June 21, 2023

Nik Kovinich, PhD

Curriculum Vitae
Department of Biology
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Summary

As an Associate Professor of Systems Biology, I lead a team that studies gene regulatory networks that control the biosynthesis of medicinal and agriculturally important defense molecules in plants. I have authored over 25 publications – several of them in top journals in the field, including *The Plant Cell* and *Plant Physiology* – and delivered 7 invited seminars at national and international conferences and workshops. I have led or co-led 21 successful funding awards, collectively worth over $3.76 million CAD, including a prestigious NIH AREA R15 award (worth ~$500,000 over 4 years). I have won or have been nominated for 14 awards during my career, including a Faculty Award for Distinction in Mentoring of Undergraduates in Research (2018). Eighteen (13) of my undergraduate and 5 of my graduate students have (co)authored research papers in reputable peer-reviewed scientific journals, including *BMC Genomics* and *Plant Physiology*. Our discoveries on the regulation of anticancer and antipathogenic metabolites produced by plants has resulted in two (2) provisional patents with the USPTO. I am a member of several professional societies, including the *American Society of Plant Biologists* and the *Phytochemical Society of North America.* Finally, I am active at disseminating research at the national and international levels by hosting seminars, chairing and organizing conferences, and providing presentations to the public.

Funding: $3.76 Million	Awards and Nominations: 14
PhD students: 3	Publications: 26
Undergraduates trained: 38	Provisional Patents: 2
Undergraduate trainees with publications: 15	Invited presentations & seminars: 7
Courses taught: 4	Accepted conference presentations: 7

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A. PERSONAL

Employment History

Associate Professor of Systems Biology, York University
Faculty of Science, Biology Department
2022 September – Present

Assistant Professor of Systems Biology, York University
Faculty of Science, Biology Department
2019 September – August 2022

Assistant Professor of Genetics, West Virginia University,
Division of Plant and Soil Sciences, Davis College of Agriculture,
Natural Resources and Design
2015 July – 2019 August

Postdoctoral Fellow
The Ohio State University, Department of Molecular Genetics
2011 October – 2015 June

Research Affiliate
Agriculture and Agri-Food Canada (Supervisor: Brian Miki)
2010 April - 2011 September

Plant Biology Research Assistant
Agriculture and Agri-Food Canada (Supervisor: Harvey Voldeng)
May – September, 2003-2007

Degrees

Ph.D. Biology
Carleton University / Agriculture and Agri-Food Canada
2007 September – 2011 September

B.Sc. Honors Biology (Biotechnology)
University of Ottawa
2003 September - 2007 April

Diploma - Horticulture and Greenhouse Management
Kemptville College
2001 September – 2003 April

B. SCHOLARLY AND PROFESSIONAL CONTRIBUTIONS

Research Support

Summary

- *Awarded over $3. million CAD in funding*

- *Diverse funding portfolio for carrying out pure and applied research*

Funding

21) USDA-NIFA
Investigation of the Transcriptional Regulation of Cannabinoid Synthesis in Industrial Hemp
Role: Co-investigator
$595,461 USD, Subaward $62,950 USD/$84,478 CAD, May 1, 2023 – January 14, 2025

20) Brad Lace Donation
Increasing pharmaceutical production in plants by novel biotechnology methods
Role: Principal Investigator
$15,000, November 2022

19) York University Faculty Association (YUFA) Minor Research Grant
Plant Regeneration for Genome Engineering of Cannabis
Role: Principal Investigator
$3000, January 2022

18) York University Junior Faculty Fund
Multi Network Deregulation for Anticancer Metabolite Production
Role: Principal Investigator
$1325, January 2022

17) York University Faculty Association (YUFA) Minor Research Grant
Developing a Cannabis Strain for PharmaceuticalProduction
Role: Principal Investigator
$3000, January 2021

16) York University Junior Faculty Fund
Sinapine Transporter Regulates Flavonoid Biosynthesis
Role: Principal Investigator
$2000, January 2021

15) CFI John R. Evans Leaders Fund Project number 40371
Infrastructure to Research and Engineer Specialized Metabolism in Plants
Role: Principal Investigator
$75,010, June 23, 2020 (pending matching funds by Ontario Government)

14) NSERC Discovery Grant (RGPIN-2020-06111)
Phytoalexin Gene Regulatory Networks
Role: Principal Investigator
$165,000, May 2020 - April 2025

13) NSERC Discovery Launch Supplement (DGECR-2020-00131)
Phytoalexin Gene Regulatory Networks
Role: Principal Investigator
$12,500, May 2020

12) USDA-NIFA
Characterization of the terpene-cannabinoid metabolic network and its genetic regulation in industrial hemp.
Role: Co-investigator
$199,603 USD, Subaward $25,920 USD/$35,506 CAD, June 1, 2020 – May 31, 2022

11) York University Faculty Association (YUFA) Minor Research Grant
Developing Gene Knock-out Technology for Cannabis
Role: Principal Investigator

