

# RESEARCH AND POSTGRADUATE



NEWS & EVENTS

ISSUE 07 | SEPTEMBER 2020

## WELCOME

Welcome to the September 2020 edition of the RUSVM RAP newsletter, featuring postgraduate student, Patricia Sorensen. Although Patricia began her PhD with us in St. Kitts, her research has since taken her to Europe. With around 60 students enrolled across our various postgraduate programs, studying with us online and remotely and in all regions of the world, Patricia shares her story and the importance of using technology to keep us connected, as she completes her PhD.

### ALSO IN THIS EDITION

- Introduction to Samson Mukaratirwa, Interim Associate Dean for Research & Postgraduate Studies
- RUSVM awarded NIH-NIAID grant; interview with lead investigator Dr. Darryn Knobel
- Postgraduate Student Publications
- Shaun Yount, IACUC Research Program Administrator, tells us about the role of the Institutional Animal Care and Use Committee (IACUC) at RUSVM



### SHARE WITH US

Have a story, research project, or photos you'd like to share? Let us know! Email us at: [postgrad@rossvet.edu.kn](mailto:postgrad@rossvet.edu.kn)



## ADMINISTRATIVE ANNOUNCEMENT

Associate Dean for Research and Postgraduate Studies, Professor Arve Lee Willingham will step down of the leadership role in September 2020. Serving as Associate Dean since September 2014, the Research and Postgraduate studies Department has had a significant number of successful accomplishments, such as the AAALAC-I Accreditation of the Institutional Animal Care and Use Committee (IACUC) program, the establishment of the Institutional Review Board (IRB) and the Scientific Advisory Board (SAB), the newly launched Certificate in One Health, over 100 students enrolled across the different postgraduate degree programs offered at RUSVM, an increase in extramural funding awards submissions including three NIH funded grants awarded to Professors Darryn Knobel and Patrick Kelly and the establishment of the One Health Research Foundation.



*Dr. Mukaratirwa*

We are excited to welcome Research Professor Dr. Samson Mukaratirwa as Interim Associate Dean for Research and Postgraduate Studies. Before joining RUSVM in January of 2020, Professor Mukaratirwa held leadership and expert positions including deanships at Universities of Kwazulu-Natal and Zimbabwe, and as Coordinator of the Pan-African One Health Platform on Neglected Tropical Diseases. Professor Mukaratirwa has a strong research portfolio in One Health focus areas such as parasitic zoonosis, vector-borne diseases, and parasite-host interactions.

We would like to thank Professor Willingham for his leadership throughout the past 6 years and look forward to Professor Mukaratirwa leadership as the Research and Postgraduate Studies program team continues to support the success of RUSVM overall research strategy.

Best wishes,

Research and Postgraduate Studies Team



## STUDENT FEATURE: PATRICIA SORENSEN

I am currently in my 3rd and final year of my PhD degree in Veterinary Science. A major part of my PhD project includes experimental work in the lab, but since the onset of quarantine measures in Belgium in mid-March, I have been spending most of my time in front of my computer in my home office. This has given me the opportunity to work on my thesis, attend multiple online courses, and to write on my manuscripts, one of which was just submitted to a journal for publication. This manuscript describes novel insights into the diversity of *Escherichia coli*-infection bacteriophages in poultry and is the result of great collaboration with my supervisors and months of writing and re-writing. This month, the re-opening of the lab here in Belgium has been initiated, and hopefully, I will soon be able to generate more results, which I can process using my newly quarantine-acquired statistical and bioinformatics skills.



Patricia Sorensen

Being a PhD in a foreign country away from friends and family in Denmark can sometimes be challenging. During these extraordinary circumstances, I have tried to stay sane by spending time in my garden working on different projects or by staying in touch with people through FaceTime/Skype/WhatsApp. I truly

appreciate how technology can keep us connected across borders and how creative and alternative ways of thinking makes it possible to be alone together.

