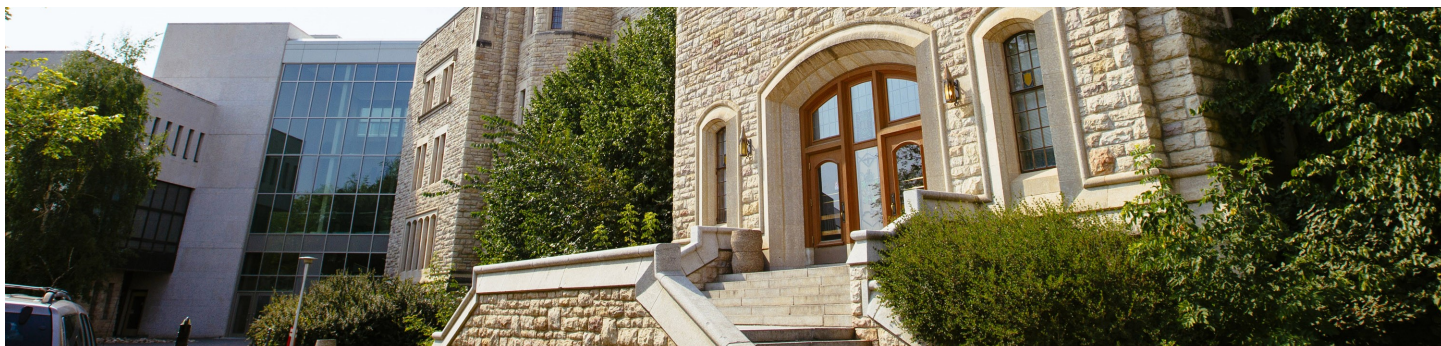


Department of Biochemistry, Microbiology & Immunology

FALL 2020 NEWSLETTER



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MESSAGE FROM THE DEPARTMENT HEAD: BILL ROESLER



The Department has just wrapped up its second year of existence following the merger of the departments of Biochemistry and Microbiology & Immunology in 2018. Students, staff, and faculty have all contributed to making the merger a great success story, and in this second annual newsletter we showcase some of the highlights of the past year.

A number of merger-related tasks that we had been working on since the inception of the new department were completed. These included the creation and approval of a new biomedical sciences major in Biochemistry, Microbiology & Immunology. This major will provide undergraduate students with a degree which integrates the knowledge of the three disciplines yet with sufficient flexibility to allow students to focus on a particular area if desired. We also merged our graduate programs in Biochemistry and Microbiology & Immunology into a single integrated BMI program. This will greatly sim-

plify the administration of the programs since the two previous programs had some significant differences in requirements and policies. From a graduate student perspective, it will also ensure that we have a “level-playing field” for all of our students, having in place a single set of requirements, policies and procedures to help guide them through their program.

Faculty renewal is also occurring at a rapid pace. Two faculty retired this past year who are highlighted in this newsletter. On May 1, 2020, we welcomed two new faculty to our department, Jenny-Lee Thomassin and Yannick Tremblay, and a third recruit, Anil Kumar, will join the department in October. These recruits greatly strengthen one of the department’s strategic areas of research, that being host-pathogen interactions. You will find additional information on the profiles of these new faculty members in this newsletter. We are also in the process of recruiting two additional researchers with expertise in the area of immunology, which will result in us recruiting six new faculty since the merger in 2018. This will provide significant rejuvenation and energization of the research enterprise and additional training opportunities for students.

There is no doubt that COVID-19 and its impact on the academic and research enterprises was the “biggest” story of the year. While some animal-related research was

allowed to continue through the lock-down, most research in the department was halted. While it was allowed to resume in mid-June, the restrictions and policies that were put in place prevented the resumption of research to pre-pandemic levels. Despite the challenges and frustrations caused by the pandemic, it has also presented some opportunities which some of our faculty were able to capitalize on. CIHR announced a new program in late March that provided rapid funding of projects aimed at addressing COVID-19-related issues. Three of our faculty who are highlighted in this newsletter received funding through this initiative. What was really impressive is that two of the applications ranked in the top 5 of all applications submitted! We are privileged as a department to be able to contribute to the battle against COVID-19 that will eventually allow Canada and the world to move beyond this pandemic and prepare for the next one if and when another arrives. The COVID-19 research along with other research activities in the department highlight how we are contributing to the University’s aspiration to *“Be What the World Needs”*.