$2000, March 2020

10) York University Junior Faculty Fund
Characterizing Glyceollin Transcription Factor Recognition Elements
Role: Principal Investigator
$1100, March 2020

9) NIH (AREA R15 PAR-18-714)
Unlocking the Regulation of Phytoalexin Biosynthesis
Role: Principal Investigator
$450,000/$579,350 CAD, September 2019 – August 2022
**Award could not be transferred to a Canadian Institution

8) York University (Lab Start-up Funds)
Role: Principal Investigator
$150,000, September 1, 2019 – Present

7) West Virginia University (SRF Deans' InSPIRe Award)
Glyceollin I Reduces Hypoxia Induced Chemoresistance in Lung and Breast Cancer Cell Lines
Role: Principal Investigator
$5700 USD/$7,330 CAD June 1 2019 – August 16, 2019

6) West Virginia University (Research and Scholarship Advancement)
Metabolite Transport in Plants.
Role: Principal Investigator
$10,000/$12,870 CAD, July 1, 2019 – June 30, 2020

5) NIH / WV INBRE (Idea Network for Biomedical Research Excellence)
Glyceollin I a novel chemosensitizer acting through HIF-1-alpha.
Role: Principal Investigator
$45,000/$57,900 CAD, August 1, 2017 – July 31, 2018

4) West Virginia University (Research and Scholarship Advancement)
Identifying the transcription factor gene that activates the biosynthesis of antimicrobial defense metabolites in soybean to provide broad spectrum resistance to Phytophthora sojae.
Role: Principal Investigator
$14,915 USD/$19,200 CAD, July 1, 2017 – June 30, 2018

3) USDA-NIFA WVA00687 (HATCH Capacity Act)
Understanding Metabolic Responses of Plants to Stress for Crop Improvement and Human Health.
Role: Principal Investigator
$5,700//$7,330 CAD, August 1, 2016 – July 31, 2019

1) West Virginia University (Lab Start-up Funds)
Role: Principal Investigator
$325,000/$418,290 CAD, July 16, 2015 – August 16, 2019

Ohio State University Comprehensive Cancer Center (Postdoctoral Pelotonia Fellowship)
Combining Semi-Synthesis with Plant and Microbial Synthetic Biology: New Frontiers in the Chemical Arsenal Against Cancer
$80,000 USD/$102,900 CAD, November 1, 2012 – November 1, 2014

Peer Reviewed Publications

Summary

- *Several papers in high impact journals including The Plant Cell (IF: 9.618) and Plant Physiology (IF: 6.902)*
- *First-author or Principle Investigator for 21 of 26 papers, cited 921 times*
- *H-index = 15*
- *14 students mentored by Kovinich (co)authored 13 papers*

Notes:
*Denotes students supervised at foreign institutions.
**Denotes students supervised at York University, Canada.

26) Lin J**, Monsalvo I**, Ly M**, Jahan Md A, Wi D**, Martirosyan I**, **Kovinich N** (2023). RNA-Seq Dissects Incomplete Activation of Phytoalexin Biosynthesis by the Soybean Transcription Factors GmMYB29A2 and GmNAC42-1. Plants 12 (3), 545.

25) Yousefi-Taemeh M, Lin J**, Ifa DR, Parrott W, **Kovinich N** (2021). Metabolomics Differences of Glycine max QTLs Resistant to Soybean Looper. Metabolites 11 (10), 710.

24) Lin J**, Liu D, Wang X, Ahmed S**, Li M, **Kovinich N**, Sui S (2021). Transgene CpNAC68 from Wintersweet (Chimonanthus praecox) Improves Arabidopsis Survival of Multiple Abiotic Stresses. Plants 10 (7), 1403.

23) Ahmed S**, Gao X, Jahan Md A*, Adams M*, Wu N, **Kovinich N** (2021). Nanoparticle-Based Genetic Transformation of Cannabis sativa. Journal of Biotechnology, 326(1), pp. 48-51.

22) Ahmed S**, **Kovinich N** (2020). Regulation of Phytoalexin Biosynthesis for Agriculture and Human Health. Phytochemistry Reviews. DOI: 10.1007/s11101-020-09691-8

21) Jahan Md A*, Harris B*, Lowery M*, Infante AM, Percifield RJ, Ammer AG, **Kovinich N** (2020). Glyceollin Transcription Factor GmMYB29A2 Regulates Soybean Resistance to Phytophthora sojae. Plant Physiology, 183(2), pp.530-546.

20) Dabeek WM, **Kovinich N**, Walsh C, Marra VM (2019). Characterization and Quantification of Major Flavonol Glycosides in Ramps (Allium tricoccum). Molecules 24(18), 3281.

19) **Kovinich N** (2019). Combining Biocatalysts and Semi-Synthesis to (Bio)Synthesize Recalcitrant Pharmaceuticals. Archives in Biomedical Engineering & Biotechnology. Accepted May 2019.