Patricia E. Sørensen, joint RUSVM and Ghent University (UGent) PhD candidate, CARTNET fellow. Sponsored by the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement no. 765147. ■



Dr. Darryn Knobel

## DR. KNOBEL RECEIVES NIH GRANT

RUSVM Professor of Epidemiology and Population Health and Director of the Center for Conservation and Ecosystem Health, Dr. Darryn Knobel recently received a quarter of a million USD grant awarded by the National Institutes of Health (NIH)—National Institute of Allergy and Infectious Diseases (NIAID), to investigate non-specific effects of vaccines in high-mortality populations. In addition to collaborators at RUSVM including Professor of Immunology and Virology and Director of the Center for Integrative and Mammalian Research, Dr. Felix Toka, who is a co-investigator on the grant, Dr. Knobel is working closely with the University of Pretoria in South Africa, where the research will take place.

We caught up with Dr. Knobel to learn more about his research and its impact on our communities.

### OVERVIEW OF THE RESEARCH

One of the many interesting things about these 'non-specific' effects of vaccines is that they seem to operate differently in females compared to males. Effects seem to be stronger in females, but scientists don't know why that is. Also, these effects might not always be beneficial—we have evidence that the animal rabies vaccine might increase susceptibility to other infectious diseases, at least in young puppies. But we only saw this effect in females, not in males.

The research aims to tease apart the different effects of sex, as well as of the animal vs. human rabies vaccine, and also to try to understand the biological mechanism through which a vaccine might change susceptibility to unrelated diseases.

### 1 *How did you become interested in this research and study area?*

I stumbled into this area of research through my work on rabies vaccine in dogs. I was studying the rates of death of owned dogs of various ages in a resource-poor area of South Africa. When my team and I put the data together, we noticed something odd: dogs that were vaccinated against rabies had much lower death rates than unvaccinated dogs; far more so than could be explained by the prevention of rabies cases

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alone. When I presented these results at a conference, another scientist approached me to tell me that they thought the same thing was happening in children in Africa—rabies vaccine seemed to be providing protection against diseases unrelated to rabies, like meningitis and severe forms of malaria. That really got me interested and so I wrote the grant to study the effect in dogs in more detail.

## 2 How do you feel about receiving the grant?

I feel very proud to have received the grant. NIH funding opportunities are highly competitive and are not often awarded to scientists outside the U.S. As a scientist, I feel excited about the opportunity of learning something new that might benefit animal and human health.

## 3 What would the results mean for the Caribbean and the world?

The idea that vaccines might have effects beyond protection against specific diseases is relatively new, and one that scientists are still trying to understand. Results from these kinds of studies could change the way that vaccines are used, by enhancing not only their safety but also their ability to improve health through prevention of other diseases—some of which may not be preventable or easily treatable through other means. ■

*Research reported in this publication was supported by the National Institute of Allergy and Infectious Diseases of the National Institutes of Health under Award Number R21AI151356. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*



Shaun Yount

## MEET OUR RESEARCH & POSTGRADUATE TEAM

Each semester we'll try to share with you a little about each of the members of the Research and Postgraduate Team and how we serve in our role. Shaun Yount, shares with us his responsibilities as the Institutional Animal Care and Use Committee (IACUC) Administrator, and the role of this Committee here at Ross.

## OUR MISSION AND GOAL

The Institutional Animal Care and Use Committee (IACUC) at Ross University School of Veterinary Medicine (RUSVM) serves as a resource for investigators, faculty, staff and students using animals in teaching and in research to ensure that all animal use is in accordance with the highest ethical, humane, and scientific principles and complies with all regulations. IACUC is responsible for reviewing all protocols involving animal use, inspecting animal facilities and laboratories, and overseeing training and educational programs.

