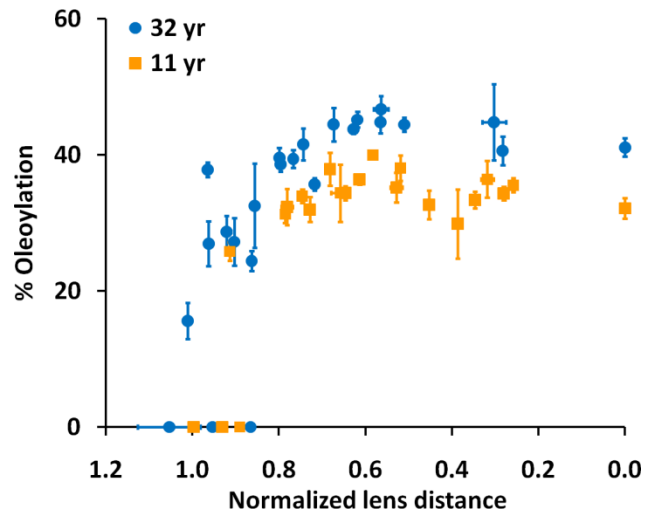


**Supplementary Figure 1** – MALDI tissue profiles of 69 year human lens sections acquired at normalized lens distances of A) 1.0, B) 0.9, C) 0.8, C) 0.5, D) 0.2, and E) 0.0. The diamonds (◆) indicate oleoylation of AQP0 (+ 264 Da), which appear beginning at a normalized lens distance of 0.9. The stars (✦) indicate acetylation (+ 42 Da), which appears beginning at a normalized lens distance of 0.8. In panel C, acetylation of AQP0 1-246 appears as a shoulder to the main AQP0 1-246 peak (indicated by a m/z label), while the main peak detected for intact AQP0 corresponds to the m/z for acetylated AQP0 (indicated by a star). In panels D-F, unmodified, AQP0 1-246 is not seen, and the m/z of the detected peaks corresponds to the expected m/z for acetylated AQP0 1-246. AQP0 represents full length AQP0 (AQP0 1-263). AQP0 truncation products are represented by 1-x, where x is the C-terminal residue. The asterisk represents a sinapinic acid adduct. Boxed numbers represent the normalized lens distance from which the spectrum was obtained.



**Supplementary Figure 2** – Distribution of oleoylated, intact AQP0. Percent Oleoylation is shown as a function of normalized lens distance for lenses of 11 and 32 years of age.