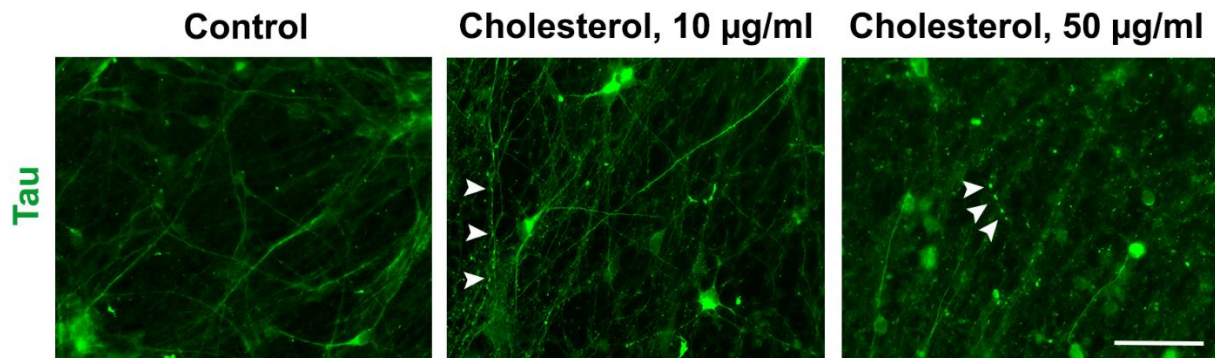
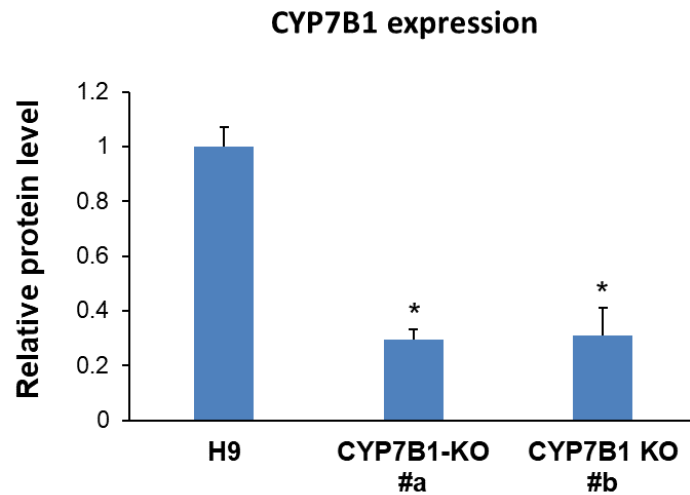


Supplemental Figure 1. Effect of CDCA on total cholesterol content in control neurons. Following treatment with vehicle (DMSO) or CDCA (10 μg/ml) for 1 week, total cholesterol content in WT neurons was compared. There was no statistical difference between these two groups. Data are represented as means ± standard deviation. n.s., not significant.



Supplemental Figure 2. Effects of cholesterol treatment on control human iPSC-derived neurons. To examine effects of cholesterol homeostasis on axonal defects, control neurons were treated with two concentrations of cholesterol (10 and 50 $\mu\text{g/ml}$). After a 2-day treatment, there was dramatic breakdown and retraction of axons in the high dose-treated group. At 3 days after treatment, cells were fixed and stained for TAU. Accumulated axonal swellings (indicated with arrowheads) were observed in both cholesterol-treated groups. Scale bar, 50 μm .



Supplemental Figure 3. Reduced protein levels in CYP7B1 knockout cells. ELISA analysis showing relative expression of CYP7B1 protein in H9 control and CYP7B1 KO cells. There was a significant reduction in the protein levels in both CYP7B1 KO lines as compared to H9 controls. Data are represented as means \pm SEM, * $p < 0.05$ compared to H9 group by Dunnett's test after ANOVA.