I hope you enjoy reading this newsletter. We are proud of the contributions that our students, staff and faculty make to our Department, the College and University, and to the world we live in, and this newsletter is one way to showcase these activities.

DEPARTMENT NEWS



NEW FACULTY: JENNY-LEE THOMASSIN

Jenny-Lee joined the department on May 1, 2020 as an Assistant Professor. She received her Ph.D. in Microbiology and Immunology from McGill University in 2014, and when recruited, was a Postdoctoral Fellow at the Institut Pasteur in Paris, France. Her research focuses on the molecular pathogenesis mediated by the type II secretion system of *Klebsiella pneumoniae* and attaching and effacing pathogens. Jenny-Lee highlighted her research in **episode 8** of the College of Medicine's Researchers Under the Scope Podcast. Listen [here](#).

NEW FACULTY: YANNICK TREMBLAY

Yannick joined the department on May 1, 2020 as a Lecturer. He received his Ph.D. in Microbiology and Immunology from Dalhousie University in 2010, and when recruited, was a Research Associate in Microbiology at the Institut Pasteur in France where he was investigating biofilm formation by *Clostridium difficile*. Yannick gained teaching experience as a post-doctoral fellow at the Université de Montréal where he taught microbiology to veterinary students and bacterial pathogenesis to graduate students.



NEW FACULTY: ANIL KUMAR

Anil will be joining the department on October 1, 2020 as Assistant Professor. He received his Ph.D. from the University of Heidelberg in 2010, and when recruited, was a Research Associate at the University of Alberta. His research at the U of S will focus on virus-host interaction studies of positive-strand RNA viruses especially arboviruses and enteroviruses using reverse-genetic systems and high-throughput screens.

NEW FACULTY: DEBBY BURSHTYN

Debby was recruited to the University of Saskatchewan as the new Dean for the College of Graduate and Postdoctoral Studies. Given her expertise in Immunology, providing her with an academic appointment in our department was a “no-brainer” and we are thrilled to provide a research home to her and her team. You can find out more about her research and her career [here](#).



NEW STAFF: WOJCIECH DAWICKI

Laboratory Coordinator



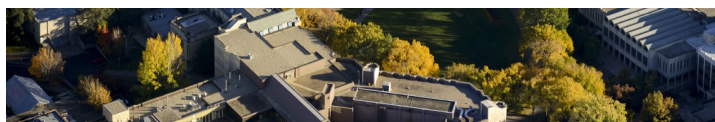
Wojciech joined the department this year to help manage and deliver some of the undergraduate lab courses offered by the department. He has a PhD in Immunology from the University of Toronto, and brings a wealth of experience in basic and applied immunological, biochemical, and microbiological research and techniques that our students will greatly benefit from. Prior to joining our department, he was a Professional Research Associate in the College of Pharmacy and Nutrition under Dr. Ekaterina Dadachova.

NEW STAFF: KATIE ADEOYE

Financial Analyst



Katie joined the team in September 2019 after 11 years of accounting experience in the automotive industry. She comes to us with a proven ability to manage rapidly changing technologies and processes with a focus on detail and collaboration. She holds a Business Accountancy Diploma and a Master of Science (Vet Micro) degree from USask.



ACCOMPLISHMENTS: YEARS OF SERVICE

Four members of our Department celebrated significant milestones in their careers at the University. While the “celebrations” had to be curtailed due to COVID-19, we honour them here in our annual newsletter. We thank them for their dedication and service to the University throughout their careers.

Ramji Khandelwal: 40 years

Sidney Hayes: 40 years

Wei Xiao: 35 years

Cindy Thomson: 35 years



Ramji Khandelwal



Sidney Hayes



Wei Xiao



Cindy Thomson

RETIREMENT: CALIOPI HAVELE

Popi Havele joined the Department of Microbiology in the College of Medicine in 1988 after having completed her PhD in Immunology at the University of Alberta as well as a postdoctoral fellowship at the same institution. Soon after arriving at the U of S, she received funding from the Medical Research Council of Canada to support her work exploring the role of a specific type of T-cell (CD4+) in autoimmunity. She is passionate about the field of Immunology, and was eager to share her knowledge and enthusiasm with young trainees. Over her career, she had a number of undergraduate and graduate students cycle through her lab which gave her the opportunity to expose these young minds to a real-life laboratory experience.

