



Department of Biological Sciences Newsletter

“from biomolecules to the biosphere”

No. 11

March 24, 2016

Announcements

Two Biosciences students were honoured for outstanding community contributions at the 20th annual Immigrants of Distinction Awards (IDA) gala recently held at the Westin Calgary Hotel.



Dan Yang Ni : Youth Scholarship (Dan Yang (Lucy) Ni is a third-year biological sciences student, founding member of the student-led initiative “outrun the stigma”, and president of the Heart and Stroke Foundation Students’ Association.)

Moiz Hafeez : Youth Scholarship (Moiz Hafeez is a fourth-year biological sciences student, past director of External Affairs of the Muslim Students’ Association and chair member of the university’s Red Cross club.)

Mark your calendars! This year’s **Undergraduate & Graduate Student Research Symposium** will run from Tuesday, March 29 – Friday, April 1.

The **undergraduate presentations** will occur on Tuesday, Wednesday and Thursday (March 29-31). See page 6.

The **graduate poster sessions** will be on Thursday, March 31 from 9:00 to 4:00 in the +15 walkway between Biological Sciences and Science Theatres. A new feature of this year’s symposium is **3-Minute Thesis talks**, which will be held on the morning of Friday, April 1 in BI 211.



The presentation by **Dr Van Ngo**, recipient of the **Ed McCauley Postdoctoral Award**, entitled “Frontiers in Studies of Interactions and Functionalities of Ion-Protein Complexes by Molecular Dynamics Simulations” will be on Friday April 1 at 2 pm in BI 211, followed by the **Presentation and Poster Awards, and Reception** at 3:30 pm.

Recent Publications



Weers, P.M, **Prenner E, Curic S, Lohmeier-Vogel E.M***. A laboratory exercise to illustrate protein-membrane interactions.

Biochem Mol Biol Educ. 2016 44:86-94.

Important Dates

April 29 - University 50th birthday

June 9 - Convocation (morning) and luncheon



Lohmeier-Vogel E.M, Heeley D.H Biochemical Comparison of Tpm1.1 (a) and Tpm2.2 (b) Tropomyosins from Rabbit Skeletal Muscle. *Biochemistry* 2016 55, pp 1418-1427



Liu, Z., Garcia-Diaz, B., Catacchio, B., Chiancone, E. and **Vogel, H.J.** (2015) "Protecting Gram-negative cell envelopes from human lysozyme: interactions with Ivy inhibitor proteins from Escherichia coli and Pseudomonas aeruginosa" *Biochim. Biophys. Acta - Biomembranes* 1848: 3032-3046.



Lau, C.K., **Krewulak, K.D. and Vogel H.J.** (2016) "Bacterial ferrous iron transport: The Feo system" *FEMS Microbiol. Rev.* 40: 273-298.

Banerjee S, Paul S, Nguyen LT, Chu BC and **Vogel HJ** (2016) "FecB, a periplasmic ferric citrate transporter from Escherichia coli, can bind different forms of ferric citrate as well as a wide variety of metal-free and metal-loaded tricarboxylic acids" *Metallomics* 8: 125-133.

Krewulak KD and Vogel HJ (2016) "Bacterial Siderophore-binding protein FepB" *Encyclopedia of Inorganic and Bioinorganic Chemistry* (Wiley) (in press)

Arias M, Hoffarth ER, Ishida H, Aramini JM and **Vogel HJ** (2015) "Recombinant expression, antimicrobial activity and mechanism of action of tritrypticin analogs containing fluoro-tryptophan residues" *Biochim. Biophys. Acta - Biomembranes* (in press; PMID: 26724205)

Seminars



EEB 601 Seminar - Mondays 12h00 in BI 211
Mar 28 - **Tegan Barry** - Ecological and Genomic consequences of phenotypic variation and covariation in Threespine Stickleback



BCEM 601 Seminar - Mondays 16h00 in BI 211
Mar 28 - **Suriakarthiga Ganesan** - Tracking diacylglycerol pools in budding yeast

End of auto-forwarding for students: Feb. 11, 2016

In order to enhance our IT security and reduce the risks posed by any future phishing attempts to student email accounts, the university will be disabling the ability to auto-forward email in Office 365 beginning Feb. 11, 2016. This also aligns with our current auto-forwarding policy for faculty and staff.

