

Supplementary Information

Integrative Analysis of Cytokine and Lipidomics Datasets Following Mild Traumatic Brain Injury in Rats

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Table S1. Experimental sample numbers and righting latency

Injury Group	Male	Female	Combined	Comparisons
Sham control	N= 9	N= 9	N= 18	
Righting latency (min) (mean \pm SEM)	2.536 \pm 0.339	2.224 \pm 0.477	2.384 \pm 0.276	² sham: male vs. female; p=0.8102
1X	N= 8	N= 9	N= 17	
Righting latency (min) (mean \pm SEM)	3.281 \pm 0.353	2.890 \pm 0.352	3.074 \pm 0.247	¹ Sham vs. 1X; p=0.7206 ² Male: sham vs. 1X; p=0.8415 ² Female: sham vs. 1X; p= 0.8564 ² 1X: male vs. female; p=0.7631
3X	N= 10	N= 9	N= 19	
Righting latency (min) (mean \pm SEM)	7.427 \pm 1.132	5.543 \pm 1.097	6.401 \pm 0.795	¹ Sham vs. 3X****; p<0.0001 ² Male: sham vs. 3X***; p=0.0007 ² Female: sham vs. 3X*; p= 0.0157 ² 3X: male vs. female; p=0.0895
	N=27	N= 27	N= 54	

Sample number and righting latency following mild TBI. ¹ One-way ANOVA, Tukey's post-hoc multiple comparisons test. ²Two-way ANOVA, Tukey's post-hoc multiple comparisons test. *, P<0.05, **P<0.01, ***,P<0.001, ****,P<0.0001

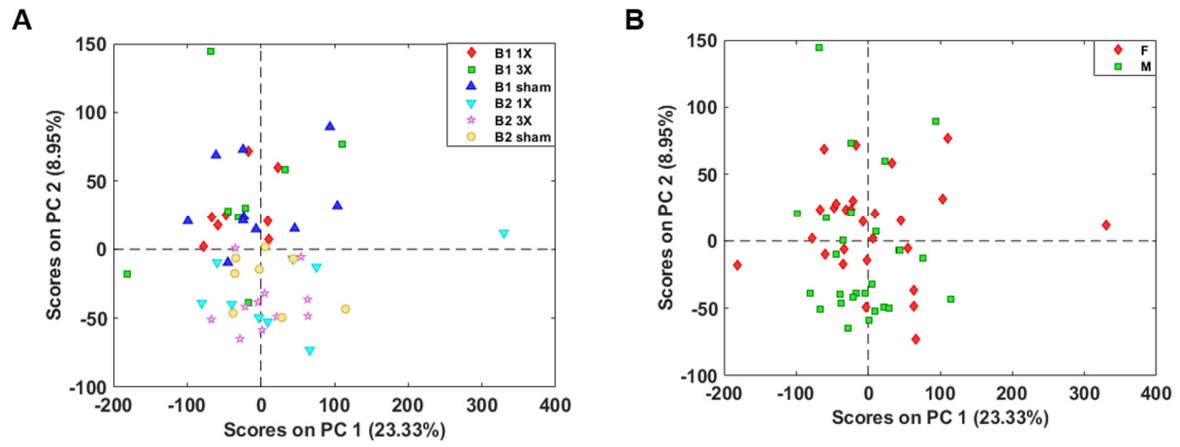


Figure S1. 22,735 features detected by LC-MS (A) PCA score plot depicts separation of batch 1 and batch 2 along PC2. Batch 1 samples are in upper quadrants. Batch 2 samples are in lower quadrants. (B) PCA score plot of all features indicate minimal separation between male and female samples.

