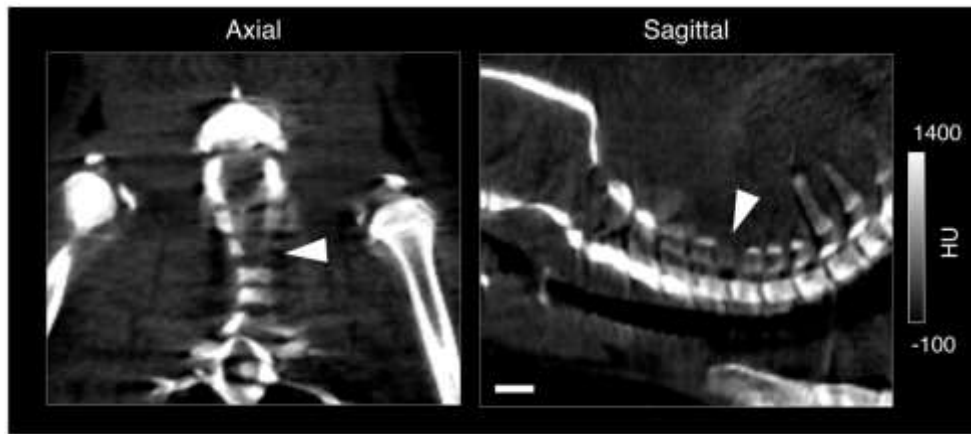
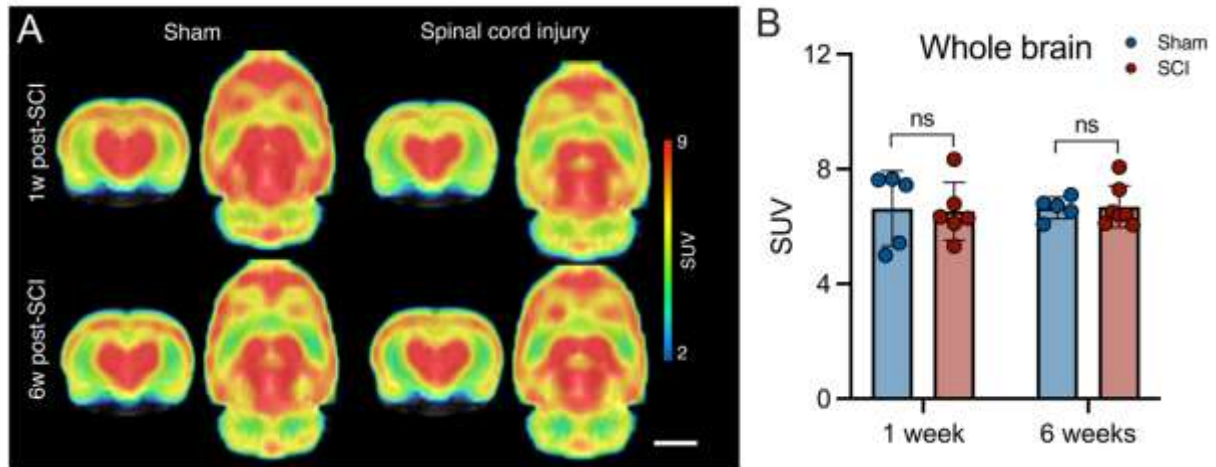