Currently the IACUC is performing summer semiannual reviews (SARs) including animal facility inspections. SAR's are an institutional requirement for our IACUC to review the institution's Animal Care and Use Program using The Guide for the Care and Use of Laboratory Animals (The Guide). A copy of the final report is then provided to the Institutional Official and may be later requested by OLAW. The reviews are an excellent way for us to gauge how well we are caring for our animals used in research and teaching and if there are any deficiencies in our program. They are also a great way for us to correct and improve upon any issues that perhaps were otherwise not being properly addressed and then ensuring that they are solved in a timely manner. ■



## STUDENT FEATURE: INDIRA ROJAS RIVERA

Words from our DVM/MSc student and 2020 RUSVM BIVSP award recipient, Indira Rojas Rivera, about her experience at the 2020 NVSS Conference (virtual):



Indira Rojas Rivera

***“Presenting my research project at the 2020 NVSS was a very rewarding and unique experience as it was my first time presenting at a veterinary symposium. The***

***conference was virtual due to the current situation; therefore, it had its challenges, but I still got to learn about other students' projects and interact with them. This experience reassured me the importance of research in veterinary medicine and motivated to continue my research at Ross University.”***

See the live iPoster:

[https://nvss2020-aavmc.ipostersessions.com/Default.aspx?s=3D-A8-FA-57-B9-8D-99-6E-91-EB-A2-FA-D2-56-91-25\\_](https://nvss2020-aavmc.ipostersessions.com/Default.aspx?s=3D-A8-FA-57-B9-8D-99-6E-91-EB-A2-FA-D2-56-91-25_) ■

# GOODBYE 7<sup>TH</sup> SEMESTER!

Shout out to our seventh semester moving to clinics:

- **Alyssa Kleymann (DVM/MSc)**
- **Brittani Nicolaci (DVM):** Winner of the ACVP (American College of Veterinary Pathologists) Award, and presenter at the ACVP Annual Meeting.
- **David Papanu:** Undertook research on sea fans under the supervision of Drs. Becker and Dennis. Papanu co-presented the team's research findings at the AMLC 2019 Scientific Conference.
- **Anna Pleto:** Winner of the 2019 Research Symposium's Poster Competition. Under the supervision of Drs. Becker and Dennis, Pleto also undertook sea fan based research and co-presented at the AMLC 2019 Scientific Conference.

Please know that all of us here in the Research Department cannot begin to express how proud we are of all you students who have contributed to the pursuit of research while attending RUSVM. We hope that you will keep us updated on your future endeavors and accomplishments and are excited to see what amazing achievements are in each of your futures. We have no doubt that your hard work and devotion to science will make even the highest of summits within your reach! Thanks you!



## STUDENT PUBLICATIONS \*

\* RUSVM Students are underlined;  
Faculty are in **bold**.

### PUBLISHED:

1. Arega, S., **Conan, A.**, Sabeta, C. T., Crafford, J. E., Wentzel, J., Reininghaus, B., **Toka, F.**, **Knobel, D. L.** (2020). Rabies Vaccination of 6-Week-Old Puppies Born to Immunized Mothers: A Randomized Controlled Trial in a High-Mortality Population of Owned, Free-Roaming Dogs. *Trop Med Infect Dis*, 5(1). doi:10.3390/tropicalmed5010045
2. **Bergfelt, D. R.**, Davis, S., **Conan, A.**, Martinez, M., Vences, M., Canales, R., Sanchez- Okrucky, R. (2020). Plasma concentrations of corticosteroids associated with performance-based physical activity in bottlenose dolphins (*Tursiops truncatus*). *Journal of Zoo and Aquarium Research* 8.
3. **Dennis, M. M.**, Yeow, J. W. A., Nicolaci, B., Sample, S. H., & **Freeman, M. A.** (2020). Meningitis associated with dracunculid nematodes in a spotted eagle ray (*Aetobatus narinari*). *J Fish Dis*, 43(6), 711-713. doi:10.1111/jfd.13160
4. Joycelyn, S. J., Ng, A., Kleymann, A., Malik, Y. S., Kobayashi, N., & **Ghosh, S.** (2020). High detection rates and genetic diversity of picobirnaviruses (PBVs) in pigs on St. Kitts Island: Identification of a porcine PBV strain closely related to simian and human PBVs. *Infection, Genetics and Evolution*, 104383. doi:https://doi.org/10.1016/j.meegid.2020.104383
5. Kleymann, A., **Becker, A.**, Malik, Y. S., Kobayashi, N., & **Ghosh, S.** (2020). Detection and Molecular Characterization of Picobirnaviruses (PBVs) in the Mongoose: Identification of a Novel PBV Using an Alternative Genetic Code. *Viruses*, 12(1). doi:10.3390/v12010099
6. Kleymann, A., Soto, E., Illanes, O., Malik, Y. S., Fuentealba, C., & **Ghosh, S.** (2020). High rates of detection and complete genomic analysis of porcine circovirus 2 (PCV2) in the Lesser Antilles island of St. Kitts: Identification of PCV2b-PCV2d recombinants. *Transbound Emerg Dis*. doi:10.1111/tbed.13583
7. Lara, B., **Conan, A.**, **Thrall, M. A.**, **Ketzis, J. K.**, Branford, G. C., Rajeev, S. (2020). Serologic and Molecular Diagnosis of *Anaplasma platys* and *Ehrlichia canis* Infection in Dogs in an Endemic Region. *Pathogens*, 9(6). doi:10.3390/pathogens9060488

