nally, leptin modulated biosynthesis of noradrenaline from dopamine in PC12 differentiated by NGF.

Molecular Cloning of Mouse SSeCKS and Its Expression during Inflammation

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During inflammation, the brain mediates various physiological responses, such as fever and anorexia. To explore novel genes involved in these responses, brain mRNA of mice subjected to systemic inflammation by bacterial lipopolysaccharide (LPS) was examined by RNA arbitrarily primed-polymerase chain reaction. Apparent effects of LPS were found in the mRNA level of 34 out of 1500 genes, so far examined. I focused on one gene, 131.5, whose mRNA level was greatly increased by LPS administration. In order to isolate the full-length cDNA of 131.5, a mouse cDNA library was screened using a short-length cDNA fragment of 131.5 as a probe. Sequence analysis of an isolated full-length 131.5 cDNA had an open reading frame of 5.0 kbp encoding a polypeptide of 1684 amino acids, which was 84.8% identical to rat SSeCKS (rSSeCKS). Thus it was concluded that 131.5 was the gene of mouse SSeCKS (mSSeCKS). Predicted protein of mSSeCKS, like rSSeCKS, contained four protein kinase C phosphorylation sites, one protein kinase A binding site, and an N-terminal myristylation signal, but not the Zn finger domain. Expression of mSSeCKS mRNA was examined in the brain and several peripheral organs by Northern blot analysis. In untreated control mice, mSSeCKS mRNA was expressed abundantly in the testis, but at undetectable levels in other organs. LPS administration induces mSSeCKS mRNA not only in the brain but also in the lung, heart, liver, spleen and kidney. In the lung and spleen, the mSSeCKS mRNA level was increased almost 10-fold after 1 hour, and was kept at high levels for several hours. *In situ* hybridization and immunohistochemical examinations showed strong signals of mSSeCKS mRNA and protein predominantly at microvascular endothelial cells of various tissues. Overexpression of rSSeCKS is known to cause cell flattening, formation of cellular projections, and the temporary loss of actin stress fibers and adhesion plaques, indicating rSSeCKS as a molecule to control the actin-based cytoskeletal architecture. Thus, my results suggest that mSSeCKS may play a role of the LPS-induced cellular responses, including the change of cytoskeleton in endothelial cells, and thereby an increase of vascular permeability.