



Bridge Pathology

A MEMBER OF **SYNLAB**

Bridge Pathology 2018

Introduction

Bridge Pathology Ltd in Bristol is part of the Veterinary Pathology Group. It is a highly dynamic veterinary histopathology and immunohistochemistry laboratory, dedicated to the provision of the highest quality diagnostic pathology services to the veterinary community.

In addition to cases received from our colleagues in general practice, we also receive cases from almost all the referral practices in the UK and Ireland, and perform surgical biopsy services for two of the UK veterinary schools. Increasingly, we are receiving submissions from referral practices and veterinary schools across mainland Europe. We feel that if we can satisfy the requirements of these most demanding clients, then we must be doing something right!

The Service

We aim for a 24-48 hour turnaround time with a full ECVP/ACVP-style pathological description and clinically-targeted comment provided for every case.

We provide full light microscopic characterisation of tissues, with meticulous attention to those factors that may have the most diagnostic and prognostic value. Using this approach, we can derive the greatest amount of clinically-important information from the biopsy samples that are submitted to us.

For all tumour submissions, we provide full evaluation of surgical margins. This is performed in a more rigorous manner than in any other commercial laboratory in the UK and we were involved in developing the ACVP recommendations for biopsy evaluation that are considered 'gold standard' pathology practice.

All tumours and pathological changes are graded where appropriate. We routinely grade soft tissue sarcomas, mast cell tumours, pulmonary tumours, urinary bladder tumours, mammary carcinomas, intestinal adenomas, endoscopic biopsies, osteosarcomas and lymphomas using recently published data for these tissues.

We are also able to perform a wide range of histochemical stains that allow us to characterise tissues further and to detect some infectious agents. For instance, for liver biopsies, we perform routine H&E staining, and also can perform stains to detect copper accumulation and to assess the reticulin and collagen framework within the liver. These extra stains can help identify whether copper accumulation within the liver may be contributing to the pathological changes and whether there are subtle alterations in the collagen framework that can indicate the extent of hepatocyte loss or regeneration. These stains, and others that we may also perform, are transforming the way that we are able to diagnose hepatopathies and we are hence more frequently able to identify a pathogenesis for the liver pathology.

Immunohistochemistry

We offer state-of-the-art diagnostic immunohistochemistry with the widest range of validated and optimised antibodies of any of the UK diagnostic laboratories. This enables us to subclassify tumours further than is possible using H&E-stained tissues alone, enabling optimal treatment of veterinary cancer patients.

We also offer quantification of proliferation markers where these have been shown to provide useful prognostic information, for instance for measurement of the Ki67 index in canine mast cell tumours and melanomas.

We routinely provide referral immunohistochemical staining and interpretation for samples sent from other UK and overseas diagnostic laboratories.



Clinical Research

One of our founding goals was to be involved in clinical research and we are very keen to use our caseload for clinical research purposes. We are concentrating on prognostically-relevant, clinically-driven studies that could have a direct bearing on diagnosis, prognostication or treatment of veterinary patients. These studies have led to a number of recent publications in the veterinary literature, and we continue to pursue our research both independently and in collaboration with other academic institutes.

For instance, a very recent study has been completed in collaboration with the University of Nottingham and published in the Journal of Small Animal Practice (Bayton WA, Westgarth C, Scase T, Price DJ, Bexfield NH. Histopathological frequency of feline hepatobiliary disease in the UK). This study examined the frequency of liver disease in cats and is entirely based on anonymised data from our laboratory and is by far the largest study of this sort that has been published to date.

This study found that neutrophilic cholangitis is the most common liver disease in cats, and that Persian and British shorthair cats are predisposed. This disease is usually the result of an ascending bacterial infection of the biliary tree. Interestingly, the same breeds are also predisposed to development of congenital biliary cysts. This raises the possibility that underlying, macroscopically-inapparent malformations of the biliary tree in Persian and British shorthair cats may also be predisposing to bacterial colonisation of the biliary system.

Based on this study, but in contrast to published data from the USA, hepatic lipidosis is very uncommon in cats in the UK. This may be partly due to the majority of domestic cats in the UK having access to the outdoors, whereas a significant population of domestic cats, particularly in urban areas in the USA, spend their whole lives indoors.