18) Jahan Md A*, Harris B*, Lowery M*, Coburn K*, Infante AM, Percifield RJ, Ammer AG, **Kovinich N** (2019). The NAC Transcription Factor GmNAC42-1 Regulates Glyceollin Phytoalexin Biosynthesis in Soybean. BMC Genomics 20:149.

17) Jahan Md A*, **Kovinich N** (2019). Acidity stress for the systemic elicitation of glyceollin phytoalexins in soybean plants. Plant Signaling & Behavior. https://doi.org/10.1080/15592324.2019.1604018.

16) Hohenstein J, Studham ME, Klein A, **Kovinich N**, Barry K, Lee Y-J, MacIntosh GC (2018). Transcriptional and chemical changes in

soybean leaves in response to long-term aphid colonization. Frontiers in Plant Science 10, 310.

15) **Kovinich N,** Durkin P* (2018). Hormone deficient mutants have distinct flavonoid proportion fingerprints in response to abiotic stress. Plant Signaling & Behavior. DOI: 10.1080/15592324.2018.1542241.

14) **Kovinich N**, Wang Y*, Adegboye J*, Chanoca A, Otegui M, Durkin P* and Grotewold E (2018). Arabidopsis MATE45 Antagonizes Local Abscisic Acid Signaling to Mediate Development and Abiotic Stress Responses. Plant Direct 2018: 1-17.

12) Gary S*, Adegboye J*, Popp B, Cocuron JC, Woodrum B*, **Kovinich N** (2018). Combining semi-synthesis with plant and microbial biocatalysis: new frontiers in producing a chemical arsenal against cancer. RSC Advances 8: 21332-21339.

11) Farrell KC*, Jahan Md A*, **Kovinich N** (2017). Distinct Mechanisms of Biotic and Chemical Elicitors enable Additive Elicitation of the Anticancer Phytoalexin Glyceollin I. Molecules 22: 1261-1247.

10) Chanoca A, Burkel B, **Kovinich N,** Grotewold E, Eliceiri K, Otegui M (2016). Using Fluorescence Lifetime Microscopy to Study Subcellular Localization. Plant Journal doi: 10.1111/tpj.13297.

9) Chanoca A, **Kovinich N**, Grotewold E, Otegui M. (2015). Anthocyanin Vacuolar Inclusions Form by a Microautophagy Mechanism. The Plant Cell. DOI: tpc.15.00589. (Cover article for *The Plant Cell*, *and highlighted in Nature*).

8) **Kovinich N**, Kayanja G*, Chanoca A, Otegui M, Grotewold E (2015). Abiotic stresses induce different localizations of anthocyanins in Arabidopsis. Plant Signaling & Behavior DOI 10.1080/15592324.2015.1027850.

7) **Kovinich N**, Kayanja G*, Chanoca A, Riedl K, Otegui M, Grotewold E (2014). Not all anthocyanins are born equal: Distinct patterns induced by stress in Arabidopsis. Planta DOI 10.1007/s00425-014-2079-1.

6) **Kovinich N**, Saleem A, Arnason JT, and Miki B. (2012a). Coloring genetically modified soybean grains with anthocyanins by suppression of the proanthocyanidin genes *ANR1* and *ANR2*. Transgenic research DOI: 10.1007/s11248-011-9566-y.

5) **Kovinich N**, Saleem A, Arnason JT, Miki B. (2012b). Identification of two anthocyanidin reductase genes and three red-brown soybean accessions with reduced anthocyanidin reductase 1 mRNA, activity, and seed coat proanthocyanidin amounts. Journal of agricultural and food chemistry 60: 574-84.

4) Schnell S, Labbé H, **Kovinich N**, Manabe Y, Miki B. (2012c). Comparability of imazapyr-resistant Arabidopsis created by transgenesis and mutagenesis. Transgenic research DOI: 10.1007/s11248-012-9597-z.

3) **Kovinich N**, Saleem A, Arnason JT, Miki B (2011a) Combined analysis of transcriptome and metabolite data reveals extensive differences

between black and brown nearly-isogenic soybean (Glycine max) seed coats enabling the identification of pigment isogenes. BMC Genomics 12: 381.

2) **Kovinich N**, Arnason JT, DeLuca V, Miki B (2011b) Coloring Soybeans with Anthocyanins? *In* DR Gang, ed, Recent Advances in Phytochemistry, Vol 41. Springer, pp 47-57. ISBN: 978-1-4419-6961-3.

1) **Kovinich N**, Saleem A, Arnason JT, Miki B (2010) Functional characterization of a UDP-glucose:flavonoid 3-*O*-glucosyltransferase from the seed coat of black soybean (Glycine max (L.) Merr.). Phytochemistry 71: 1253-1263.