Her passion for her discipline was so strong that she also initiated the process in the 1990s to change the name of the department to reflect the discipline of Immunology and its close connection to many aspects of Microbiology. In 1998, the formal name change to the Department of Microbiology & Immunology was approved by all levels of the University.



Popi devoted herself to the academic mission of the department, and served on many committees that dealt with academic programs and standards. She truly cared about the student experience, and worked tirelessly to ensure that all students in the Microbiology & Immunology program received the best education possible. But her concern for students, both undergraduate and graduate, went beyond just that related to their academic experience. She was viewed by the students as someone who cared about them on a personal level as well. In fact, it was the graduate students in the Microbiology & Immunology program that initiated the planning of a retirement party for Popi in December of 2019. As part of that they assembled a video tribute to her, and the sentiments expressed in the video were evidence of the inspiration that Popi has been to our students and of their appreciation for her interest in their careers and their lives. We will all miss having Popi in our midst, but wish her all the best in retirement.

RETIREMENT: PETER HOWARD

Peter Howard joined the U of S and College of Medicine as a faculty member in the Department of Microbiology & Immunology in 2002. In the department he served on the Graduate Affairs Committee and in the University he served as part of the President's Review Committee and University Faculty Council. He was Chair of the department from 2013 – 2016. Among these administrative duties he also carried out a research program that was funded by CIHR, NSERC, and SHRF, which focused on elucidating how bacteria assemble macromolecular structures that function to secrete toxic bacterial molecules into host cells. He made several novel discoveries of protein components making up this structure throughout his career and supervised over 40 undergraduate students, graduate students, and postdoctoral fellows combined. He was an eloquent teacher, teaching many bacterial genetics and physiology courses throughout his career, and had a knack for explaining the most complex systems and ideas in a simple way for anyone to grasp the concept in order to move on to deeper understanding. As a colleague, Peter was passionate and energetic. He was collaborative, practical, and resourceful. Always up for a good conversation about life or academia in general, he always provided interesting dialogues. Mostly people will remember that he fiercely defended and upheld the principle of academic freedom. During many University structural changes throughout his career and especially when he served as Chair, he voiced his concerns when he felt faculty freedoms were being impinged upon and was an admirable representative for all of those he served. His energy for research and the presence he brought with him as a colleague will be deeply missed.



UPDATE ON THE NEW BIOMEDICAL SCIENCES PROGRAM

This year we saw the changes to the undergraduate biomedical sciences program finally come to full fruition. This includes the new degree and majors, the option for direct entry into the program from high school, and the formalizing of a true partnership between the Colleges of Medicine and Arts and Science as exemplified by the new BMSC Academic Program Committee equally populated by members of each college as well as the dual signatures of the Deans of each college on the degree parchment. The new program will offer exciting opportunities for our students to prepare them for careers within the biomedical sciences as well as health related professions. This new program exemplifies university priorities for cross college collaboration.

Read more [here](#).



PROMOTION & TENURE

Congratulations to the four faculty members who received either promotion or tenure as of July 1, 2020.

1. Kyle Anderson: Tenure as Assistant Professor
2. Kerri Kobryn: Promotion to Associate Professor
3. Erique Lukong: Promotion to Professor
4. Joyce Wilson: Promotion to Professor

IN THE NEWS: TROY HARKNESS

BMI Faculty member, **Troy Harkness**, was recently featured in a CBC news article for reaching his goal of running each and every street in Saskatoon. Read the full article [here](#).



WE HAVE MOVED!

The Biomedical Sciences administrative office moved to a renovated suite in the A-Wing of the Health Sciences Building in October 2019. Although our team is working remotely for the time being, we can typically be found in suite GA20.

RESEARCH SUCCESS

KIVEN ERIQUE LUKONG

New Frontiers in Research Fund

Erique Lukong is part of a team that was recently awarded a \$250K federal grant from the New Frontiers in Research fund to develop novel technology to diagnose gastrointestinal cancers.

