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## Application for Funding

Project Title ..... *Identification of germ-line osteosarcoma susceptibility mutations in Irish Wolfhounds*

Date of Application ..... *04.12.15*

Principal Investigator: ..... *Dr M. Starkey (Head Molecular Oncology, AHT)*

Co-Investigators: ..... *Dr C. Mellersh (Head Canine Genetics, AHT)*

### Description of the Project:

Identifying the inherited genetic alterations that cause Irish Wolfhounds to have an increased risk of developing osteosarcoma, and trying to understand their effect, are essential steps towards developing interventions to try and prevent osteosarcoma development, or treat the cancer in a 'targeted manner' should it arise. We propose to 'decode' the string of 2.4 billion letters that comprise the DNA (a procedure referred to as 'whole genome DNA sequencing') from 4 Wolfhounds with osteosarcoma and 1 unaffected Wolfhound (which does not carry a chromosome 11 genetic marker strongly associated with osteosarcoma in US Greyhounds). We will attempt to identify 'functionally significant' variant DNA sequences present in the genomes of affected Wolfhounds that are absent from the genomes of a large number of breeds unaffected by osteosarcoma. This approach is viable because we have access to the genome sequences of dogs representing at least 25 breeds that are being compiled by the AHT's Canine Genetics Group via KC funding and the AHT's 'Give a Dog a Genome' project.

### Budget:

<i>Preparation of DNA for sequencing</i>	<i>£291.40</i>
<i>Construction of 'sequencing libraries'</i>	<i>£1,052.52</i>
<i>Illumina HiSeq4000 DNA sequencing</i>	<i>£6,080.40</i>
Total Direct Costs	<i>£7,424.32</i>

Budget justification: .....

Time Line: ..... *See the following page* .....