After Feb. 11, emails will not be auto-forwarded and will remain in your university assigned ucalgary.ca email inbox, which is the primary communication vehicle from faculty and staff and other areas of the university.

Alternative to auto-forwarding:

We recommend installing your ucalgary.ca email address on your smartphone or tablet and then configure your device to use the 'combined inbox' view for the same experience as auto-forwarding. Further instructions are provided by visiting the Office 365 support page.

We apologize for the inconvenience, however, it is important to provide the most secure solutions available for our university community. For additional support or if you have questions, please contact the IT Support Centre at itsupport@ucalgary.ca or 220-5555.

Research Proposals



The MSc Research Proposal for **Karelia Delgado Magnero**, in the area of “Biophysical Chemistry”, was accepted by her Supervisory Committee on March 18, 2016.

The M.Sc. Research Proposal for **Jori Harrison**, in the area of “Ecology”, was accepted by her committee on March 18, 2016.

The M.Sc. Research Proposal for **Robert Morgante**, in the area of “Ecology”, was accepted by his Supervisory Committee on March 22, 2016.

The M.Sc. Research Proposal for **Jessica Hopson** entitled “Effects of dispersal and population regulation on synchrony in population dynamics”, will be held on March 23, 2016 at 9:00 a.m. in Biological Sciences room 312.

The M.Sc. Research Proposal for **Vaidehi Patel** entitled “Adverse impact of wastewater treatment plant effluent on reproduction of fish”, will be held on April 15, 2016 at 10:00 a.m. in Biological Sciences room 246.

Ph.D. Candidacy Oral Examination - Candidacy Exams are Closed Exams.

Tegan Barry (Supervisor: S. Rogers & H. Jamniczky), will be holding her Candidacy Examination, in the area of “Evolutionary Biology”, on March 24, 2016 at 10:00 a.m. in Biological Sciences room 389. (Neutral Chair: H. Habibi).

Mohsen Ramezanzpour (Supervisor: P. Tieleman) will be holding his Candidacy Examination, in the area of “Biochemistry”, on April 15, 2016 at 1:00 p.m. in Biological Sciences room 389. (Neutral Chair: R. Edwards).

Samuel Robinson (Supervisor: R. Cartar), will be holding his Candidacy Examination, in the area of “Ecology”, on April 19, 2016 at 10:00 a.m. in Biological Sciences room 389. (Neutral Chair: J. Post).

Besian Sejdiu (Supervisor: P. Tieleman), will be holding her Candidacy Examination, in the area of “Biophysical Chemistry”, on April 26, 2016 at 1:00 p.m. in Biological Sciences room 312. (Neutral Chair: H. Vogel).

Christina Amat (Supervisor: A. Buret), will be holding her Candidacy Examination, in the area of “Host Pathogen Interactions”, on May 31, 2016 at 2:00 p.m. in Biological Sciences room 389. (Neutral Chair: G. Chua).

Thesis Oral Examinations - Exams are “Open” unless otherwise noted.

Trevor Randall (Supervisor: J. Harrison), will be holding his M.Sc. Thesis Oral Examination, in the area of “Biochemistry”, on April 4, 2016 at 12:00 p.m. in Biological Sciences room 389. (Neutral Chair: S. Noskov).

Mathew Frankel (Supervisor: R. Turner) will be holding his M.Sc. Thesis Oral Examination, in the area of “Environmental Microbiology”, on April 7, 2016 at 10:00 a.m. in Biological Sciences room 312. (Neutral Chair: D. Muench).

Yibo Wang (Supervisor: S. Noskov), will be holding his Ph.D. Thesis Oral Examination, in the area of “Biophysical Chemistry”, on April 11, 2016 at 3:00 p.m. in Biological Sciences room 389. (Neutral Chair: H. Habibi).

Brandon Allen (Supervisor: S. Rogers), will be holding his M.Sc. Thesis Oral Examination, in the area of “Evolutionary Biology”, on April 14, 2016 at 2:00 p.m. in Biological Sciences room 389. (Neutral Chair: A. Russell).

