

AUTUMN 2022

UCD Veterinary Community News



Fiche bliain ag fás

Celebrating 20 years on UCD's Belfield Campus



The Newsletter of the
UCD School of Veterinary Medicine

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About the UCD School of Veterinary Medicine

The UCD School of Veterinary Medicine is the only school of Veterinary Medicine on the island of Ireland. Accredited by the Royal College of Veterinary Surgeons (RCVS), the European Association of Establishments for Veterinary Education (EAEVE), the Australasian Veterinary Boards Council (AVBC) and the Veterinary Council of Ireland (VCI), our MVB degree programme is one of only seven in Europe fully accredited by the American Veterinary Medical Association (AVMA). Our BSc in Veterinary Nursing is accredited by the Accreditation Committee for Veterinary Nurse Education (ACOVENE). We have a track record in education that is second to none and our excellence in teaching & learning, research and clinical endeavour is internationally recognised. In 2019, the School received an Athena SWAN bronze award for its commitment to gender equality.

Contributors

Gerald Barry, Hannah Brown, Eimear Burkley, Dan Collins, Vivienne Duggan, John Furlong, Steve Gordon, Niamh Lewis, Catherine McCarney, Avril McGinn, Simon More, Siobhan Mullan, Karen O'Connell and Cliona Skelly. Special thanks to John and Peter Timoney for their contributions and assistance with the 'Alumni In Profile' piece.



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Dean's Welcome



Dear Colleagues and Friends,

Looking out on a busy, bustling Belfield campus, it is with excitement that we welcome our new and returning students of veterinary medicine and veterinary nursing. It is also a time of great expectation as planning notice is posted for our small animal hospital expansion and the 'sod is turned' on the Herd Health-AgTech Hub on UCD Lyons Farm. Allied to this, the on-going 'Future Campus' development, which will deliver innovative teaching and staff spaces speaks to a positive and optimistic future for this university and its school of veterinary medicine. *Fáilte is fiche romhaibh, bainigí sult as an nuachtlitir seo* – please enjoy this edition of UCD Veterinary Community News.

Very best wishes / *le gach dea-ghuí*

A handwritten signature in black ink, appearing to read 'Michael Doherty'. The signature is fluid and cursive, with a large initial 'M'.

Professor Michael Doherty
Dean & Head of School

Follow the Dean on Twitter: [@DohertyVetDean](#)

Message from the

Communications Manager



Welcome to the fourth edition of UCD Veterinary Community News, the Newsletter of the UCD School of Veterinary Medicine. This year, we're celebrating 20 years since the Vet School moved from the Vet College in Ballsbridge to the new Veterinary Sciences Centre on UCD's Belfield campus - *fiche bliain ag fás* or 'twenty years a-growing.' Our School has developed into a vibrant and dynamic environment as we focus on continuing to build on our successes. In this edition, we look at some of these successes and our work to shape the future of the veterinary professions in Ireland, and beyond, through excellence in education, research and clinical endeavour - we focus on recent successful accreditation visits, Associate Professor Vivienne Duggan's vision for her term as President of the Veterinary Council of Ireland, the new Equine Assisted Reproduction Unit established by Dr Niamh

Lewis and our Athena SWAN Silver Award submission. Research projects from across the School are highlighted, as are some of our recent PhD graduates. As in previous editions, One Health is a feature - we hear about PhD student Hannah Brown's trip to California to take part in a One Health field course and the UCD Squared partnership with University of California, Davis, which continues to go from strength to strength. One Health also features in our Alumni in Profile piece on Professors John and Peter Timoney, UCD alumni and internationally recognised experts in infectious diseases. John and Peter are featured on our Alumni Wall which was recently installed to celebrate the 20th anniversary of the Veterinary Sciences Centre. As a School, we are proud of our alumni and take great pride in highlighting their achievements on our Alumni Wall and bringing them to you in this edition of UCD Veterinary Community News - I hope you enjoy reading it.

Dr Helen Graham
Communications Manager

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News In Brief

→ Successful Accreditation Visits and UCD Quality Review



accreditation visits taking place.

Accreditation of veterinary schools is an integral part of quality assurance procedures for veterinary education and the past two years have been a busy time for the School with several successful

Accreditation by the American Veterinary Medical Association (AVMA) represents the highest standard of achievement for veterinary medical education in the United States. The UCD School of Veterinary Medicine is one of only seven veterinary schools currently accredited by the AVMA in Europe. The School was awarded full reaccreditation by the AVMA Council on Education after a site visit in November 2020.

The School is also accredited by the European Association of Establishments for Veterinary Education (EAEVE). The mission of EAEVE is to evaluate, promote and further develop the quality and standard of veterinary medical establishments and their teaching within, but not limited to, the member states of the European Union. Full reaccreditation was awarded after a site visit in November 2021 and following a June 2021 site visit, the MVB degree programme is fully accredited by the Veterinary Council of Ireland.

Following a 2020 visitation to the School, the Royal College of Veterinary Surgeons (RCVS) granted the status of Full Accreditation to our Bachelor of Veterinary Medicine (MVB) programme. The MVB programme is also accredited by the Australasian Veterinary Boards Council, and our BSc in Veterinary Nursing is accredited by the Accreditation Committee for Veterinary Nurse Education (ACOVENE).

The School also undergoes a university-wide Quality Review process every seven years with the aim of ensuring the ongoing quality assurance and enhancement of all activities within the School. Preparations for this review are currently underway in the School, with a site visit due to take place in November.

→ Recent Appointments

Professor Siobhan Mullan, Chair in Animal Welfare & Veterinary Ethics



Professor Siobhan Mullan joined the UCD School of Veterinary Medicine in 2021. Having subsisted on a heavy diet of James Herriot books and David Attenborough wildlife documentaries as a child, Siobhan heeded the interview advice she was given to 'not let on that you love animals' and found herself heading off to Glasgow Vet School to start her training. Five years of trying to remember more than it at first seemed possible gave her a good grounding to enter mixed practice in Oxfordshire, where she was well supported in a practice that cared deeply about the clients and their animals and had only half an eye on the financials. In many ways, it was a modern-day version of those James Herriot books and Siobhan had the usual new-grad run of triumphs and tragedies before realising she was hankering for a more academic atmosphere in which to continue the post grad studies in Animal Welfare Science, Ethics and Law (AWSEL) she had embarked upon; she joined Bristol Vet School in Somerset where she was to stay for more than 20 years.

She initially worked in the First Opinion Companion Animal Practice, where the students kept the staff on their toes, challenging orthodoxies and in just a week the transformation in their competence was palpable. She gained a Certificate, and then Diploma in AWSEL, studying the welfare of companion rabbits for her dissertation. Gradually transitioning from practice to research enabled Siobhan to dig deeper into understanding animal experiences of the world

and importantly the two areas that have so far defined her research career - how best to harness welfare assessments to drive improvements and ethical considerations of human interactions with animals. Siobhan is immensely proud that her PhD to embed welfare assessments on all UK pig farms within assurance schemes has been shown to have been effective at improving welfare; the approach was also rolled out to other farmed species and now racehorses. The work was painful at times, and politically challenging, but worth it. She has worked in a whole range of diverse spheres, with local government on the welfare of tethered horses, with theologians on the Christian ethics of farmed animal welfare, with historians and performance artists conducting an ethnographic study of broiler chickens and 10 years co-ordinating an 'agony aunt' style journal column on Veterinary Ethics. Siobhan is excited to be part of the great work already going on at UCD to raise the profile of animal welfare and most importantly, to build the evidence base to bring about change to improve animal lives within the context of other societal concerns such as climate change.