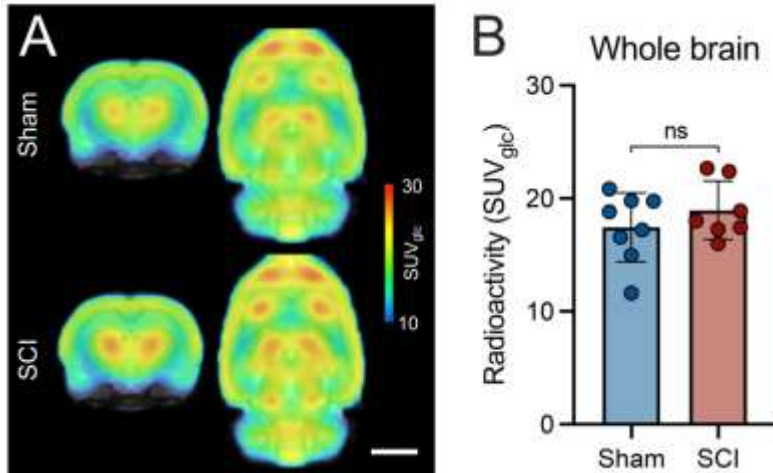
SUPPLEMENTAL FIGURE 1. Experimental outline describing the timeline of the spinal cord injury rodent models investigated and endpoints during the cross-sectional *in vitro* study (A) as well as the longitudinal *in vivo* study (B). SCI = spinal cord injury; ARG = autoradiography.



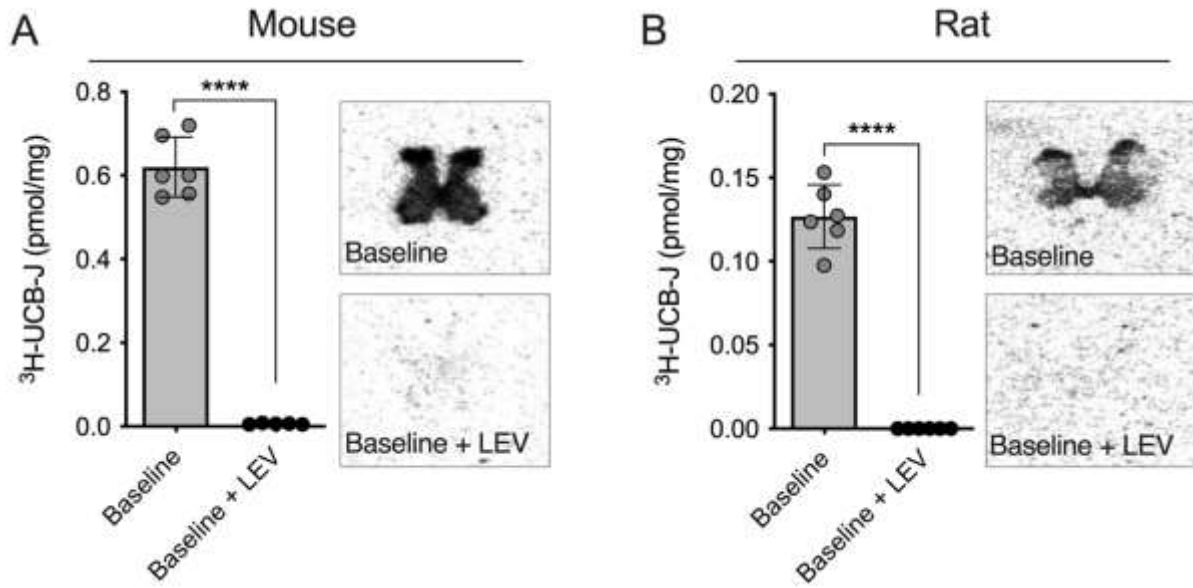
SUPPLEMENTAL FIGURE 2. Representative CT image in a sham rat 1-week post-surgery. White arrowhead indicates laminectomy at cervical C5. Scale bar = 5 mm.



