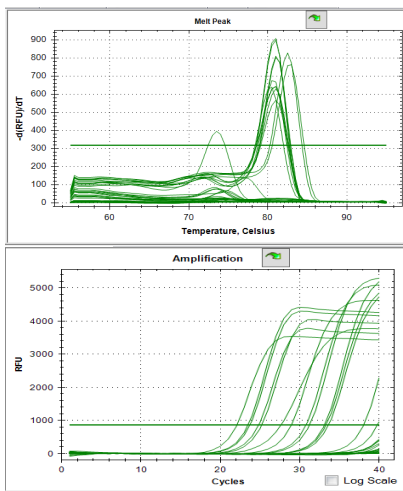




THE UNIVERSITY OF
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Molecular Diagnostics

Veterinary Pathology Diagnostic Services



The Molecular Diagnostics section of VPDS performs pathogen detection using a wide range of sensitive molecular diagnostic methods, including highly sensitive and specific conventional and real-time PCRs; immunohistochemistry and in-situ hybridization for fresh and formalin-fixed tissues; immunofluorescence for detection of pathogens in body fluids, cytological preparations and fecal parasites; and molecular identification of bacteria and fungi from cultures.

Test development draws on the diverse expertise of our pathobiology research group, including expertise in laboratory testing, clinical and population management of the species involved and access to research tools. **Results are interpreted by leaders in the field, with a deep understanding of the test, the pathogen it is detecting, and its impact on animal management.**

New Assay Development Opportunities. Detection of pathogens associated with companion animal and wildlife species is an area of strength for the group, and we welcome the opportunity to discuss development of new assays for support of animal management or research in these specialist areas.



New: Real-time PCR panels

Small Animal Faecal Pathogens

Diarrhoea is an extremely common problem in both cats and dogs. Mild, transient diarrhoea is rarely a cause for concern but severe or chronic diarrhoea can be damaging to a pet's health. Faecal tests for gastrointestinal pathogens (bacteria, viruses and parasites) should be considered whenever an animal has chronic or severe diarrhoea. Some intestinal parasites such as *Giardia duodenalis*, *Cryptosporidium parvum* or *Blastocystis hominis* can be zoonotic and pose a significant health threat to people.

The **Faecal Pathogen Panel will be on offer from January 2016** and uses the principle of Multiplexed Tandem PCR employing two sequential PCR steps, adding to both sensitivity and specificity. Controls for PCR inhibition and DNA quality are included for each sample. Samples that fail QC are repeated free of charge and unusual results are confirmed by follow-up testing.

This panel is designed to detect all known sequences of *Campylobacter*, *Dientamoeba fragilis*, *Salmonella*, *Blastocystis hominis*, *Giardia duodenalis*, *Cryptosporidium* (*C. parvum*, *C. hominis*), *Tritrichomonas foetus*, *Toxoplasma gondii*, Parvovirus, Distemper virus, Feline Coronavirus, and Canine Coronavirus.

Panels to be released in mid-2016

Plans are underway for release of an **Avian Pathogen Panel** (psittacine beak and feather disease virus, avian bornavirus, avian polyomavirus, *Chlamydia psittaci*, Psittacine herpesvirus) and a **Feline Anaemia Panel** (FIV, FeLV, haemotropic mycoplasmas) early in 2016.

Performance characteristics, small animal faecal pathogen panel (*Ausdiagnostics*).

Pathogen	Se	Sp	LOD	Inclusivity
<i>Campylobacter</i> spp	99%	100%	92	<i>C. jejuni</i> , <i>C. lari</i> , <i>C. coli</i>
<i>Salmonella</i> spp	95%	100%	35	<i>S. enterica</i> , <i>S. bongori</i>
<i>Dientamoeba fragilis</i>			13	<i>D. fragilis</i>
<i>Blastocystis hominis</i>	100%	100%	47	<i>B. hominis</i>
<i>Giardia</i>	93%	100%	70	assemblages A, B, C, D, E, F
<i>Tritrichomonas foetus</i>			65	bovine and feline genotypes
<i>Cryptosporidium</i>	92%	100%	93	Zoonotic species: <i>C. parvum</i> , <i>C. hominis</i> , <i>C. wrairi</i> , <i>C. meleagridis</i>
<i>Toxoplasma gondii</i>			23	lineages I, II, III
Canine Distemper Virus			25	CDV from ferrets, mink, seal, macaque
Parvovirus (canine and feline)			pending	Canine parvovirus subtypes 2a, 2b, 2c Feline panleukopaemia virus
Canine Coronavirus			76	Canine CoV(not respiratory) Feline infectious peritonitis virus, some feline CoV
Feline Coronavirus			25	Feline CoV, FIPV, some canine CoV (lower efficiency)

Limit of detection (LOD) approximates organisms/ 25mg faeces

Additional pathogen detection assays available from VPDS

Method	Pathogen
Immunofluorescence	Feline Coronavirus (FIPV) (cytospin/effusion) FeLV (EDTA blood) FIV (EDTA blood)
Immunohistochemistry (FFPE tissue)	<i>Chlamydia</i> genus Feline Coronavirus (FIPV) Feline Calicivirus Feline Herpes Virus Canine Distemper Virus <i>Toxoplasma</i> *
Real-time PCR (swab/tissue)	<i>Chlamydia</i> genus, <i>C. pecorum</i> , <i>C. pneumoniae</i> <i>Toxoplasma</i> Canine parvovirus Feline coronavirus
PCR and sequencing*	Bacterial ID 16s Fungal ID 18s
Serology (serum)	<i>Cryptococcus</i> Ag LCAT <i>Cryptococcus</i> Ag lateral flow ELISA
Faecal protozoal detection*	<i>Cryptosporidium</i> , <i>Giardia</i> , <i>T. fetus</i> (culture and immunofluorescence) <i>T. fetus</i> (culture)

For more information

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