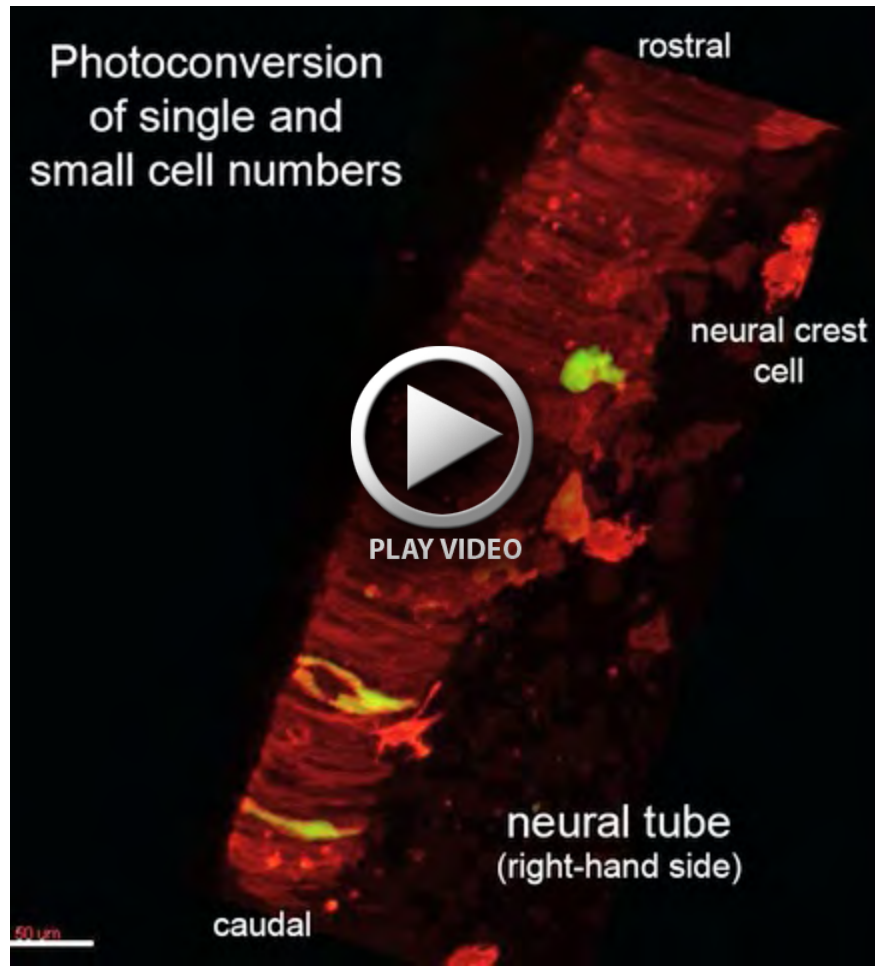
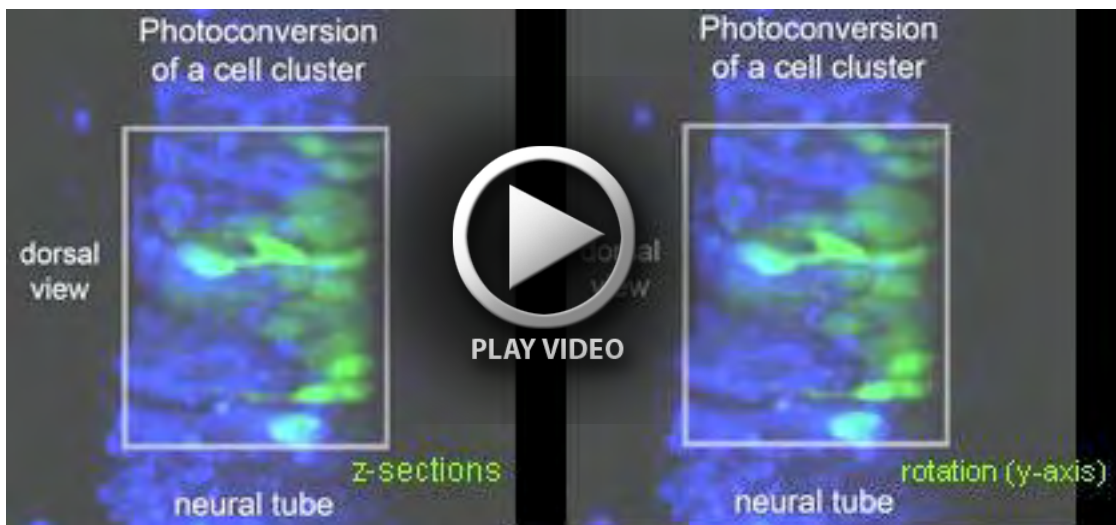




