



FIGURE: Porosome: the secretory portal at the cell plasma membrane. Porosomes in the exocrine pancreas (top panels) and neurons (bottom panels). In the top left panel, an electron micrograph of a single porosome at the apical plasma membrane (PM) of a pancreatic acinar cell is shown. Note the porosome membrane (POM, yellow arrowhead) associated with the membrane of a secretory vesicle (ZGM). A circular ring structure (blue arrowhead) forms the opening of the porosome complex to the outside. On the top right panel, is an atomic force micrograph of the apical end of a live pancreatic acinar cell, demonstrating the presence of four porosomes (one pointed by the yellow arrowhead). Porosomes in the exocrine pancreas range in size from 100 - 180 nm. In the bottom left panel, an electron micrograph of a neuronal porosome (red arrowhead) in association with a synaptic vesicle (SV) at the presynaptic membrane (Pre-SM) of the nerve terminal, is shown. Note a central plug in the neuronal porosome complex, implicated in its rapid opening and closing during neurotransmission. The bottom right panel is an atomic force micrograph of a neuronal porosome at the presynaptic membrane in live cell, also confirming the presence of the central plug (red arrowhead). The neuronal porosome is an order of magnitude smaller (10-15 nm) than the porosome in the exocrine pancreas or endocrine cells.