

[*FEBS Lett.*, **505**, 296-300 (2001)]

[Lab. of Clinical Pharmaceutics]

Nitric oxide and its decomposed derivatives decrease the binding of extracellular-superoxide dismutase to the endothelial cell surface.

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Extracellular-superoxide dismutase (EC-SOD) is bound to the vascular cell surface with an affinity for heparin to the vascular endothelial cell surface with an affinity for heparan sulfate proteoglycan. The binding of EC-SOD to the human umbilical vein endothelial cell (HUVEC) and bovine aortic endothelial cell surface proteoglycans was significantly decreased by the incubation with SNAP and NOR4, potent nitric oxide (NO) donors. NO derived from lipopolysaccharide-stimulated J774 A-1 cells also decreased the binding of EC-SOD to HUVEC, and this decrease was blocked by *N*^G-nitro-L-arginine, a nitric oxide synthase inhibitor. Furthermore, the decomposed derivatives of NO donors and sodium nitrite decreased the binding of EC-SOD. These observations suggest that excess NO produced in the inflammatory conditions decreases the binding of EC-SOD to the vascular endothelial cell surface, which results in a loss of the ability to protect the endothelial cell surface from oxidative stress.

[*Clin. Chim. Acta*, **308**, 191-193 (2001)]

[Lab. of Clinical Pharmaceutics]

Extracellular-superoxide dismutase in cerebrospinal fluid from infants/children.

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Extracellular-superoxide dismutase (EC-SOD) is a secretory glycoprotein with affinity for heparin-like substances, and is the major SOD isozyme in extracellular fluids. The aim of this study was to examine the age-related changes of EC-SOD level in cerebrospinal fluid (CSF) and its heparin affinity. CSF samples were collected from infants/children with suspected cerebrospinal meningitis. EC-SOD in CSF showed the significant age-dependent increase. Moreover the result that EC-SOD in CSF had high heparin-affinity suggested that EC-SOD in CSF did not undergo proteolytic truncation. The results of the present study suggested that EC-SOD concentration in CSF might reflect the level of EC-SOD expression and/or secretion in the brain.

[*Biol. Pharm. Bull.*, **24**, 191-193 (2001)]

[Lab. of Clinical Pharmaceutics]

Heparin-affinity of human extracellular-superoxide dismutase in the brain.

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Extracellular-superoxide dismutase (EC-SOD) is one of the three SOD isozymes in humans and has affinity for heparin-like sulfated glycosaminoglycans. The C-terminal portion of EC-SOD is responsible for the heparin-affinity of this enzyme, but this portion should be a target of proteinases. We found that human EC-SOD in brain tissue has high heparin-affinity similar to that in the umbilical cord. Moreover, heparin-affinity of EC-SOD in brain homogenate was not decreased by incubation at 37°C for 72h. The proteolytic activity in brain homogenate might be less than that in umbilical cord homogenates. The intracellular localization of EC-SOD could contribute to its slow clearance from the brain and maintenance of its physiological functions in the brain.

[*Jpn. J. Pharm. Health Care Sci.*, **27**, 386-391 (2001)]

[Lab. of Clinical Pharmaceutics]

The students' awareness about practical training in community prescription pharmacy.

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All students in the 4th year at our university perform 4-week training in pharmaceutical health care practice. We carried out a consciousness survey of 149 students who received training at a community prescription pharmacy. Among the types of work of community prescription pharmacy, those that particularly arouse student interest were "home medical care" "patient compliance instructions" and "patient reception". Interest in patient compliance instruction was frequently observed in students who wish to work in hospitals, home medical care and the sale of OTC drugs in those who wish to work in pharmacies, and DI work in those who wish to go to graduate schools. Concerning the questions about the image of community prescription pharmacists (or the work performance), students who felt a strong attitude of pharmacists toward their work showed more interest in training in community prescription pharmacies.