Patents

Summary

- *2 provisional patents with the United States Patent & Trademark Office*
- *Focus: technologies that enhance the biosynthesis of anticancer and antipathogen metabolites in soybean*

Provisional Patents

2) 02-MAR-2018 Transcription factors that positively regulate the biosynthesis of glyceollins (Provisional - EFS ID: 31943042)

1) 15-FEB-2018
Abiotic Stresses for the Elicitation of Glyceollin Phytoalexins in Soybean Plants (Provisional - EFS ID: 31799871).

Presentations

Summary

- *7 invited presentations including at Tokyo University of Science, Japan*
- *Total of 13 seminar presentations*
- *2 invited public lectures*

Invited Presentations

8) 2022 – PSNA Annual Meeting 2022. Virginia Tech, USA. Title: *GmJAZ1 proteins bind GmNAC42s and suppress the activation of glyceollin phytoalexin biosynthesis in soybean*.

7) 2019 – Bioinformatics Workshop – Medical Section. Tokyo University of Science, Japan. Title: *Unlocking the regulation of phytoalexin biosynthesis for human health.*

6) 2019 – Bioinformatics Workshop – Agriculture Section. Tokyo University of Science, Japan. Title: *Glyceollin transcription factor GmMYB2 is a regulator of soybean resistance to Phytophthora sojae*.

5) 2019 - York University Biology Department. Toronto, Canada. Title: *Unlocking the Regulation of Phytoalexin Biosynthesis for Human Health and Agriculture.*

4) 2018 – The 6th Edition of International Conference on Pharmacognosy and

Medicinal Plants. Amsterdam, Netherlands. Title: *Enhancing the regulation of phytoalexin biosynthesis in plants*.

3) 2015 - Department of Horticulture and Crop Science Seminar Series, The Ohio State University. Ohio, USA. Title: *Metabolite Transporters as Central Mediators of Stress Responses.*

2) 2014 – Center for Applied Plant Sciences Seminar Series. Ohio, USA. Title: *MATE45 Functions at the Convergence of ABA and Auxin Hormone Signaling Pathways to Arrest Development during Stress.*

1) 2013 – Pelotonia Fellowship Symposium. Ohio, USA. Title: *New Frontiers in the Chemical Arsenal Against Cancer: Combining Modules of Semi-Synthesis and Synthetic Biology*.

Accepted Presentations

6) 2019 – 10th Annual Nano Ontario Conference. Toronto, Canada. Title: *Genetic Transformation of the Pharmaceutical Plant Cannabis sativa using Cationic Polymer-modified Silica Coated Gold Nanoparticles*.

5) 2019 – Phytochemical Society of North America. Tennessee, USA. Title: *Glyceollin Transcription Factor GmMYB2 is a Regulator of Soybean Resistance to Phytophthora sojae.*

4) 2019 – Q-Bio. Hawaii, USA. Title: *Contrasting Abiotic Stresses Reveals a Conserved Regulator of Phytoalexin Biosynthesis*.

3) 2012 – Banff Conference on Plant Metabolism. Alberta, Canada. Title: *Phytochemical transport: anthocyanins in Arabidopsis.*

2) 2010 - 12th International Association for Plant Biotechnology (IAPB) Congress. St Louis, USA. Title: *Engineering Colored Soybeans to Enable Monitoring of Transgenic Grains.*

1) 2009 - Phytochemical Society of North America. Maryland, USA. Title: *Identification of a UDP-glucose:flavonoid glycosyltransferase for anthocyanin biosynthesis from the seed coat of black soybean.*

Invited Course Lectures

2020 - Current Topics in Biological Research (BIOL 3100)
Course Director: Sandra Rehan

2019 - Current Topics in Biological Research (BIOL 3100)
Course Director: Tamara Kelly

2017, 2018 - Orientation to Biochemistry (AGBI 199, West Virginia University)
Course Director: Kimberly Barnes

Invited Public Lectures

2) 2019 – Master Gardeners Association Annual Meeting. West Virginia, USA. Title: *Biostimulants.*

1) 2016 – Master Gardeners Association Annual Meeting. West Virginia, USA. Title: *Plant Transformation and Genetic Engineering*.

Training and Mentorship

Summary

- *Mentored 29 undergraduate students for one or more semesters*
- *18 students mentored by Kovinich (co)authored 12 papers*

Mentoring Mechanisms

York University
NSERC USRA and York University DURA Summer Research Assistantships
Biology Honors Thesis – BIOL 4000
Mitacs Globalink Research Internship
Volunteering

West Virginia University
Honors Investigation and Thesis – BIOL 486 (Biology)
Independent Research – AGBI 386 (Biochemistry)
Independent Research – BIOL 386 (Biology)
Teaching Practicum – GEN 790 (Genetics)
Teaching Practicum – GEN 490 (Genetics)
Research – AGBI 497 (Biochemistry)
Research – GEN 497 (Genetics)

Supervision of Students

Notes:
*Denotes student authored one or more publications in my lab

York University

PhD

7) Ivan Monsalvo (September 2022 – present)
6) Jie Lin (January 2020 – present)
5) Sajjad Ahmed (October 2019 – Fall 2021)

