Supplementary Figure 1. ATXN1 induced decrease in H3 acetylation levels is rescued upon LANP depletion in PC12 cells.

PC12 cells were transfected with the indicated constructs: GFP (control), GFP-tagged wild type (2Q) or mutant (84Q) ATXN1; along with control and LANP siRNA as shown. After 72 hrs of NGF treatment, the cells were lysed and levels of H3 acetylation were examined using Western blotting. Actin was used to normalize for difference in loading. Statistical analysis was performed with unpaired t –test, with **p = 0.0005 comparing GFP to ATXN1 84Q, * p = 0.0458 comparing GFP to ATXN1 2Q (both under control siRNA condition). Depleting LANP rescues the decrease in H3 acetylation induced by both ATXN84 Q and ATXN 2Q (p = 0.011 comparing ATXN1 84Q with control siRNA to ATXN1 84Q with LANP siRNA; while p = 0.00223 comparing ATXN1 2Q with control siRNA to ATXN1 2Q with LANP siRNA).

Supplementary Figure 2. LANP null mice have increased histone acetylation.

The level of histone acetylation in cerebellar lysates of LANP -/- mice is compared to wild-type littermates by western-blot staining with an antibody specific to acetylated histone H3. Staining with a total H3 antibody serves as a loading control. The intensity of the lanes is quantified by densitometry where the histograms show the mean value of densitometry with error bars showing SE. n= 3 pairs of adult mice. p = 0.042 using paired two-tailed t-test.

Supplementary Figure 3. Representative images of calbindin stained sections of SCA1 mice in the presence (LANP+/+) or absence (LANP-/-) of LANP.

Cerebella of 1 year old SCA1, and SCA1; LANP-/- mice (littermates) were stained with Purkinje cell specific marker calbindin. a) lower magnification (5X), scale bar = 200μm, b) higher

magnification (20X), scale bar = 50 μm. Note a section of a wild-type littermate control is shown at high magnification for comparison.