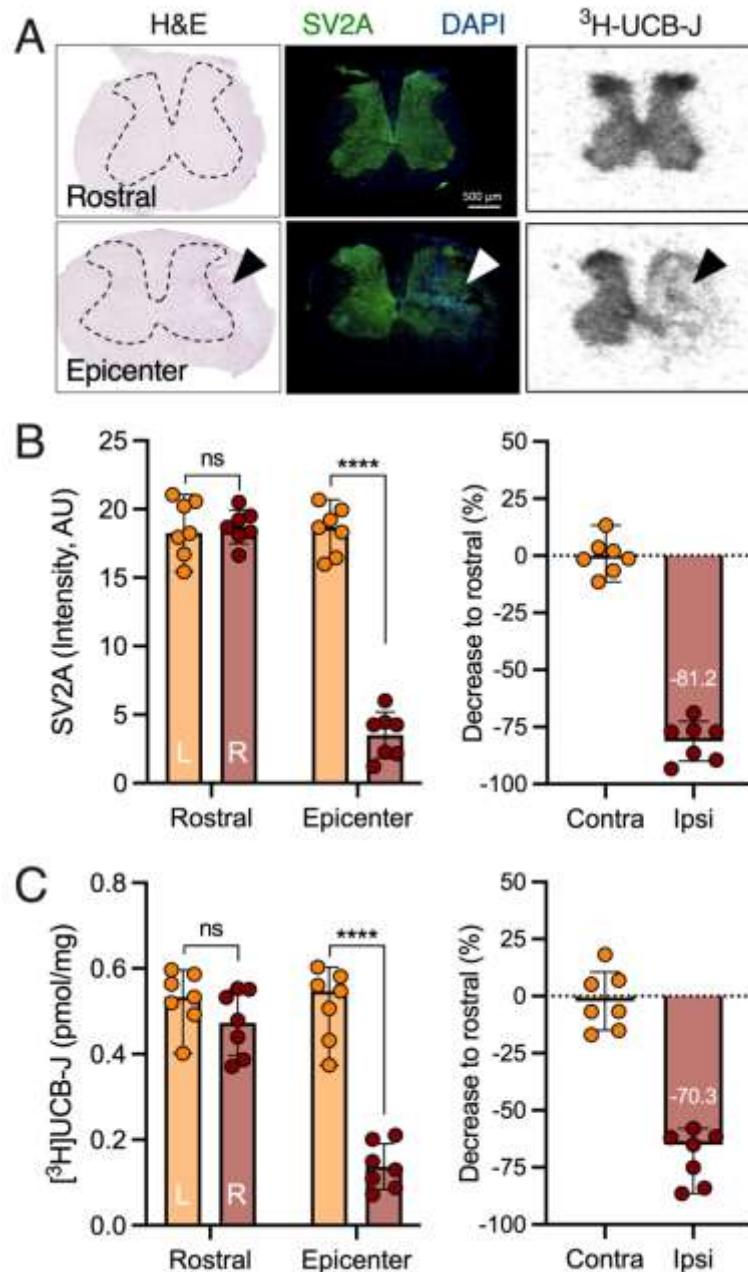
SUPPLEMENTAL FIGURE 3. Cerebral ^{11}C -UCB-J uptake. (A) Average cerebral standardized uptake value (SUV) images in sham and SCI rats at sub-acute and chronic SCI. Images are overlaid onto an MRI brain template for anatomical localization. Scale bar = 5 mm. (B) Cerebral SUVs were unchanged between timepoints and groups.



SUPPLEMENTAL FIGURE 4. Cerebral ^{18}F -FDG uptake. Average cerebral glucose-corrected standardized uptake value (SUV_{glc}) images (A) and corresponding values (B) were unchanged between sham and chronic SCI rats. PET images are overlaid onto an MRI brain template for anatomical localization. Scale bar = 5 mm.



SUPPLEMENTAL FIGURE 5. $^3\text{H-UCB-J}$ binding can be fully blocked in both the mouse (A) and rat (B) spinal cords. Blocking was obtained with levetiracetam (LEV, 1 mM) in adjacent slides of the same animal ($n=6$ per species). **** $P<0.0001$.



SUPPLEMENTAL FIGURE 6. SV2A levels are decreased in the mouse model of contusion SCI.

(A) Representative H&E, SV2A, and ³H-UCB-J depicting rostral and epicenter spinal cord sections. Arrowheads indicate contusion site at right cervical C5, dashed lines outline spinal grey matter. SV2A (B) and ³H-UCB-J (C) quantification in spinal cord sections and decrease in C5 section compared to rostral for both contralateral (Left) and ipsilateral (Right). *****P*<0.0001.