A new class of anti-cancer drugs - receptor tyrosine kinase antagonists - have become available for treatment of mast cell tumours. We have introduced a new immunohistochemical assay, that we can perform on routine biopsy specimens, that indicates whether kit (CD117) is expressed by these tumours. This protein is a major target for these drugs and demonstration of expression of this molecule in a tumour provides a rationale for their use in an individual animal. In addition, we have been involved in a research project in collaboration with the University of Liverpool, demonstrating expression of other similar receptor tyrosine kinases (PDGFR, VEGFR) in canine nasal carcinomas. This study, (Veterinary and Comparative Oncology (2017) 15: 1041-1050; Gramer I, Killick D, Scase T, Chandry D, Marrington M, Blackwood L.) and other similar studies confirm the presence of the targets for this new class of drugs are expressed in a wide variety of tumour types. Therefore, these drugs may become more widely used in tumour types other than mast cell tumours.

Over the past few years, we have been part of an international team of pathologists developing a new mast cell tumour grading scheme. You may have noticed that we have introduced this scheme as a standard part of our mast cell tumour reporting. We expect over the next few years that this new 'Kiupel' two-tier (high grade vs. low grade) scheme will be refined further, and that ultimately it may supercede the older, 'Patnaik' three-tier (high, intermediate and low grade) grading scheme. We still recommend the use of Ki67 immunohistochemistry to help predict prognosis for cutaneous mast cell tumours, especially those diagnosed as intermediate or low grade tumours.

This assay identifies a population of mast cell tumours that are histologically well differentiated, but that based on the Ki67 assay appear to have potential to behave in a much more aggressive manner than otherwise would be expected. Indeed, a recent study published in the Journal of Small Animal Practice, confirms that low Ki67 values accurately predicts survival, and that it has prognostic value independent of mitotic index alone. This study was published independently of Bridge Pathology, using Ki67 index values that we generated from mast cell tumour samples sent to us as diagnostic cases. This study further helps to confirm the utility of performing this prognostic assay in 'real world' situations.



Pathologist Profiles

Due to the demands for our services from both general practitioners and referral clinicians, we have rapidly expanded in the nine years since we were founded. All of our pathologists are highly skilled, highly dedicated and hugely enthusiastic and all have specialist qualifications in veterinary pathology, through board certification through ACVP, ECVP or the Royal College of Pathologists. Our pathologists are frequently invited to speak at national and international conferences.

Tim Scase	BSc (Hons), BVM&S, PhD, MRCVS, Dip ACVP	Boarded Pathologist	Bridge Pathology
Joelle Pinard	DVM, MRCVS, Dip ACVP	Boarded Pathologist	Bridge Pathology
Sean Haugland	BVSc, MRCVS, FRCPath	Fellowship in Pathology	Bridge Pathology
Beatriz Garcia	DVM, MSc, MRCVS, Dip ECVP	Boarded Pathologist	Bridge Pathology
Kerstin Eries	DrMedVet, MRCVS, FRCPath, DipACVP	Fellowship in Pathology, Boarded Pathologist	Bridge Pathology
Annika Hermann	Dr MedVet, Dip ECVP, MRCVS	Boarded Pathologist	Bridge Pathology
Katie Berman	DVM, Dip ECVP, MRCVS	Boarded Pathologist	Bridge Pathology
Harriet Brooks-Brownlie	BVetMed, MSc, PhD, MRCVS, FRCPath, DFMS	Fellowship in Pathology	Bridge Pathology
Sam Beck	BSc, BVSc, MVetMed, FRCPath, DipACVP, MRCVS	Fellowship in Pathology, Boarded Pathologist	Bridge Pathology

In June, our resident, Clare Muir, finished her training programme based at Bridge Pathology, in collaboration with the Royal Veterinary College. After months of grueling study, she was successful in passing her board certification exams with the American College of Veterinary Pathology. She is now an official member of the pathology geek squad! Clare has now taken up a PhD position at the University of Sheffield, having been awarded a highly prestigious Wellcome Trust clinical research scholarship.

At Bridge Pathology, we are always keen to answer any queries, offer advice on cases and ultimately help you to provide the best care for your patients. If you have any questions about tissues that you are going to be submitting to us or about a report that you have received from us, then please do not hesitate to contact us by telephone (0117 951 1283). We will help wherever we can.



Tim Scase is co-founder and director of Bridge Pathology Ltd. Previous to this, he was a Senior Lecturer in Veterinary Pathology at the University of Cambridge and prior to that, a Senior Pathologist at Animal Health Trust.

In 2001, he became board certified with the American College of Veterinary Pathologists following a residency in anatomic pathology at the University of Florida and a fellowship in anatomic pathology at the Animal Medical Center in New York.

Tim graduated from R(D)SVS having also taken an intercalated honours in pathological sciences, and has a PhD from the University of Cambridge. He is a visiting fellow at the University of Bristol and an external examiner for the Universities of Glasgow and London. He is a frequent speaker at both national and international veterinary meetings.

Tim's research interests include viral carcinogenesis and the development of prognostic and diagnostic tumour markers for veterinary species.



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