



**Figure S5:**  $^{15}\text{N}$ -enriched prokaryote-like vesicles in *O. universa* endoplasm.  $^{15}\text{N}$ -enriched vesicles (potential prokaryotes in degradation vacuoles) in *O. universa* cytoplasm at  $t = 18\text{h}$  during Experiment 2 (incubation with  $^{15}\text{NO}_3^-$ ). TEM micrographs are of *O. universa* cytoplasm and corresponding NanoSIMS images of  $^{12}\text{C}/^{13}\text{C}$  and  $^{15}\text{N}/^{14}\text{N}$  distributions (expressed as  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  in ‰). Arrowheads: highly  $^{15}\text{N}$ -labeled vesicles, d: dinoflagellate. Scale bars: 2  $\mu\text{m}$ .