

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Serial two-photon scanning of a perfused brain expressing tdTomato in POM first-order neurons and eYFP in POM higher-order. The movie goes back and forth along the rostro-caudal axis to highlight the location of the two nuclei.

File Name: Supplementary Movie 2

Description: Two-photon z-stack imaging of VPM first-order axons in wS2 seen through a microprism in an awake mouse.