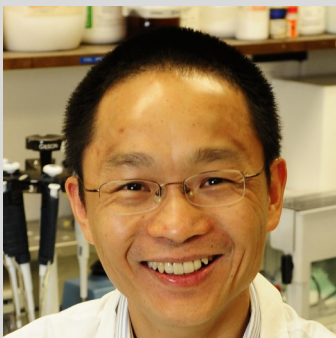


YULIANG WU

Cancer Research Society Grant

Yuliang Wu received a grant valued at \$120,000 from the Cancer Research Society to pursue studies investigating the mechanisms whereby a recently discovered protein called SSB1 functions to maintain the stability of the human genome.

SHRF Collaborative Innovation Development Grant



Yuliang also received a SHRF Collaborative Innovation Development Grant. His project is a collaboration with Drs. John DeCoteau, Jim Xiang and Mark Bosch, and focuses on understanding the role of mutations in a gene coding for a protein called DDX41 in the development of a type of leukemia. It is hoped that this research will help to identify drugs targeting DDX41, with the aim of specifically killing leukemia cells.

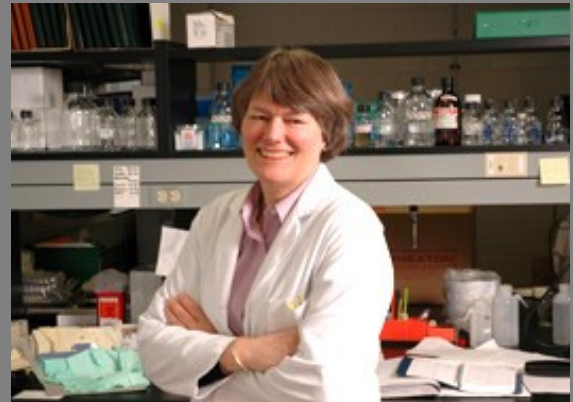
SYLVIA VAN DEN HURK

CIHR Grant

Sylvia van den Hurk was awarded a \$753K CIHR grant to develop a vaccine designed to combat respiratory syncytial virus (RSV), which causes a significant proportion of severe respiratory disease and deaths in the elderly, similar to influenza.

COVID-19 Research Funding

Sylvia is among a team of researchers led by Darryl Falzarano (VIDO) that received just under one million dollars to identify what common lab and agricultural animals may be infected with SARS-CoV-2. Click [here](#) to read more.



Sylvia is also a member of the COVID-19 Vaccine Task force, which provides advice to the Government of Canada on COVID-19 vaccines; prioritizing vaccine projects seeking support within Canada and providing scientific and technical advice to the government on a portfolio of leading international vaccine candidates.



KERRY LAVENDER

CIHR Rapid Response to COVID-19 Program Grant



Kerry Lavender, with co-applicant Dr. Darryl Falzarano, received \$267K in funding from the CIHR Rapid Response to COVID-19 Program Grant. Their research uses a “humanized mouse” model to evaluate the application of therapeutics in the fight against COVID-19. To read more, click [here](#) and [here](#).

Kerry’s research was featured in **episode 7** of the College of Medicine’s Researchers Under the Scope Podcast. In this podcast, she discusses how she “gives” human lungs and immune systems to mice to allow testing of therapies. To listen to the podcast, click [here](#).

JOYCE WILSON

SHRF Collaborative Innovation Development Grant

Joyce Wilson received a SHRF Collaborative Innovation Development Grant for her project which studies how a process called RNA Interference and associated proteins in the host influence infections from viruses such as Hepatitis C, Dengue, and Influenza.

CIHR Rapid Response to COVID-19 Program Grant

Joyce, along with collaborators Drs. Franco Vizeacoumar and Darryl Falzarano, received \$449K in funding from the CIHR Rapid Response to COVID-19 Program Grant. Their research aims to identify existing drugs that can be used to treat patients with COVID-19. To read more, click [here](#) and [here](#).

Joyce highlighted her research in **episode 5** of the College of Medicine’s Researchers Under the Scope Podcast. Listen [here](#).

