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Examination of a method using cationic liposomes for transfection of the bovine CD18 gene into peripheral blood leukocytes of cattle affected with leukocyte adhesion deficiency

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In this study, using liposome vesicles, I attempted to transfect the normal bovine CD18 gene into peripheral blood leukocytes of cattle affected with leukocyte adhesion deficiency (BLAD-PBL), and examined the rate of expression of CD18 on BLAD-PBL *in vitro* by the transfection of the gene. pTargeT/CD18 was used as an expression vector for bovine CD18. The pTargeT/CD18 was constructed by transfer of the normal bovine CD18 gene into a mammalian expression plasmid vector. Three commercial liposome vesicles (TransIT-LT1, -LT2, -LT100) were used for the transfection of pTargeT/CD18. The following results were obtained.

A positive correlation between the quantity of liposomes and the number of BLAD-PBL transcripts was recognized. The expression of CD18 was not recognized in the incubation time of 24 or 96 hours after transfection of pTargeT/CD18. The most effective expression rate of bovine CD18 was obtained when 1.6×10^6 BLAD-PBL were transfected with pTargeT/CD18 using 4 μl of TransIT-LT1 and incubated for 48 hours after the transfection.

In the present study, the recover of adhesion activity of BLAD-PBL transfected with pTargeT/CD18 was not recognized. However, some suitable conditions for the gene transfection using liposome vesicles were determined. Although it is necessary to examine conditions for transfection in more detail, BLAD may be useful as a model disease for investigation of the effect of gene therapy in corresponding human diseases.

A study on radiation-induced apoptosis as a possible predictive assay for radiotherapy on canine tumors

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Predictive assay for the radiocurability of tumors is useful when tumor patients are selected for radiotherapy and individual undergone various radiation schedules. The purpose of this study was to investigate whether the incidence of radiation-induced apoptotic cells in the tumor tissue irradiated *in vitro* can predict radiocurability of the tumors.