**Fig. S1. In situ hybridization.** (A) *FOXD3*, (B) *SNAIL2* and (C) *SOX9* expression in the chick trunk at the wing bud level (between somites 14 and 18) of HH stage 13-17 embryos, comparing neural crest specifier gene expression with previously presented images of similarly staged photoconverted embryos with approximate locations of the three zones marked.

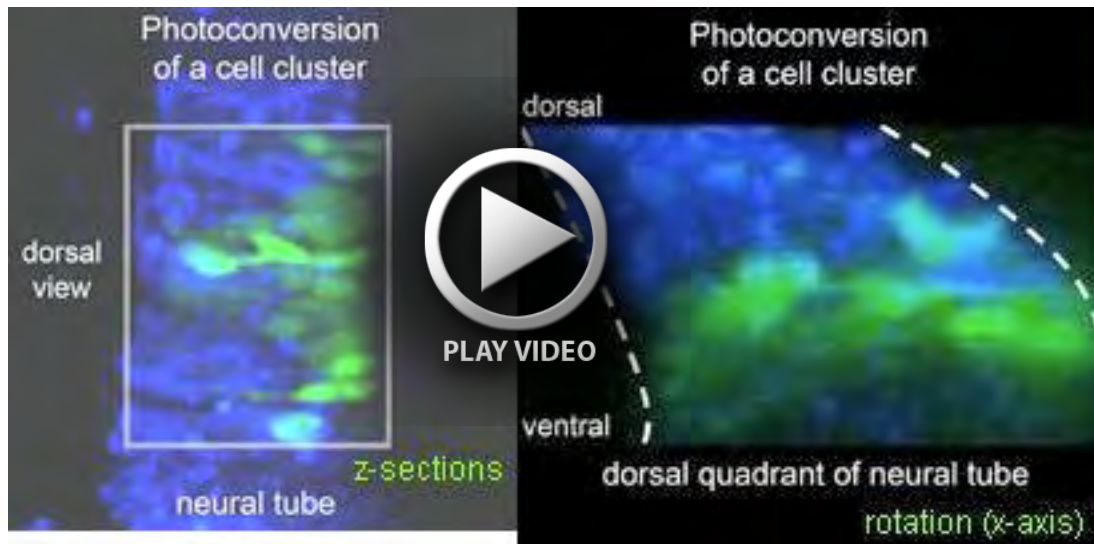


**Movie 1.** Two-photon photoconversion of single and small numbers of cells *in ovo* labeled with psCFP2 and Gap43-TagRFP. Confocal z-stack rotated with various channels displayed.