Ella Bowles (Supervisor: S. Rogers) will be holding her Ph.D. Thesis Oral Examination in the area of “Evolutionary Biology”, on April 15th at 10:00 a.m. in Biological Sciences room 542. (Neutral Chair: G. Voordouw).

Lisa Oberding (Supervisor: L. Gieg), will be holding her M.Sc. Thesis Oral Examination, in the area of “Environmental Microbiology”, on April 15, 2016 at 2:00 p.m. in Biological Sciences room 389. (Neutral Chair: P. Dunfield).

Ezgi Ogutcen (Supervisor: J. Vamosi), will be holding her Ph.D. Thesis Oral Examination,

in the area of “Evolutionary Biology”, on April 22, 2016 at 1:00 p.m. in Biological Sciences room 312. (Neutral Chair: J. Theodor).

Larry Powell (Supervisor: A. Russell), will be holding his Ph.D. Thesis Oral Examination, in the area of “Evolutionary Ecology”, on May 25, 2016 at 2:00 p.m. in Biological Sciences room 389. (Neutral Chair: J. Fox).

Jordan Roberts (Supervisor: D. Syme), will be holding his M.Sc. Thesis Oral Examination, in the area of “Physiology”, on May 25, 2016 at 10:00 a.m. in Biological Sciences room 312. (Neutral Chair: V. Zaremborg).

Please note: *Pre-defense seminars are a degree requirement for a M.Sc. and Ph.D. students in Biological Sciences. Typically the seminar will take place immediately preceding the Oral Defense Exam.*

Congratulations to.....



Hazel Cameron-Inglis, who passed her M.Sc. Thesis Oral Examination, in the area of “Evolutionary Biology”, on March 22, 2016!



“Piled Higher and Deeper” by Jorge Cham
www.phdcomics.com

Time	Tuesday March 29			Wednesday March 30		Thursday March 31			Friday April 1		
	BI 211	BI 499	BI 587	BI 211	BI 499	BI 211	BI 499	BI 587	BI 211		
8 am											
9 am	CMMB	ZOOLOGY		CMMB		CMMB	ECOL				
10 am											
11 am								BCEM	PLBI		
12 pm	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch			
1 pm	CMMB	ZOOLOGY	PLBI		ECOL	CMMB	BCEM				
2 pm											
3 pm											
4 pm											
5 pm											

2016 Biological Sciences Student Symposium Undergraduate Student Presentations

TUESDAY MARCH 29

Morning, BI 499 ZOOLOGY STUDENTS

- 8:30 Welcome
- 8:40 **Ostberg, Tia** (A. Buret)
HIF-1a in Giardiasis
- 9:20 **Jaeger, Conrad** (A. Buret)
Title: TBA
- 9:40 **Meghan Tucker** (K. Ruckstuhl)
Feeding ecology of male Big Horned Sheep in the Rocky Mountains
- 10:00 **Jessy Bokvist** (M. Vijayan)
The effect of cortisol mediated enzyme activity on cortisol deposition into zebrafish
(*Danio rerio*) oocytes

10:20 BREAK

- 10:40 **Sarah Bryden** (R. Dyck & W. Wildering)
Impact of minocycline treatment on cortical zinc levels in mice
- 11:00 **Siena Achal** (S. Bray & D. Syne)
Quantifying cerebral blood perfusion in adolescents with Autism Spectrum Disorder
using arterial spin labeling MRI
- 11:20 **Christine Sosiak** (R. Longair)
The effects of urban park ecological integrity on ant biodiversity

11:40 **Rosanna Punko** (R. Cartar)
The importance of matrixes and corridors for *Pterostichus melanarius* in an agroeco system

TUESDAY MARCH 29

Morning, Room BI 211 CMMB STUDENTS

Chair Casey Hubert

9:00 **Chu Chu** (L. Gieg)
Polymer Biodegradation

9:20 **Corynne O'Farrell** (L. Gieg)
Towards an understanding of oil spill clean-up: Biodegradation of hydrocarbons under methanogenic condition

