The Langford Trust for Animal Health & Welfare

Changing lives

Research Update

Discover

Clinical research is vital. It can provide a better understanding of animal health, improve diagnostic procedures and treatments, whilst strengthening the skills and knowledge of veterinary students, educationalists and practitioners.

Impact

The Trust awards grants to veterinary researchers who demonstrate a clear vision and commitment to scientific discovery, plus a determination to translate their discoveries into action.

Every project aspires to deliver findings which can be published and used to benefit veterinary practice and teaching, or contribute to a larger scale research pathway at the vet school. The Langford Trust for Animal Health and Welfare, in partnership with the University of Bristol Veterinary School, has been busy working over the past 12 months with veterinary students and clinical researchers to establish new and relevant animal health research projects. This centre of excellence is a special place changing lives through cutting edge veterinary services and pioneering research.



The Langford Trust grant scheme, open to both students and clinicians, is funded by legacy gifts and donations. Annually the Trustees identify a selection of projects to support across 3 levels:

- Undergraduate research placement up to $\pounds 5,000$
- Seed corn or masters research up to £10,000
- Major projects PhD research up to £60,000

Our work directly translates into the services clinical patients experience at Langford. Through engaging in research, clinicians gain cutting edge skills which benefits the many animals needing specialist help. Whilst publishing research findings informs veterinary professionals internationally of opportunities for animal health improvements.

Changing Lives

with Isabelle Theyse MRCVS

Isabelle Theyse's final year of her BVSc veterinary science degree has been life changing. She wanted to work with primates in remote areas of Nigeria

and Cameroon as part of a larger research project to validate the development of a rapid, reliable test for Mycobacterium tuberculosis currently being developed at Bristol Vet School. With the support of a Langford Trust small project grant, Isabelle's research aspirations became a reality.

What made you decide to study at Bristol Vet School?

I think I have always wanted to be a veterinarian. For as far as I can remember, I was always saying as a child "I want to be a vet". I was working as a secretary for a vet in Belgium when he told me about veterinary nursing. I thought this was a good alternative and wanted to learn from the best. So, I came to the UK to do my veterinary nursing degree and graduated in 2005.

After working for many years as a vet nurse, including many years focussing on wildlife work in developing countries, I decided I wanted to be able to help and do more. However, I realised I was quite limited with the vet nursing degree. So, I took the plunge and went back to vet school to become a vet.

What encouraged you to pursue a research project and why in Nigeria?

During my veterinary nursing years, I ran a primate rescue centre in Nigeria. In a neighbouring sanctuary deaths started occurring in one group of their primates.



I was involved in the first few post-mortems and we discovered the group had a tuberculosis outbreak.

Tuberculosis (TB) is quite an insidious disease and it is very hard to diagnose even in developed countries with all our reliable labs, trained personal and up to date equipment, without counting the basics such as cold chain and stable electricity. All this becomes very problematic in developing countries.

Since this experience, I wanted to be able to study the subject and look into diagnostic tests that would be reliable and easy to deploy, yet need less technology and fewer trained staff. This type of test could potentially help sanctuaries and primate facilities in developing countries better diagnose TB which is certainly a big problem in these regions.



Worldwide, primates are being rescued after having had close contact with humans potentially infected with tuberculosis. Many primate rescue centres across the world have experienced TB outbreaks in their collections. This could imply a threat to the animal caretakers and a potential release of the Mycobacterium in wild primate populations as many sanctuaries have a rehabilitation and release policy.

Accurate, rapid TB testing is crucial. The most used method is currently the tuberculin skin test which has multiple flaws. This test gives a lot of false positives and false negatives. The consequences for many sanctuaries can be devastating as they release primates falsely deemed "negative" in a group and spread the disease.

In developing countries, access to laboratories with newer techniques such as Polymerase Chain Reaction (PCR) and ELISA test for gamma interferon are limited. However, tuberculosis detection may have just become easier

with the development of a

new lateral-flow nanoparticle fluorescence assay for gamma interferon, QIAreach and the development of a Loop mediated Isothermal Amplification (LAMP) system for Mycobacterium tuberculosis detection by Dr Tristan Cogan at Bristol vet school.

The purpose of my research study was to test and try to validate the QIAreach system in primates by comparing the results against Quantiferon Gold Plus and ELISA Old World Primate plates (UCYtech) and the LAMP system against PCR and GeneXpert.



So far, I've found the human tool QIAreach testing gamma interferon appears not to be reliable in primates. We delivered a lot of false positive results. This highlighted that even though primates are genetically very close to us, their gamma interferon are slightly different or reacting differently with this diagnostic test. Further research is therefore needed to adapt this tool to primates. For developing countries I believe it could be a godsend as it proved a really easy tool to use in remote areas.

The results for LAMP system versus the PCR are still being processed at the current time. Next month I am returning to a sanctuary in Cameroon to finish running the tests. Once we have all the results, I will be writing up the research for publication. Beyond my immediate research topic, the work will contribute to the wider goal of validating the effectiveness of the LAMP system which Tristan Cogan is developing. Pertinent to the UK, it holds the potential to dramatically impact the management of TB ; offering the farming industry a quicker and more cost effective testing mechanism.



How has your research experience impacted you personally?

It has awakened my passion for research. I now know that I want to combine this path with my veterinary career. I believed I was not intelligent enough to be a researcher. Meeting passionate people at the vet school, breaking those boundaries of "not good enough" has really propelled me forward. I now want to look at the avenues to develop a PhD related to my research. I really believe in the need to develop simpler, more accessible diagnostic tools to diagnose tuberculosis in not only primates but wildlife in general, especially in developing countries.