MSc

4) Sarah Pullano (May 2023 – present)
3) Melissa Ly (September 2022 – present)
2) Israt Jahan (September 2021 – September 2022)

West Virginia University

PhD

1) Md. Asraful Jahan* (2015- graduated 2019, currently Assistant Professor at University of Rajshahi, Bangladesh)

York University

Undergraduate Students

38) Vida Razmjou (NSERC Undergraduate Student Research Award Holder, Summer 2022 – Biology)
37) Ji-soo Chai (Undergraduate Volunteer, Summer 2022 – Biomedical Sciences)
36) María Fernanda Rosales De la Cruz (Mitacs Globalink Research Intern, Summer 2022 – Biology)
35) Dasol Wi* (Dean's Undergraduate Student Research Award Holder, Honors Thesis Summer 2022 – Biology)
34) Izabella Martirosyan* (Undergraduate Volunteer, Honors Research, Summer 2022 – Biology)
33) Dalena Nguyen (Undergraduate Volunteer, Summer 2022 – Biomedical Sciences)
32) Hyejung Kwon (Undergraduate Volunteer, Summer 2022 – Biomedical Sciences)
31) Ivan Monsalvo* (Honors Student, Fall 2021 to Winter 2022 – Biology)
30) Hetal Patil (Honors Student, Fall 2021 to Winter 2022 – Biology)
29) Eric Thomson (Undergraduate Volunteer, Winter 2020 – Biomedical Sciences)
28) Amanda Gorgees (Research Practicum, Winter 2020 – Biology)
27) Hooriya Sher (Research Practicum, Winter 2020 – Biomedical Sciences)
26) Dylan Martinez (YSSA Student, Summer 2020 – Biomedical Sciences)

West Virginia University (2015-2019)

Undergraduate Students

25) Brianna Harris* (Undergraduate – Biochemistry)
24) Maxwell Adams* (Undergraduate – Biochemistry)
23) Kiersten Jacobs (Undergraduate – Biology)
22) Najela Vallarta (Undergraduate – Biology)
21) Matthew Lowery* (Undergraduate – Biochemistry)
20) Samuel Gary* (Honors Thesis – Biochemistry, subsequently at Kentucky University School of Medicinal Chemistry, USA)
19) Angela Mancini (Undergraduate – Biology)
18) Molly Raque (Undergraduate – Animal Sciences, subsequently PhD student at OSU Veterinary Medicine)
17) Kelli Farrell* (Undergraduate - Biology, subsequently Physician's Assistant School in PA)
16) Paige Durkin* (Honors Thesis, Capstone – Biology, subsequently at WVU Dental School, USA)
15) Holland Matlock (Undergraduate – Biochemistry, subsequently at WVSOM Medical School)
14) Paige Palumbo (Undergraduate – Biology, subsequently at WVU Medical School, USA)
13) Maisha Huq (Undergraduate – Biochemistry)
12) Kaitlyn Williams (Capstone – Biochemistry)
11) Brooklyn Woodrum* (Undergraduate – Biochemistry)
10) Katie Coburn* (Undergraduate – Biochemistry)

9) Hannah Hypes (Undergraduate – Biochemistry)
8) Caroline Cavender (Undergraduate – Animal Sciences)
7) Mariana Shank (Undergraduate – Biology)

The Ohio State University (as Postdoctoral Fellow, 2011-2015)

6) Janet A. Adegboye* (Undergraduate, subsequently at Case Western Reserve University Medical School)
5) Gilbert Kayanja* (Pre-Graduate Student, subsequently PhD student at Purdue)
4) Daniela Carolina Pinto e Lício (Visiting Scholar from Brazil)
3) Yiqun Wang* (Undergraduate, subsequently PhD student at Harvard University)
2) Donald Thomas (Undergraduate, subsequently at Ohio State University Medical School)
1) Anna Zakas (Undergraduate, subsequently Oncology Genetic Counselor at University of Wisconsin Hospital and Clinics)

Nominations and Awards

Summary

- *2 nominations for outstanding undergraduate research mentor*
- *10 awards or nominations in total as Faculty, Postdoc, and Student*

Nominations

12) Faculty Award for Distinction in Mentoring of Undergraduates in Research
West Virginia University
2018 March (Nominated)

11) Outstanding Undergraduate Research Mentor
Undergraduate Research Office and URO's Student Advisory Committee, The Ohio State University
2014 February (Nominated, Declined Award - Not Faculty)

Awards

10) PSNA Arthur Neish Young Investigator Award
Phytochemical Society of North America
2022 July

9) Visiting Fellowships in Canadian Government Laboratories NSERC Postdoctoral Fellowship
2013 June (Declined Award - Pelotonia did not Permit Simultaneously Holding two Fellowships)

8) Postdoctoral Pelotonia Fellowship
2012 November – 2014 November

Awards as a Student

7) Ontario Graduate Scholarship
2011 September, Declined (moved to U.S. to begin Postdoc)