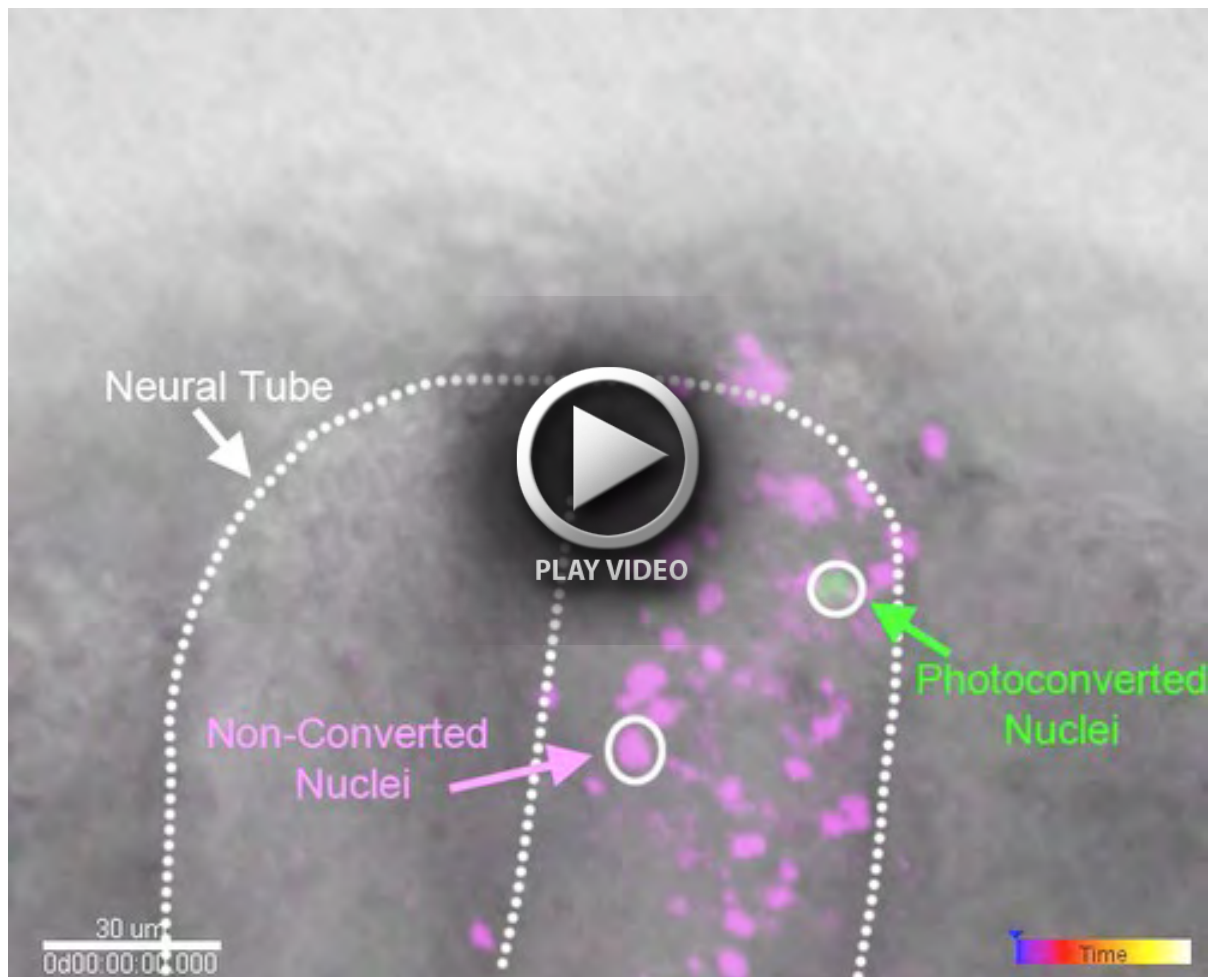


**Movie 2.** Two-photon photoconversion of a cluster of cells in a single zone of the dorsal quadrant of the neural tube. Confocal z-stack slice by slice as well as rotation around y-axis.