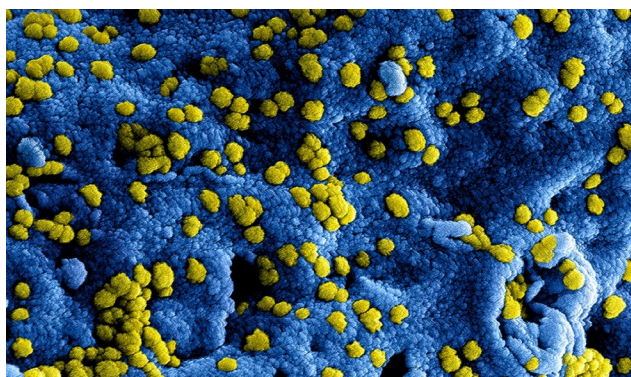


Photo: University of Saskatchewan

MIREK CYGLER

Research on Pathogens

A recent USask news article featured **Mirek Cygler’s** research on pathogenic bacteria and how they cause disease. To read the full article, click [here](#).



JO-ANNE DILLON

Research on Antibiotic Resistance

Jo-Anne Dillon was part of a panel of some of the country's top microbiology scientists who filed an eye-opening, federally commissioned report "*When Antibiotics Fail*" in November of 2019. The report warns of the growing threat of antimicrobial resistance (AMR) in bacteria and the risk it poses to Canadians and the global population. Read the full article [here](#).

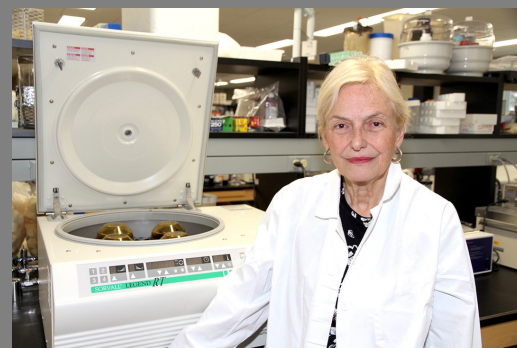


Photo: James Shewaga

LINDA CHELICO

Publication of Significance

Linda Chelico, along with a team of researchers, published a paper in Nature Communications solving the structure of a protein first discovered 18 years ago. This was a long sought after full length structure of the flagship enzyme in a larger family of cytidine deaminases. To read the full article, click [here](#).

Linda was also corresponding author on an opinion piece published in AIDS. This article serves as a tool for biomedical scientists to

navigate Indigenous health research where there are many gaps in University Research Ethics Boards on proper protocols. Click [here](#) to read more.

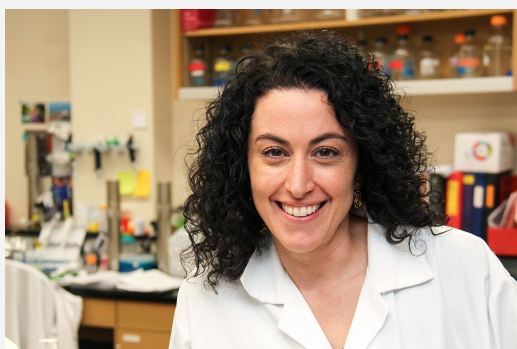


Photo: Kristen McEwen

Supporting Indigenous Communities

Last year, Linda partnered with Dr. Alexandra King (College of Medicine; Cameco Chair in Indigenous Health) to make a difference in the health of Indigenous communities in Saskatchewan. This collaboration continues today, and was featured in a USask article published [here](#).

A second USask article highlights Linda's career path and provides advice for building a successful career in research. For more, click [here](#).



SIDNEY HAYES

Guest Editor for Special Issue

Sidney Hayes was Guest Editor for Special Issue "Developing Bacterial Virus Deterrents to Challenges of Impending Postantibiotic Era: Phage Product Engineering, Therapy, Vaccines".



TEACHING EXCELLENCE

SCOTT NAPPER

USSU Teaching Excellence Award Winner

Scott Napper was awarded a University of Saskatchewan Students' Union Teaching Excellence Award for his teaching in BMSC 200 in Term 1. Dr. Napper has now received the award on 4 separate occasions, making this the most times the distinction has ever been presented to a single individual. Thank you to Scott for his commitment to his students and congratulations on this achievement!



HAROLD BULL

BMSC 210 Poster Project



Harold Bull recently introduced a team-based poster project in the department's introductory microbiology course

BMSC 210. It has been a big hit with the students as it allowed them to work with other students to enhance their learning on a specific microbe of their choosing. Dr. Bull and two other colleagues recently published a study that reported on the feasibility of implementing this team-based project and the learning outcomes.