9:40 **Aaron Jang** (G. Chua)
Investigation of the Puf3 Mediated mRNA Degradation Pathway in *Schizosaccharomyces pombe*

10:00 **Joey Poon** (D. Storey)
Characterization of the Pyocins for *Pseudomonas aeruginosa* Isolate 14651 with Potential to Inhibit Competitive Strains in Lung Infections of Cystic Fibrosis Patients

10:20 BREAK

Chair:Kunyan Zhang

10:40 **Michael Pham** (K. Zhang & D. Storey)
The Molecular Characterization and Evolution of Canton & Canadian MRSA ST398 Isolates

11:00 **Catherine Chau** (J. Alcanatra & L. Gedamu)
Plant derived vaccine production against *Neisseria meningitidis*

11:20 **Aymara Clarke** (J. Alcanatra & L. Gedamu)
Construction of a selectable genetic marker in *Chlorella zofingiensis*.

11:40 **Ayodele Oyeyemi** (A. Buret)
Modulation of host defenses during Giardia co-infections

Afternoon, BI 499 ZOOLOGY STUDENTS

13:00 **Sikta Samantray** (F. Smith & H. Habibi)
The Renin Angiotensin System in the Developing Newborn

13:20 **Maria Varem** (R. Cartar)
Title: TBA

13:40 **Bradley Kievit** (D. Syme)
Force response to potentiation and calcium manipulation in rainbow trout red muscle

14:00 **Jenna Dobry** (N. Cheng & W. Wildering)
Developmental profile of microglia in a mouse model of autism

14:20 **Pauline de Jesus** (R. Barclay)
Why are some bats hairier than others?

14:40 **Adam Lognon** (W. Wildering)
Title: TBA

14:20 **Balraj Singh Brar** (M. Samuel)

Engineering green seed tolerance in canola

14:40 **Jeremy Jordon Wong** (D. Muench)

Activation-tag Genetic Screen to Identify Genes Involved in Naphthenic Acid Degradation in Plants

WEDNESDAY MARCH 30

Morning, Room BI 211

CMMB STUDENTS

Chair: Deborah Kurrasch

9:00 **Faizan Malik** (D. Kurrasch & D. Hansen)

Monitoring Microglial Movement During Embryonic Brain Development

9:20 **Luke Green-Harrison** (D. Hansen)

RNAi Knockdown Screening for Stem Cell Proliferation-Promoting Genes in the *C. elegans* Germline

9:40 **Yifei Ma** (H. Habibi & C. Shemanko)

The Effect of Gonadotropin-Inhibitory Hormone on Follicular mRNA Expression of Estradiol Induced Enzymes in Zebrafish

10:00 **Gerald Coughlin** (D. Kurrasch & D. Hansen)

The role of protocadherins in hypothalamic neuronal cell sorting

WEDNESDAY MARCH 30

Afternoon, Room BI 499

ECOL STUDENTS

14:00 **Thanujah Thambimutu** (Kyla Flanagan & Paul Galpern)

Is bumble bee phenology influenced by landscape context?

14:20 **Dhwani Paul** (Kathreen Ruchstuhl)

How do social networks in female bighorn sheep (*Ovis canadensis*) affect their lamb's survival in a given year?

THURSDAY MARCH 31

Morning, Room BI 211

CMMB STUDENTS

Chair: Joe Harrison

10:40 **Amanda Dos Santos** (G. Voordouw)

Investigation of Electrical Microbially Influenced Corrosion Using *Desulfovibrio ferrophilus* as Model Organism

11:00 **Linh Lam** (T. Dong & J. Harrison)

Analysis of antibiotics resistance in waste water treatment sample and how resistant cells can be killed

11:20 **Linda Khuu** (J. Harrison)

Silver resistance in *Pseudomonas aeruginosa*

11:40 **Crystal Ma** (J. Harrison)

The Role Potential Bacterial Genes Encoding Silver Resistance in *Pseudomonas aeruginosa*

