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Title	ROLE OF GANGLIOSIDE GM3 CONTAINING N-GLYCOLYNEURAMINIC ACID (NeuGc) AND N-ACETYLNEURAMINIC ACID (NeuAc) CONTAINED IN A CANINE TRANSMISSIBLE VENEREAL TUMOR AS TUMOR-ASSOCIATED ANTIGENS
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ROLE OF GANGLIOSIDE GM3 CONTAINING N-GLYCOLYNEURAMINIC ACID (NeuGc) AND N-ACETYLNEURAMINIC ACID (NeuAc) CONTAINED IN A CANINE TRANSMISSIBLE VENEREAL TUMOR AS TUMOR-ASSOCIATED ANTIGENS

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Many animals have both N-acetylneuraminic acid (NeuAc) and N-glycolyl neuraminic acid (NeuGc) at the carbohydrate terminals of glycoconjugates; however, humans and chickens do not normally synthesize NeuGc though they often synthesize it in cancerous tissues. Therefore, many cancer patients possess Hanganutziu-Deicher (HD) antibodies which react with NeuGc as an antigenic epitope.

In this report, I analyzed, first, gangliosides in tissues other than blood from NeuAc-type dogs and confirmed that NeuGc exists in GM3 molecules from both liver and spleen. A canine transmipssible venereal tumor line also contained NeuGc as sialic acid content in GM3 molecules. Therefore, I examined whether the tumor can become a good HD antigen tumor model of human cancers.

At first, three dogs of the NeuAc type were immunized with HD3 (NeuGc α 2-3Gal β 1-4Glc-ceramide) antigen. The antibody to HD3 was detected before immunization as a natural antibody and was definitely elevated by the immunization. The antibody clearly reacted with the tumor particle fraction.

Next, four dogs were subcutaneously injected with tumor cells at several sites on the skin. In two dogs, in which the tumor masses grew and were not rejected for 2 months, antibody against HD3 was detected at high levels, indicating that HD3 antibody may play a role as a blocking antibody against cytotoxic T lymphocytes. On the other hand, in the other two dogs, the tumors grew slightly in the early period but were completely rejected within 6 weeks. In these dogs, the antibody level to HD3 was very low but the antibody against GM3 (NeuAc) was maintained at high levels, suggesting that the antibody to GM3 (NeuAc) may play a role in the antibody-dependent cytotoxic mechanism with Fc receptor-expressing K lymphocytes, macrophages or neutrophils.