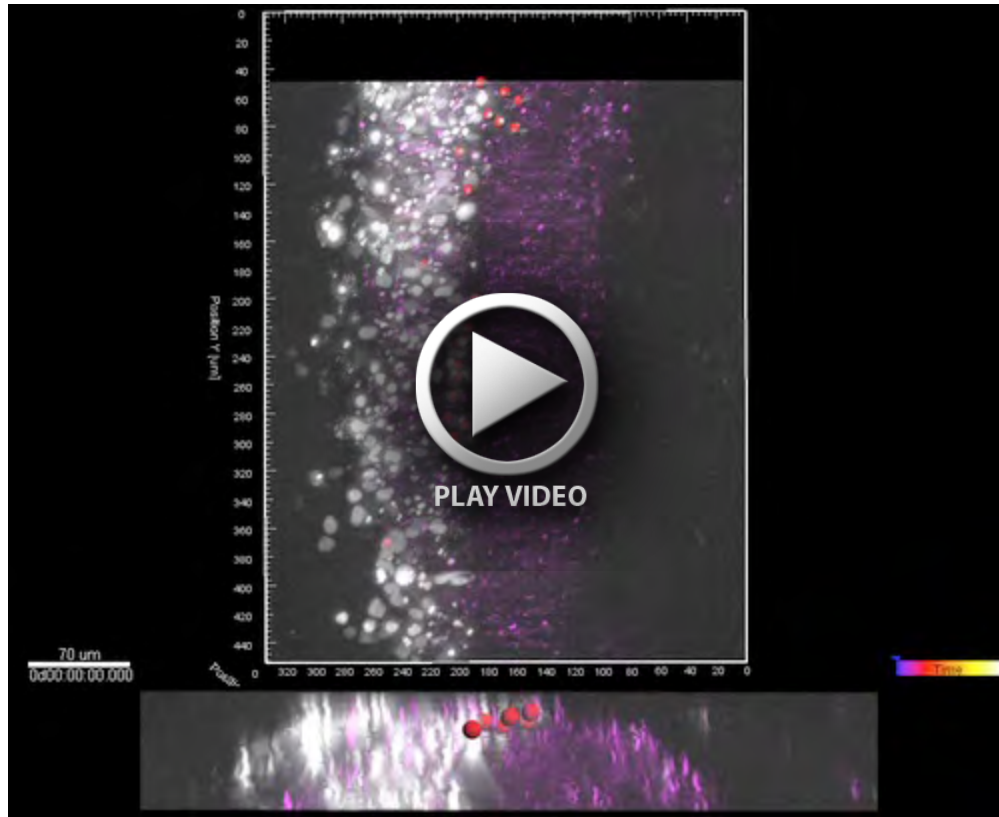




**Movie 3.** Two-photon photoconversion of a cluster of cells in a single zone of the dorsal quadrant of the neural tube. Confocal z-stack slice by slice as well as rotation around *x*-axis.



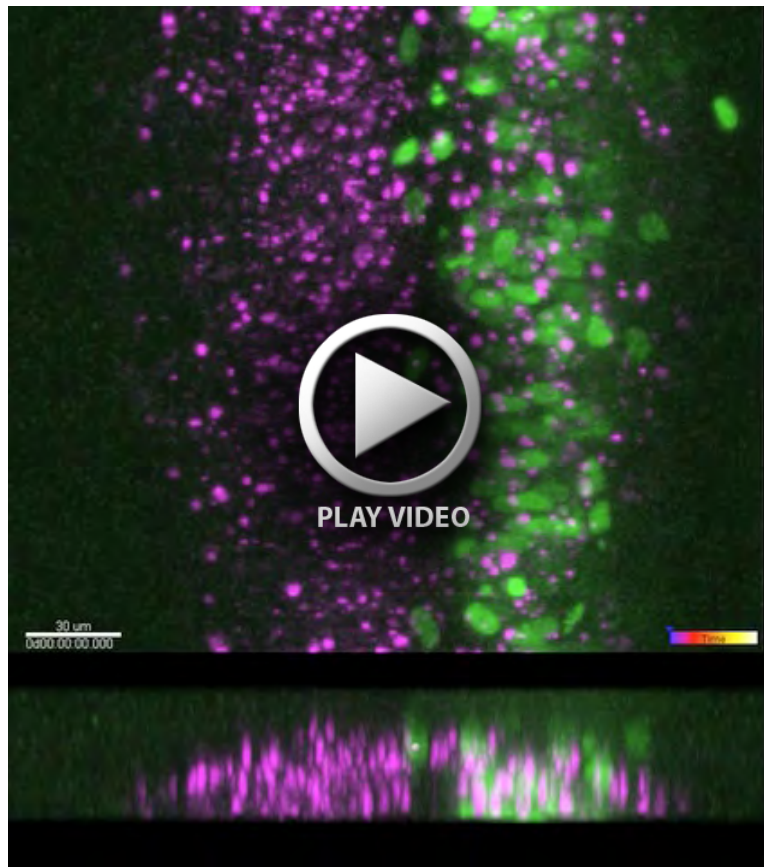
**Movie 4.** Time-lapse imaging of H2B-psCFP2-labeled cells in transverse slice culture. The first frame shows nonconverted and photoconverted psCFP2 cells. Subsequent images show only the photoconverted cells for clarity. Images collected every 9.6 minutes for ~13 hours.