6) Dean Grad. Stud. Acad. Excellence
2010 September - 2011 August

5) International Association for Plant Biotechnology – Canadian Scholarship
December 2009

4) Dean Grad. Stud. Acad. Excellence

3) Phytochemical Society of North America – Best Presentation
August 2009

2) Carleton University Graduate Scholarship
2008 September - 2008 December

1) University of Ottawa – Dean's Honor
2006-2007

Advisor for Supervisory Committees & Thesis Defense Committees:

Summary

- *Advisor for 18 students in total*
- *13 PhD, 5 MSc, and 3 Undergraduate honors thesis students*
- *Research areas include Biology, Chemistry, and Engineering*

18) Kyra Dougherty. Genome and Phylogenetic Analysis of Pokeweed. Supervisor: Katalin Hudak (Biology Department, York University).

17) Bakhtiyar Taghizada. PhD Candidate. Genomic and biochemical characterization of ubiquitylated H2A.Z. 2022 – present. Supervisor: Emanuel Rosonina (Biology Department, York University).

16) Su Kyong Lee. PhD Candidate. Exploring roles of Ubp3 in regulating transcription and reinitiation genome-wide through a new proximity labelling assay in budding yeast. 2022 – present. Supervisor: Emanuel Rosonina (Biology Department, York University).

15) Sehaj Raina. PhD Candidate. Characterization of the histone variant H2A.Z in vivo to understand the biological roles of H2A.Z ubiquitylation. 2022 – present. Supervisor: Peter Cheung (Biology Department, York University).

14) Su Kyong Lee. PhD Candidate. *The role of a deubiquitination enzyme in regulating transcription globally and developing a transcription reinitiation assay.* 2021 – present. Supervisor: Emanuel Rosonina (Biology Department, York University).

13) Silvya Sidarous. Honors student. *Does pokeweed antiviral protein depurinate mRNAs?* 2021 – present. Supervisor: Katalin Hudak (Biology Department, York University).

12) Vijaya Adatrao. PhD Candidate. *Regulation of primary modulators of gene expression in Bacillus subtilis in response to cell envelope stress.* 2020 – present. Supervisor: Dasantila Golemi-Kotra (Biology Department, York University).

11) Ariana Fathi. Honors student. *Are viruses alive?* 2020 – present. Supervisor: Dawn Bazely (Biology Department, York University).

10) Brittney Picinic. MSc Candidate. *The effect of a blood meal in females and hormonal regulation on the abundance and localization of aquaporins.* 2020 – present. Jean-Paul Paluzzi (Biology Department, York University).

9) Kiana Rafiee Darmian. PhD Candidate. *Reinforced mycelium based biocomposites from wastes.* 2020 – present. Supervisor: Satinder Kaur Brar (Lassonde School of Engineering, York University).

8) Evan McCoy. PhD Candidate. *Quantitative resistance to defoliating insects in soybean.* 2016 – present. Supervisor: Wayne Parrott (Institute of Plant Breeding, Genetics and Genomics, University of Georgia).

7) Gur Sohal. Honors student. *Towards a Novel Rapid Bioassay for Determining the Toxicity of Small Quantities of Fungal Endophyte Infected Grasses - Phase 3.* 2020 – present. Supervisor: Dawn Bazely (Biology Department, York University).

6) Consuelo Perez. PhD Candidate. *Chemical Profiling of Drugs and Metabolites from Complex Biological Matrices by Atmospheric Pressure and Ambient Ionization Mass Spectrometry Techniques.* 2020 – 2021. Supervisor: Demian Ifa (Department of Chemistry, York University).

5) Wijdan Dabeek. MSc student. *Characterization and Preliminary Quantification of Major Flavonols in Ramps (Allium tricoccum).* 2018 –

2019. Supervisor: Melissa Ventura-Marra (Nutrition and Food Science, West Virginia University).

4) Steven Knowlden. PhD Candidate. *Synthesis of Allenes: Unlocking New Reactivity of Ruthenium Vinylidene Complexes.* 2019 – 2019. Supervisor: Brian Popp (Department of Chemistry, West Virginia University).

3) Matthew Maust. PhD Candidate. *Investigation of the role of catabolic products derived from nutrients as regulatory agents of secondary metabolite production in Penicillium camemberti.* 2017 – 2018. Supervisor: (Plant & Soil Sciences, West Virginia University).

2) Samantha Fabian. MSc Candidate. *Ergot alkaloid synthetic capacity of Penicillium camemberti.* 2016 – 2018. Supervisor: (Plant & Soil Sciences, West Virginia University).

1) Paige Bragg. MSc Candidate. *Expression of the Pharmaceutically Important Ergot Alkaloid Dihydrolysergic Acid in the fungus Neosartorya fumigate.* 2015 – 2016. Supervisor: (Plant & Soil Sciences, West Virginia University).