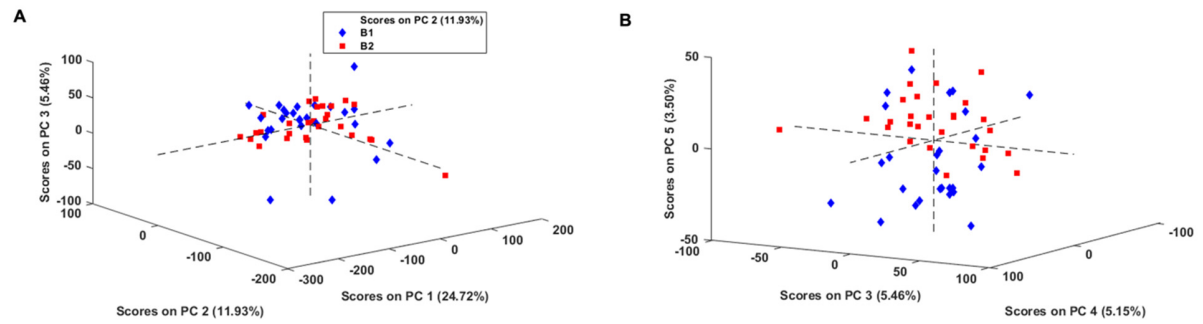


Figure S2. Feature reduction to minimize batch effects with full dataset (A) 3D-PCA score plot depicts no separation of batch 1 and batch 2 along PC1, 2, and 3. **(B)** 3D-PCA score plot of all features indicate separation of of batch 1 and 2 along PC5.

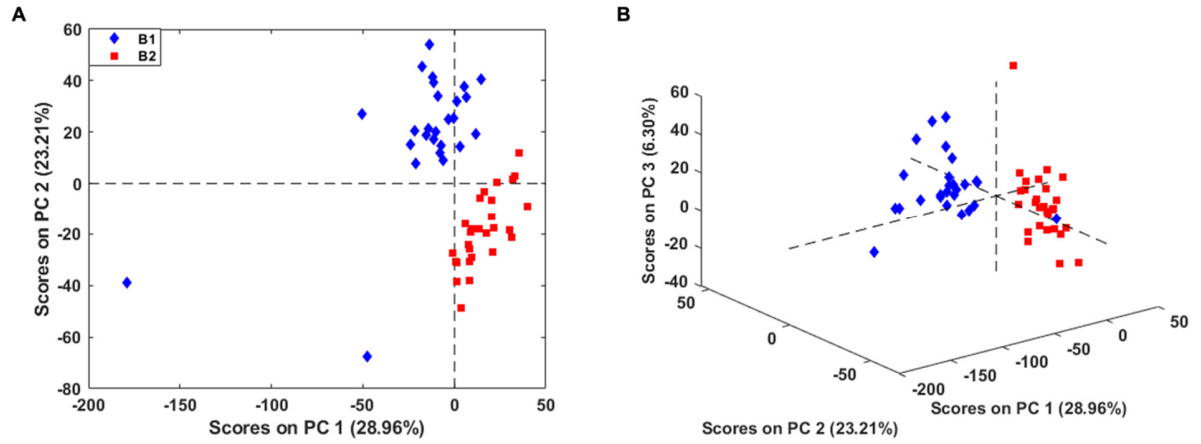


Figure S3. 2,983 features with statistically significant difference between batches. (A) 2-D PCA score plot show prominent separation of experimental batch 1 and 2 along PC 1 (B) 3-D PCA score plot show separation along PC1 and PC2. B1 denotes batch 1 and B2 denotes batch 2.

