

Supplementary Results

AD-N v control LCLs.

ATP-linked respiration was slightly higher in the AD-N as compared to control LCLs [F(1,442)=18.96, $p<0.0001$]. While ATP-linked respiration decreased as mercury increased [F(6,59)=32.64, $p<0.0001$], this decrease was not different between groups (Figure S1A). ATP-linked respiration was found to be significantly lower than baseline at 0.125 μ M [t(59)=2.13, $p<0.05$], 0.25 μ M [t(59)=2.14, $p<0.05$], 0.5 μ M [t(59)=4.60, $p<0.0001$], 1.25 μ M [t(59)=7.58, $p<0.0001$] and 2.5 μ M [t(59)=11.76, $p<0.0001$].

Overall proton leak respiration was slightly but significantly higher in the AD-N as compared to the control LCLs [F(1,442)=38.16, $p<0.0001$] (Figure S1B). Proton leak respiration significantly changed as mercury increased [F(6,59)=2.96, $p<0.05$], but this change was not significantly different between the two groups. This change in proton leak respiration with increasing mercury was due to a significantly lower proton leak respiration at 2.5 μ M mercury as compared to baseline [t(59)=3.03, $p<0.01$].

Maximal respiratory capacity was slightly higher in the AD-N as compared to control LCLs [F(1,442)=7.13, $p<0.01$]. While maximal respiratory capacity decreased as mercury increased [F(6,59)=41.70, $p<0.0001$], this decreased was not different between groups (Figure S1C). Maximal respiratory capacity was found to be significantly lower than baseline at 0.125 μ M [t(59)=2.01, $p<0.05$], 0.25 μ M [t(59)=2.49, $p<0.05$], 0.5 μ M [t(59)=5.69, $p<0.0001$], 1.25 μ M [t(59)=8.79, $p<0.0001$] and 2.5 μ M [t(59)=12.22, $p<0.0001$].

Overall reserve capacity was not different between the LCL groups (Figure S1D). Reserve capacity decreased as mercury increased [F(6,59)=37.18, $p<0.0001$], but this change was not significantly different between the two LCL groups. Reserve capacity was significantly lower

than baseline at 0.25 μ M [t(59)=2.44, p<0.05], 0.5 μ M [t(59)=5.64, p<0.0001], 1.25 μ M [t(59)=8.36, p<0.0001] and 2.5 μ M [t(59)=11.23, p<0.0001].

AD-N LCLs: NAC Pretreatment vs No Pretreatment

As seen in Figure S2A, pretreatment with NAC slightly but significantly increased ATP-linked respiration [F(1,505)=23.00, p<0.0001]. ATP-linked respiration for both the pretreated and the non-pretreated AD-N LCLs decreased as mercury increased [F(6,59)=33.65, p<0.0001] but this decrease was not different across the two LCL groups. ATP-linked respiration was significantly lower than baseline at 0.125 μ M [t(59)=2.07, p<0.05], 0.25 μ M [t(59)=3.13, p<0.01], 0.5 μ M [t(59)=4.00, p<0.001], 1.25 μ M [t(59)=7.72, p<0.0001] and 2.5 μ M [t(59)=11.98, p<0.0001].

