B
Electroporated Cells
MZ
UCP
LCP
IZ
Control
pNeuroD-miR369-3p
pNeuroD-miR496
pNeuroD-miR543
C
Anti-scrmbl
Anti-miRs
NcadHA
mCherry
mCherry/Nestin
mCherry/HA
Cortical Plate
SVZ
D
% Branched leading processes in CP
0.25
0.2
0.15
0.1
0.05
0
*
**
Anti-scr
Anti-miRs
NcadHA
E
Anti-scr
Anti-miRs
Process width/Body width
0.8
0.6
0.4
0.2
0.0
***
Anti-scr
Anti-miRs

Supplementary Figure 7. Related to Figure 6. (A) Overexpression of miR543 enhances migration at E15.5. The miR543 construct was co-electroporated with pCAG-eGFP. The histograms show the percentage of GFP^+ cells in each cortical area. miR543 vs. mut miR543 $\chi^2 = 69.33$, $p < 0.001$, miR543 vs. miR543 rescued with NcadHA $\chi^2 = 28.7$ $p < 0.001$ (mut miR543 n = 5 brains, 2319 cells; miR543 n = 5 brains, 2912 cells, miR543 + NcadHA rescue n = 3 brains, 950 cells). Scale bar: 50 μm. (B) Overexpression of miR369-3p, miR496 or miR543 from the NeuroD1 promoter does not impair neuronal migration. The histogram shows the distribution of electroporated cells at E17.5, 96 hours after electroporation. Control vs. miR369-3p $\chi^2 = 0.184$, $p = 0.667$, control vs. miR496 $\chi^2 = 2.41$, $p = 0.078$, control vs. miR543 $\chi^2 = 3.307$, $p = 0.069$. (C) Brains were electroporated with anti-miRs LNAs against miR369-3p, miR496 and miR543 at E13.5. Morphological changes in the multipolar cells in the SVZ and migrating neurons in the CP at E15.5 are shown. The cells in the SVZ appear to have a rounded morphology after knockdown of the miRNAs compared with the multipolar morphology of control cells. Migrating neurons in the CP appear to have branched leading processes when miRNAs are knocked down. The overexpression of N-cadherin results in similar morphological changes in the CP. (D) The histogram shows the percentages of migrating neurons with branched leading processes when the miRNAs are knocked down and when N-cadherin is overexpressed (n=4; * $p<0.05$; ** $p<0.01$). (E) The leading processes appear to thicken in the migrating cells at E17.5 when the miRNAs are knocked down at E13.5. A quantification for the ratio of process width (in the middle of the observed total length) over the cell body width is shown (*** $p<0.001$).