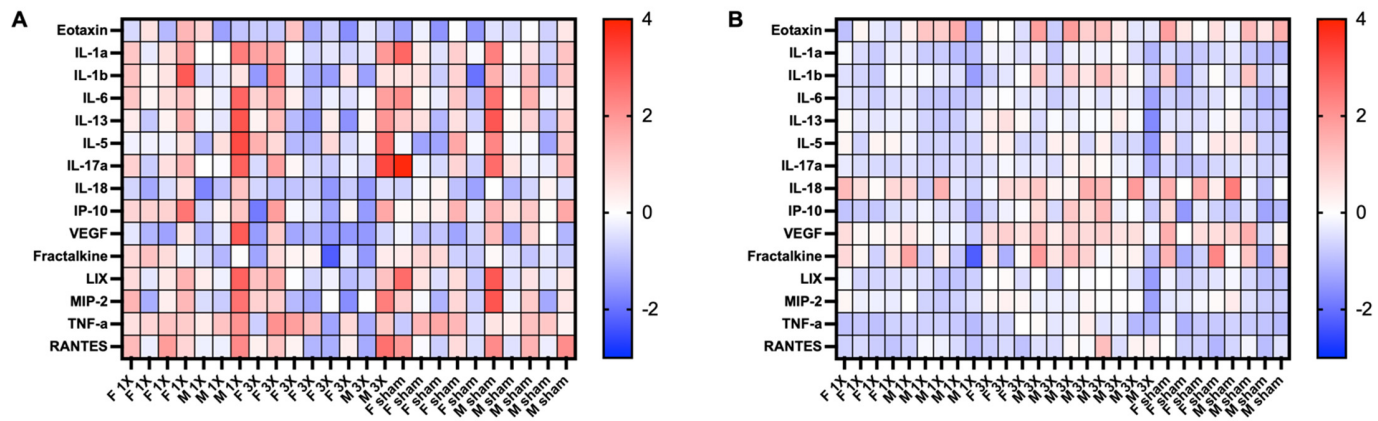


Figure S4. Heatmap of cytokine and chemokine expression z-scores. (A) batch 1 (B) batch 2.