The students demonstrated their appreciation for this initiative and other aspects of this teaching by nominating him for a **USSU Teaching Award**.

KYLE ANDERSON

USSU Teaching Excellence Award Nominee



Kyle Anderson was nominated for a USSU Teaching Excellence Award in 2019 by students enrolled in his BMSC 240 course. Dr. Anderson won this award in the previous year and has been nominated a number of times since appointment.

*"Logic will get you from A to B.
Imagination will take you everywhere."*

— Albert Einstein



UNDERGRADUATE STUDENT ACHIEVEMENT

BIOCHEMISTRY UNDERGRADUATE SCHOLARSHIPS

Congratulations to the students who were awarded Biochemistry Undergraduate Scholarships! The luncheon to present awards took place on Wednesday, January 29, 2020.



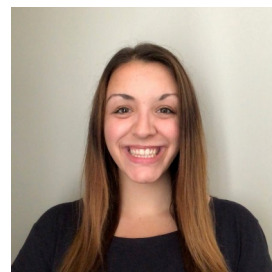
Maddy Owens

Scholarships:

Dr. Louis T.J. Delbaere Memorial Scholarship

This scholarship is awarded to a fourth-year student majoring in Biochemistry who has demonstrated the potential and interest to pursue a career in Biochemistry. \$2,000 award.

Recipient: Maddy Owens



Lexie Landreth



Nick Bauer

Manju Khandelwal Memorial Scholarship

This scholarship is awarded to a fourth-year female Biochemistry student who has demonstrated excellence in Biochemistry courses. \$500 award.

Recipient: Lexie Landreth

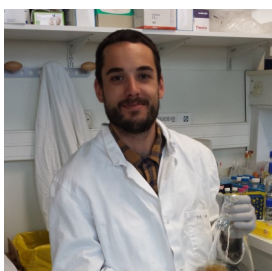


Luke Wandzura

Dr. Dorothy Kline Memorial Scholarship

This scholarship is awarded to students majoring in Biochemistry with the highest academic averages in BMSC 200 and BMSC 230. Two \$500 awards.

Recipients: Nick Bauer & Luke Wandzura

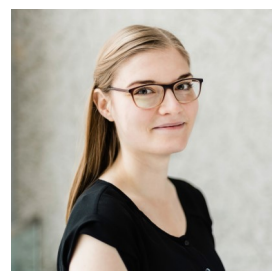


Tomas Pelletier

The Department of Biochemistry Scholarship

This scholarship is awarded to students entering their final year of a B.Sc. 4-year or Honours degree program in Biochemistry. It is based on the overall academic achievement in all 300 and 400 level Biochemistry courses. Two \$500 awards.

Recipients: Tomas Pelletier & Erin White



Erin White

NSERC UNDERGRADUATE STUDENT RESEARCH AWARDS

Several BMI students received NSERC USRA's in 2020. Congratulations!

Ananna Arna (Supervisor: Yuliang Wu)

Nicholas Bauer (Supervisor: Scot Stone)

Christopher Chivers (Supervisor: Troy Harkness)

Namrata Das (Supervisor: Yuliang Wu)

Daphnee Ferland (Supervisor: Kerry Lavender)

Sarah Ghezelbash (Supervisor: Joyce Wilson)

Justin Hall (Supervisor: Kerri Kobryn)

CONVOCAATION AWARDS

Two of our convocating undergraduate students received awards during the virtual 2020 Arts & Science Graduation Awards ceremony.

JUSTIN HALL

Recipient of the J.F. Morgan Memorial Award for the most outstanding graduate in Microbiology & Immunology. Justin has been accepted into the USask MD program this fall.



ERIN WHITE

Recipient of the Most Outstanding Graduate in Biochemistry. This fall, Erin will be studying Nutrition at the U of S in the College of Pharmacy and Nutrition program.



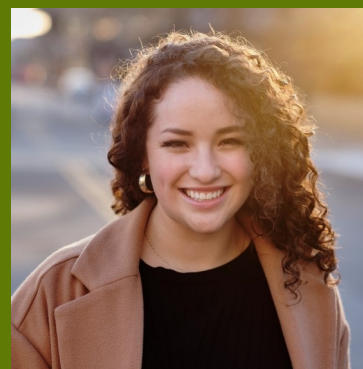
AURORA LEPE ZEPEDA

USSU Project Symposium Award Winner

Aurora Lepe Zepeda, a student pursuing an honours degree in Microbiology & Immunology, received two poster awards at the USSU Project Symposium held on January 30, 2020.