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8. **Rajeev, S.**, Shiokawa, K., Llanes, A., Rajeev, M., Restrepo, C. M., Chin, R., Ellis, E. (2020). Detection and Characterization of *Leptospira* Infection and Exposure in Rats on the Caribbean Island of Saint Kitts. *Animals (Basel)*, 10(2). doi:10.3390/ani10020350

**ACCEPTED:** Mathew Valentine (PhD Candidate): Effects of seasonality and land use on the abundance and distribution of mosquitoes on St. Kitts, West Indies

**ACCEPTED:** Nicole A.M. Atherley (PhD Candidate): A report of two species of Carcinonemertes Coe, 1902 (Nemertea: Carcinonemertidae) infesting the Caribbean spiny lobster, *Panulirus argus* (Latreille, 1804) (Decapoda: Achelata: Palinuridae), in Saint Kitts, West Indies.

**ACCEPTED:** Patricia E. Sørensen (RUSVM/Ghent PhD Candidate): New Insights into the Biodiversity of Coliphages in the Intestine of Poultry

**SUBMITTED:** Mathew Valentine (PhD Candidate): No evidence for sylvatic cycles of chikungunya, dengue and zika viruses in African green monkeys (*Chlorocebus aethiops sabaeus*) on St. Kitts, West Indies

**SUBMITTED:** John Byrne (MSc by Research Candidate): The influence of  $\beta$ -1,3-1,6-glucans on rabies vaccination titers in cats. ■



## EXTRAMURAL ACTIVITY

Our researchers had an active FY20 in the extramural world. A total of 9 grant proposals were submitted to NIH, USDA, Department of Defense, Morris Animal Foundation, PetSmart Charities, and CIVME. Of these, two researchers were awarded research grants from NIH:

- Dr. Patrick Kelly and Dr. Michel Vandenplas successfully competed for an R03 on “Transmission of *Rickettsia africae* by *Amblyomma americanum* and *Amblyomma maculatum*” for a total of \$106,900 for a two-year project
- Dr. Darryn Knobel competed successfully for an R21 on “Sex-differential effects of adjuvanted and non-adjuvanted rabies vaccines on all-cause mortality in a novel animal model: understanding nonspecific effects of vaccines in high-mortality populations”, awarded a total of \$289,059 for a two year project.

Additionally, Morris Animal Foundation awarded \$10,800 for the project “Selected pharmacokinetics and pharmacodynamics of morphine in donkeys after intravenous administration” to Dr. Jill Maney.

Also in the last year, 7 projects funded in the previous 4 years by NIH, Botstiber Foundation, US Fish and Wildlife, AVMA, ACVIM and ORFFA were successfully completed.

We have submissions pending decision from DoD and USDA for a potential award total of \$1.08 million.

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