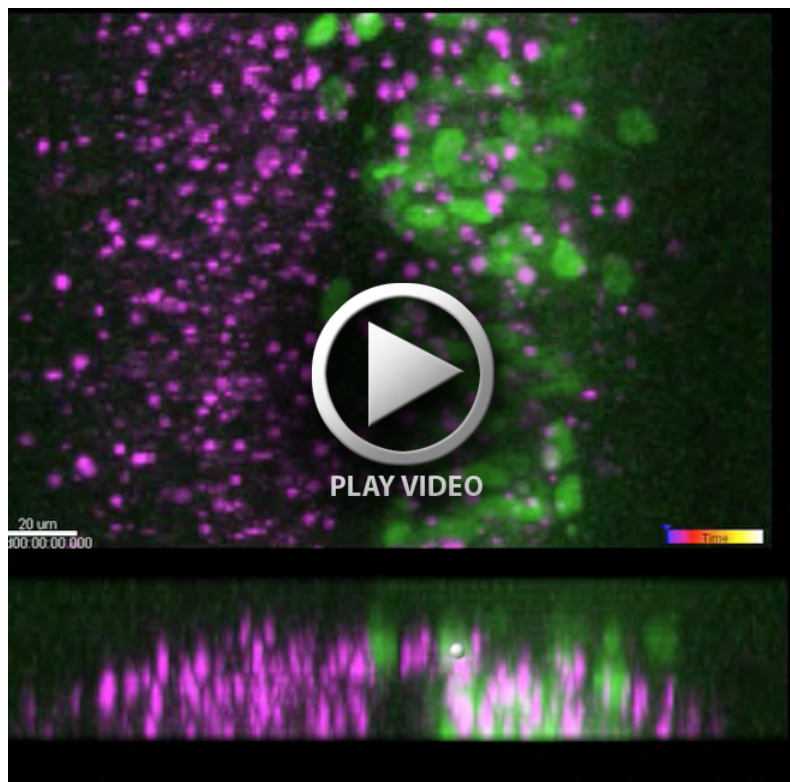
**Movie 5.** *In vivo* time-lapse imaging of trunk NC cells during NT exit revealing orderly emigration (related to Fig. 6) shown globally (top) and in a subregion-transverse view (bottom) with Dil (magenta)/H2B-GFP (white)-labeled cells collected in 7-minute intervals for ~6 hours.



**Movie 6.** *In vivo* time-lapse imaging of trunk NC cells during NT exit (related to Fig. 7) with Dil (magenta)/H2B-GFP (green)-labeled cells collected in 7-minute intervals for ~7 hours.

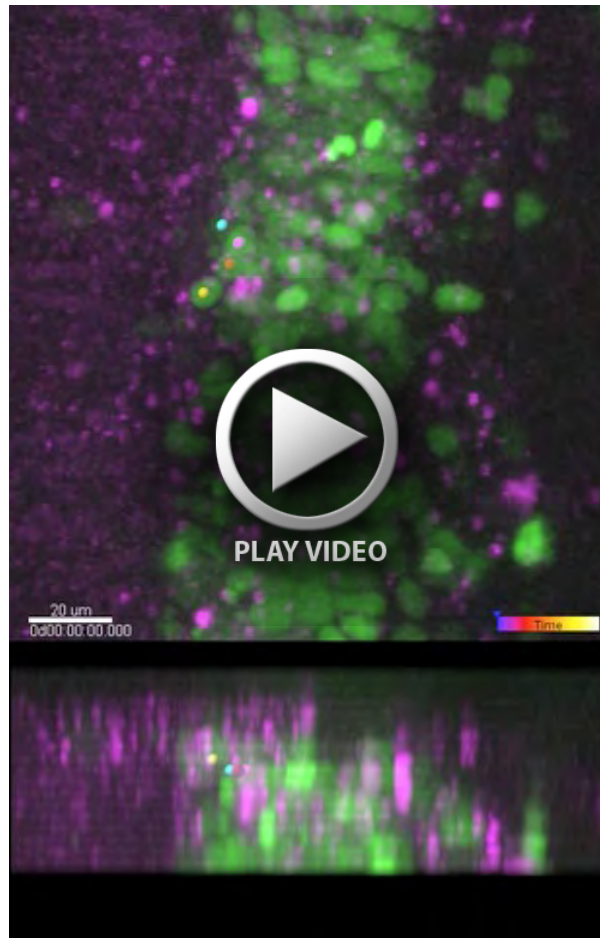


**Movie 7.** *In vivo* time-lapse imaging of trunk NC cells during NT exit (related to Fig. 7A; an example of a dividing cell immediately before exit at the dorsal midline; both progeny exit the NT) with DiI (magenta)/H2B-GFP (green)-labeled cells collected in 7-minute intervals for ~9 hours.

