

APAI Award Available Immediately
School of Animal and Veterinary Sciences
Charles Sturt University

**PHD STUDIES IN POPULATION GENETICS OF TRICLABENDAZOLE RESISTANCE
IN LIVER FLUKES**

The ARC has recently funded the Linkage Project “Liver fluke: improving disease control through understanding of parasite diversity, drug resistance and better diagnosis” by Profs Terry Spithill, Nick Sangster and Drs Tiggy Grillo at CSU and Glenn Anderson at Virbac Australia Pty Ltd.

This project aims to improve our ability to control liver fluke infection in livestock through a better understanding of the underlying basis of treatment failure and the development of improved diagnostic tools to promote better use of antiparasitic drugs. The major aims of the project are to:

- (i) define the existing genetic diversity and population structure of *F. hepatica* including populations susceptible and resistant to the drug triclabendazole;
- (ii) develop superior diagnostic tests for liver fluke infection;
- (iii) apply these diagnostic improvements to measure the extent of resistance in the field in NSW and N Victoria. This information will inform management decisions on parasite control.

The APAI student will use genetic markers and karyotyping to examine wild-type fluke populations from sheep and cattle in NSW and N Victoria to define the level of diversity and chromosomal ploidy in a single host animal, and within host populations. In addition, the inter population diversity between *F. hepatica* isolated from cattle and sheep, and between populations collected from diverse geographical locations, will be examined. We will also compare this diversity with flukes from animals not responding to triclabendazole treatment to determine whether “resistant” flukes exhibit lower diversity and distinct haplotypes and genotypes.

This project provides a sound basis for PhD training in molecular genetics, molecular phylogeny and parasite biology.

For details, contact Terry Spithill (tspithill@csu.edu.au; 02-6933 2439) or Nick Sangster (nsangster@csu.edu.au; 02 69334107). The work is based at the Wagga Wagga campus in new PC2 facilities at the School of Animal and Veterinary Sciences (see <http://www.csu.edu.au/faculty/science/savs/>).