THURSDAY MARCH 31**Morning, Room BI 499** **ECOL STUDENTS**

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- 9:00 **Dana Poscente** (Lee Jackson)
Reconstructing the history of *Didymosphenia geminata* from Alberta lake sediment records
- 9:20 **Allison Hay** (Steven Vamosi)
Testing the barcoding gap with comprehensive sampling of diving beetles, dragon flies, and damselflies.
- 9:40 **Nicole Courchesne** (Steven Vamosi)
The mitochondrial ND1 gene variation in the bull trout (*Salvelinus confluentus*) population from the Athabasca River Basin
- 10:00 **Ryan Taylor** (Lawrence Harder)
Assessment of frequency-dependent selection in *Delphinium glaucum*.
- 10:20 **Morgan Cotroneo** (Jeremy Fox)
The Spatial Hydra Effect
- 10:40 **Sukhjeet Saroya** (Hamid Habibi)
Developmental toxicology

THURSDAY MARCH 31**Morning, Room BI 499** **BCEM STUDENTS** **Chair: Sergei Noskov**

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- 11:00 **Milly Tesfazgy** (R. Turner)
Membrane Transporters
- 11:20 **Jenelle Erin Umbsaar** (El. Prenner)
Interactions of Cisplatin with Lipids
- 11:40 **Melissa White** (S. Zimmerly)
Group IIA Intron: Binary Splicing

THURSDAY MARCH 31**Morning, Room BI 587** **PLBI STUDENTS** **Chair: Doug Muench**

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- 11:00 **Vy Hoang Mai** (J. Vamosi)
The effect of the invasive species Scotch broom (*Cytisus scoparius*) on the pollinator community of the Gary oak grassland
- 11:20 **Benjamin Cheung** (J. Vamosi)
Marine Invertebrate Specialization to Algal Hosts.
- 11:40 **Maegan Ray Lacuata** (J. Vamosi)
Evaluating the Oxford Nanopore MinION Sequencer

THURSDAY MARCH 31**Afternoon, Room BI 499** **BCEM STUDENTS** **Chair Greg Moorhead**

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- 13:00 **Isaiah MacDonald** (G. Moorhead and A. Goodarzi)
Recruitment mechanism of CHD5 to chromatin

- 13:20 **Tejinder Kaur** (G. Moorhead)
PPI Proteomics: Identifying LSPI motif containing protein interacting partners of PP2A-B56
- 13:40 **Tina Chen** (C. Finney)
Development of a Murine Epithelial Cell - *Heligmosomoides polygyrus* Co-culture System for the Study of Initial Host-Parasite Interactions
- 14:00 **Kurt Ebeling** (I. Lewis)
Metabolomics for infectious diseases
- 14:20 **Guneet Khosa** (G. Moorhead)
PP1 Phosphatase
- 14:40 **Wayne Ngo** (S. Noskov & D. Cramb)
Lipid nanoparticles

THURSDAY MARCH 31

Afternoon, Room BI 211 CMMB STUDENTS Chair: Michael Hynes

- 13:00 **Sama Banaei** (D. Hansen)
Investigation of the ERAD pathway in *C. elegans* and its potential role in regulating cell proliferation
- 13:20 **Anna Kim** (S. J. Childs & D. Hansen)
Ras in Vascular Malformations
- 13:40 **Kelsey Williamson** (M. Hynes)
Characterization of a potential DNA gyrase inhibitor and toxin-antitoxin system in *Rhizobium leguminosarum*
- 14:00 **Nicole Jervis** (D. Storey)
The generation of a *Pseudomonas aeruginosa* PAO1 delta-PA3327 mutant through the two-step allelic exchange method

Chair: Ken Ng

- 14:40 **Dean Lang** (T. Schryvers & K. Ng)
Characterizing the thermostability of hybrid transferrin binding proteins in *E. coli*
- 15:00 **Nicholas D'Aleo-Sotas** (Ken Ng)
Protein Purification of a Group IIC Intron IEP
- 15:20 **Sikta Samantray** (S. S. Grewal & D. Hansen)
The role of nutrition on *Drosophila* survival and weight
- 16:00 **Austin Nguyen** (M. Parkins & D. Storey)
Inhaled Antibiotics and Cystic Fibrosis



EARTH DAY CELEBRATION

APRIL 23, 2016

AT THE CALGARY TOWER

RACE FOR WILDERNESS
TOWERRUNNING WORLD ASSOCIATION
8AM. TIMED EVENT. CASH PRIZES.

