

## **Localizations of Endogenous APP/APP-proteolytic Products in Mitotic and Interphase Neuroblastoma Cells.**

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Dementia of the Alzheimer type (DAT) is an age-related pathology associated with the accumulation in the brain of amyloid-beta peptides (Abeta) derived from beta-amyloid precursor protein (APP). To rationally design therapeutic interventions to prevent Abeta accumulation, we must first understand the non-pathological roles of Abeta and APP. Using high-resolution fluorescence microscopy and antibodies specific for the N-terminal of APP and Abeta sequences, we found that endogenous APP and Abeta immunoreactivities colocalized with microtubules in interphase cells of the human neuroblastoma cell line, SK-N-SH. In addition, we found that Abeta immunoreactivities colocalize with the mitotic spindle, a bundle of specialized microtubules. Colocalization with microtubules suggests a possible role of Abeta and APP in microtubular transport in both interphase and mitotic cells. Preliminary evidence also indicates such colocalization in non-neuronal cells. Both microtubular transport and mitosis are central to many cellular functions. Therefore, age-related changes in the structure and function of APP may contribute to altered functions of non-neural as well as neural tissues.