

**Supplementary Figure 1. Mouse body weight and survival during *in vivo* study.** Mice maintained body weight and all mice survived through the study. Untreated, non-genetic carriers (NCAR-Veh), untreated, genetic careers (Hemi-Veh), mabuterol-treated, genetic carriers (Hemi-Maburterol) are represented by blue, red, green, and purple data curves.



**Supplementary Figure 3. Activity chamber time shows no significant differences through the study.** We measured the distance moved (upper left), vertical counts (upper right), vertical time (lower left), and total duration of activity (lower right) across the duration of the study and observed no statistically significant differences. Untreated, non-genetic carriers (NCAR-Veh), untreated, genetic careers (Hemi-Veh), mabuterol-treated, genetic carriers (Hemi-Maburterol) are represented by blue, red, green, and purple data curves.





**Supplementary Figure 4. Y-maze FA shows no difference across treatment groups**. We measured duration of time in novel and familiar arms at 4 weeks (upper left) and 7 weeks (lower left), total duration of time spent in novel and each familiar arms at 4 weeks (upper middle) and 7 weeks (lower middle), and total duration spent in novel arms and either familiar arm at 4 weeks (upper right) and 7 weeks (lower right). Untreated, non-genetic carriers (NCAR-Veh), untreated, genetic careers (Hemi-Veh), mabuterol-treated, genetic carriers (Hemi-Maburterol) are represented by blue, red, green, and purple data curves.

**Supplementary Figure 5. Protein level changes varied across treatment group.**