The Humanimal Hub

Collaboration Café

Issue 5 | August 21

In this issue:

This issue we're very happy to be talking to Dr Sarah Higginbotham, Research Manager, University College Dublin (UCD) One Health and Dr Stephanie Bollard, a member of UCD's thriving Comparative Oncology research group which is led by Professor Amanda McCann. Here, Sarah and Stephanie tell us more about how the research group is tackling cancer in humans and animals, and also how vets, doctors and research scientists come together to do this.

HUB MEMBER PROFILES:

Dr Sarah Higginbotham and Dr Stephanie Bollard

From left to right: Dr Sarah Higginbotham, Jane Howard, Assistant Prof Pamela Kelly, Prof Amanda McCann, and in the centre Dr Stephanie Bollard with Cali

Dr Sarah Higginbotham is Research Manager, University College Dublin One Health. Dr Stephanie Bollard is a Specialist Registrar in Plastic and Reconstructive Surgery at the Mater Misericordiae University Hospital (MMUH) and Wellcome-HRB ICAT Fellow, who is currently working towards a PhD in comparative oncology and is a member of the UCD Comparative Oncology research group, which is led by Professor Amanda McCann.

A Chat in the Collaboration Café

Hi Sarah and Stephanie, and welcome to the Collaboration Café! Could you tell us a bit more about the work that University College Dublin are doing in the area of comparative oncology?

Comparative oncology is all about bringing vets, medics and scientists together to work on different aspects of cancer, to ultimately bring benefits to both animal and human patients.

Cancer is one of the biggest killers of pets; around 1 in 5 cats and 1 in 4 dogs will develop a tumour in their lifetime. Pets share our homes, our food and many other aspects of human lifestyle, and it is not too surprising that some cancers in cats and dogs closely resemble the same illness in humans, displaying not only the same associated problems but also similar genetic mutations.

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The aim of Professor Amanda McCann's research is to use extracellular vesicles in blood samples as a "liquid biopsy" that gives information on the diagnosis, treatment and prognosis of cancer. This type of biopsy could be used to detect cancer earlier, to tailor treatment to the individual, and to indicate prognosis.

While still at a research stage even in human medicine, applying these treatments in dogs and cats with cancer is a great opportunity to learn more about the mechanisms that regulate extracellular vesicle release from cancer cells.

How can the animals benefit from this work?

The concept of One Medicine is at the very heart of what we do. The clinical veterinary procedures carried out at UCD are part of the routine cancer treatment of each individual pet. The animals are a priority, and they benefit from the latest advances in cancer care while providing the researchers with a great opportunity to study the naturally occurring disease. Researchers only use samples that were previously used in the course of the normal treatment of the animal and would otherwise have been thrown away.

Could you tell us a bit more about how vets are involved?

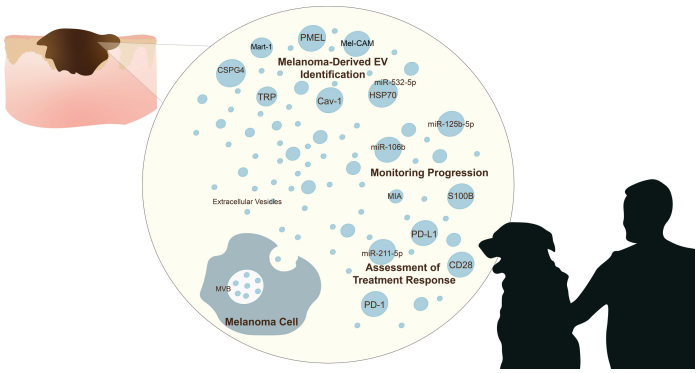
Assistant Professor Pamela Kelly is a Veterinary Pathologist at UCD's School of Veterinary Medicine. With a background in Comparative Dermatopathology, Kelly brings a vet's perspective to the group. Along with Professor McCann, she co-supervises PhD student Jane Howard. Jane is interested in mammary gland cancers in female domestic cats. Her research focuses on profiling and comparing the contents of extracellular vesicles isolated from humans with a diagnosis of triple-negative breast cancer and feline patients with feline mammary adenocarcinoma. Her aim is to understand whether these extracellular vesicles are driving the spread of cancer in both patient groups.

In a review recently published in BAA – Reviews in Cancer, of which she is the lead author, Jane argues that companion animals, in particular female domestic cats, represent a comparative model for investigation of mammary carcinogenesis that is much more relevant than the traditional mice or rodent models.

And what role do human medics have in the group?

Associate Clinical Professor Shirley Potter is a consultant plastic and reconstructive surgeon based in The Mater Misericordiae University Hospital (MMUH), Dublin. Prof Potter is the lead melanoma surgeon in the MMUH and has recently been a recipient of the highly prestigious Irish Cancer Society Clinician Research Leadership Award.

Shirley brings the medical perspective to the group and is the principal supervisor of comparative oncology PhD student Dr Stephanie Bollard. Based in the McCann laboratory she is co-supervised by Assistant Professor Kelly and Professor McCann. Stephanie's PhD work is concerned with extracellular vesicles in both humans and canines with malignant melanoma and how they might provide information on the prognosis of the disease. The group recently published a review on this area in the journal Pharmaceuticals.



Graphic showing potential markers of melanoma-derived extracellular vesicles that may play a role in diagnosis, monitoring progression, and treatment response in humans and other mammals (Image courtesy of Stephanie Bollard)

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The Collaboration Café wishes to thank Dr Sarah Higginbotham, Research Manager, UCD One Health and Dr Stephanie Bollard from the UCD Comparative Oncology research group for joining us in this issue's conversation.

CONNECT

To find out more about the UCD Comparative Oncology group, visit their web page here: https://www.ucd.ie/onehealth/research/comparativemedicineresearchprojects/comparativeoncologybecausepetsgetcancertoo/. The full review article on malignant melanoma as published in the journal, Pharmaceuticals can be accessed here: https://www.ucd.ie/onehealth/t4media/pharmaceuticals-13-00475-v3%20(5).pdf

COLLABORATE

If you're interested in a collaboration with the UCD Comparative Oncology group please do get in touch with them either directly on the Hub or via our Admin email address.

CONTRIBUTE

What does One Medicine mean to you and how do you use a One Medicine approach in your work? We'd love to have a chat with you in the Collaboration Café to find out more! Are there any specific topics that you would like featured, would you like to write a guest article or is there a research question that you'd like to put to fellow Hub members? If so, get in touch with the Hub Admin team and we will take care of the rest.

Next edition of Collaboration Café

In our next edition, we will be focusing on the extremely important topic of mental health with a guest article written by Helen Ballantyne. Do listen out also for a forthcoming two-part edition of The Humanimal Connection podcast where we discuss the mental health challenges faced by the medical professions.

ALSO: The Humanimal Connection podcast

Episode 2: Turning the tide with One Medicine – a journey under the sea

From overland to the UK and South Africa, join us as we visit the oceans and go beneath the sea in Episode 2 to chat to Hub member, Dr Claire Simeone. Claire is a marine mammal veterinarian, conservation leader, TED Fellow, Founder and CEO of Sea Change Health and coined the term 'zoognosis'. We'll be chatting to Claire about her work, Cronutt the sea lion, the messages that the oceans and animals need us to hear and how she has applied techniques from human medicine to treat marine mammals. Our podcasts can be found here: https://anchor.fm/humanimal-trust

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