Supplemental Fig. 1. Schematic representation of mouse brain areas selected for immunohistochemical analysis (Paxinos and Franklin, 2012). Brain sections were obtained between Bregma coordinates -2.06 mm and -2.16 mm. Brain regions included the Posterior Parietal Cortex (PPC), layers 5 and 6; and hippocampal regions CA1 and CA3 (stratum radiatum) and Dentate gyrus (polymorph layer). Animals were aligned to receive a 30 g weight drop mTBI on one side of the head whilst under anesthesia. The impact area of the blunt cylindrical weight corresponded to the brain regions selected for evaluation in the present study.

Supplemental Fig. 2. Immunohistochemical changes induced by mTBI were similar within the same brain regions on the side ipsilateral (IL) and contralateral (CL) to injury (specifically, there was no significant difference between IL and CL ($p > 0.05$) values within each group of animals.

Top panel: CA1 region of hippocampus; bottom panel: posterior parietal cortex (from left to right: (A) FJC; neuroinflammatory markers: (B) IBA1, (C) IBA1/TNF-α co-localization; pre- and post-synaptic markers: (D) synatophysin and (E) PSD-95). Similarly, IL and CL levels were alike within the CA3 and DG brain regions across groups (not shown), and across all brain regions evaluated in sham control mice without head injury (not shown). Together, these results suggest that our mTBI model results in contrecoup damage, and that this – similar to ipsilateral damage – is mitigated by Phen.