Art-science collaboration - interactive public performance to embody the experiences of broiler chickens

Dr Avril McGinn, Lecturer/Assistant Professor, Clinical Skills Team

Dr Avril McGinn has recently joined the School of Veterinary Medicine's Clinical Skills Team as a Lecturer/Assistant Professor. From Kildare, Avril graduated from the University of Edinburgh Vet School in 2012 and completed a Junior Clinical Training Scholarship before moving home to Ireland and taking up a position in small animal practice in Cork. In 2015, she joined

Village Vets and became Clinical Director and lead for the Clinical Support Team while completing RCVS postgraduate certificates in Small Animal Medicine and Dermatology. She has a keen interest in education and has completed clinical education training and has also run an interactive new graduate programme.

Avril is looking forward to getting to know colleagues and students over the coming months and she hopes to bring her general practice skills and passion to her new role with the Clinical Skills Team in the UCD School of Veterinary Medicine.



Dr Avril McGinn

→ New External Advisory Board for School

The School is in the process of appointing a new External Advisory Board (EAB), which will meet for the first time this October. A new Terms of Reference has been drawn up for the EAB, and the School's Management Team is looking forward to working with the new Board over the coming years. We are delighted to welcome the following colleagues to the EAB:

- Dr Tommy Heffernan, Veterinary Consultant, Nuffield International Farming Scholar 2019

- > Dr Theo Kanellos, Director, Business Development and Commercial Alliances, Zoetis
- > Mr Mike Magan, Longford dairy farmer, Chair of the National Fodder & Food Committee, former Chair of Animal Health Ireland
- > Dr Siobhan McAuliffe, Diplomate of the American College of Veterinary Internal Medicine (Large Animal), Foal Medicine Specialist
- > Dr Ciara Reid, Veterinary practitioner, Practice Manager, former President of Veterinary Ireland, Chair of the Farm Animal Welfare Advisory Group
- > Dr Patricia Reilly, Deputy Chief Veterinary Officer at the Department of Agriculture, Food and the Marine (DAFM), Ireland's first Agricultural Attaché to Central Europe

→ PhD Student Hannah Brown takes part in UC Davis Rx One Health Course



Hannah with Rx One Health course participants

Hannah Brown, a PhD student in Dr Nicola Fletcher's research group in the School of Veterinary Medicine recently took part in the University of California, Davis (UC Davis) Rx One Health field course in California. This two week programme is a transformative, field-based experiential learning course focused on One Health core competencies for graduate students and early career professionals from all disciplines, with California's biodiverse and magnificent landscapes providing the backdrop for immersive One Health learning.

For Hannah, it was an intensive but hugely transformative experience, both professionally and personally. Whilst she would have always considered herself a One Health practitioner, she was aware of the gaps in her knowledge and some of the aspects of One Health that she had not yet had a chance to explore.

Taking part in the course helped Hannah to fill in those knowledge gaps and she believes that it has given her a wider perspective on how complex and intersectional One Health issues can be.

The course brings together participants from around the world and from a diverse range of professional backgrounds, including human and veterinary medicine, infectious disease research and agricultural science. Theoretical aspects of the programme were coupled with practical experiences that helped to solidify the concept. For example, after learning about zoonotic disease surveillance, the group then competed in the 'PPE Olympics' and learned how to trap mammals for surveillance work.

One of the key professional takeaways for Hannah is the importance of stakeholder involvement at all levels of a project, and she is now focused on determining how to incorporate this into her future research work. Something that she personally enjoyed during her time in California, was spending so much time outdoors whilst learning. The group camped in the Sierra Nevada mountains, stayed on a natural history reservation in the Santa Lucia mountains, and enjoyed the amazing landscapes that California has to offer. Hannah believes that the course offers a unique opportunity for anyone wishing to gain experience as a One Health practitioner.



California's biodiverse and magnificent landscapes provided the backdrop for immersive One Health learning

For more information on Rx One Health, see: <https://rxonehealth.vetmed.ucdavis.edu>

→ International Collaborative Angel Shark Event Takes Place in UCD

Angel Sharks (*Squatina squatina*), or *Bráthair* in Irish, are a critically endangered species of shark with flattened bodies similar to skates or angler fish. They are a bottom dwelling shark that prefers to hunt in shallow coastal waters. The main centre of their distribution in Ireland, according to tagging data from Inland Fisheries Ireland, is Tralee Bay, with Clew Bay a secondary area, although their numbers are dwindling and few Angel Sharks have been encountered even in these areas in the last 15 years.



Our DI Team carrying out an x-ray on one of the Angel Shark specimens

In May of this year, the UCD School of Veterinary Medicine was the chosen location for an international collaborative Angel

Shark event, hosted by the group Project SIARC (Sharks Inspiring Action and Research with Communities) which is led by the Zoological Society of London and Natural Resources Wales. Working closely with Inland Fisheries Ireland, the Sea Fisheries Protection Authority (SFPA), the Irish Elasmobranch Group and the UK's Cetacean Strandings Investigation Programme, the two-day event was organised to bring together those across the UK and Ireland working with the Angel Shark.

The first day focused on working with two specimens of Angel Shark which were found dead by a fishing vessel in the Irish Sea and brought ashore for scientific investigation under a derogation issued by the SFPA. The second day of the event brought together invited representatives from various stakeholder groups and organisations who observed a postmortem examination and scientific sampling of one specimen, followed by a group meeting to discuss future work on Angel Sharks in the region and to identify collaboration opportunities. The event was a great opportunity for stakeholders to discuss ongoing challenges and considerations for developing a coordinated strategy for the Angel Shark in Ireland.

The facilities in our School offered an excellent venue for a meeting of this kind, with participants utilising the expansive wet teaching lab and the School's teaching spaces. Our Diagnostic Imaging Team, led by Dr Cliona Skelly, took this very rare opportunity to conduct CT scans and take X-rays of the two specimens, adding exceptional data to our knowledge of these beautiful and elusive creatures. Samples and images taken will be studied and analysed to gain a better understanding of Angel Shark biology and ecology in the northern part of their range. Catherine McCarney, Senior Technical Officer in the Vet School, will prepare one of the skeletons as a dry specimen, which will be the only specimen of its kind for this species in Ireland.

Organisers hope that the event is just the first step to building important links between researchers, conservation groups, fishers, communities and government organisations to safeguard the continued existence of the critically endangered Angel Shark in the waters around Ireland.



Angel Shark x-ray

Associate Professor Vivienne Duggan, President of the Veterinary Council of Ireland



In January of this year, Associate Professor Vivienne Duggan was elected President of the Veterinary Council of Ireland (VCI). Vivienne joined the veterinary faculty at University College Dublin in 2006 and is currently Head of the Equine Clinical Studies, Diagnostic Imaging and Anaesthesia Section. She works as a senior equine clinician in the UCD Veterinary Hospital and her research interests include equine welfare, infectious diseases and endocrinology. Here, she tells us about her vision for her term as President of the VCI.

I am honoured to have been selected for this role at a challenging but exciting time for the veterinary professions in Ireland. While Irish pet populations multiply at a rapid rate, Ireland continues to enjoy a thriving agri-food industry that exports most of its produce to nearly 200 countries worldwide, and a world class equine industry with a stellar reputation for breeding, competing and racing. However, the landscape of Irish veterinary practice has changed, as it has in other countries, as corporate practices expand, particularly in urban settings, and concerns are raised about the long term provision of veterinary services,

particularly in remote, rural areas. The importance of the veterinary professions to Ireland in the maintenance of high standards of animal health and welfare and public health cannot be underestimated. The Veterinary Council's primary role is the maintenance of high standards in clinical practice and in veterinary certification of food products in the public interest.

