

New Vaccine for Canine Heartworm

A prototype vaccine that can greatly reduce transmission of parasitic nematodes for the prevention and/or treatment of infections in dogs.



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IP Status

Patent application submitted, Patented

Seeking

Commercial partner, Licensing,
Development partner

About **University of Liverpool**

By facilitating access to our expertise, facilities and networks, the University of Liverpool offers the means to transform ideas into creative solutions, improved performance, new technologies, strategies, applications, products or skills.

Background

Parasitic filarial nematode infections represent a major global health problem for both humans and animals.

For companion animals, by far the most important filarial infection is canine heartworm, with 500,000 dogs infected each year in the USA alone. Currently, prevention of canine heartworm relies on prophylactic treatment of dogs and cats with ivermectin or other macrocyclic lactones. Over 69% of dog owners use monthly heartworm medication for their companion dogs and in 2012, American dog owners spent \$75 - \$100 per dog per year on heartworm medication. The canine population in the USA is >80 million.

However, concerns about the efficacy of preventatives have been raised recently following the identification of drug-resistant heartworm in the USA. This emphasises the importance of ongoing filarial vaccine research.

Tech Overview

Researchers at the University of Liverpool and the University of Edinburgh have developed a prototype vaccine that can greatly reduce transmission of parasitic nematodes and which could be adopted for the prevention and/or treatment of infections in dogs. The vaccine comprises a ShK toxin domain of a filarial nematode protein.

The team found that filarial nematodes secrete unique proteins containing six cysteine-rich ShK toxin domains. Although the overall sequence identity of these proteins between filarial parasite species can be low, the ShK domain sequences themselves are more conserved. Vaccination against specific ShK-domain proteins can help reduce the parasite's ability to evade the host's immune response.

Applications

The market opportunity is a cost-effective veterinary vaccine to block canine heartworm transmission. The vaccine may also help prevent heartworm infection when used in combination with reduced preventative drug coverage, providing protection if prophylaxis lapses or if worms are partially resistant.

Opportunity

The University of Liverpool is currently seeking a licensing partner to provide expertise in the commercialisation of the technology.

Patents

- A patent application was filed in 2014 (WO 2015/121646), and covers both the human and animal applications of a filarial vaccine.