

**Supplementary Material**

**Blast-Induced Tinnitus and Elevated Central Auditory and Limbic Activity  
in Rats: A Manganese-Enhanced MRI and Behavioral Study**

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**Supplementary Table S1:** Effect size and detectable differences calculated between groups, including before and after Bonferroni corrections for multiple comparisons. Of note, the differences between the contrast-to-noise ratios of tinnitus positive and tinnitus negative rats (see Supplementary Table S2) did not exceed the detectable differences listed here in Table S1.

**MEMRI: Detectable Differences**

Variable	T+ (n=8) vs. T- (n=5)		T+ (n=8) vs. Ctrl (n=6)		T- (n=5) vs. Ctrl (n=6)	
	p = 0.05	p = 0.017	p = 0.05	p = 0.017	p = 0.05	p = 0.017
<i>Effect Size</i>	1.755	2.122	1.649	1.985	1.907	2.335
<i>L-DCN</i>	0.154	0.187	0.145	0.175	0.168	0.205
<i>L-VCN</i>	0.063	0.076	0.059	0.071	0.068	0.083
<i>L-DCIC</i>	0.050	0.060	0.047	0.056	0.054	0.066
<i>L-CIC</i>	0.041	0.049	0.038	0.046	0.044	0.054
<i>L-ECIC</i>	0.055	0.067	0.052	0.062	0.060	0.073
<i>L-MGB</i>	0.041	0.050	0.039	0.047	0.045	0.055
<i>L-AC</i>	0.040	0.048	0.038	0.045	0.044	0.053
<i>R-DCN</i>	0.186	0.225	0.175	0.210	0.202	0.247
<i>R-VCN</i>	0.092	0.111	0.086	0.104	0.100	0.122
<i>R-DCIC</i>	0.035	0.042	0.033	0.040	0.038	0.047
<i>R-CIC</i>	0.035	0.043	0.033	0.040	0.038	0.047
<i>R-ECIC</i>	0.039	0.047	0.037	0.044	0.042	0.052
<i>R-MGB</i>	0.047	0.057	0.044	0.053	0.051	0.063
<i>R-AC</i>	0.044	0.053	0.041	0.050	0.048	0.058
<i>AMG<sub>S</sub></i>	0.080	0.097	0.075	0.091	0.087	0.107
<i>AMG<sub>D</sub></i>	0.069	0.083	0.064	0.078	0.075	0.091
<i>AMG<sub>C</sub></i>	0.081	0.098	0.076	0.092	0.088	0.108

<i>NA<sub>C</sub></i>	0.090	0.109	0.085	0.102	0.098	0.120
<i>NA<sub>S</sub></i>	0.091	0.109	0.085	0.102	0.098	0.120
<i>ACC</i>	0.031	0.038	0.030	0.036	0.034	0.042
<i>HIPP</i>	0.157	0.190	0.148	0.178	0.171	0.209

**Supplementary Table S2:** Contrast-to-noise ratio difference between the three groups.

**MEMRI: Contrast-to-Noise Ratio Differences**

<b>Region</b>	<b>T+ (n=8) vs. T- (n=5)</b>	<b>T+ (n=8) vs. Ctrl (n=6)</b>	<b>T- (n=5) vs. Ctrl (n=6)</b>
<i>L-DCN</i>	0.028	0.104	0.076
<i>L-VCN</i>	0.055	0.045	-0.010
<i>L-DCIC</i>	0.028	0.019	-0.009
<i>L-CIC</i>	0.006	0.009	0.003
<i>L-ECIC</i>	0.020	0.028	0.008
<i>L-MGB</i>	0.016	0.038	0.022
<i>L-AC</i>	0.013	0.035	0.022
<i>R-DCN</i>	0.073	0.157	0.083
<i>R-VCN</i>	0.009	0.078	0.069
<i>R-DCIC</i>	0.015	0.030	0.015
<i>R-CIC</i>	0.003	0.024	0.021
<i>R-ECIC</i>	0.015	0.037	0.022
<i>R-MGB</i>	0.011	0.009	-0.001
<i>R-AC</i>	0.000	0.028	0.028
<i>AMG<sub>S</sub></i>	0.013	0.071	0.058
<i>AMG<sub>D</sub></i>	0.031	0.070	0.039
<i>AMG<sub>C</sub></i>	0.020	0.041	0.021
<i>NA<sub>C</sub></i>	0.044	0.049	0.005
<i>NA<sub>S</sub></i>	0.036	0.073	0.038
<i>ACC</i>	-0.002	0.014	0.016

