

receptor mediated interaction.

[PC3-10] [ 10/19/2001 (Fri) 09:00 - 12:00 / Hall D ]

### Development of blood-brain barrier by oxygen-regulated novel genes

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The blood-brain barrier (BBB) is known as a highly selective barrier between the blood and the central nervous system and essential for the maintenance of the neural microenvironment. Since the oxygen tention during the development of vascular systems and the importance of astrocytes in differentiation of BBB have been suggested, we investigated the differentiation factors of BBB regulated by oxygen in astrocytes.

We used the Representational Difference Analysis (RDA) to clone mRNA fragments differentially expressed in hypoxic versus reoxygenated astrocytes and cloned several mRNAs upregulated by reoxygenation. We confirmed that clone R1 is increased at 30min of reoxygenation and clone R2 is highly increased at 3 h of reoxygenation by Northern and Western blotting. In [3H]sucrose permeability assay, clone R2 strongly enhanced the barrier function of ECV 304 cells. The conditioned media of clone R2 transfected astrocytes upregulated the expression of occludin and clone R2 also redistribute the localization of occludin in coculture system. Moreover, the conditioned media of clone R2 inhibited the neovascularization in vivo CAM assay. Clone R2 also decreased the expression of vascular endothelial growth factor/ vascular permeability factor.

Taken all together, we suggest that astrocytes activated by reoxygenation regulate the maturation and development of the BBB.

### Poster Presentations - Field D1. Medicinal Chemistry

[PD1-1] [ 10/19/2001 (Fri) 14:00 - 17:00 / Hall D ]

### Synthesis and Biological Activities of Benzo[b]quinolin[2,3-d]thiophen-6,11-diones via Palladium-catalyzed Reaction of 5,8-Quinolinediones with Arylmercaptane

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The benzo[b]naphtho[2,3-d]furan-6,11-diones 1 have received attention due to their potential biological activities. We designed and synthesized benzo[b]quinolin[2,3-d]thiophen-6,11-diones 2, as a bioisostere of the compound 1. Reactions of 6,7-dichloro-5,8-quinolinedione 3 and arylmercaptanes in DMF at RT and a catalytic amount of palladium acetate gave compounds of benzo[b]quinolin[2,3-d]thiophen-6,11-dione derivatives 2 in good to high yields. The compound 3 were tested for in vitro antifungal activities against pathogenic fungi. Most of the tested compounds exhibited antifungal activities against *Candida* species and *Aspergillus niger*.

[PD1-2] [ 10/19/2001 (Fri) 14:00 - 17:00 / Hall D ]