ONLINE ISSN : 1880-313X
PRINT ISSN : 0388-6107

Biomedical Research
Vol. 28 (2007) , No. 6 December pp.331-334

Eye-concentrated distribution of dexamethasone carried by sugar-chain modified liposome in experimental autoimmune uveoretinitis mice

Yukio ARAKAWA[1)], Noriyasu HASHIDA[2)], Nobuyuki OHGURO[2)], Noboru YAMAZAKI[3)], Mitsuko ONDA[1)], Syoji MATSUMOTO[4)], Masako OHISHI[4)], Kaoru YAMABE[5)], Yasuo TANO[2)] and Nobuo KUROKAWA[4)]

1) Clinical Laboratory of Practical Pharmacy, Osaka University of Pharmaceutical Sciences
2) Department of Ophthalmology, Osaka University Medical School
3) Nanotechnology Research Institute, National Institute of Advanced Industrial Science and Technology
4) Laboratory of Pharmaceutical Sciences, Osaka University Graduate School of Medicine
5) Banyu Pharmaceutical Co., Ltd.

(Received October 30, 2007)
(Accepted November 30, 2007)

ABSTRACT

Corticosteroid is generally accepted as a standard therapeutic agent for active inflammatory (and) autoimmune eye diseases. In an attempt to develop a system to deliver corticosteroid most efficiently to the target eye, a sialyl-Lewis X (sLe^x)-conjugated liposome was adopted as a candidate for a carrier of dexamethasone (Dexa) and tissue distribution of intravenous Dexa with the modified liposome as well as Dexa alone as control was studied in normal and experimental autoimmune uveoretinitis (EAU) mice. Intravenous Dexa (1 mg) was widely distributed in all the tissues (eye, brain, heart, lung, liver, kidney, spleen and intestine) examined in similar manner in both mice and Dexa concentration was lowest in the eye except the brain. The tissue concentrations of Dexa in EAU group were all significantly lower than those in the corresponding tissues in normal group. Intravenous Dexa (2 μg) in the modified liposome was almost concentrated to the eye in EAU mice, reaching 13.84 ng/mg tissue in contrast to 2.34 ng/mg tissue in Dexa (1 mg) alone administered EAU mice. In normal mice, Dexa was undetectable in any tissues examined and thus the effect of the modified liposome was not observed. The result supported the potentiality of sLe^x-

conjugated liposome for target-delivering of corticosteroid to inflamed eye.

To cite this article:

Yukio ARAKAWA, Noriyasu HASHIDA, Nobuyuki OHGURO, Noboru YAMAZAKI, Mitsuko ONDA, Syoji MATSUMOTO, Masako OHISHI, Kaoru YAMABE, Yasuo TANO and Nobuo KUROKAWA; "Eye-concentrated distribution of dexamethasone carried by sugar-chain modified liposome in experimental autoimmune uveoretinitis mice", *Biomedical Research*, Vol. **28**, pp.331-334 (2007) .

doi:10.2220/biomedres.28.331

JOI JST.JSTAGE/biomedres/28.331