Talking with Isabelle, it's evident she is passionate about research and its potential to change both animal and human lives worldwide. Isabelle is now a Langford Trust Ambassador for students at Bristol Vet School and hopes to inspire undergraduates to consider a career in veterinary research. She has been awarded honorary research status at the vet school.

Small Animal Referral Hospital Celebration

In July Langford Vets held a Heroes Tea Party to celebrate the recovery of Stanley and Barney, two unrelated Labradors who remarkably were treated at the same time for tetanus, an unusual and often fatal condition.

Both dogs were hospitalised in the Small Animal Referral Hospital for almost 1 month. The care of these two dogs really was a whole team effort. It is a typical example of the advanced multidisciplinary specialist animal care delivered at Langford and why the Trust supports this centre of excellence.



Barney and Stanley both developed tetanus from a small wound, as is often the case. This occurred as a complete coincidence on almost the same day just 100 miles apart. Severe generalised tetanus meant both dogs were extremely sensitive to any stimuli (including light), to allow their bodies to recover (this happens by regrowth of the nerve endings) a

fine balance between relaxing them to avoid muscle spasms and providing ongoing support including nutrition was achieved through the outstanding nursing and intern teams. The dedicated ICU team collaborated closely with the Emergency Critical Care and Internal Medicine specialists and residents to save these gravely ill animals.

Stanley, Barney, their families and referring vets were invited back to the hospital to meet each other and to be reunited with the veterinary teams who cared for them so diligently. Barney's owner, Ian, expressed how shocked and devastated they were at Barney's tetanus diagnosis, knowing the chances of survival were at best 50:50. "The care that Barney received, and we received, was exemplary, both during his stay at Langford and afterwards. We will never forget arriving here on a cold rainy evening in February with Barney unconscious and stiff as a board. Thanks to the team at Langford we now have a healthy and active dog again. Paula and I are eternally grateful for their hard work."

Langford Vets





Fundraising Focus

Funding is required for two major PhD research studies aspiring to start in 2024. Donations of any size are gratefully received.



Insect Bite Hypersensitivity (IBH) is an IgE-mediated allergy to salivary proteins of Culicoides spp. (midges). IBH occurs throughout the world; it affects an estimated 3% of horses in the UK. The chronic debilitating nature of IBH and current lack of effective therapies, makes this condition a major contributor to suffering and disease burden in affected horses.

Over 3 years a team at the vet school intends to trial oral immunotherapy, using clinical results to assist in the development of a novel treatment for IBH.

Researchers will prepare a sticky gel containing the midge salivary proteins made by the team in the laboratory. Small daily doses of gel will be placed under a horse's tongue allowing the allergens to be slowly released in the horse's mouth then detected by the immune system in the same way as food. Over the following months researchers will monitor the effect of the treatment on each horses' immune response and the severity of their clinical signs to determine if their allergy has improved.



Meningoencephalitis is an inflammation of the nervous system occurring both in people and animals, resulting in neurological symptoms and death without appropriate treatment. In dogs, a group of poorly understood diseases, named meningoencephalitis of unknown origin (MUO) exists.

Seizures, falls, reduced vision, loss of routine behaviour, stupor or coma, pain, amongst other signs are reported in affected dogs. This category of diseases is poorly researched with no effective cure.

It is thought that the immune system of the dog becomes unregulated and begins to 'self' attack normal neural tissues but there is poor understanding of the cause and triggers of such inflammation. Urgent research is needed to elucidate the pathogenesis of these diseases and effectiveness of current treatments. A team at Langford will begin a 3 year PhD study in early 2024.



Making a Difference Together

Our work is only made possible by the generosity of donors who share our passion for animals and advancing veterinary care.

There are many ways a donation will help improve animal health and welfare:

- Build a greater understanding worldwide of diseases and debilitating conditions affecting animals
- Discover new ways to improve animal welfare and care
- Support veterinary students and professionals to pursue pioneering clinical research
- Advance the skills of a vital community of veterinary professionals, educationalists and students who can protect animals



Donate

To make a donation visit langfordtrust.org or phone 07986 537302.

If you prefer you can post a cheque made payable to 'The Langford Trust'

The Langford Trust, Langford House, Langford, BS40 5DU.

Leave a legacy

A legacy gift in your Will to the Langford Trust can make a huge impact on our work. You can leave a gift to support a particular area of research, animal group or to assist with veterinary education and teaching.

If you wish to explore leaving a legacy to the Trust, please contact the Langford Trust office for further information.

Thank you

The Trust is immensely grateful to all our donors for their support. In particular our ambassadors and longstanding donors who have assisted in establishing our research.

Miss T Ardley; Mrs Atkinson; Miss Bowering; Mr A Browning; Miss S Dale; Ms E Davies; Dr N Grint, Mr & Mrs Heasman; Ms H Keoghan; Mr Laurence; Dr & Mrs McClean; Mrs Peake; Mr M Stanley-Smith; Mr Staunton; Mrs Scott; Mr & Mrs Stevens; Ms M Stevens; Favel Watton;

Julia & Hans Rausing Trust, Alice Noakes Memorial Trust; Beryl Evetts and Robert Luff Charitable Trust, Elise Pilkington Charitable Trust; KM Buttars Charitable Trust; The Primrose Trust; West of England Dachshund Association; Malmesbury and District Dog Training Club, Estate of Mrs Joan Archer; Estate of Ms Ann Baldry; Estate of Mr T H Bannister; Estate of Ms Sheila Mary Gray; Estate of Mrs Joan Porter; Estate of Mr Michael Robinson; Estate of Ms Sheila Hindley Greaves

The Langford Trust for Animal Health & Welfare Langford House w: langfordtrust.org Langford e: langford-trust@bristol.ac.uk BS40 5DU t: 07986 537302