Investigation of the Direct and Indirect Mechanisms of Primary Blast Insult to the Brain

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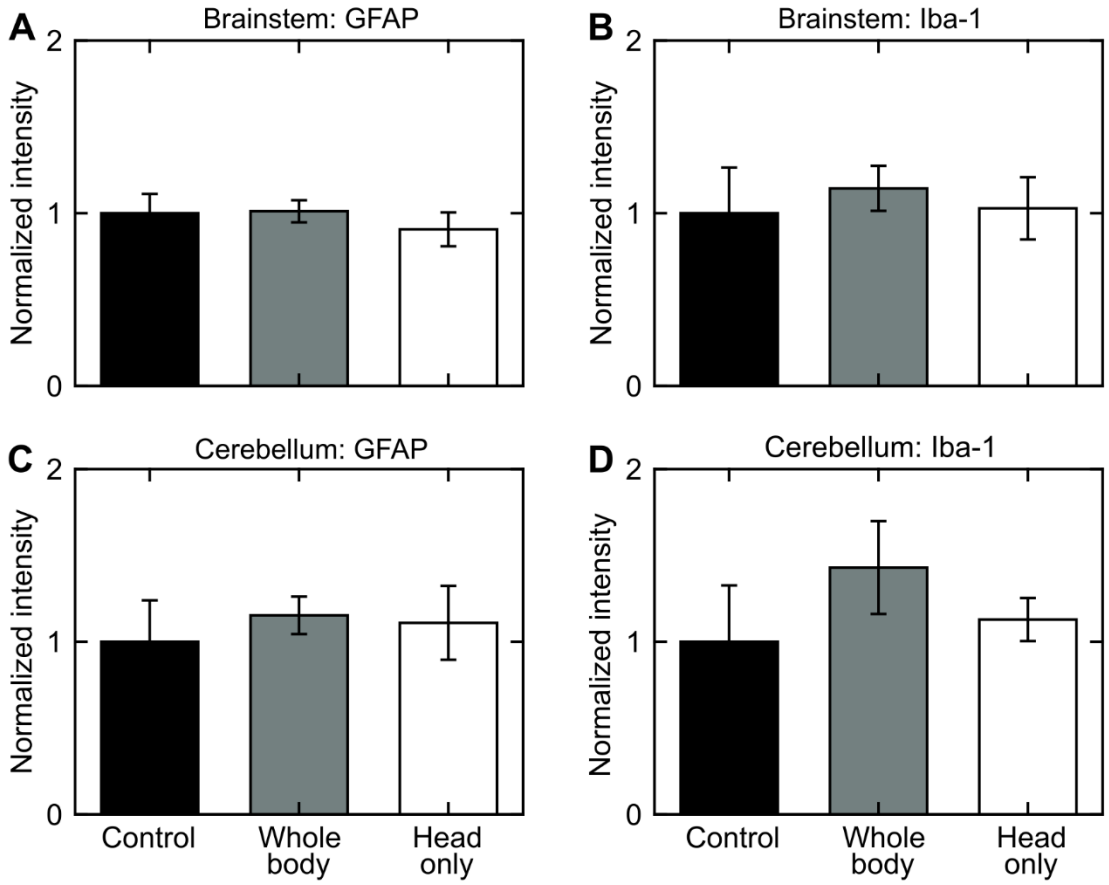
Supplementary Material



Supplementary Figure 1. Changes in the brainstem and cerebellum of a rat due to whole-body or head-only blast exposures in the direct-mechanism study, as indicated by (A and C) GFAP-positive and (B and D) Iba-1-positive staining. We implemented a linear mixed-effect model to identify changes between control (n = 4) and blast-exposed groups (n = 10 each). The bar height and vertical line length represent the mean and one standard error of the mean (SEM), respectively. We delineated the brainstem and cerebellum in each of the slices from −10 to −12 mm relative to Bregma. Next, we determined per-animal estimates by averaging the values of the three coronal slices for each animal. For each group, we then determined the mean and SEM using the respective per-animal estimates. Lastly, for each staining assessment, we normalized the data from the blast-exposed groups (i.e., whole-body and head-only) by the data from their respective controls. We normalized the data for presentation purposes only. We conducted all statistical analyses using the raw data with their respective values. When compared to controls, we did not find any statistically significant changes in GFAP- or Iba-1-positive staining in the brainstem or the cerebellum of head-only- and whole-body-exposed rats. These results are consistent with those from the whole-brain and regional analyses in the accompanying manuscript (Figs. 4A, 4B, 6A, and 6B), which indicate that such analyses adequately describe the changes resulting from the direct and indirect mechanisms.