FUN CLIMB
9AM-NOON. TEAM SPIRIT. PRIZES.

ENDURANCE CLIMB
9AM . NO ELEVATOR. MORE PRIZES.



ALBERTA WILDERNESS ASSOCIATION
albertawilderness.ca

REGISTER
CLIMBFORWILDERNESS.CA
TODAY

Leaf

News from the BGSA

3 minute seminar competition

We will be hosting a 3 minute seminar competition with graduate students from the department Friday April 1 at 9am. Each presenter will get 3 minutes and 1 slide (no animations) to present a summary of their research. Presenters are competing for small cash prizes with winners chosen by audience scoring. To sign up please email biogsa@ucalgary.ca by **March 29 at 4pm**. presentations need to be submitted by this time as well. Any inquiries about the friendly competition can be directed to biogsa@ucalgary.ca

BGSA Executive 2016-2017

The call for candidates is complete! Thank you to everyone who nominated themselves. The platforms are being compiled now, an announcement regarding the elections will be made shortly.

Graduate Student Retreat

The annual graduate student retreat will occur this year April 16-17 at the Kananaskis Biogeo-science institute. The cost for the retreat is only \$10 for students! This includes room and board overnight, dinner and breakfast. We will have alumni guest speakers discussing careers in industry and social activities planned for the evening. Please sign up by emailing biogsa@ucalgary.ca

Self Defence Class

Are you interested in learning some of the basics of self-defence? Join us for the **FREE** GSA organized defence class at the MacHall loft, 5-7pm April 6. Email analisa.lazarocote@ucalgary.ca to sign up



biogsa@ucalgary.ca



BGSA – University of Calgary



@biogsa

GALLAGHER COLLOQUIUM SERIES



Metagenomic Studies Uncover Vast Microbial Diversity and Inter-Species Interactions that Impact Subsurface Biogeochemical Cycles

April 6, 2016
7:00 p.m. (Reception at 6:00 p.m.)
General seating

University of Calgary
MacEwan Hall Ballroom

Featuring:



Dr. Jill Banfield
University of California, Berkeley

Summary:

Comparatively little is known about microbial communities that mediate biogeochemical processes in the terrestrial subsurface. Cultivation-independent shotgun sequencing-based approaches (metagenomics) provide a powerful way to determine which organisms are present and their metabolic potential. We have applied genome-resolved metagenomics to several different subsurface ecosystems and sampled a vast diversity of bacteria and archaea from a remarkable range of mostly unstudied lineages. The findings provide a new perspective on the tree of life. Analyses of capacities in specific organisms, performed over thousands of newly reconstructed genomes, indicate the importance of inter-organism metabolic byproduct handoffs involving compounds generated at specific steps in the sulfur, carbon, nitrogen and hydrogen cycles and of likely obligate symbiotic associations.

Please Register by April 1, 2016:

netcommunity.ucalgary.ca/GallagherColloquiumSeries3

Free and open to the public

Campus maps available at ucalgary.ca/map



Brought to you by the Department of Geoscience & The Gallagher Family

Rent Shared Condo

\$775/Month



For rent: a private basement suite in a shared Bowness condo. You would have a private bathroom, bedroom and living space in the basement and share the kitchen and laundry with the two upstairs tenants. The condo is clean, well-maintained, and trendy.

None of the current tenants are big partiers, but we are social, active people who work a lot. I'm currently a biology grad student.

I'm ideally looking for working professionals or grad students.

A cat is negotiable (but generally welcome).

- ▶ Close to parks, bike paths and the river
- ▶ 20-minute bus to the U of C, SAIT, Foothills
- ▶ Internet and utilities are not included
- ▶ Non-smoking; street parking
- ▶ Fast internet

When: Available now, 6-month lease

Where: Bowness, 75th St

Cost: \$775/month, + utilities, internet

Please email and we can easily set up a meeting to show the condo.

susan.m.anderson@outlook.com