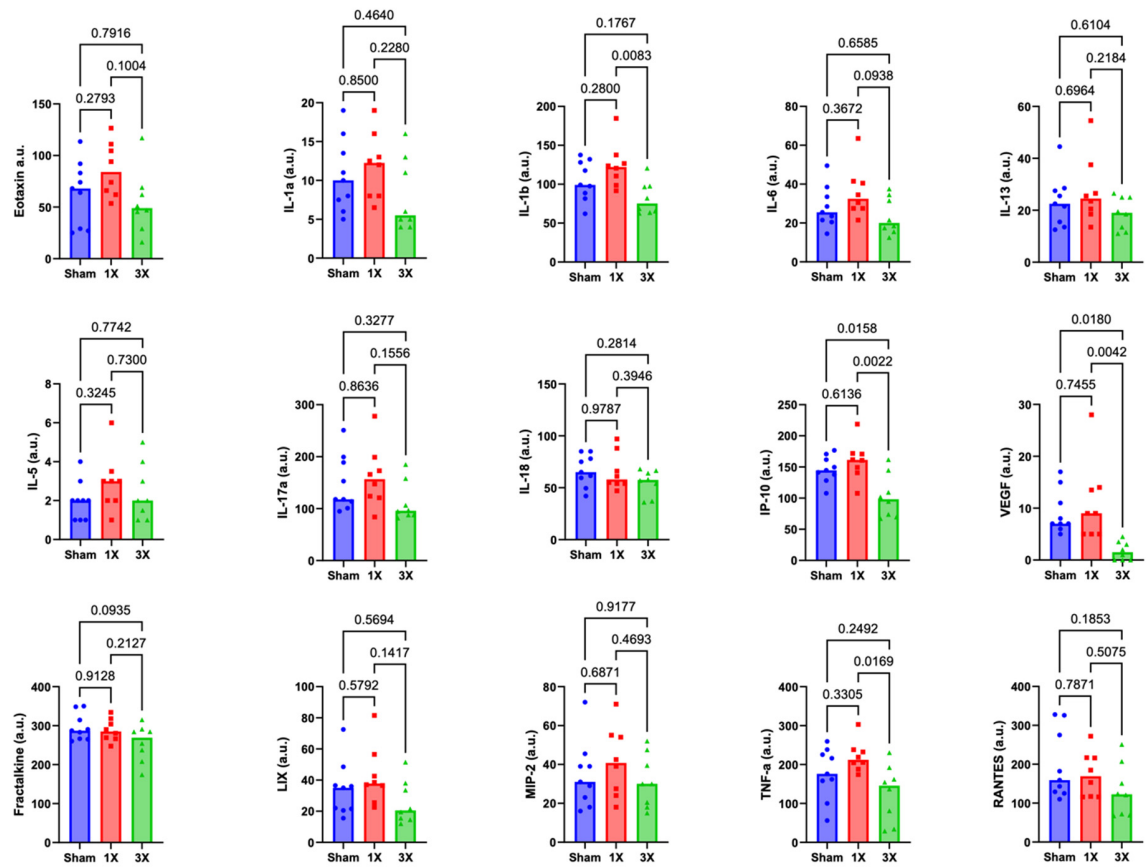


Figure S5. Inflammation marker profiles in batch 1. Data depict average cytokine and chemokine levels for each group. One-way ANOVA with Tukey's post-hoc, graph denotes mean.

