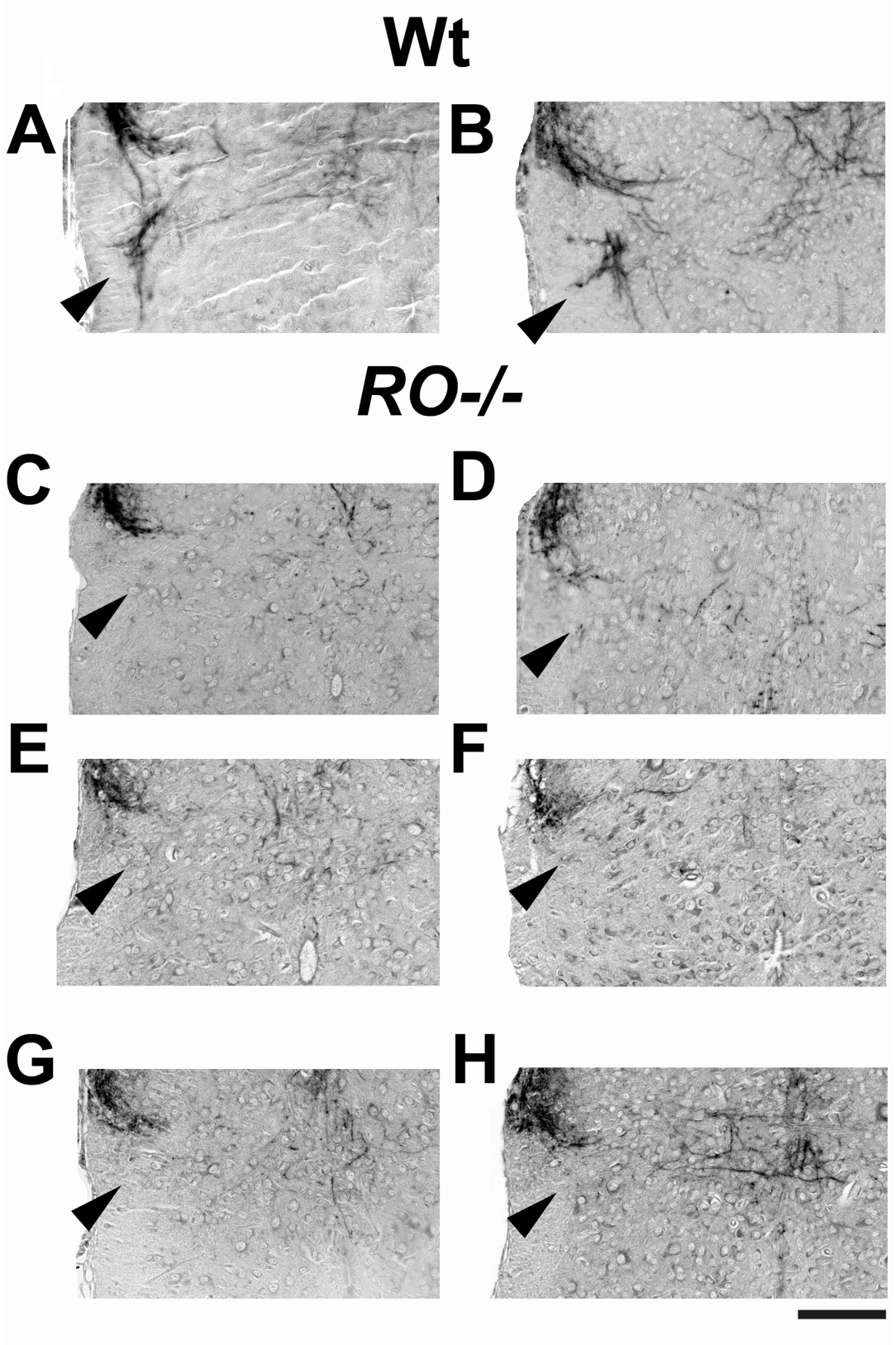
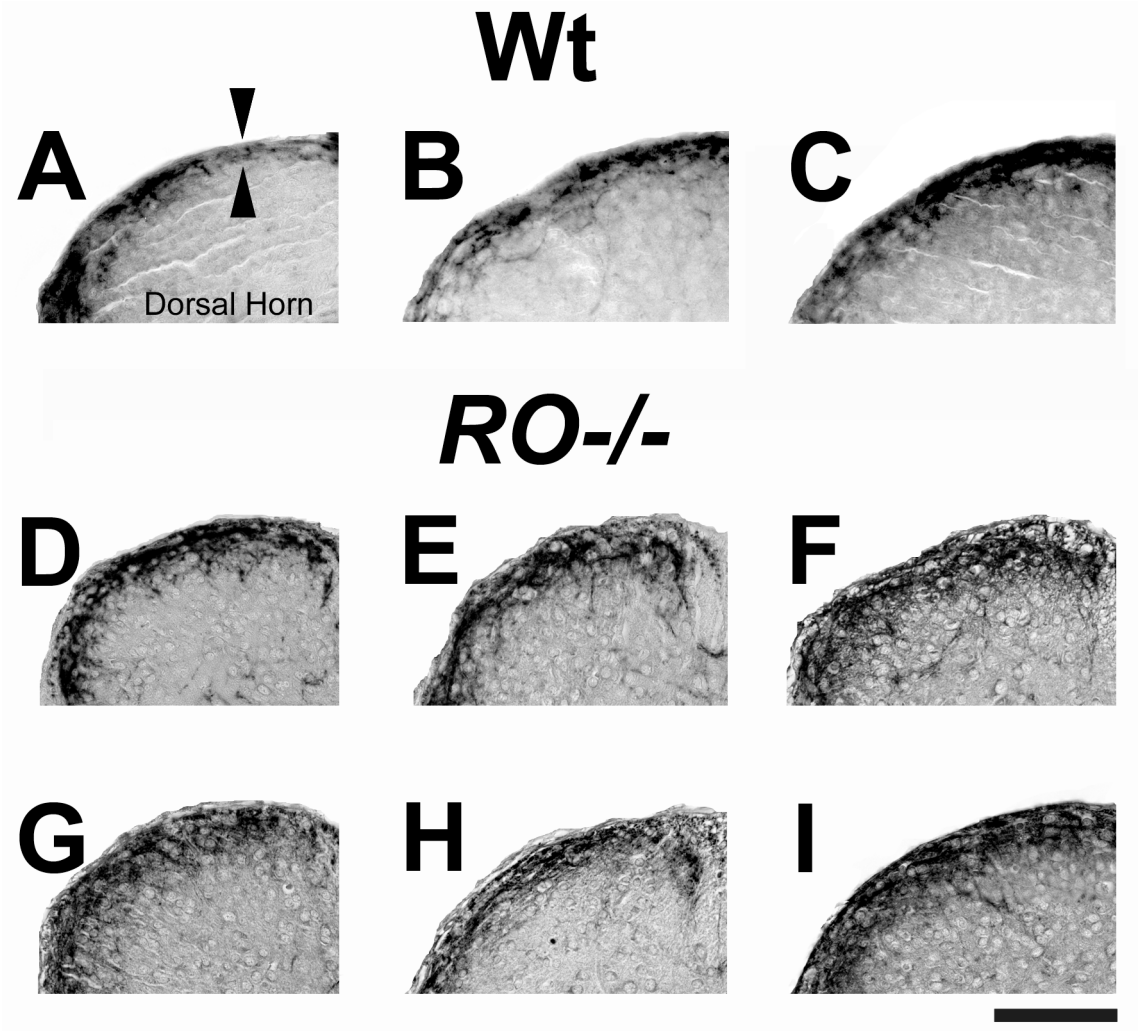
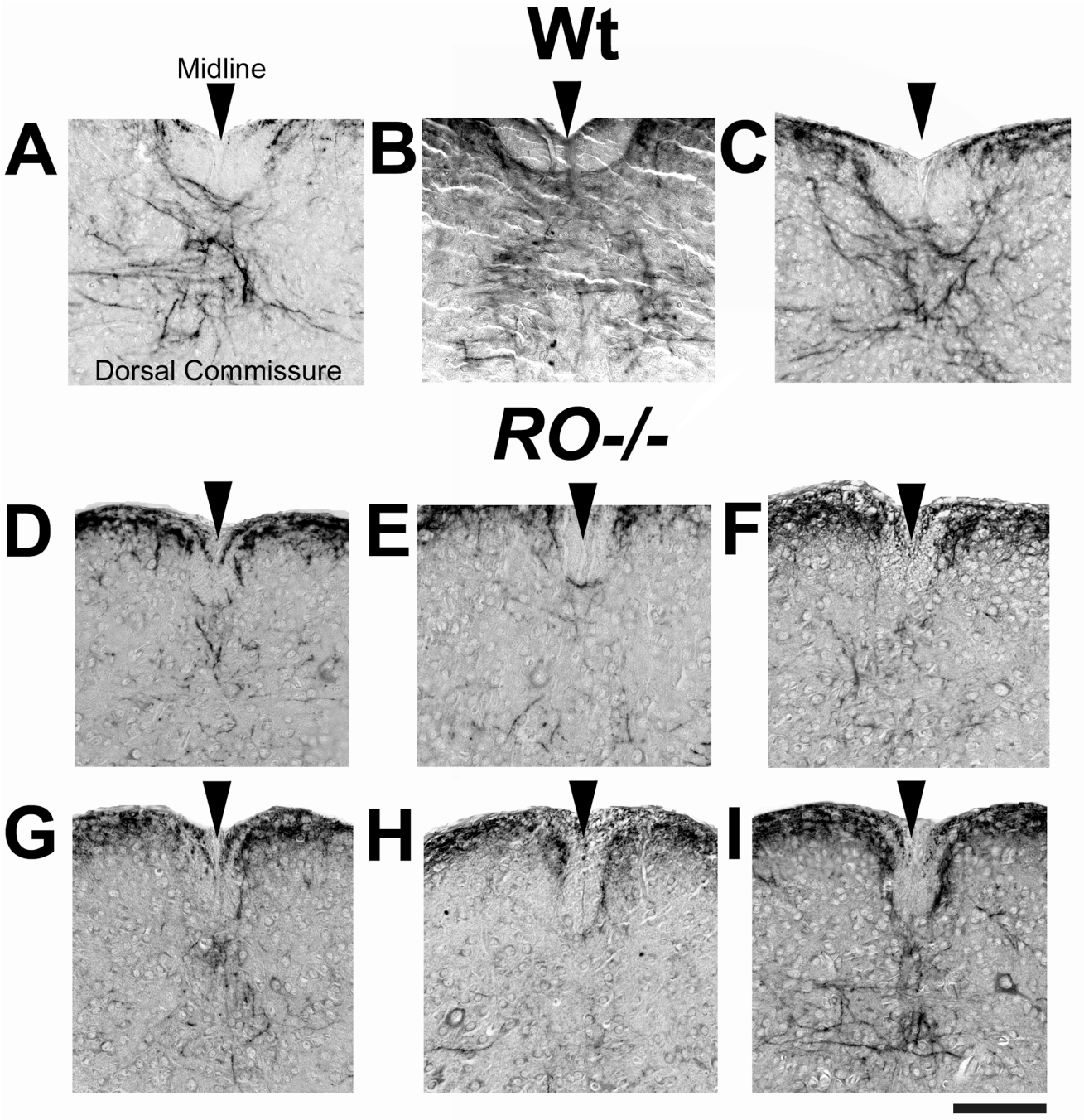


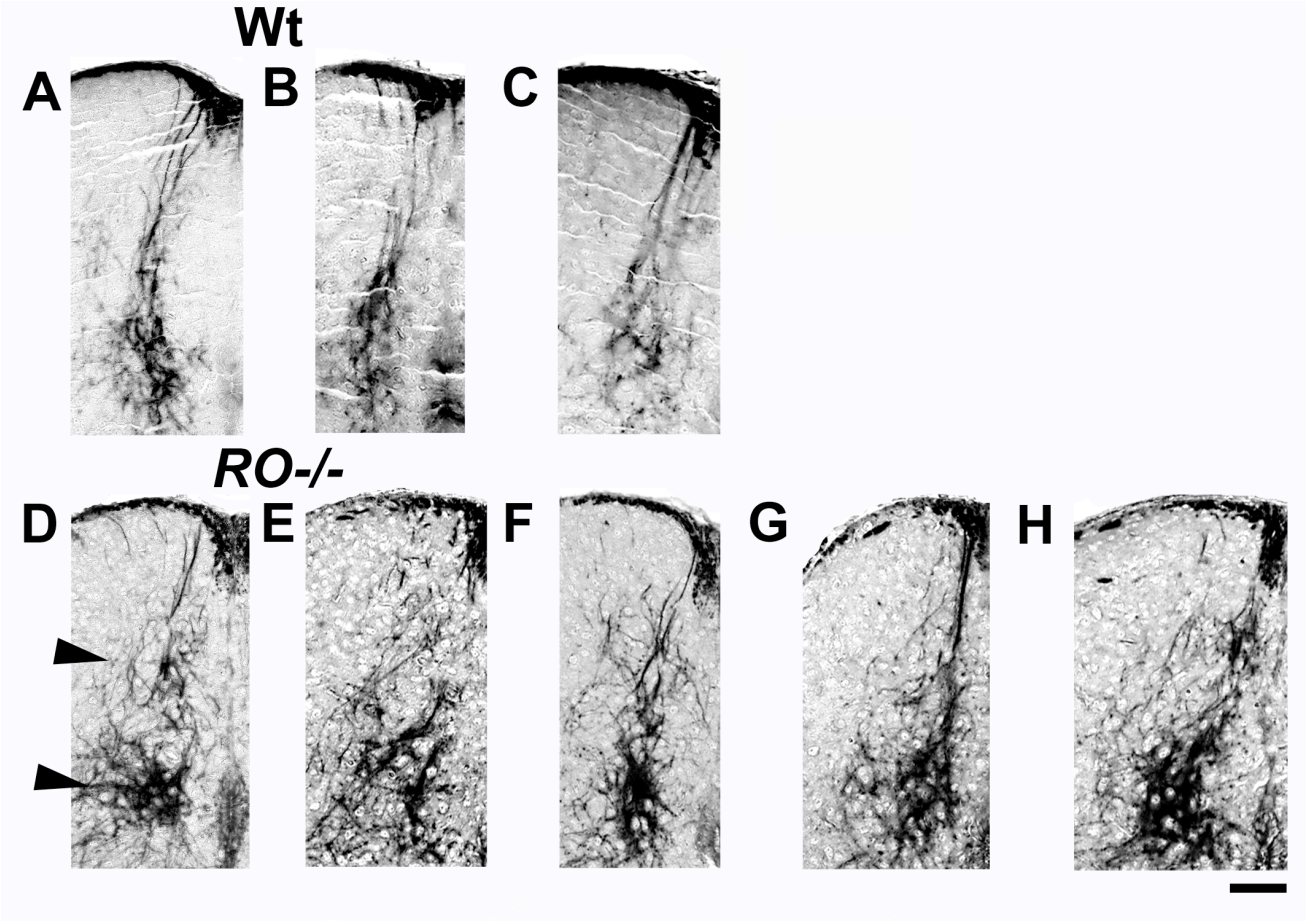
Supplemental figure 1. Transverse sections of lumbar spinal cord stained with CGRP antibody to label nociceptive afferents **(A-B**, wt; **C-H**, PTPRO$^{-/-}$**)**. Arrowheads point to location of projections in the ventral-medial region representing innervation from the hindlimb/paw. These