



**Figure 8.** Schematics of biologically controlled intracellular mineralization shows that nucleation occurs within the cell in a specialized vesicle. a.) Biomineral is nucleated (1) within a compartment in the intracellular environment. These growth units may be assembled intracellularly (2) for subsequent secretion (3a) or secreted as an individual unit (3b) for subsequent organization into a higher order growth structures as a massive or organic-mineral composite. b.) In a less frequently used type of mineralization, the biomineral unit remains within the cell (1) as a single growth unit or is organized intracellularly (2) into a higher order structure.