Scaffold protein JSAP1 is transported to growth cones of neurites independently from JNK signaling pathways in PC12h cells

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The c-Jun NH_2-terminal kinase (JNK)/stress-activated protein kinase-associated protein 1 (JSAP1; also known as JNK-interacting protein 3) has been identified as a scaffold protein for JNK mitogen-activated protein kinase signal transduction pathways and as a cargo adapter in conventional kinesin-mediated transport system. Furthermore, the functional relationship between UNC-16, *C. elegans* ortholog of JSAP1, and JNK signaling has been genetically established. In this study, we first investigated expression properties of endogenous JSAP1 in differentiating PC12h cells, and demonstrated the requirement of kinesin light chain for the targeting and localization of JSAP1 to the tips of the neurites. Furthermore, to understand whether JNK signaling is involved in the kinesin-mediated JSAP1 trafficking, we established PC12h rat pheochromocytoma stable cell lines that express wild type and mutant JSAP1 lacking JNK-binding domain, respectively. Immunocytochemical studies of the cell lines indicated that the mutant JSAP1 is localized to growth cones of differentiating PC12h cells in a similar manner to the wild type JSAP1. Taken together, these results suggest that the proper subcellular localization of JSAP1 along microtublues does not require JNK signaling.

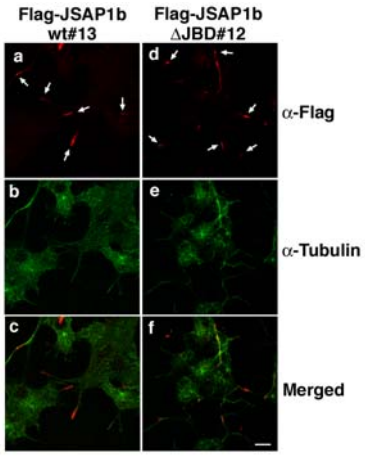

Figure Expression and subcellular distribution of JSAP1b in established PC12h cell lines. Cells of established PC12h lines (wt#13 and ΔJBD#12) that differentiated in response to treatment with NGF were fixed and processed for double-label indirect immunofluorescence microscopy. Arrows (in a and d) indicate signals over the tips of neurites.

Reference:
S. Sato, M. Ito, T. Ito and K. Yoshioka (2004) Gene 329, 51-60.