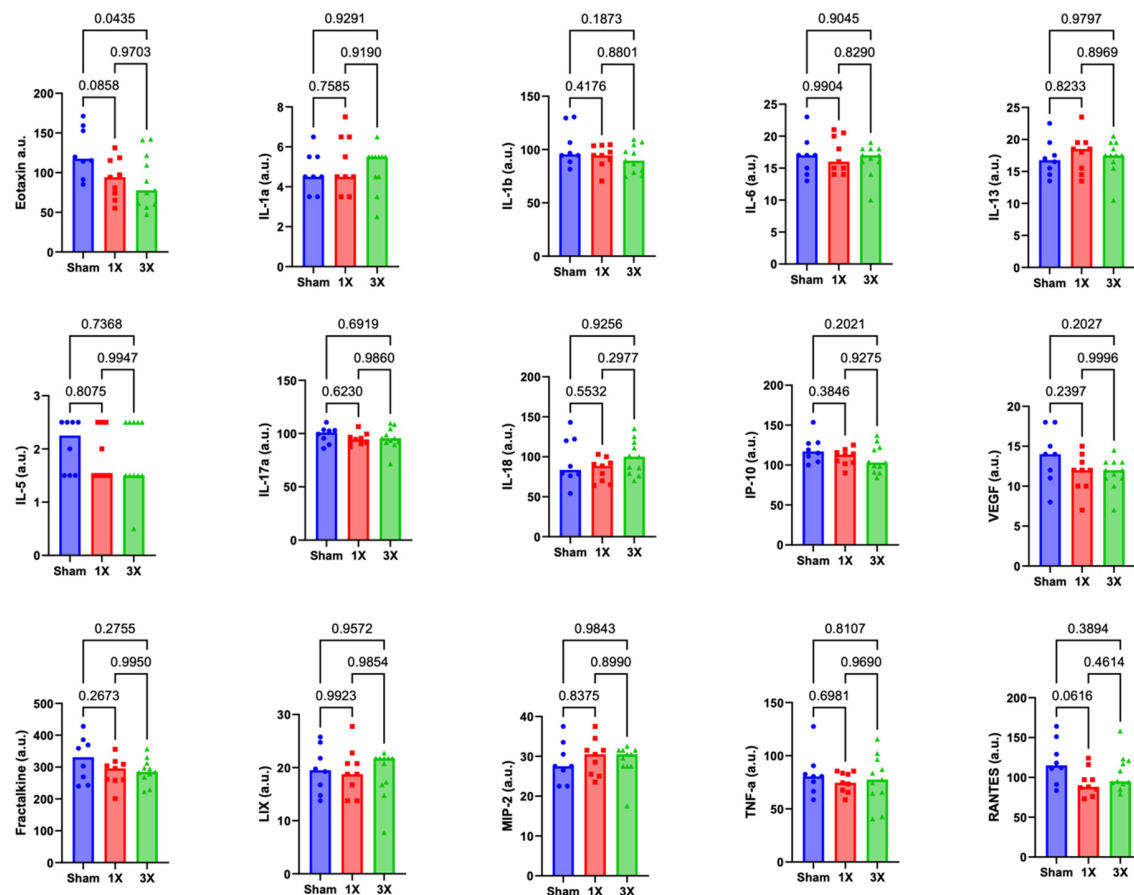


Figure S6. Inflammation marker profiles in batch 2. Data depict average cytokine and chemokine levels for each group. One-way ANOVA with Tukey's post-hoc, graph denotes mean.

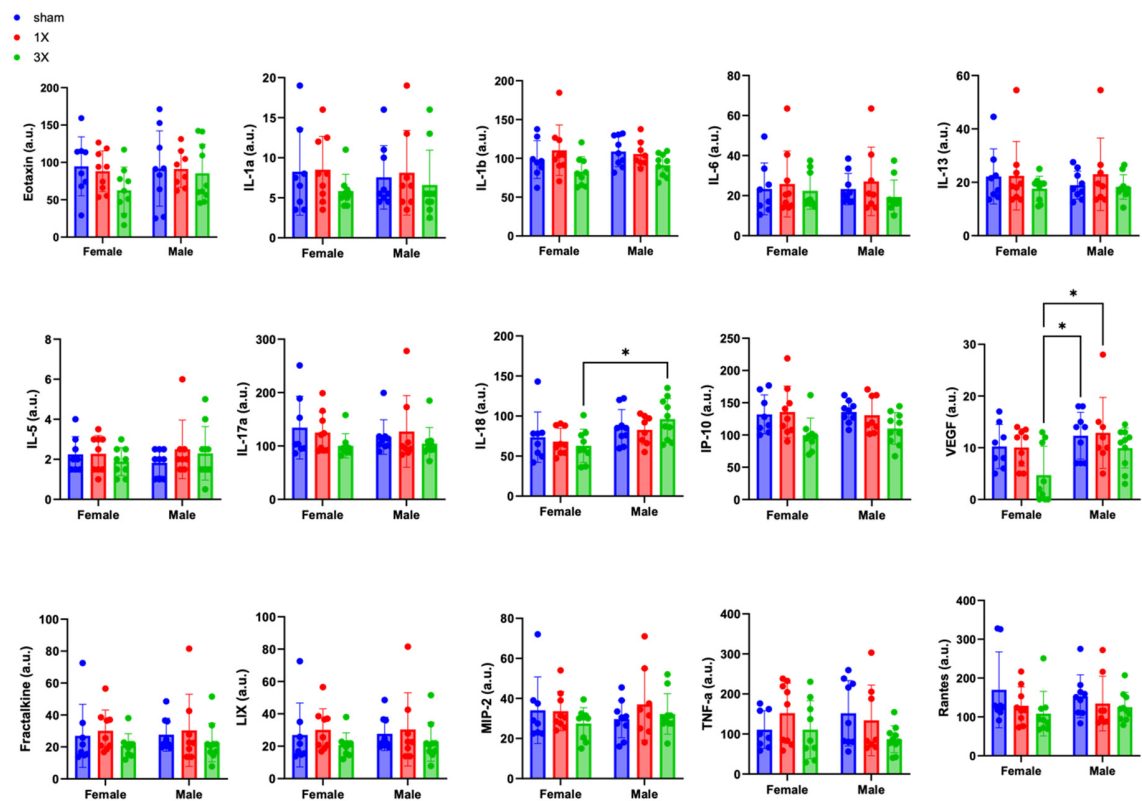


Figure S7. Inflammation marker profiles in female and male groups. Data depict average cytokine and chemokine levels for each injury group and sex. Two-way ANOVA with Tukey's post-hoc, graph denotes mean.