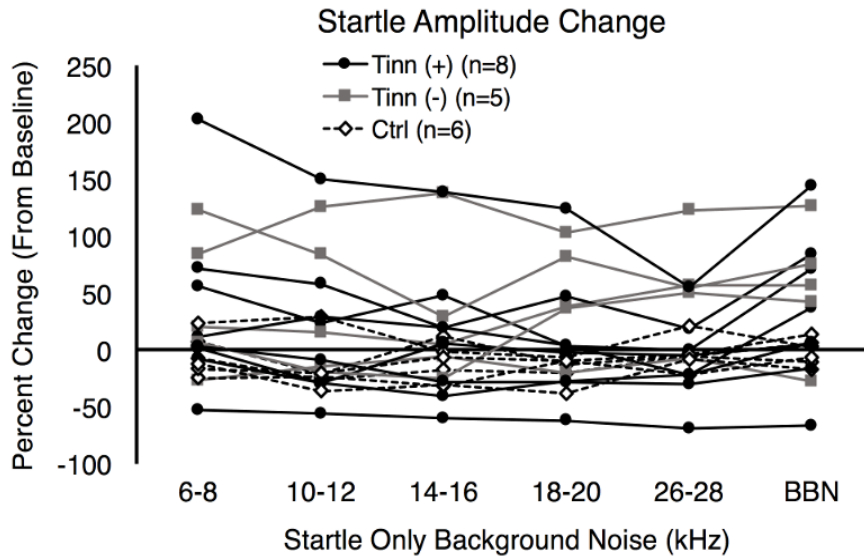
*HIPP*

-0.004

0.065

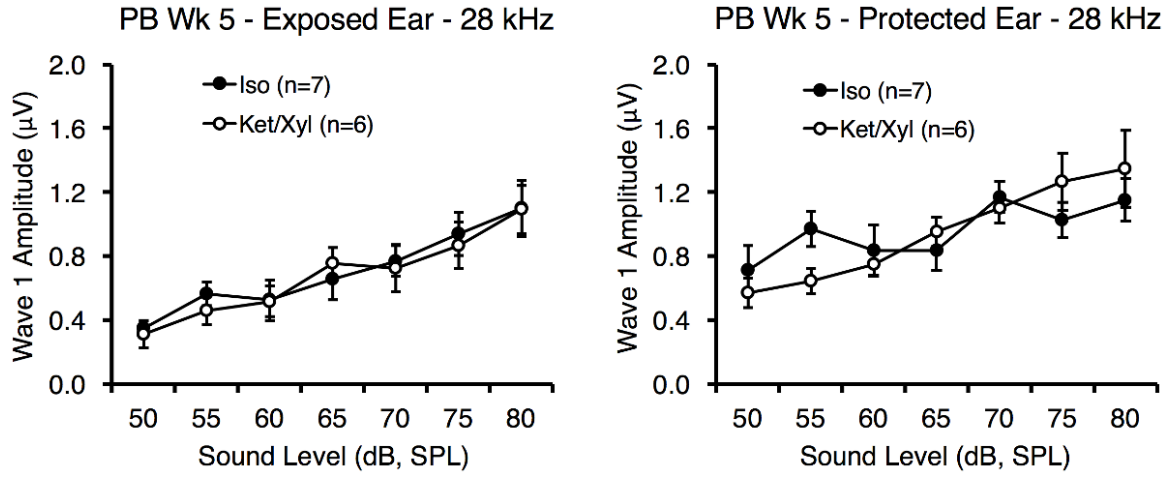
0.069

## Supplementary Figure S1



**Figure S1: Percent change in startle amplitude to the Startle Only condition (of gap-detection test) in individual animals.** Relative to baseline, startle amplitude either remained the same, increased, or decreased in individual animals after blast or sham-blast. However, these changes are not strictly observed in tinnitus positive animals, suggesting that startle amplitude did not confound tinnitus diagnosis.

## Supplementary Figure S2



**Figure S2: ABR P1-N1 amplitude in rats blasted under isoflurane (Iso) vs. rats blasted under ketamine/xylazine (Ket/Xyl).** No significant differences were observed in P1-N1 amplitude between the two groups in either ear, suggesting a similar degree of blast-induced “hidden hearing loss”.