



**Supplementary Figure S1)** Graphical representation of the approach used to quantify, and correct for, variation in weighted average density (WAD) estimates between ultracentrifuge tubes. In this example weighted average density estimates for taxa in the bottom 5% of WAD shifts in the week one control treatment (in ranked order along the x-axis) are shown for each tube before and after the correction. The offset for each tube was calculated as  $\text{offset}_{\text{tubeX}} = \text{Average WAD}_{\text{tubeX}} - \text{Average WAD}_{\text{Unenriched}}$ , where the unenriched WAD is the average of WAD estimates from the corresponding no isotope control samples. The offset for each tube was then subtracted from the WAD estimate for all OTUs within that tube.