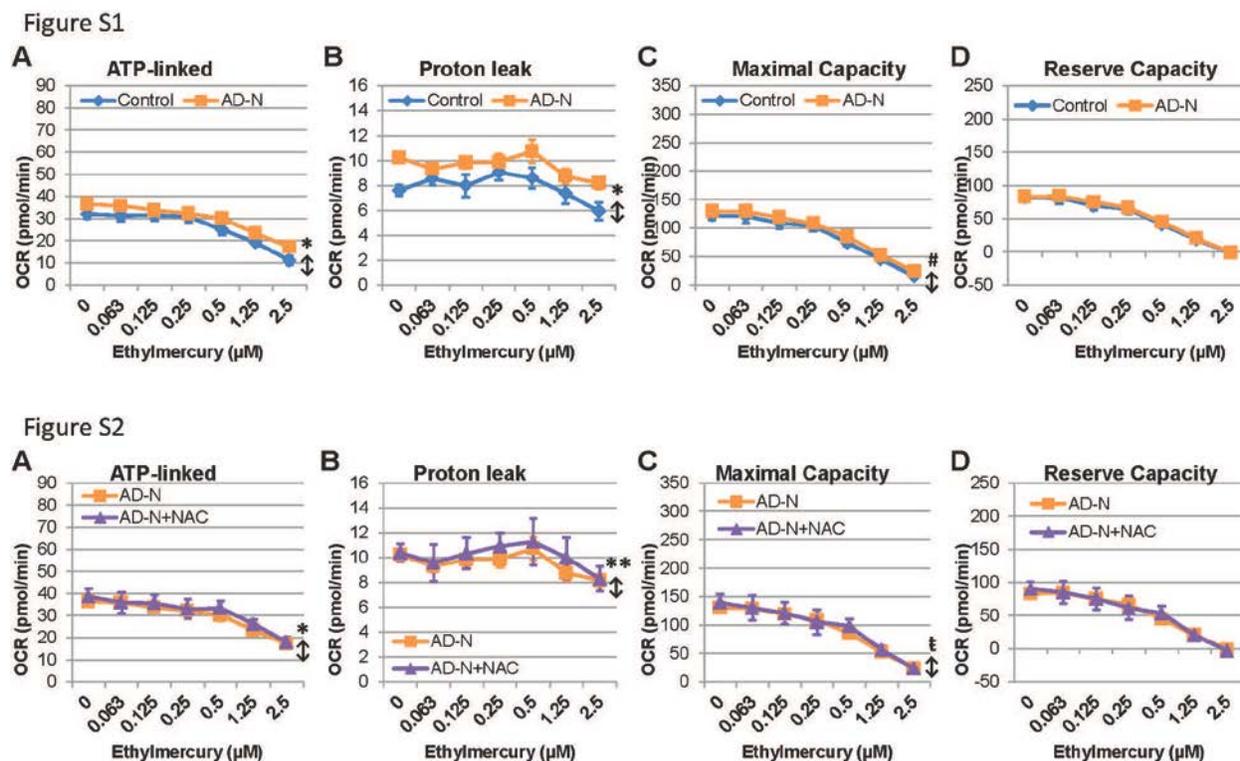
Pretreatment with NAC slightly but significantly increased proton leak respiration [F(1,505)=10.74, p=0.001] (Figure S2B). Proton leak respiration for both the pretreated and the non-pretreated AD-N LCLs changed as mercury increased [F(6,59)=3.36, p<0.01] but this decrease was not different across the two LCL groups. Proton leak respiration was significantly lower than baseline at 2.5 μ M [t(59)=3.33, p<0.01].

Pretreatment with NAC slightly but significantly increased maximal respiratory capacity [F(1,505)=5.20, p<0.05] (Figure S2C). Maximal respiratory capacity for both the pretreated and the non-pretreated AD-N LCLs decreased as mercury increased [F(6,59)=53.11, p<0.0001] but this decrease was not different across the two LCL groups. Maximum respiratory capacity was significantly lower than baseline at 0.25 μ M [t(59)=3.57, p<0.001], 0.5 μ M [t(59)=5.92, p<0.0001], 1.25 μ M [t(59)=10.02, p<0.0001] and 2.5 μ M [t(59)=13.92, p<0.0001].

Pretreatment with NAC did not influence overall reserve capacity (Figure S2D). Reserve capacity for both the pretreated and the non-pretreated AD-N LCLs decreased as mercury increased [F(6,59)=47.42, p<0.0001] but this decrease was not different across the two LCL groups. Reserve capacity was significantly lower than baseline at 0.25 μ M [t(59)=3.33, p=0.001],

0.5 μ M [t(59)=5.94, $p < 0.0001$], 1.25 μ M [t(59)=9.50, $p < 0.0001$] and 2.5 μ M [t(59)=12.78, $p < 0.0001$].

Supplementary Figures



Supplementary Figure Legends

Figure S1. Mitochondrial respiratory parameters and responses to mercury in the AD-N LCL subgroup. Overall, the AD-N subgroup demonstrates similar mitochondrial responses as the control LCLs. (A) ATP-linked respiration (B) proton leak respiration and (C) maximal respiratory capacity are overall slightly but significantly higher in the AD-N LCLs as compared to controls. * $p \leq 0.0001$; # $p \leq 0.01$; \downarrow indicates an overall statistical difference between LCL groups when differences at individual concentrations of mercury are not significant.

Figure S2. Mitochondrial respiratory parameters and responses to mercury in the AD-N LCL subgroup following 48 hour pretreatment with 1mM N acetyl-cysteine (NAC). Overall, changes in mitochondrial function with increased mercury seen in the AD-N subgroup are not drastically different following NAC pretreatment. (A) ATP-linked respiration, (B) proton leak respiration and (C) maximum respiratory capacity are slightly but significantly higher in the NAC pretreated group as compared to the not pretreated group. * $p \leq 0.0001$; ** $p \leq 0.001$; † $p \leq 0.05$; \downarrow indicates an overall statistical difference between LCL groups when differences at individual concentrations of mercury are not significant.