Over my term as President, I aspire to support the VCI in all of its strategic goals. But there are one or two pieces of work that I am particularly invested in.

The first of these is the influence the VCI continues to exert in national policy-making through research and engagement. Veterinary clinical work is long recognized as being particularly stressful, with long working hours, difficult clients, and relatively poor remuneration contributing to inadequate work life balance and poor mental health across the professions. Anecdotally, retention rates in clinical practice are falling. At the same time, numbers joining the registers have never been higher, and a large proportion of these are young Irish vets who have travelled overseas to obtain their veterinary qualification. The VCI is currently carrying out a Work Force review, using the registration data it holds, analysing and interpreting trends in relation to clinical practice in Ireland, which it is hoped can be useful in influencing national policy making in this regard.

Another exciting piece of work of Council is the development of the concept of the animal clinical care team. When an animal needs medical attention, the veterinary practitioner is legally the only person who can interpret a clinical examination and associated diagnostic tests, and prescribe a course of treatment for the diagnosed condition. But there are other critical members of the animal care team that can make this process as efficient and successful as possible. The Council has been very active recently in defining the role of the veterinary nurse in the care and management of animal patients in the veterinary practice environment. There are huge advantages to employing vet nurses in the practice, in areas such as health and safety,

infectious disease control, managing the clinical environment for procedures and investigations, client support, performing lab tests, diagnostic imaging support, surgical prep and assistance, assistance with anaesthesia and in dispensing and administering drugs. These roles can be as relevant to the ambulatory practice or clinic as to the veterinary hospital, although it is recognised that there is a particular requirement for a veterinary nurse within veterinary hospital teams. There are also a whole team of other people who can assist with carrying out a veterinary treatment plan and managing veterinary medical conditions on a long term basis, once a primary veterinary diagnosis has been made. These include animal physiotherapists, farriers, dental technicians, hoof trimmers and others. The Council recognises that those providing these services can contribute greatly to animal care and is keen that these roles and their responsibilities be better defined in legislation than they currently are, in the interests of maintaining standards of animal welfare in Ireland.

This role holds tremendous honour but also a tremendous obligation to the profession to ensure that the high standards within the Irish Veterinary professions continue to protect animal health and welfare and public health into the future.

From Ballsbridge to Belfield...

Fiche bliain ag fás

→ Celebrating UCD Vet Sciences @ 20 with the Launch of our Alumni Wall



Pictured are (back row, l to r): Brian Doohar, Patricia Reilly, Professor Patrick Wall, Professor Mark Rogers (UCD Acting President), Professor Michael Doherty (Dean & Head of the UCD School of Veterinary Medicine), Dr Des Rice, Dermot Weld, Mary Geary, Dr Perpetua McNamee; (front row, l to r): Hester McAllister, Dr Susie Mitchell, Brenda Castles, Samantha Feighery.

June 2022 marked 20 years since the UCD School of Veterinary Medicine moved to its new home in the Veterinary Sciences Centre on UCD's Belfield campus. The faculty moved from Ballsbridge, where the teaching of veterinary medicine had been based since 1900 when the Royal Veterinary College of Ireland on Pembroke Road and Shelbourne Road was constructed by G. & T. Crampton. UCD's Faculty of Veterinary Medicine at Ballsbridge was established in 1946, and the campaign for a new Veterinary School on the Belfield campus, led by Professor Michael Monaghan with the support of the late Professor Tommy McGeady, was launched in 1992.

Ten years later, the new School and Veterinary Hospital opened there in June 2002.

Today, the work of the School is underpinned by a strong vision and mission - its 'One Health, One Welfare' strategy focuses on maintaining a flourishing Veterinary School, positively impacting animal and human health, animal welfare and the environment. The School remains the only school of Veterinary Medicine on the island of Ireland, and it is widely recognised as delivering excellence in education, research and clinical endeavour. Accredited by the Royal College of Veterinary

Surgeons, the European Association of Establishments for Veterinary Education, the Australasian Veterinary Boards Council and the Veterinary Council of Ireland, its MVB degree programme is one of only seven in Europe fully accredited by the American Veterinary Medical Association. Veterinary Science at UCD has consistently ranked in the top 40 since the QS World University Rankings by Subject introduced Veterinary Science to the rankings in 2015, achieving its highest ranking of 23rd in the world in 2021.

The School is immensely proud of its Alumni and so to mark this important milestone, it was decided to celebrate twenty of the most exceptional alumni from across the UCD Veterinary Community on an 'Alumni Wall.' The Wall now takes pride of place on the busy ground floor of the Veterinary Sciences Centre, where it is visible to staff, students and anyone visiting the Vet

School. The alumni featured on the Wall were nominated by staff, students and graduates - they have all excelled in their fields, made a positive impact in others' lives and they exemplify our values of excellence, integrity, collegiality, engagement, creativity, diversity and innovation.

A celebratory event was held in the School on 15 June to mark 20 years of Veterinary Sciences on the Belfield Campus and to launch the Alumni Wall. Colleagues from the University of California, Davis, who were in Dublin as part of the UCD Squared initiative, joined the celebrations, as did staff from across the School and University, and colleagues from the veterinary professions and industry. The event was made all the more special as many of the alumni featured on the Alumni Wall were also in attendance. See inside back cover for some photos from our launch event.

→ UCD School of Veterinary Medicine Alumni Wall / *Balla Alumni Scoil an Leighis Tréidliachta UCD*



Brenda Castles (MVB, 2001) - vet and critically acclaimed concertina player.



John D. Collins (MVB, 1961) - the late Prof John Daniel Collins (Dan) was Professor Emeritus of Farm Animal Clinical Studies and the first Director of the Centre for Veterinary Epidemiology & Risk Analysis.



Ann Derwin (MVB, 1986) - Ireland's Ambassador to China, formerly Chief Economist at the Department of Agriculture, Food & the Marine.



Brian Dooher (MVB, 1998) - All Ireland winning Gaelic footballer and manager. Northern Ireland's Deputy Chief Veterinary Officer.



Margaret Doyle (MVB, 2009) - Forensic vet who established Canada's first veterinary forensic consulting firm in 2010.



Samantha Feighery (BSc Veterinary Nursing, 2013) - Lead Clinical Nurse at Rosssdales Equine Hospital, Newmarket.



Noel Fitzpatrick (MVB, 1990) - world-class orthopaedic-neuro veterinary surgeon and MD of one of the UK's largest veterinary referral centres.

ALUMNI WALL



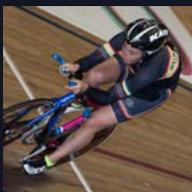
Mary Geary (MVB, 1999) - founding vet and owner of Park Lane Vets in Dublin.



Hester McAllister (MVB, 1975) - first President of the European College of Veterinary Diagnostic Imaging. Also served as Director of the International Veterinary Radiology Association.



Perpetua McNamee (MVB, 1983) - veterinary career focused on poultry, with expertise utilised at home and abroad. Recently retired as Deputy Chief Veterinary Officer in Northern Ireland.



Susie Mitchell (MVB, 2005) - Diplomate of the European Council of Aquatic Animal Health. Won gold twice at the World Masters Track Cycling Championships.



Shauna O'Brien (MVB, 2017) - 2020 winner of the Ontario Veterinary Medical Association Rising Star Award for demonstrating leadership in practice and in the community.



John M. Oxx (MVB, 1973) - renowned racehorse trainer with almost 2000 winners to his name, including Sea the Stars.



Patricia Reilly (MVB, 1996) - Deputy Chief Veterinary Officer. Served as Ireland's first Agricultural Attaché to Central Europe.



