Selective expression of the scaffold protein JSAP1 in spermatogonia and spermatocytes

M. Bayarsaikhan, A. Shiratsuchi, D. Gantulga, Y. Nakanishi and K. Yoshioka

Scaffold proteins of mitogen-activated protein kinase (MAPK) intracellular signal transduction pathways mediate the efficient and specific activation of the relevant MAPK signaling modules. Our group and others previously identified c-Jun NH_2-terminal kinase (JNK)/stress-activated protein kinase-associated protein 1 (JSAP1, also known as JNK-interacting protein 3) as a scaffold protein for JNK MAPK pathways. Although JSAP1 is expressed in the testis in adults, its expression during development has not been investigated. In addition, it is unknown which types of cells in the testis express the scaffold protein. Here, we examined the expression of JSAP1 in the testis of mice aged 14 days, 20 days, 6 weeks, and 12 weeks by immunohistochemistry and Western blotting. The specificity of the anti-JSAP1 antibody was evaluated from its reactivity to exogenously expressed JSAP1 and a structurally related protein, and by antigen-absorption experiments. The immunohistochemical analyses with the specific antibody showed that the JSAP1 protein was selectively expressed in the spermatogonia and spermatocytes, but not in other cell types, including spermatids and somatic cells, during development. However, not all spermatogonia and spermatocytes were immunopositive either, especially in the 12-week-old mouse testis. Furthermore, we found by Western blotting that the expression levels of JSAP1 protein vary during development; there is high expression until 6 weeks after birth, which approximately corresponds to the end of the first wave of spermatogenesis. Collectively, these results suggest that JSAP1 function may be important in spermatogenic cells during early postnatal development.

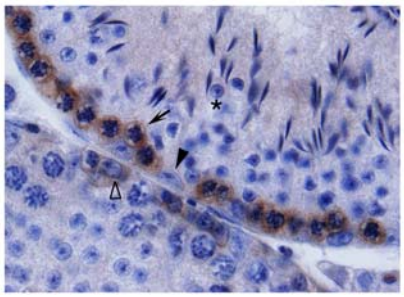

Figure JSAP1 immunoreactivity in the testis of a 12-week-old mouse. The positive signals were seen in the spermatogonia (openarrowhead) and spermatocytes (arrow), but not in Sertoli cells (arrowhead) or spermatids (*).

Reference: M. Bayarsaikhan, A. Shiratsuchi, D. Gantulga, Y. Nakanishi and K. Yoshioka (2005) Reproduction (in press)