projections are missing in the PTPRO$^{-/-}$ animals **(C-H)**. Scale bar, 100 µm.



Supplemental figure 2. Transverse sections of lumbar spinal cord stained with CGRP antibody to label nociceptive afferents. **(A-C,** wt; **D-I**, PTPRO$^{-/-}$**)**. **(A)** Large arrowheads pointing to the outer borders of laminae I (top) and the outer portion of laminae II (bottom). Although there is some variability, axons appear less organized and project strongly beyond the border of lamina IIo in the PTPRO$^{-/-}$ animals **(D-I)**. Scale bar, 100μm.



Supplemental figure 3. Transverse sections of lumbar spinal cord stained with CGRP antibody to label nociceptive afferents. **(A-C**, wt; **D-I**, PTPRO$^{-/-}$**)**. **(A-I)** Magnified view at the dorsal commissure area showing nociceptive axons crossing the midline (large arrowheads). Fewer axons cross the midline in the PTPRO$^{-/-}$ mice **(D-I)**. Scale bar, 100 μm.



Supplemental figure 4. **(A-D)** P0 spinal cord sections stained with parvalbumin antibody to label proprioceptive projections in **(A-C,** wt**; D-H**, PTPRO$^{-/-}$**)**. **(D)** Top arrowhead points to the area of disorganized and defasciculated axonal projections in PTPRO$^{-/-}$ mice. Bottom arrowhead points to the area of increased parvalbumin immunoreactivity at the intermediate zone in the PTPRO$^{-/-}$ mice.