Des Rice (MVB, 1972) - Received an OBE in 2004 for services to the Agrifood Industry. Retrained as a Business Coach and Psychotherapist.



Michael Riordan (MVB, 1977) - Columban missionary and Chairman of the Isidore Development Association in South Korea, a non profit education and social welfare organisation.



John & Peter Timoney (MVB, 1961 & 1964) - internationally recognised

experts in infectious diseases.



Christopher Ulrich (MVB, 2001) - Owner of Huron Veterinary Hospital, Massachusetts. Named one of the Best of Boston Veterinarians in 2010.

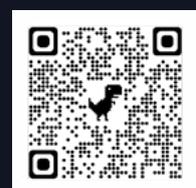


Patrick Wall (MVB, 1979) - Professor of Public Health in UCD. Formerly Chairperson of the European Food Safety Authority and Chairman of Horse Sport Ireland.



Dermot Weld (MVB, 1970) - One of Ireland's leading racehorse trainers, having trained over 4000 winners globally.

For more information on the alumni featured on our Alumni Wall, scan the QR code or visit the project homepage on our website: <https://www.ucd.ie/vetmed/about/alumniwall/>



UCD Squared Goes From Strength to Strength

One Health is a term used to describe an approach to solving local and global problems that encourages a multidisciplinary approach benefiting humans, animals, and environmental health. To tackle major challenges, One Health encourages researchers to recognize that it is not efficient or productive to work in isolation and to ignore other disciplines that could help to solve these challenges. For example, when working on a human cancer that has an equivalent in a dog or a cat, there is a benefit to working with researchers that are interested in curing that cancer too because both can learn from each other in a comparative oncology approach. When tackling the growth of antimicrobial resistance, vets, scientists, and doctors need to work together to tackle it because it impacts on humans and animals. Multiple other examples also exist.

A multidisciplinary One Health approach underpins University College Dublin's strategy on solving major local and global challenges and UCD is uniquely placed on the island of Ireland to work in this way because of the diverse range of disciplines that are positioned alongside each other on campus including health sciences, veterinary medicine, medicine, environmental science, computer science, chemistry, engineering etc.

In 2015, UCD and University of California (UC), Davis established a partnership known as UCD Squared. It is a partnership with One Health at its core. With the support of Zoetis, transatlantic partnerships were established between research laboratories in the UC Davis School of Veterinary Medicine and the UCD College of Health and Agricultural Sciences. These innovative research collaborations have generated exciting opportunities

and data that have real world impacts. For example, an ongoing collaboration between Prof Grace Mulcahy in UCD and Prof Carrie Finno in UC Davis involves work studying equine host-helminth interactions and related immune mediated and metabolic diseases. They aim to define host parasite susceptibility in horses using a range of different data points and they will supplement this with genetic information already available from a major study ongoing in UC Davis known as the Pioneer 100 horse health project. This work will have implications for helminth antimicrobial use as well as improving our understanding of how the guts microbiome influences helminth susceptibility in horses and other animals as well as humans.



Professors Chris Barker, Mike Ziccardi, Bart Weimer and Jonna Mazet from UC Davis meet UCD's Acting President, Professor Mark Rogers

To further strengthen ties between UCD and UC Davis, Prof Bart Weimer, Prof Chris Barker, Prof Mike Ziccardi and Prof Jonna Mazet from UC Davis visited UCD in June. It was a short but highly productive two-day visit which included attendance at a One Health conference in UCD where One Health research from both sides of the water was showcased, a visit to UCD's Lyons Farm where climate change and animal health were top of the agenda and finally, meetings with collaborators and funders including Science Foundation Ireland, the Health Research Board, the Department of Agriculture, Food and the Marine and Zoetis. Through these discussions, the groundwork for exciting new

collaborations and a strengthening of the research links between UCD and UC Davis were discussed. The partnership seeks to establish a programme of research that is ambitious and world class, drawing on expertise from a diverse community of scientists, medics, vets, and the experience of the public. UCD is grateful to our colleagues in Zoetis and UC Davis for continuing to develop these collaborations, and we look forward to fruitful, impactful research into the future.

If you would like to know more about One Health research in UCD please see: www.ucd.ie/onehealth/

UCD Vet Equality, Diversity & Inclusion and Athena SWAN (VetEDIAS)

Activities, Initiatives and Upcoming Plans

Having been awarded an Athena SWAN Bronze Departmental Award in 2019, the UCD School of Veterinary Medicine will be applying for a Silver Award in 2023. The committee, led by Co-Chairs Prof Stephen Gordon and Dr Cliona Skelly, has been working hard on delivering on the action plan from the Bronze award, and focusing on the application process for the Silver award whilst also widening its remit. The initiative has now become the VetEDIAS (Vet Equality, Diversity, Inclusion and Athena SWAN) committee; this change is important in recognising the School's increasing commitment to providing a safe and inclusive community that welcomes everyone irrespective of gender, ethnicity, age or disability.

An integral part of the Athena SWAN Bronze award was the establishment of an ambitious action plan that sought to foster and deliver an inclusive and supportive

environment for all members of our community. The past three years have seen major steps towards the realisation of these goals, even in the face of the challenges posed by the COVID-19 pandemic. You can read about some of these highlights below and find out more about VetEDIAS initiatives on the School's website: www.ucd.ie/vetmed/about/athenaswan/

→ Expansion of the Staff Mentoring Programme

Our successful in-house Faculty Mentoring Programme has started a second cycle and the School has also been part of piloting a number of different mentoring programmes that are now being rolled out to all staff across the University, with three mentoring pathways now available: Faculty Career Mentoring, Individual Mentoring and Structured Mentoring.

→ Online Events and Campaigns



Overcoming the challenges of microaggressions for International Women's Day 2022

Over the past two years, our engagement activities have centred around online events and social media campaigns. Two hugely inspiring events included a panel discussion of graduates of the School for **International Women's Day (IWD) 2021**, about how they have chosen to challenge and achieved significant success in their careers; another involved a conversation between Prof Stephen Gordon and Dr Cliona Skelly and our colleague Emma Golding to celebrate **International Day of Persons with Disabilities 2021**.



Pictured (l to r): Stephen Gordon, John Buckley, Michael Doherty, Sourav Bhattacharjee, Kevin Purves, Christopher Evans, Tristan O'Mahony, Dave Curran mark International Men's Day 2021

In November 2021, we ran a Twitter campaign to highlight **International Men's Day** and its theme of Better Gender Relations. Whilst in February 2022, we marked **International Day of Women and Girls in Science** by asking staff and students from the School about how important science is in their lives. For **IWD 2022**, we collected people's experiences of microaggressions within our community and how we can overcome these challenges - changing little things can make a big difference.

→ Pride 2022

As was the case for so many people, the pandemic impacted on our ability to gather and celebrate our Community, and so in 2022, we were delighted to see a return to in-person events. On 3 June, the School, supported by the College of Health and Agricultural Sciences, hosted a Pride event. Staff and students from across the University were invited to the Vet School for cake, refreshments and chats. Prof Michael Doherty addressed attendees, Dean's Inclusion Award 2021 recipient Dr Niamh Nestor kindly recounted her inspirational award speech and UCD's Vice-President for EDI, Prof Colin Scott, provided closing remarks and thoughts on the importance of these events.

→ Looking Ahead

The 2022/2023 academic year will be another busy one for the VetEDIAS team. A major focus will be the submission of the School's Athena SWAN Silver award application. The application will showcase the successes achieved in the delivery of our previous action plan, as well as the challenges that remain. These challenges will form the basis of our new strategy, ensuring that we identify opportunities to make the School the most inclusive and supportive place to work and study in as we possibly can.

