

restriction had no effect on it. The fas protein level increased in 24 months of age more than 2 times, and dietary restriction had no effect on it. The active form of caspase-3 did not increase with aging but the proform of it was increased 3 times more than that of 6 months. And the increase was modulated in dietary restriction group. According to the above results, the increase of apoptotic cell death in rat testis cells is p53 and p21 dependent and fas protein will be related to the apoptotic death. It should be more investigated to confirm that dietary restriction has some effects on it.

[PC1-18] [ 04/19/2001 (Thr) 15:30 - 16:30 / Hall 4 ]

### Expression of HIF-1 inducible genes in the aged rat liver

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Some ROS have been suggested to play important roles as a second messenger in normal and diseases conditions. Recent findings on hypoxia established the induction of a DNA binding protein synthesis called hypoxia inducible factor-1 (HIF-1), which promotes transcription of multiple genes. HIF-1 plays a major role in adaptive responses essential to hypoxia as the case in angiogenesis to maintain O<sub>2</sub> homeostasis. HIF-1 has also been shown to activate transcription of genes encoding inducible nitric oxide synthase (iNOS) and heme oxygenase 1 (HO-1) which are important for the regulation of blood flow by synthesizing NO and CO, respectively. At present, there is no information on the HIF-1 inducible genes expression and DNA binding activity in aged tissues. We investigated expression of HIF-1 inducible genes in liver isolated from Fischer 344 rats at 6, 12, 18, and 24 months of age. We quantified the age-related changes in four genes, vascular endothelial growth factor (VEGF), HO-1, iNOS, and HIF-1a in rat whole liver. Quantitation of DNA binding activity was carried out by EMSA. Results showed that the protein levels of VEGF, HO-1, iNOS, and HIF-1a were increased with age. These changes are attributed to the age-related increase in HIF-1 DNA binding activity. Significances of our findings are the hypoxic induction of HIF-1 inducible genes may be critical factors in the maintenance of cerebral O<sub>2</sub> homeostasis and angiogenesis during aging. Our results warrant further investigation on molecular mechanisms underpinning hepatic aging and blood circulation under hypoxic conditions occurring during aging.

[PC1-19] [ 04/19/2001 (Thr) 15:30 - 16:30 / Hall 4 ]

### Effects of bisphenol A and 4-nonylphenol for development of cultured mammary gland

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The prevalence of synthetic chemicals in our environment that capable of mimicking the female hormone estrogen is a growing concern. One such chemical, bisphenol-A (BPA), has been shown to leach from a variety of resin-based and plastic products, including dental sealants food and beverage containers, in concentrations that are sufficient to induce cell proliferation in vitro. In order to development, mice on mammary determine if above endocrine disruptors (EDs) affect lobulo-alveolar development, and to determine if whole organ culture of mouse mammary glands is an appropriate model of estrogen effects on mammary development, mouse mammary glands were cultured in the presence or absence of EDs. Test chemicals selected for these studies included 17beta-estradiol, 4-nonylphenol and BPA. We also performed RT-PCR method. The RNA was prepared from mouse mammary tissues. These results