

Interim Findings Oct. 2005: “Sebaceous adenitis in Akita dogs”

Introduction

Sebaceous adenitis (SA) is a skin disease that is found in Akitas as well as in several other dog breeds. Very typically the disease can be seen as impaired metabolism of the skin with a chronic inflammation leading to a destruction of the sebaceous glands. The aetiology of SA is mostly unknown, but autoimmune processes have been discussed as a possibility. The canine “Major Histocompatibility Complex” (MHC) complex plays an important role in cellular immune reactions. Many individual DLA-genes have been molecularly characterized. The MHC-complex in all outbred species exhibits a high degree of genetic variation. MHC heterozygote advantage has been suggested for an increase in resistance to parasites in free living populations. Therefore it appears to be important to maintain maximal diversity in genetic makeup of the MHC. Such diversity can be limited by selective breeding for specific phenotypic traits. Selective breeding is perhaps greatest in various breeds of the domestic dog. Inbreeding can have profound effects on the immune system predisposing to increased immunodeficiency as an autoimmune disease. Not surprisingly autoimmune diseases are a serious problem in certain pure breeds of dog.

The aim of the actual part of the study was to determine the extend of polymorphism among alleles of MHC candidate genes to check whether special alleles have been associated with the outcome of sebaceous adenitis in Akita Inu dogs.

Results

The interim results of our study show that the approach of sequence based typing is a fast and reliable method to designate alleles across several MHC- candidate genes. The high degree of homozygosity for MHC Class genes in SA-affected was surprising. The significant lost of DLA diversity among SA-affected Akitas requires

additional studies with a larger sample size of unrelated SA- positive dogs. There may be consequences of the increased MHC homozygosity, such as a polarization of the immune response depending on the antigen being presented. These deepening studies performed the near future should compare the disease occurrence of affected and non affected Akita dogs.