Cutting Edge Equine Reproduction Techniques at the UCD Veterinary Hospital

Dr Niamh Lewis, Assistant Professor in Equine Reproduction and Fertility joined the UCD School of Veterinary Medicine in 2021, and with the support of John Furlong, an experienced human embryologist, Technical Officer, and post-graduate researcher, has established a new Equine Assisted Reproduction Unit within the UCD Veterinary Hospital offering clinical services to Irish breeders while setting sights on important research questions to refine the process of *in vitro* embryo production.



Dr Niamh Lewis

→ Background

Horses are one of the few species, beside humans, in which assisted reproductive technology (ART) has important clinical applications. In recent years, interest

in the use of ARTs such as ovum pick up (OPU) and intracytoplasmic sperm injection (ICSI) has rapidly increased worldwide within the equine industry, with more than 3000 procedures now being carried out annually in Europe alone. Furthermore, the horse can serve as a valuable model for the study of comparative reproductive biology. While there is established clinical success with the technology in horses, there remain many unanswered questions that could improve the process and potentially maximise the health of the resulting offspring.

→ The Clinical Scenario

The use of OPU/ICSI was first driven by breeders wanting to produce offspring from sub-fertile mares that repeatedly failed to produce embryos from conventional embryo transfer (ET) and/or from stallions with low fertility. Due to increased efficiency of the technology, breeders are now using it to maximise mare genetics and access sought after stallions with limited availability of frozen semen.

The first step in the process is OPU, a procedure which, under standing sedation, involves oocytes (eggs) being non-surgically removed from the mares' ovaries. The retrieved immature oocytes are then shipped overnight to an ICSI laboratory. At present, this is Avantea in Italy but we are working on having the option to continue the process on site in 2023.



John Furlong at work in the state of the art Equine Assisted Reproduction Unit, which includes a high-power microscope and micromanipulation tools for performing ICSI

The oocytes are then placed in media containing hormones to allow them to mature for approximately 26-30 hours. Once matured, a small section of a frozen semen straw from the chosen stallion is thawed and semen is prepared to select the most viable sperm cell. ICSI is then performed on each individual egg that has matured by the injection of a single sperm cell straight into the cytoplasm of the egg.

The injected oocytes are then allowed to develop in an incubator for 6-9 days until they reach the blastocyst stage. At this point they are either frozen or transferred fresh to a recipient mare. Approximately 75% of OPU sessions will result in production of at least 1 embryo which subsequently have excellent pregnancy rates of 70-90% after transfer.

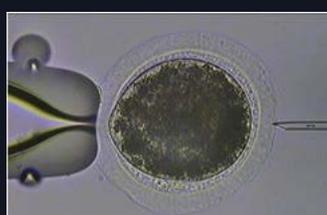
→ Research direction: What are the unanswered questions?

Assisted reproduction technologies aim to mimic the periconceptual environment. As such, it is important to make sure they are optimised to the best of our knowledge. Particularly interesting to the research group at UCD is the metabolism of the oocyte and embryo and how it changes in the face of environmental changes. The brand new ICSI facility in UCD will be well poised to produce embryos under varying conditions and utilise established methods such as transcriptomics and metabolomics to evaluate their developmental competence. It is also hoped that, pending sufficient funding, we can establish a research herd of mares so that we can carry out longitudinal studies on offspring health and performance and thus give further confidence to breeders who are utilising these technologies to produce champions of the future.

For more information contact Niamh.Lewis@ucd.ie



Oocytes obtained via OPU



ICSI



Day 1



Day 2



Day 4



Day 7



Day 8

Embryo development after ICSI (The Day 8 image shows a good quality embryo suitable for transfer or cryopreservation)

Alumni in Profile:

John & Peter Timoney



Peter and John Timoney

In this edition of UCD Veterinary Community News, we profile brothers John and Peter Timoney, UCD alumni and internationally recognised experts in infectious diseases. John and Peter spoke to our Communications Manager, Helen Graham, about their early life and the influence of their father on their career paths, their time spent studying in the Vet College in Ballsbridge, their work in Ireland and the USA and their long and successful careers in the field of Veterinary Medicine. The School is proud to have John and Peter as alumni and we were delighted to be able to celebrate their achievements in some small way by including them on our Alumni Wall.

→ Early Life

John and Peter's father, John Francis Timoney, MRCVS, joined the Department of Agriculture as the first Veterinary Research Officer under the Irish Free State Government in 1931, and later became Director of the Veterinary Research Laboratory (VRL) at Thorndale in Dublin. He was assigned to work on brucellosis, infertility in cattle, bovine tuberculosis and later, louping ill, a tick-borne disease, in sheep. From the late 1940s, he carried out investigative work on Oedema Disease (Enterotoxemia of Swine) which was a major problem in weanling pigs in countries in Europe and North America. He was the first to experimentally reproduce the disease and establish the causal agent.

When he became Director of the VRL in the late 1940s, the family moved to the Director's residence at Thorndale; John and Peter lived there until they left college and it was an idyllic setting for them during their formative years. Thorndale is also where they developed an interest in research and the possibility of pursuing a career in veterinary medicine; their father's work undoubtedly had a significant influence on their choice of career. They had the opportunity to visit the laboratory on weekends when their father was working on Oedema Disease, doing necropsies on weanling piglets on the autopsy slab in his lab. Here they became familiar with the lab environment, seeing how certain vaccines were produced and viewing from afar various experimental studies on specific diseases. On occasion, they accompanied their father on farm visits, often taking dead piglets back to the lab in his car!

→ Education and the Challenges of Getting into Vet College

John and Peter were educated at Belvedere College, where they received a 'classical education,' with a focus on the humanities. In Peter's case, mathematics was the only non-language subject he took for the Leaving Certificate. Whilst they see the value of this education now, at the time it did not leave them prepared for a career in the Biological Sciences and it meant that they were faced with challenges in meeting the entry requirements to the Vet College. Peter, not having any formal education in the sciences, sought to get 'ahead of the curve' by taking the Matriculation Examination at Trinity College; unfortunately, the entry requirements changed the year he left secondary school, which led to a delay in gaining admission to the Veterinary programme.

→ The Vet College in Ballsbridge

When they did begin their veterinary studies, they found the classes in the Vet College to be competitive, but John and Peter made numerous friends, some of whom they still stay in regular contact with. There were also some outstanding faculty there at the time - Pat Rhatigan, Charles Burke McAleer, Brendan Whitty, Bob Lea, WR Kelly, John Hannon, and Patrick O'Reilly particularly stand out. Summers in third and fourth

year were spent seeing practice and they both left the Vet College with a very good general education, which left them well prepared to go into practice.

→ Joining the Veterinary Profession

Peter qualified first, and spent a period of several months in practice with Frank Nolan, who he describes as a wonderful, kind and caring individual and mentor. John also spent some time in practice in Ireland after graduating, but as Peter notes, in retrospect, they had both chosen a career in veterinary medicine while in secondary school; the decision to go into research was reinforced during the years they spent at the Veterinary College. At that time in Ireland, opportunities to specialise in research were limited, so their research careers began with a move to the USA.

→ Research Careers at Home and Abroad

Peter took up a Research Associate position at the Centre for Zoonoses Research (University of Illinois Veterinary College), working on Powassan virus, which was taxonomically related to Louping ill virus in Ireland. From 1965 to 1967, John was based in the University of Wisconsin-Madison where he carried out research into Erysipelas arthritis in swine as a comparative model for rheumatoid arthritis.