Student Training for International Competitions

Summary

- *Advisor for Tokyo University of Science undergraduate student team competing in iGEM*
- *They achieved the silver medal in 2020*

2018, 2019, 2020-	International Genetically Engineered Machine (iGEM) worldwide synthetic biology competition. Boston MA, USA. Role: Student Advisor. Supervisor: Kengo Morohashi (currently at Michigan State University)

Reviewer for Journals

Summary

- *Reviewer for 21 journals, including PNAS twice*
- *Review Editor for 2 journals*

Review Editor

2023-	MDPI Plants
2019-	Archives in Biomedical Engineering & Biotechnology
2016-	Frontiers of Plant Science

Reviewer

2023-	Nature Communications
2023-	Plant Biotechnology Journal
2022, 2023-	The Plant Journal
2022-	Plant Cell Reports
2022, 2020, 2019, 2017-	Frontiers of Plant Science
2021-	Scientific Reports
2020, 2019-	International Journal of Molecular Sciences
2020, 2018-	Proceedings of the National Academy of Sciences
2020-	Plants

2020-	Plant and Cell Physiology
2019, 2018, 2016-	Genes
2020-	Agronomy
2019-	Molecules
2018-	Journal of Chemistry
2018-	
2017, 2012-	Planta
2016-	Plant Cell Reports
2015-	Journal of Proteome Research
2015-	Plant Physiology and Biochemistry
2015, 2014, 2023-	PLOS ONE
2014, 2012, 2011-	Plant Science
2013-	Arabian Journal of Chemistry
2013-	International Journal 4 Molecular Sciences
2013-	Protoplasma
2011-	BMC Plant Biology

Invited Reviewer for Grants

Summary

- *Invited Reviewer for 3 federal grants*
- *1 Internal grant*

2022-	National Science Foundation, Plant Genome Research Program (USA)
2019-	National Science Foundation, Plant Genome Research Program (USA)
2019-	Genome Canada, 2018 Large-Scale Applied Research Project Competition: Genomics Solutions for Agriculture, Agri-food, Fisheries and Aquaculture
2015-	USDA Hatch Proposal, internal reviewer for West Virginia University

Conference Organization & Assistance

Summary

- *Chair of 1 international conference*
- *Assisted in organizing an ASPB Midwest Section meeting*
- *Judge for 8 science competitions including Graduate, Undergraduate, and Aboriginal Elementary School Science competitions*

Conference Chair	
2018-	6th Edition of International Conference on Pharmacognosy and Medicinal Plants, Amsterdam, Netherlands. Organizer: Hari Shanker Sharma (Uppsala University Sweden).
Conference Organizer Assistant	2019 Annual Meeting Midwestern Section American Society of Plant Biologists
2019-	Chair: Kathrin Schrick (Kansas State University), Organizer *Michael Gutensohn* (West Virginia University)
Presentation Judge	2019 Annual Meeting Midwestern Section American Society of Plant Biologists
2019-	Chair: Michael Gutensohn

2020-	Graduate student oral and poster presentation competition - Tokyo University of Science, Japan. Chair: Kengo Morohashi (currently at Michigan State University)
2017,2018,2019-	West Virginia University Undergraduate Spring Symposium Organizer: Kimberly Barnes (West Virginia University)
2018-	Davis College Research Day Organizer: Gregory Dahle (West Virginia University)
2014-	The Ohio State University Denman Forum (An Undergraduate Science Fair)
2011-	The Annual Akwesasne Mohawk Science Fair (An Elementary School Science Fair)

Memberships in Professional Societies

Summary

- *Currently a member of 2 professional societies*
- *Was a member of 6 in total*

2011-Present	American Society of Plant Biologists
2009-Present	Phytochemical Society of North America
2015-2019	West Virginia Clinical and Translational Science Institute
2015-2019	West Virginia iDeA Network of Biomedical Research Excellence (WV-INBRE)
2009-2015	International Association for Plant Biotechnology
2009-2011	Canadian Society of Plant Physiologists

Faculty Development Activities

Summary

- *Participated in 12 development activities in total*

2020	Course Design Intensive Workshop
2020	Enhanced Unconscious Bias/Affirmative Action Workshop
2020	CRISPR Detection & Validation Webinar
2018	Faculty Evaluation, Promotion, and Tenure Seminar
2018	Polishing the NIH Biosketch Seminar
2018	Online Teaching - An Instructor's Perspective
2018	SBIR/STTR Grant Mechanisms and Panel Discussion
2015	NIH Grant Writing Workshop.
2015	Cancer Cell Biology (CCB) weekly journal club.

Organizer: Michael Ruppert (West Virginia University Cancer Institute).

2015 Appreciative Advising Webinar.
West Virginia University.
Presenter: Jennifer Bloom (Florida Atlantic University).

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2015	iClicker Workshop. West Virginia University.
2015	eCampus: Getting Started. West Virginia University.

C. TEACHING

Courses

Summary

- *Instructed 4 courses in total*
- *Developed 2 new courses and substantially revised 1*
- *Subjects: Genetics, Plant Biology, Biotechnology, Writing*

Courses

Notes: * Denotes new courses developed or substantially revised.
**Denotes course developed but not taught.

