neurons. A 200 bp patch of the first intron may act in pharyngeal neurons and another 300 bp patch may act in mechanosensory neurons. We expect that each motif confers binding site for transcription activator(s) in different subsets of neuron cells, which may differ in cell lineage and function.

D126

Interaction of Rbm, a Male Infertility Protein, with hnRNP K Suggests Its Function in mRNA Processing during Spermatogenesis.

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Microdeletions in the *AZFb* are strongly associated with male infertility. Multiple copies of the *Rbm* genes are located in the *AZFb* region on the Y chromosome. *Rbm* expression is restricted to the testis, especially the nuclei of the male germ cells. To understand biological functions of Rbm, we tried to identify proteins that interact with the Rbm protein. When we carried out yeast two-hybrid screening with a Rbm protein as a bait, we were able to observe a positive interaction with hnRNP K. Interacting domains of Rbm and hnRNP K were defined in yeast using several truncated mutants of both genes. Since the hnRNP K protein has multi-functions as a docking platform for controlling gene expression at the post-transcriptional level, we propose that Rbm plays an important role in spermatogenesis by controlling gene expression at the post-transcriptional level.

D127

Subcellular Localization of Nek2 Suggests Its Dual Functions as a Cell Cycle Regulator

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Nek2 is a mammalian protein kinase, structurally homologous to *Aspergillus* NIMA. Since NIMA functions as a cell cycle regulator by controlling chromatin condensation, it was proposed that Nek2 may also play a similar role as a cell cycle regulator in association with chromatin. On the contrary, it was reported that Nek2 can associate with centrosome, playing a key role in centrosomal behaviors during mitosis. To define biological functions of Nek2, we determined expression pattern and subcellualr localization of endogenous Nek2 in the ovarian follicular cells as well as of the exogenous Nek2 mutants in NIH3T3 cells. The results revealed that Nek2 was expressed in a cell cycle-specific manner, in that the Nek2 protein was present abundantly in S/G2 phase of the cell cycle. The cell-cycle dependence of Nek2 expression may be regulated, at least in part, with proteolytic mechanisms. The Nek2 protein was localized both in the nucleus and in the cytoplasm. In the nucleus, Nek2 appeared to associate with mitotic chromatin. These results suggest that Nek2 may have dual functions related to the chromatin condensation and the centrosome cycle.

D128

Postnatal Changes of the Steroidogenic Acute Regulatory Protein mRNA Expression in the Rat Brain

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Neurosteroids have been known to be synthesized in the central and peripheral nervous systems. In past years, many investigators participated in elucidation of the regulatory mechanism involved in postnatal brain development, especially, concerning developmental and regional specific expression of steroidogenic enzymes. Now, it is well accepted that the steroidogenic acute regulatory protein (StAR) plays essential roles and consists major rate limiting step in steroidogenesis. However, there is yet no evidence about StAR mRNA expression in developing brain. Thus, in this study, we firstly revealed changes of the expression pattern of StAR mRNA in several brain areas where other steroidogenic enzymes mainly expressed. As a result, the pattern of StAR mRNA expression was mainly changed in hypothalamus, hippocampus and cerebellum. We also detected variations of StAR expression according to their own developmental stages in the peripheral steroidogenic organs, adrenal glands and gonads. These results implicated that StAR might have a role in the neuronal cell growth and differentiation in the rat brain development likewise other steroidogenic enzymes.

D129

Effects of Ethanol on the Onset of Female Rat Puberty

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The present study was undertaken to examine the effects of ethanol on the hypothalamus-pituitary-gonad reproductive neuroendocrine axis during prepubertal and onset of puberty in the immature female rat. From day 25, each rat began receiving either a control saline or ethanol. Animals were sacrificed on day 27 and 32, and their ovaries and blood were collected. In the present results, ethanol treatment significantly decreased serum luteinizing hormone contents at both time points. Uterine weights of ethanol-treated group were significantly lighter than control group at early time point, while there was no noticeable discrepancy at late time point. Viginal openings, a marker of onset of puberty, also clearly delayed in ethanol-treated group. Using an in situ hybridization histochemistry, we determined the expression of mRNAs encoding StAR. Ovaries from ethanol-treated rats showed a suppressed expression of StAR mRNA. These results demonstrate that ethanol affect the reproductive activity at the level of brain thereby disturb the prepubertal ovarian function and onset of puberty, at least in part, through the inhibition of ovarian StAR gene expression.

D201

Control of Self-incompatibility by CO_2 Gas Treatment in *Brassica campestris*: Structural Alteration of Papillae Surface and Differential Gene Expression upon CO_2 Gas Treatment

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