After this initial work in the US, both John and Peter moved back to Ireland - John to take up a post in the Vet College, whilst Peter joined the Veterinary Research Laboratory, now at Abbotstown, as a Veterinary Research Officer. Their father, though now retired, was still working at the lab. John completed his PhD in 1969 under Prof WR Kelly, and during his time in Ballsbridge he carried out a series of studies on salmonella contamination of meat and poultry in Ireland, a project on pollution at Lough Sheelin with Inland Fisheries, and gave lectures and labs in Preventive Medicine and Public Health.

In 1972, a major equine disease event occurred that changed the direction of Peter's career. He was tasked with setting up an Equine Disease Section at Abbotstown which involved first acquiring experience in the field in the USA and Canada for a year. He left

the Department in 1979 to take up a faculty position at Cornell University Veterinary School, however, he was subsequently contacted by a number of leading figures in the Irish Thoroughbred breeding industry to help develop an Irish Equine Centre. Whilst still working full time at Cornell, Peter made frequent trips home to Ireland to help advance this initiative. As the project moved forward, Peter resigned his position at Cornell to return to Ireland to assume the position of Scientific Director of the Irish Equine Foundation. Unfortunately, sufficient funds were not raised to build the centre. Anxious to resume his career in equine research, Peter moved back to the USA to take up a full-time research position at the University of Kentucky. Whilst he would now remain working in the US, Peter maintained links with the equine industry at home and assisted in implementing the plan to build the Irish Equine Centre.

During his time in Kentucky, Peter specialised in the field of equine infectious diseases, especially equine viral arteritis, contagious equine metritis, equine herpesviruses and equine encephalomyelitides. He was Director of the Maxwell H. Gluck Equine Research Centre from 1989 until 2008 and Chairman of the Department of Veterinary Science from 1989 to 1999 and again from 2002 to 2008. Prior to his retirement, he was holder of the Frederick Van Lennep Endowed Chair in Equine Veterinary Science from 1988 to 2022.

John had returned to the US in 1972 to take up a post in Cornell Vet School with responsibility for Veterinary Bacteriology and Mycology in the DVM curriculum, succeeding Professor Dorsey Bruner. He held a Fogarty International Fellowship at the University of Bristol Medical School from 1979 to 1980 and was Visiting Professor of Veterinary Bacteriology at the University of California School of Veterinary Medicine, Davis from 1985 to 1986. He also co-authored the 7th and 8th editions of Hagan and Bruner's *Microbiology and Infectious Diseases of Domestic Animals*, published by Cornell Press. He was appointed Keeneland Chair of Infectious Diseases at the University of Kentucky in 1991, with the Professorship focusing on equine streptococcal disease. He retired from that position in June 2016. Throughout his career, John's research interests have included antimicrobial resistance in the veterinary bacteria, salmonellosis, bacterial

deputation in shellfish, immunopathology of arthritis, mucosal immunity, equine streptococcal disease including strangles, leptospira abortion and uveitis and prevention of neonatal clostridial disease in the foal. During his time in Kentucky, one of the most gratifying aspects of his research work was maintaining active collaborations with local veterinarians who helped with projects on horse farms and co-authored the resultant publications - both John and his colleagues in practice learned a lot from these interactions!



John lights a ceremonial candle to open a recent International Leptospirosis Conference in the WHO lab in Port Blair, Andaman Islands.

Legacy & Achievements

Peter has published extensively in his field and his expertise was recognized by the OIE (World Organisation for Animal Health) in his appointment as international expert on two equine viral diseases, Equine Viral Arteritis and Equine Rhinopneumonitis. He is past president of the World Equine Veterinary Association and is a subject matter expert for the US Dept of Agriculture's Animal & Plant Health Inspection Service on contagious equine metritis, equine viral arteritis, West Nile virus infection and Getah virus infection. He believes strongly in service to an equine industry regardless of where it is needed - not just in Kentucky but also nationally and internationally.

Earlier this year, Peter received a Lifetime Contribution Award from the Kentucky Thoroughbred Association and the KY Thoroughbred Owners and Breeders where it was noted that his practical application of science and steadfast commitment to equine health helped

create the Gluck Center as a world renowned research institution and enabled Central Kentucky to become the leading American exporter of horses to markets on six continents. His work has benefitted veterinarians and horse owners around the world and he has provided expertise to numerous equine practitioners through individual communication and presentations at international veterinary conferences.

John retired from the University of Kentucky in June 2016. Throughout his career, he authored more than 200 scientific papers and book chapters. He holds two patents in the fields of equine vaccinology and immunodiagnosis and his research contributions have been recognized by awards including the Sir Frederick Smith Memorial Medal, Bayer Animal Health Excellence in Equine Research Award, Honorary Membership of the American College of Veterinary Microbiologists and DSc degree from the National University of Ireland for published work. His working life as a veterinarian brought him to many places where he had the privilege of working with some fine and dedicated veterinarians. The outcomes of his work have contributed to improving animal and human health and so he believes, have been worth the early sacrifices necessary during graduate training and the long frustrating days and months in the lab when experiments went wrong! The later success of graduate students and postdocs has also been particularly rewarding.

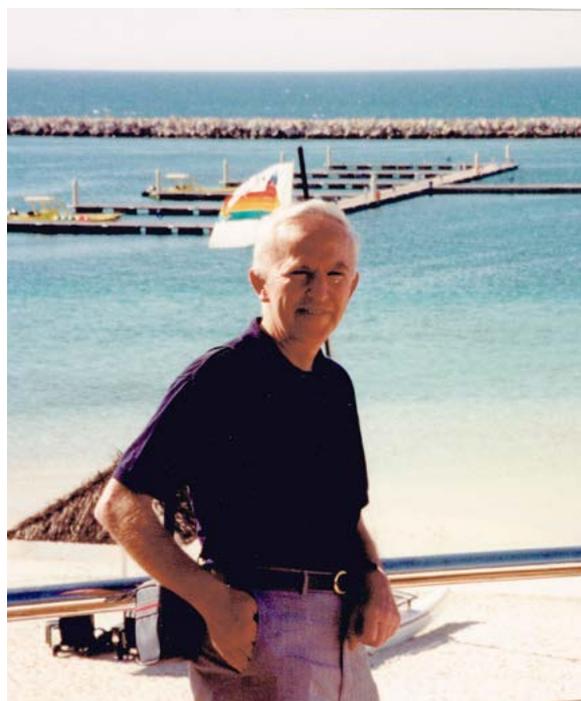
Ireland and UCD Veterinary Community Connections

Both John and Peter make regular trips back to Ireland. Peter keeps in contact with colleagues in the Veterinary Research Laboratory at Backweston and sees being part of the UCD Veterinary Community and the vet community in general as an important element of his work; he appreciates the recognition he has received in his chosen field from this community. He is very much interested in offering support to Ireland and his *alma mater* where he can and has engaged with UCD Foundation in assisting students.

John had the opportunity to return to UCD in 1986 but decided to stay in Cornell. His children were in school at the time, and the family had a small farm with a

flock of sheep in a beautiful valley by Salmon Creek. He later bought a small house on the Beara Peninsula near Kenmare Bay, where he spent his early months as a new vet graduate, so did succeed in a part-time (at least) return to the native land!

Veterinary Medicine has proven to be a wonderful career for both Peter and John, and where it has taken them shows the diversity of career paths available to veterinary graduates. Their advice for those who have recently joined or hope to join the veterinary professions is simple but important - the hard work expected of you needs to be combined with a realisation of the importance of a work-life balance. They also highlight the importance of the 'One Health' concept that should underpin the study of infectious disease and their work certainly shows the role that veterinary scientists play in positively impacting both animal and human health.



Peter pictured in Abu Dhabi where he was invited to give a presentation on the risks associated with the international movement of horses by the UAE Equestrian and Racing Federation.

