[*YAKUGAKU ZASSHI*, **121**, 837-844 (2001)] [Lab. of Clinical Pharmaceutics]

Analysis of inquiries about prescriptions at the Pharmacy of Gifu Pharmaceutical University.

Koji NIWA, Tetsuo ADACHI,* Chieko TAKAHASHI, Makoto NAKAMURA, Masashi TAGASHIRA, Masafumi KUBOTA and Kazuyuki HIRANO

The Pharmacy of Gifu Pharmaceutical University has dispensed prescriptions by outside medical organizations as its routine activity. In this study, the contents of question inquiries handled in routine activities were compiled and analyzed. The data obtained during 2 and a half years (562 cases) were analyzed. The inquiries were most frequently about "the dosage/regimen" (153 cases), followed be "discrepancy between the contents of prescription and understanding of the patient" (88 cases) and "problems about insurance coverage" (80 cases). There were 16 inquiries about "the possibility of contraindications and adverse reactions" and 15 inquiries about "duplicated prescription", which may have exerted serious effects on the patients. Eighty nine % of the inquiries have led to changes in the prescriptions, and about half of these cases were discovered by consultation with the patients or a review of the drug history.

[*Arthritis Rheum.*, **44**, 2160-2167 (2001)] [Lab. of Clinical Pharmaceutics]

Treatment of murine collagen-induced arthritis by ex vivo extracellular superoxide dismutase gene transfer.

Satoshi IYAMA, Tetsuro OKAMOTO, Tsutomu SATO, Naofumi YAMAUCHI, Yasushi SATO, Katsunori SASAKI, Minoru TAKAHASHI, Maki TANAKA, Tetsuo ADACHI,* Katsuhisa KOGAWA, Junji KATO, Sumio SAKAMAKI and Yoshiro NIITSU

Superoxide dismutase (SOD) is a potent anti-inflammatory enzyme that has received growing attention for its therapeutic potential. This study was undertaken to examine the efficacy of extracellular SOD (EC-SOD) gene therapy in murine collagen-induced arthritis. Mice treated with the transgene exhibited significant suppression of clinical symptoms such as disabling joint swelling, deformity, and hind paw thickness, compared with the untreated group. Histologic abnormalities were also markedly improved in the EC-SOD-treated mice compared with the control group. These results indicate that EC-SOD gene transfer may be an effective form of therapy for rheumatoid arthritis.

[*J. Jpn. Diabetes Sci.*, **44**, 935-941 (2001)] [Lab. of Clinical Pharmaceutics]

High blood superoxide dismutase (SOD) states in patients with diabetes mellitus. –Dependence on extracellular (EC)-SOD–.

Eisuke MAEHATA, Tetsuo ADACHI,* Minoru INOUE, Masao YANO, Hiroji SHIMOMURA, Teruo SHIBA, Minoru YAMAKADO, Takeshi INOUE, Seiji SUZUKI, Takeshi KAWAGUCHI and Eiichiro OKABE

Total SOD activity and EC-SOD concentration in serum of 367 patients with type-2 diabetes mellitus were measured. The correlation between two SOD was $r=0.338$, a significant relationship ($p<0.01$). This study shows that total SOD activity is highly dependent on the level of EC-SOD. Serum EC-SOD level increased with the development of nephropathy. EC-SOD was thus effective as a marker for diabetes mellitus.

[*Biochem Biophys. Res. Commun.*, **285**, 84-91 (2001)] [Lab. of Clinical Pharmaceutics]

Overexpression of EC-SOD suppresses endothelial-cell-mediated LDL oxidation.

Hiroyuki TAKATSU, Hiromi TASAKI, Heung-Nam KIM, Shinobu UEDA, Masato TSUTSUI, Kazuhito YAMASHITA, Tsuyoshi TOYOKAWA, Yasuo MORIMOTO, Yasuhide NAKASHIMA and Tetsuo ADACHI*

Reactive oxygen species have been proposed to play important roles in atherosclerosis. We constructed the recombinant adenovirus AxCAEC-SOD expressing human EC-SOD by CAG promoter. Infection of endothelial cells with AxCAEC-SOD resulted in EC-SOD protein secretion in a dose-dependent manner and a decrease of endothelial cell derived superoxide production. Endothelial cell-mediated LDL oxidation was inhibited by AxCAEC-SOD infection. In agarose gel electrophoresis, AxCAEC-SOD decreased the negative charge of oxidized LDL and suppressed fragmentation of apolipoprotein B. These results suggested that human EC-SOD located in the extracellular space and reduced endothelial cell-mediated LDL oxidation. In subendothelial space, EC-SOD bound on heparan sulfate might suppress LDL oxidation through reduction of superoxide anion.