York University

2020- 4) Current Topics in Biological Research – SC/BIOL 3100
2020, 2021- 3) Plant Biology – SC/BIOL 2010

WVU

2018- 2) *Genetic Engineering Technologies – GEN 440
2015-2018- 1) *Principles in Genetics (Lecture and Lab) – GEN 371
N/A- *, **Computational Genetics - GEN 290

Teaching Assistants

Summary

- *25 Teaching Assistants*

BIOL 2010 (2021)	Sajjad Ahmed Shelby Gibson Anthony Ayers Jie Lin Aman Basu Jenna LeBlanc Stephanie Haas
BIOL 3100 (2020)	Laura Newburn Harpreet Saini Mostafa Sedky Cindy Tran Kyra Fine Jenna LeBlanc
BIOL 2010 (2019)	Tanushree Tiwari Sajjad Ahmed Chaminda Gunawardene Jesse Huisken Jenna LeBlanc

GEN 371 (2018)	Md. Asraful Jahan Erin Hartzell
GEN 371 (2017)	Md. Asraful Jahan Stanislav Tatsiy
GEN 371 (2016)	Md. Asraful Jahan Audrey Biega
GEN 371 (2015)	Md. Asraful Jahan

D. SERVICE

Faculty-level Committees

Summary

- *4 Faculty-level committees*

York University

4) Strategic Plan Advisory Board
Role: Advisor
Lead Organizer: Rui Wang
Chair: Mary-Helen Armour
2020 – 2021

3) Faculty of Science Student Appeals Committee
Role: Advisor
Chair: Gerald Audette
April 2020 – Present

West Virginia University

2) Undergraduate Council and College Curriculum and Standards Committee
Role: Advisor
Chair: Todd Petty
2018 – August 2019

1) Davis Undergraduate Curriculum Council
Role: Advisor
Chair: Todd Petty
2016 – August 2019

Department/Division-level Committees

Summary

- *6 Department-level committees*

York University

6) Department of Biology Tenure & Promotion Committee
Role: Advisor
Chair: K. Andrew White (York University)

January 2020 – December 2020

West Virginia University

5) Graduate Student Compensation Committee
Role: Advisor
Chair: Matt Kasson (West Virginia University)
July 2018

4) Plant & Soil Sciences Seminar Committee
Role: Chair
Organizer: Matt Jenks (currently at Arizona State University)
2017 – 2019

3) Genetics & Developmental Biology (GDB) Program Advisory Committee
Role: Advisor
Chair: Matt Jenks (currently at Arizona State University)
2016 – 2017

2) Metabolomics Core Advisory Committee
Role: Advisor
Chair: Joseph McFadden (currently at Cornell University)
2016 – 2017

1) Plant & Soil Sciences Social Committee
Role: Chair
Contact: Matt Jenks (currently at Arizona State University)
2016 – 2017

The Ohio State University Center for Applied Plant Sciences (CAPS)

CAPS Plant Growth Facilities Committee
Role: Advisor
Chair: Gary Posey (The Ohio State University)
2013 – 2015

Faculty and Staff Recruitment Activities

Summary

- *5 hiring committees*

West Virginia University

5) Shared Resource Manager Hiring Committee
Role: Advisor
Chair: Trina Wafle (West Virginia University)
2018

4) Teaching Assistant Professor Hiring Committee
Role: Advisor
Chair: Kimberly Barnes (West Virginia University)
2018

3) Greenhouse Facilities Manager Search Committee
Role: Advisor
Chair: Nicole Waterland (West Virginia University)

2017

2) Greenhouse Facilities Director Search Committee
Role: Advisor
Chair: Nicole Waterland (West Virginia University)
2016

1) Microbiology Search Committee
Role: Advisor
Chair: Daniel Panaccione (West Virginia University)
2015

Student Recruitment Activities

Summary

- *3 Undergraduate recruitment events*

York University

3) Biology Graduate Program Recruitment Event
Role: Participant
Chair: Robert Tsushima (York University)
2020

2) Biology Graduate Program Recruitment Event
Role: Participant
Chair: Robert Tsushima (York University)
2021

West Virginia University

1) Discover WVU Day
Role: Student Advisor
Organizer: Valerie Lastinger (West Virginia University)
2018

Other Service Activities

Summary

- *Student Advisor for Biochemistry Program*
- *Department event organizer*
- *YSSA event participant*

York University

3) York Science Scholars Event
Role: Participant
Organizer: Michael Scheid (York University)
2020

West Virginia University

2) Undergraduate Biochemistry Students
Role: Student Advisor for Biochemistry Program

Chair: Kimberly Barnes (West Virginia University)
July 2018 – August 2019

1) Division of Plant & Soil Sciences Annual Picnic
Role: Assistant organizer
Organizer: Sven Verlinden (West Virginia University)
July 2018