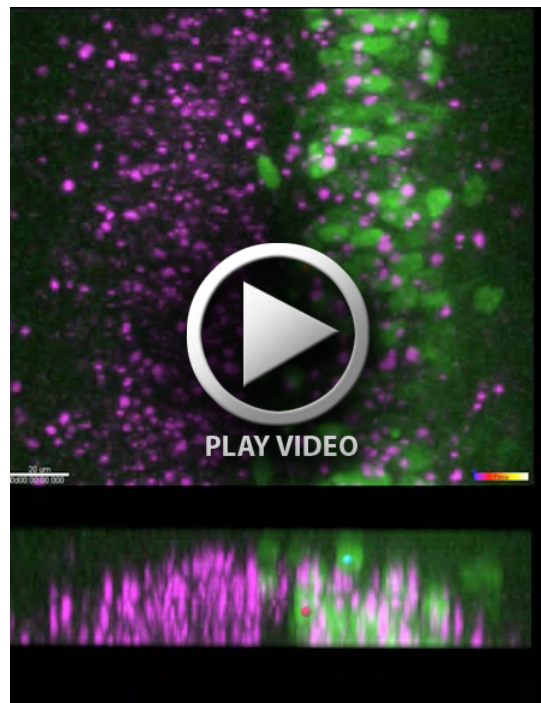


**Movie 8.** *In vivo* time-lapse imaging of trunk NC cells during NT exit (related to Fig. 7B; an example of a dividing cell at the dorsal midline, but only one progeny leaves the NT) with DiI (magenta)/H2B-GFP (green)-labeled cells collected in 7-minute intervals for ~9 hours.





**Movie 9.** *In vivo* time-lapse imaging of trunk NC cells during NT exit (related to Fig. 7C; an example of neighboring cells that exit the NT at very different times) with DiI (magenta)/H2B-GFP (green)-labeled cells collected in 7-minute intervals for ~9 hours.



**Movie 10.** *In vivo* time-lapse imaging of trunk NC cells during NT exit (related to Fig. 7D; an example of a cell bypassing another cell at the dorsal midline) with DiI (magenta)/H2B-GFP (green)-labeled cells collected in 7-minute intervals for ~8 hours.

**Table S1. Gene expression assays**

<u>Gene symbol</u>	<u>Assay ID</u>
<i>BMPR1A</i>	Gg03339693_m1
<i>BMPR1B</i>	Gg03366638_m1
<i>BMPR2</i>	Gg03345679_m1
<i>EDNRA</i>	Gg03363278_m1
<i>EFNB2</i>	Gg03338769_m1
<i>EPHA2</i>	AIMSF5V
<i>EPHA3</i>	Gg03340036_m1
<i>EPHA4</i>	Gg03371260_m1
<i>EPHB1</i>	Gg03320093_m1
<i>EPHB2</i>	Gg03349515_m1
<i>EPHB3</i>	Gg03320080_m1
<i>ERBB2</i>	Gg03360033_m1
<i>FGFR1</i>	Gg03340352_m1
<i>FGFR3</i>	Gg03340332_m1
<i>FOXD3</i>	Gg03815041_s1
<i>MITF</i>	Gg03348224_m1
<i>NEDD9</i>	Gg03310488_m1
<i>NEFM</i>	Gg03361912_m1
<i>NGN1</i>	Gg03814966_s1
<i>NRP1</i>	Gg03371276_m1
<i>NRP2</i>	Gg03364404_m1
<i>PAX3</i>	Gg03364367_m1
<i>SLUG</i>	Gg03333502_m1
<i>SNAI1</i>	Gg03366757_m1
<i>SOX10</i>	Gg03371326_m1
<i>SOX9</i>	Gg03364395_m1
<i>SPON1</i>	Gg03338910_m1
<i>TRKC</i>	Gg03366901_m1
<i>VEGFR2</i>	Gg03346169_m1