**Supplementary Figure 1.** Chromatograms of the *PNPLA6* mutations found in the 7 families.
Supplementary Figure 2. Localization of SWS in fly photoreceptors. Immunostaining of SWS (green) and the plasma membrane marker HRP (red) on fly retina whole mounts. While some SWS co-localizes with HRP (arrow) it can also be detected in areas that are not immunopositive for HRP (arrowheads).

Supplementary Figure 3. Electroretinograms show no difference in SWS knockdown flies. A 28-30d old wild type fly shows the characteristic ERG with a clearly distinguishable on and off peak (a). Neither the response time nor the on and off peaks are altered in GMR-GAL4-induced knockdown flies when 1-3d old or 28-30d old (b).