

# Companion Animal Disease: research, diagnosis and treatment

## 28 September 2007

9:00 – 9:45      **Registration**

9:45 – 10:00    **Introduction by the Chair:** *Professor Michael Day*, University of Bristol, UK

10:00 – 10:30    **Research and clinical advances in canine endocrinopathies**  
*Dr Brian Catchpole*, Royal Veterinary College, UK

Dogs suffer from several disorders affecting the endocrine system, including diabetes mellitus and hypothyroidism. Diabetes is a common condition seen in pet dogs, which can develop as a result of insulin deficiency (most commonly) or insulin resistance. There is evidence that pancreatitis and/or autoimmunity are involved in a number of cases. Detection of circulating autoantibodies might help to identify dogs with immune-mediated disease. Genetic investigations suggest that canine MHC genes are associated with susceptibility to diabetes mellitus and hypothyroidism. The Minimed Continuous Glucose Monitoring System is currently being used to evaluate responses to insulin therapy in diabetic dogs.

10:30 – 11:00    **Genes, Dreams and Stem Cells: Advances in Veterinary Cancer Medicine**  
*Prof. David Argyle*, University of Edinburgh, Scotland

Despite advances in conventional treatments, cancer remains a disease of high mortality and morbidity in dogs, cats and humans. In 2001 we reported that telomerase could be considered a near universal marker of malignancy in dogs and that telomerase and telomere biology in dogs was closely aligned with human biology. More recently, we have identified a sub-population of cancer cells that have stem cell properties. This has ignited a hypothesis that cancer in dogs may be a true stem cell disease. This has profound implications for therapy, as stem cells have highly developed resistance mechanisms for conventional treatments. We have recently embarked on a new strategy to use genomic tools to dissect potential targets in these cells that could be utilized for cancer treatments. Although one of our major goals is to improve the health and welfare of dogs, these studies will also have implications for similar studies in people.

11:00 – 11:20    **Mid-morning break**

11:20 – 11:50    **Veterinary Clinical Oncology: past present & future**  
*Dr Jane Dobson*, University of Cambridge, UK

11:50 – 12:20    **Canine cruciate ligament disease: What is the genetic basis?**  
*Mr Dylan Clements*, University of Edinburgh, Scotland

Canine cruciate ligament disease (CCLD) is one of the most common articular disorders affecting dogs within the general canine population. Heritability estimates and marked breed associated risks for developing CCLD indicate that there is a genetic basis to the condition. We have investigated this genetic basis to CCLD using whole genome microarray profiling, and identified a number of genes which are differentially expressed in CCLD. Subsequently, we have genotyped polymorphisms in a selection of these genes within populations of dogs with the disease, and identified a number of polymorphisms which are associated with the risk of developing disease. Although our results are not conclusive, the rate at which genomic technologies are advancing means that there is a real prospect of us fully understanding the genomic basis to complex diseases, such as CCL in the near future.

12:20 – 12:40    **Group and speakers photo and then Tour of the BioPark**

12:40 – 13:30    **Lunch and Poster Viewing**

13:30 – 14:00 **Fell pony syndrome: a severe immunodeficiency**

*Professor Stuart Carter, University of Liverpool, UK*

Fell pony syndrome is an autosomal recessive genetic disease which leads to profound anaemia and immunodeficiency in affected foals. They die within days and no treatment is effective. We have shown that there is a specific failure of generation of mature B lymphocytes in affected foals with a concomitant failure to produce adequate levels of circulating immunoglobulins. Currently, we are investigating the genetics of this disease in collaboration with the Animal Health Trust, Newmarket.

14:00 – 14:30 **Obesity in Companion Animals**

*Vivien Ryan, University of Liverpool, UK*

Obesity is now the most common nutritional disorder of companion animals and is defined by the expansion of white adipose tissue mass. This tissue is now recognised as a major endocrine and secretory organ, releasing in excess of 50 different protein hormones and signals termed adipokines. A number of adipokines are linked to inflammation and immunity and a role for inflammation-related adipokines in the development of obesity-associated diseases in humans is increasingly recognised. The specific aim of this project is to examine the extent to which canine adipose tissue produces various adipokines and to determine the factors which regulate their production. Our results demonstrate that canine adipocytes express key inflammation-related adipokine genes, that there are substantial changes in the level of adipokine gene expression during differentiation of the adipocytes, and that inflammation-related agents (such as TNF- $\alpha$  and rosiglitazone) exert potent effects on adipokine production in the dog.

14:30 – 15:00 **Canine immune-mediated haemolytic anaemia in the UK**

*Sheena Warman, Department of Clinical Veterinary Science, University of Bristol, UK*

A retrospective study of dogs with Coombs' positive anaemia from 3 different referral centres in the UK was undertaken. All dogs had Coombs' testing performed at the Clinical Immunology Diagnostic Laboratory, University of Bristol. Our study investigated age, breed and sex of the dogs compared to a control population, the types of diseases found, and the outcome of each case. The second part of the study aimed to describe the pattern of Coombs' reactivity, assess any impact of performing testing with only polyvalent reagent at 37°C (compared to multiple reagents at both 4 and 37°C), and to investigate whether the pattern of reactivity varied between dogs

15:00 - 15:30 **Afternoon Tea/Coffee and Last Poster Viewing**

15:30- 16:00 **Genetic dissection of canine autoimmune diseases**

*Dr Lorna J Kennedy, University of Manchester, UK*

16:00 – 16:15 **The UK Companion Animal DNA Archive: An Update on Progress**

*Professor Stuart Carter, University of Liverpool, UK*

16:15 – 16:45 **Clinical Research into feline hypertension and kidney disease**

*Miss Rosanne Jepson, Royal Veterinary College, UK*

Systemic hypertension and chronic kidney disease are commonly diagnosed conditions of the geriatric feline population. Persistent hypertension can lead to target organ damage within the kidney, heart and central nervous system. An association between hypertension, proteinuria and progression of renal disease has been established in human patients and dogs. Such a causal link has not yet been proven in feline medicine. However, current clinical research suggests that even low level proteinuria may be of significance and further studies are necessary to elucidate whether anti-proteinuric treatment strategies will be of clinical benefit to these cats.

16:45 – 17:00 **Chairman's summing up & close.**