1. First place in Science and Engineering (\$1000)
2. The Mayor and University President's Award in City-Building (\$500)

Congratulations Aurora!



Update from the Microbiology & Immunology Student Association:

MISA had a great year. We were excited to make use of the new Health Sciences student lounge, in which we hosted many potluck and board game nights. The tutorials and information nights were very well attended. For the first time all four student associations (Anatomy & Cell Biology, Physiology & Pharmacology, Biochemistry, and Microbiology & Immunology) hosted one large social to bring everyone together. Although our graduation banquet had to be cancelled due to the shutdown, MISA is very excited for our plans in the upcoming year to merge with the Biochemistry Student Association (BSA) to form one group for all BMI students.

The 2019-2020 executive committee consisted of Cole Simon (President), Quinlan Carter (Vice-President), Kiara Ernst (Secretary), Toni-Anne Saworski (Public Relations), Fatima Masood (Third Year Rep), Aurora Lepe Zepeda (Fourth Year Rep).

GRADUATE STUDENT **SUCCESS**

IVANTHI KUMASARUGE

SaskCanola Dr. Roger Rimmer Graduate Student Scholarship

Ivanthi Kumasaruge, an MSc student working under the supervision of Dr. Wei Xiao, was the successful recipient of the SaskCanola Dr. Roger Rimmer Graduate Student Scholarship. This scholarship provides support of \$18,000 per year for a two-year period. Ivanthi's research involves exploring ways to combat clubroot disease in canola using the CRISPR-Cas9 gene editing technology.



GABRIELLE MERCIER

Canada Graduate Scholarship Master's (CGSM) Award

New graduate student, Gabrielle, received a prestigious Canada Graduate Scholarship-Masters award this year. **Gabrielle**, who is working under the supervision of Dr. Troy Harkness, is looking into the role of the Anaphase Promoting Complex and its involvement in triple negative breast cancer progression. To improve patient outcomes, it is hypothesized that activation of this complex using synthetic peptides will slow cancer cell migration and tumor growth.



MARIA YOUSEFI

2020 Saskatchewan Innovation & Opportunity Scholarship: Microbiology and Immunology

Maria Yousefi, an MSc student researching under the direction of Dr. Linda Chelico, received the 2020 Saskatchewan Innovation & Opportunity Scholarship for Microbiology and Immunology. Maria's research focuses on APOBEC3 enzymes, their ability to restrict HIV, and how different variants of APOBEC3s going to affect the restriction processes. She will also test the function of co-expressed APOBEC3F and APOBEC3H in restriction of HIV.



MAMATA PANIGRAHI & AIYANG LIN

Irene Grodums Memorial Graduate Scholarship

This year the Irene Grodums Memorial Graduate Scholarship was awarded to two students. **Aiyang Lin** is a PhD student studying under the supervision of Dr. Wei Xiao. Her research investigates the mechanism of cyanamide (CY) induced *DDI2/3* expression in *Saccharomyces cerevisiae*. **Mamata Panigrahi** is a PhD student researching under the supervision of Dr. Joyce Wilson. Her aim is to understand why a liver specific factor called miR-122 is essential for Hepatitis C virus replication by using mutant viruses, which can replicate in the absence of miR-122 as a model system.



Aiyang Lin



Mamata Panigrahi

SPOTLIGHT ON DEPARTMENT **EVENTS**

WELCOME BACK BARBEQUE

New and returning undergraduate students were hosted at the BMI Welcome Back BBQ on Wednesday, September 11, 2019.



FESTIVE FACULTY OUTING

Some faculty celebrated the holiday season with an evening of music, fun, and old-fashioned sleigh rides at Champêtre County, a country-themed vacation farm located 35 km East of Saskatoon.



GRADUATE STUDENT ASSOCIATION HALLOWEEN PARTY

The Microbiology & Immunology Graduate Student Association hosted a Halloween party for students and faculty in the Health Sciences building.



LET'S STAY CONNECTED!

We welcome your feedback. Please contact us at:

bmiadmin@usask.ca

Department of BMI

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