

ABSTRACT

Thesis: VAMP-3 Presence in Rabbit B Lymphocyte Plasmacytoma-Like Cells

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Degree: Masters of Science

College: Physiology and Health Science

Date: July, 2014

Pages: 34

Vesicle associated membrane proteins are members of the soluble N-ethyl-maleimide-sensitive factor receptor (SNARE) attachment protein family that facilitate the intracellular membrane fusion process involved in neurotransmitter release (Ungar & Hughson, 2003). Cellubrevin, or VAMP-3, is similar to SNARE proteins, synaptobrevin 1 and 2 (VAMP-1 and 2), but can be found in many different tissues such as fibroblasts, adipose cells, insulin-secreting B cells, and supportive brain cells like glial, but not brain neuron cells (Chilcote et al., 1995). However cellubrevin is also a substrate for proteolytic action of tetanus toxin just like VAMP-1 and 2, and suggests similar roles in exocytosis due to the blocking of neurotransmitter release in the presence of tetanus (Chilcote et al., 1995). Cellubrevin has been found to be significant in the docking and vesicle fusion process of secretory granules to the plasma membrane, but few studies in the immunofluorescence localization on subcellular fractions have been done (Omatsu-Kanbe, Ding, Hashiramoto, & Kitasato, 1997). The presence of cellubrevin will be tested on the 240E cell line of rabbit B lymphocytes via western and immuno-dot blot. An anti-VAMP 3 antibody will be added to the membrane and imaged to examine for the presence of VAMP 3 in these cells. If found then possible avenues for future research on disorders of immunoglobulin transport release involving cellubrevin will be researched.