

## Service at Test-A-Pet

### Test-A-Pet price freeze for 2008!

Our 2008 test prices have been revised and they will remain unchanged at the same very competitive rates as 2007 for the whole year – see page four for details.

### Website up-date

Our website is in the process of being re-designed and will be on-line soon. The information on tests and submission requirements on our current website is still valid, however for any other enquiries please call the lab – see contact details on page four.

## FREE Clinical Advice at Test-A-Pet

As part of the Test-A-Pet diagnostic service, our consultant Dr. Jackie Barber can provide free pre and post-test clinical advice. This service is for Veterinary surgeons only and can be accessed during office hours – please see contact details on page four of this newsletter.



**TEST-A-PET**  
Veterinary Diagnostics

## Endemic disease research in Veterinary Parasitology

The Veterinary Parasitology Group has a long history of research into parasites of veterinary importance and has made many significant findings which have advanced our understanding and the treatment and control of many of the diseases caused by these parasites. The group's main research in endemic parasites i.e. parasites prevalent in Britain, focuses on neosporosis, liver fluke, equine nematodes and anthelmintic resistance.

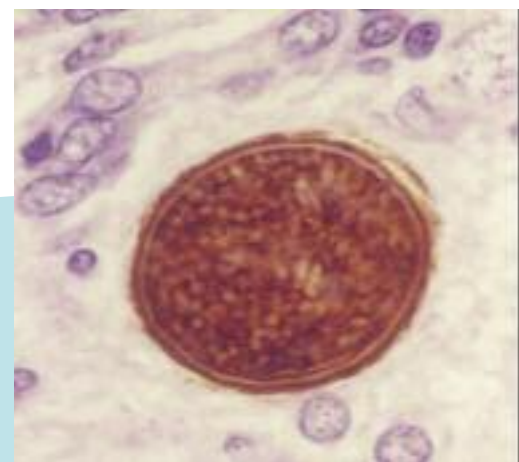
In neosporosis we were the first to isolate the causal organism *Neospora caninum* in Europe and subsequently were the first to make isolates from cattle in Britain. Early work studied canine neosporosis and from a substantial number of clinical cases and infected dogs we described the clinical signs, diagnosis and the characteristics of vertical transmission in the dog.

As the global significance of *N. caninum* as a bovine abortion agent became recognised, our research has concentrated on cattle. We developed the first commercially available antibody detection test with Mast Diagnostics (the "Mastazyme" *Neospora* ELISA), and described the significance and transmission parameters of the infection. Major experimental studies have revealed why and under what circumstances cattle abort and have elucidated the complex immunological and pathological events at the placenta. We have shown that oocyst infection can efficiently cause congenital infection when pregnant cows are exposed in late pregnancy and in a large scale study of human sera with the Health Protection Agency we have found no evidence of zoonotic infection.

*Fasciola hepatica*, the common liver fluke, is a major cause of mortality, morbidity and production losses in sheep and cattle in Britain and a major emerging zoonosis in developing countries of North Africa, the Middle East and South America. In collaboration with the V.L.A, we have shown that the prevalence of infection, particularly in dairy cattle, has increased in recent years in Britain; moreover resistance to triclabendazole, the drug most frequently used to control disease, particularly in sheep, has been described in Britain. We are part of an E.U funded consortium, involving 17 centres worldwide which is investigating vaccine development, drug resistance and the epidemiology of liver fluke; we are currently developing a predictive model for risk of disease within the E.U. This work is being conducted in collaboration

with Professor Matthew Baylis, in the Epidemiology Group, and links with his Leverhulme Trust funded programme on the effect of climate change on the prevalence and distribution of vector borne diseases in Europe.

Intensification of farming, particularly of livestock, has relied on prophylactic drug treatment to control diseases, particularly those caused by parasitic helminths. But this has led to concerns about drug residues in meat and milk and to the development of populations of parasites expressing resistance to the three major classes of anthelmintic drugs currently in use. Anthelmintic drug resistance is not only of major concern in farming systems but is also a serious and developing issue in human medicine. We are investigating the molecular mechanisms of anthelmintic resistance in cyathostomes, a group of nematode parasites which are the major cause of parasitic enteritis in horses. We have shown that mutations at two sites within the parasite's beta-tubulin gene are associated with resistance to the benzimidazole group of drugs. Studies are now underway, supported by the Horserace Betting Levy Board, to determine the frequency of resistant genotypes within populations of worms with differing phenotypic levels of resistance. More recently, research has been funded by the Horse Trust to investigate reports of resistance in the field to an alternative anthelmintic class, the macrocyclic lactones. This work is a collaborative venture exploiting the *in vitro* techniques available at the Moredun Research Institute, Edinburgh with the molecular expertise of our group to identify target genes for macrocyclic lactone resistance. This together with our work funded by the Horserace Betting Levy Board and Thoroughbred Breeders Association into developing new and more specific diagnostic assays for equine gastro-intestinal parasite infection will lead to strategic anthelmintic treatment programmes aimed at targeting the most heavily parasitized animals, thus reducing the quantity of drug used whilst maintaining the efficacy.



Right: IPX stained bradyzoite tissue cyst of *Neospora caninum*