

**Figure S2**: Time-evolution of  $^{13}$ C assimilation and starch production/accumulation in the *Orbulina universa* symbiotic dinoflagellate endoplasm during the light (t = 1 and 6 h) and dark phases (t = 12 and 18 h). TEM micrographs of *O. universa* endoplasm with symbiotic dinoflagellates and corresponding NanoSIMS images of  $^{13}$ C/ $^{12}$ C distributions (expressed as  $\delta^{13}$ C in %). Left columns: incubation in H $^{13}$ CO $_3^-$  and  $^{15}$ NH $_4^+$  Exp. 1. Right columns: incubation in H $^{13}$ CO $_3^-$  and  $^{15}$ NO $_3^-$  Exp. 2. d: dinoflagellate, f: fibrillar body, li: lipid droplet. Objects appearing white in NanoSIMS images are starch deposits with  $^{13}$ C-enrichments above the imposed 10 000 % upper color scale limit. Scale bars: 5 μm.