New hope for beloved family pets

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‘West Highland terrier’: Copyright to Avacta Animal Health Ltd

Nearly one out of four dogs will develop cancer in their lifetime and 20 per cent of those will be lymphoma cases.

A team of researchers from the University of Leicester has helped Avacta Animal Health Ltd to develop a new user-friendly electronic system for diagnosing lymphoma in dogs in the early stages, and for

remission monitoring.

Marketed as cLBT (canine lymphoma blood test), this is the first test of its kind to track the remission monitoring status of a dog after undergoing chemotherapy.

Led by Professor Alexander Gorban from the University's Department of Mathematics, the University team together with experts from Avacta elaborated technology for differential diagnosis of canine lymphoma and for remission monitoring.

This technology is based on the cLBT, which detects the levels of two biomarkers, the acute phase proteins C-Reactive Protein and Haptoglobin.

Avacta Animal Health Ltd has been actively involved in developing new tests for canine lymphoma. Having collected a substantial library of biological samples in order to conduct research in this area, they have tested the data by working closely with the University of Leicester and its leading statistical and data processing techniques. Researchers analysed clinical data, tested various machine learning methods and selected the best approach to these problems.

Alexander Gorban, Professor of Applied Mathematics at the University of Leicester, said: "This was a very interesting project, and Avacta was a very dedicated, focused company, with clear goals and objectives. There were very important and useful ideas and concepts involved in the study, and it was a pleasure to know that our expertise as a department was needed and could be utilised through working alongside Avacta's professional expertise.

"The project was very successful, and we would be very glad to welcome more partnerships of this type as it has also been very beneficial to the

reputation of the University of Leicester's Department of Mathematics. The project involved full academic and commercial success, which has included a full academic cycle as well as full software development, which makes it an incredibly diverse project to have worked on."

During the study, which was funded by the University's Innovation Partnership project, the academic team selected the best method to work with the data collected by Avacta and prepared the online diagnostic system over a period of six months. These methods included further development of the system for canine lymphoma differential diagnosis and for remission monitoring.

Chief Scientific Officer at Avacta Animal Health, Kevin Slater, said: "The collaboration we have with the University of Leicester's Department of Mathematics is having a dramatic impact on the types of new tests that we can offer to vets and their owners. We are already widening the application of multivariate analysis to other diseases which commonly affect our pets, and subsequently, this work could also have benefits to human health."

More information: 'Computational diagnosis and risk evaluation for canine Lymphoma' by E.M. Mirkes, I. Alexandrakis, K. Slater, R. Tuli and A.N. Gorban has been published in the academic journal Computers for Biology and Medicine and is available at the following location: dx.doi.org/10.1016/j.compbiomed.2014.08.006

Provided by University of Leicester

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