School Research

Research at a glance

→ School Research Income

Over the last 5 years

- > **135** externally funded research projects
- > **€21.8 million** in research funding
- > **Department of Agriculture, Food & the Marine, Science Foundation Ireland and Teagasc** have been the main funding sources

During 2021-22

- > **35** new externally funded research projects
- > **€4.9 million** in new externally funded research funding

School Research Output

- > **277** scientific publications in 2021, including 224 journal articles
- > A field-weighted citation impact during 2016-20 of 1.62, compared with a world average of 1.0

→ Research Highlights

Animal Welfare and Veterinary Ethics

Dr Siobhan Mullan was recently appointed as the first Chair of Animal Welfare & Veterinary Ethics at the UCD School of Veterinary Medicine. The establishment of this role is a key component in Ireland's first overarching Animal Welfare Strategy, announced by the Minister for Agriculture, Food and the Marine, Charlie McCConalogue T.D. Speaking about the announcement, Professor Michael Doherty, Dean and Head of the UCD School of Veterinary Medicine, said: 'We are delighted to welcome Dr Siobhan Mullan to this new role. Siobhan brings a first-class record of research, knowledge and expertise in the areas of animal welfare and ethics to the role and will help further enhance the work already being carried out across the School in these areas.' The role will primarily focus on farm animals, further strengthening the work already being carried out in UCD in this area.

Equine Genetic Disease Testing

The field of equine genetics has rapidly advanced in recent years, with an ever-increasing number of genetic tests becoming available for use in horses. Veterinarians have an important role to play in facilitating the translation of knowledge gained through advancements in genetic tools into an improvement

in the health and welfare of horses. Researchers at UCD are currently conducting a survey into industry stakeholder opinions and perceptions on genetic testing for equine health and disease, seeking to identify participants' perceived knowledge of equine genetic disease and genetic testing availability and to determine the reasons for the current use of genetic testing of horses. This work is being led by Áine Rowe (Resident in Equine Internal Medicine), Emmeline Hill (Professor, Equine Genomics) and Vivienne Duggan (Associate Professor, Equine Clinical Studies).

Irish Network for Biting Midges and Mosquitoes

Researchers from UCD and the Waterford Institute of Technology recently received funding from the Department of Agriculture, Food and the Marine (DAFM) to investigate the current distribution of biting midges, mosquitoes and vector-borne pathogens (VBPs) in Ireland. Key vector-borne diseases of European concern include Bluetongue, Schmallenberg and African horse sickness. The research team hopes that this will help to improve Ireland's preparedness for potential future incursions of exotic vectors and VBPs. UCD collaborators include Annetta Zintl (Associate Professor, Veterinary Parasitology and Immunology), Theo De Waal (Associate Professor, Veterinary Parasitology), Gerald Barry (Assistant Professor, Virology) and Stephen Corrigan (postgraduate student)



135

SCHOOL RESEARCH PROJECTS COMPLETED OVER THE LAST 5 YEARS



€21.8M

RESEARCH FUNDING OVER THE LAST 5 YEARS



277

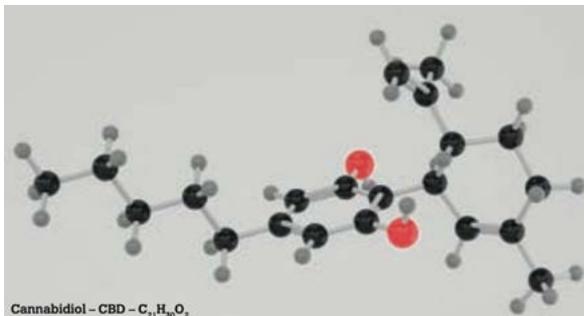
SCIENTIFIC PUBLICATIONS IN 2021, INCLUDING 224 JOURNAL ARTICLES



35

NEW EXTERNALLY FUNDED RESEARCH PROJECTS IN 2021-22

Canine Osteoarthritis



Cannabidiol - CBD - C₂₁H₃₀O₂ (Source: www.cgtrader.com/3d-models/science/medical/)

Several canine orthopaedic conditions (i.e. elbow dysplasia, cranial cruciate ligament disease, hip dysplasia) lead to the development of osteoarthritis, even after surgical treatment. Chronic pain and subsequent lameness are the predominant clinical signs of osteoarthritis in dogs. The UCD Veterinary Hospital is investigating the potential use of oral cannabinoids (cannabidiol and tetrahydrocannabinol) for chronic pain related to this condition. A pilot study is currently being undertaken by Marie-Pauline Maurin (Associate Professor, Small Animal Surgery) looking at the effect of this product on a population of dogs diagnosed with chronic pain secondary to osteoarthritis, using multiple objective assessment methods.

Biology at a Nano Scale

Nanomaterials are materials with at least one of their dimensions less than 100 nanometres. Advances are being made to design novel nanoscale materials that can deliver an encapsulated cargo of biomacromolecules, including peptides, drug molecules, and imaging agents, in a precise and site-specific manner. Research is being undertaken within the School, led by Sourav Bhattacharjee (Assistant Professor, Veterinary Anatomy), to design smart nanoscale drug-delivery systems that can be used to encapsulate a drug payload and release it in a controlled fashion, often under a range of extrinsic and intrinsic stimuli, for example, heat, tissue-specific pH, and magnetic field.

Supporting the National Bovine TB Eradication Programme

The Tuberculosis Diagnostics and Immunology Research Laboratory, based within the School, provides support to DAFM in its efforts to eradicate bovine tuberculosis (bTB). The laboratory routinely provides IFN- γ (gamma interferon) testing of blood samples from herds undergoing outbreaks of bTB. A second key area of work for the laboratory is the badger vaccine research programme where the objective is to use vaccination to control tuberculosis in badgers and break the link of infection to cattle. The work of the laboratory is overseen by Eamonn Gormley (Professor, Immunology).

Campylobacter and Chickens



The research project entailed the design and installation of 'biosecurity cubes' in a commercial rearing unit.

Campylobacter remains the main cause of bacterial food-borne gastroenteritis in the European Union, and it is estimated that 20 to 30 percent of human campylobacteriosis cases may be linked to handling, preparation and consumption of chicken meat. Controlling *Campylobacter* in the broiler chain is challenging and requires the implementation of interventions at all stages of production. In collaboration with other institutions (Teagasc, DAFM, MTU, FSAI), Paul Whyte (Professor, Veterinary Public Health & Food Safety) recently completed a four-year research project, 'Clean Broilers,' investigating the impact of various interventions at farm and processing levels on *Campylobacter* in broilers.

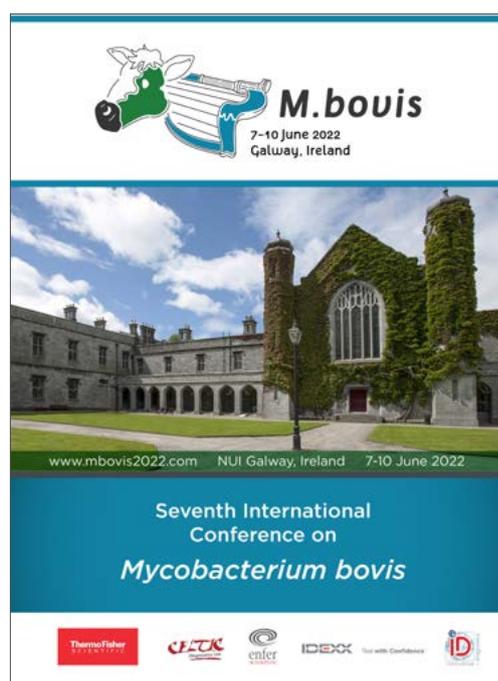
Equine Reproduction and Fertility

The new Equine Assisted Reproduction Laboratory has been established within the School by Niamh Lewis (Assistant Professor, Equine Reproduction and Fertility), with support from John Furlong (Technical Officer). Niamh will continue her research in equine assisted reproduction, specifically energy metabolism of the equine oocyte and embryo during in vitro maturation and culture and how it relates to developmental competence and health of resulting offspring. As part of their work, the laboratory is offering a clinical ovum pick up (OPU) service to Irish breeders.

