



HOKKAIDO UNIVERSITY

Title	MOLECULAR DIVERSITIES OF BAND 4.2 IN SIKA DEER (<i>Cervus nippon yezoensis</i> HEUDE) ERYTHROCYTES
Author(s)	AMANO, Yusaku
Citation	Japanese Journal of Veterinary Research, 38(2), 47-47
Issue Date	1990-07-20
Doc URL	https://hdl.handle.net/2115/3194
Type	departmental bulletin paper
File Information	KJ00002377347.pdf



INFORMATION

Hokkaido University granted the degree of doctor of Veterinary Medicine to the following 39 graduates of the Faculty of Veterinary Medicine on 24 March, 1990.

The authors' summaries of their theses are as follows :

MOLECULAR DIVERSITIES OF BAND 4.2 IN SIKA DEER (*Cervus nippon yesoensis* HEUDE) ERYTHROCYTES

Yusaku AMANO

*Department of Veterinary Internal Medicine
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, JAPAN*

Two molecular isoforms of band 4.2 were identified in erythrocyte membranes from 33 Japanese Sika deer (*Cervus nippon yesoensis* HEUDE) based on specific immunorecognition with anti-human band 4.2. These two variants, designated band 4.2/78 and band 4.2/76, had relative molecular weights (Mr) of 78,000 and 76,000 on sodium dodecyl sulfate polyacrylamide gels. Two isoforms showed similar compositions of amino acid residues and similar profiles after limited proteolysis with lysyl endopeptidase followed by peptide mapping on a reversed-phase high-performance liquid chromatography column, exhibiting identity in primary structure.

The 33 adult Sika deer could be divided into three groups (Type I, Type II, and Type III) according to the 4.2/78 : 4.2/76 ratio. Erythrocytes from Type I (9 males and 17 females) and Type III (one female) contained 4.2/78 and 4.2/76, respectively, as the predominant component of band 4.2. Band 4.2 in Type II Sika deer (3 males and 3 females) erythrocytes consisted of equal amounts of 4.2/78 and 4.2/76 and accounted for 3-4% of the total membrane protein mass as in the erythrocytes from Type I and Type III Sika deer. Thus the ratio of Type I : Type III was determined to be 26 : 6 : 1. This indicates that a genetic control with a dominant epistasis between twin allelic genes might determine the expression of the molecular isoforms of band 4.2.

Both polypeptides were completely retained in cytoskeletal protein-depleted membranes and could be removed by alkaline extraction, suggesting that both proteins contribute to the association of membrane proteins.