Articles on the above research projects were mainly featured in the *Veterinary Ireland Journal* during 2021 and early 2022, and can be accessed on our website: <https://www.ucd.ie/vetmed/research/connectwithus/veterinaryirelandjournal-researchfocus/>

→ Research News

Seventh International Conference on *Mycobacterium bovis* (M. bovis 2022)



M. bovis 2022 took place in NUI Galway in June this year

The Seventh International Conference on *Mycobacterium bovis* (M. bovis 2022) was held in NUI Galway from 7-10 June. The conference was originally due to take place in 2020 but had to be rescheduled due to Covid-19. The conference gathered together scientists, policy makers, veterinarians and industry stakeholders from around the world with the aim of identifying constraints and providing practical solutions for the control and eradication of *M. bovis*; over four hundred delegates from 29 countries attended.

Delegates heard presentations from more than 60 speakers from countries with diverse farming systems including Australia, Brazil, Canada, Chile, France, Fiji, Ireland, Italy, New Zealand, South Africa, Spain, the Netherlands, the UK and the USA. Themes included One Health and zoonotic Tb, immunology and genetics of host resistance, management of Tb in wildlife, social science and economics, national control strategies, diagnostics development and strategies, and epidemiological tools and application. This is the third time that the conference has been held in Ireland. The first conference in the series was held in UCD in 1991 while the fourth conference was held in Dublin Castle in 2005. The Scientific Committee was chaired by Prof Eamonn Gormley from the TB Diagnostics and Immunology Research Laboratory in the UCD School of Veterinary Medicine while the Organising Committee was chaired by Mr Daniel Collins from the UCD Centre for Veterinary Epidemiology and Risk Analysis (CVERA). Both Committees were comprised of members from the UCD School of Veterinary Medicine and the Department of Agriculture, Food and the Marine.



PhD graduates at the School's graduation ceremony in June - (from left to right) Lorcan O'Neill, Ruoyao Ma, Emmet Kelly, Elaine Brady and Nicola Walshe.

→ Recent PhD Graduates

There were five PhD graduates from the School at the UCD graduation ceremony in June 2022 - Lorcan O'Neill, Ruoyao Ma, Emmet Kelly, Elaine Brady and Nicola Walshe. These PhD successes highlight the breadth of research being undertaken at postgraduate level within the School of Veterinary Medicine - congratulations to our new PhD graduates and to all of those involved in their research projects. Find out more about the projects below.

Lorcan O'Neill

Thesis title: Investigation of antimicrobial use on Irish pig farms and effects on antimicrobial resistance in *Escherichia coli* and the faecal resistome throughout the production cycle

Antimicrobial resistance (AMR) is a current and future threat to human and animal health, and pig farming is known as one of the largest consumers of veterinary antimicrobials worldwide. As yet, little is known about the quantities and patterns of antimicrobial usage (AMU) in the Irish pig sector or the drivers for this use, and there are significant gaps in knowledge of how AMR evolves during the entire pig lifecycle on commercial farms. In this thesis, the author characterised and quantified AMU on Irish pig farms, explored the risk factors for use, and considered the dynamics and evolution of AMR in the commensal *Escherichia coli* population and in the faecal microbiome during the pig lifecycle. The findings of this thesis provide much needed data to guide policy-makers and researchers in the ongoing efforts to reduce AMU. The link between animal health and AMU and between AMU and AMR bacteria and or genes of relevance to human health reinforces the value of a One Health approach to combating AMR.

Ruoyao Ma

Thesis title: Defining the molecular virulence mechanism of *Mycobacterium bovis*

The *Mycobacterium tuberculosis* complex (MTBC) contains the causative agents of tuberculosis in mammals, with the archetypal members of MTBC, *Mycobacterium tuberculosis* and *Mycobacterium bovis*, causing human tuberculosis and bovine tuberculosis, respectively. Although *M. tuberculosis* and *M. bovis* share over 99.9% genome identity, they show distinct host adaptation for humans and animals. While the molecular basis of host adaptation is encoded in their genomes, the mechanistic basis of host tropism is still unclear. In this thesis, the author explored two DNA regions of known genetic difference, namely TbD1 and RD900. This PhD project provides new information on the functions of the TbD1 and RD900 loci in stress responses in *M. bovis* and implied their important roles in host adaptation.

Emmet Kelly

Thesis title: Reproductive tract disease and oestrus detection inaccuracy in Irish seasonal calving pasture-based dairy cows

A range of factors impact reproductive outcome in Irish seasonally calving pasture-based dairy cows, including reproductive tract disease (RTD) and oestrus detection inaccuracy (EDI). In an investigation of RTD, the author sought to determine cow and calving related factors that were associated with increased risk of RTD, to analyse the association between the test results of both diagnostics and subsequent reproductive outcome, and to determine the diagnostic test parameters and select optimal thresholds for RTD at the time of the pre-breeding examination. With respect to EDI, the author also estimated the cow-level true and apparent prevalence of EDI in Ireland and determined potential cow-level risk factors for EDI. The results of this thesis will assist farmers and advisors in developing strategies that could help mitigate the negative impacts that both RTD and EDI have on reproductive outcome at cow-level but further research is required to validate these approaches.

Elaine Brady

Thesis title: The influence of nutritional management and genotype on milk production, metabolic status, energy balance and nitrogen excretion of high yielding pasture-based cows

It is widely recognised that pasture-based systems offer a competitive advantage over confinement systems. Since the abolition of the EU milk quota regime, however, new limitations to dairy production expansion have arisen due to limited land availability adjacent to milking platforms, and other factors such as challenging climatic conditions, land type and environmental concerns. The objective of this thesis was to compare nutritional management strategies that may be relevant in early lactation and during periods of pasture deficits in mid-lactation of contrasting pasture-based genotypes within a higher output herd. The results from this thesis provide insights into nutritional management influences for potential high output, pasture-based dairy herds.

Nicola Walshe

Thesis title: Equine large intestinal microbiota in the steady-state, and over the course of acute and chronic inflammatory conditions

There is a rapidly growing repertoire of literature around the importance of gut microbial diversity and also of coevolutionary intestinal inhabitants such as helminths. In this thesis, the author examined the effects of anthelmintic-induced disruption of the helminth community on the host immune response and faecal microbiota in horses, including through a case study of an outbreak of acute larval cyathostomiasis (ALC) in a group of horses, and assessed the effectiveness of a weight loss intervention on overweight horses regarding gut health. Through the exploration of the importance of intestinal equilibrium in the steady-state, acute inflammatory disease and chronic inflammatory disorders, the author offers insights into the mechanistic inter-relationships between the host and intestinal biosphere inhabitants whilst also outlining the research gaps in the equine literature.

Alumni Wall Launch Event - 15 June



→ Des Rice



→ Dermot Weld



→ Brenda Castles



→ Shauna O'Brien



→ Brian Doohar



→ Susie Mitchell



→ Patricia Reilly



→ Patrick Wall



→ Mary Geary



→ Perpetua MacNamee



→ Samantha Feighery

Thank you
Go raibh maith agat

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