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Professional objectives and summary

My interest in education comes from my own joy in learning continuously, and its role in empowering an individual to seek and acquire more agency in their lives. I find the efforts of teachers deeply inspiring and recognize that their workload could be eased particularly in regards to the curation of current STEM content for their classrooms and rapidly evolving digital technologies. With over 10 years of experience as an independent scientist, I have the approach of learning whichever skill is needed to solve a specific problem. I aim to use my background as a scientist and growing proficiency with digital technologies to help create educational content customized to the needs of educators and students.

Employment

2019 – Present	Research Associate University of Western Australia/ Center for Crop and Disease Management (Curtin University), Professor Joshua Mylne's lab
2017- 2019	Research Fellow Monash University, Professor Trevor Lithgow's lab

Education

2011-2017	Ph. D. Microbiology, University of Manitoba, Canada *Supervisor*: Professor Brian Mark *Thesis title*: Understanding the structure and function of proteins involved in the inducible expression of AmpC β-lactamase My PhD was focused on understanding the molecular basis of antibiotic resistance using a combination of structural, biophysical and biochemical methods to develop potential drug candidates.
2005-2009	B. Sc. (Honours) Biology & Chemistry, University of New Brunswick, Canada

Other training

2020-ongoing	SheCodes (https://www.shecodes.io/) I have completed an introduction to HTML, CSS and JavaScript (SheCodes Basics Certificate - https://www.shecodes.io/students/434-grishma-v), and anticipate completing the course (SheCodes Pro) by mid-2022 with the skills to build a responsive website (using HTML, CSS, JavaScript and React)

Summary of experience in researching and creating written/digital content

Scientific publications

1) Vadlamani G., *et al*. Crystal structure of *Arabidopsis thaliana* HPPK/DHPS, a bifunctional enzyme and target of the herbicide asulam. (2021) *bioRXiv.* doi: 10.1101/2021.11.10.468163 (also currently under peer review).
2) Payne C.D., Vadlamani G., *et al.* (2021) Solution NMR and racemic crystallography provide insights into a novel structural class of cyclic plant peptides. *RCS Chem. Biol.* 2(6):1682-1691.
3) Haywood J., Vadlamani G. *et al.* (2021) Antibiotic resistance lessons for the herbicide resistance crisis. *Pest Manag Sci.* doi: 10.1002/ps.6357.
4) Bharathwaj M., Webb C.T., Vadlamani G., *et al.* (2021) The carbapenemase BKC-1 from Klebsiella pneumoniae is adapted for translocation by both the Tat and Sec translocons. *mBio* 12(3):e01302-21.

5) Payne C.D., Franke B., Fisher M.F., Hajiaghaalipour F., McAleese C.E., Song A., Eliasson C., Zhang J., Jayasena A., Vadlamani G. *et al.* (2021) A chameleonic macrocyclic peptide with drug delivery applications. *Chem. Sci.* doi: 10.1039/D1SC00692D.
6) Payne C.D., Vadlamani G., *et al.* (2020) Defining the familial fold of the vicilin-buried peptide family. *J. Nat. Prod.* 83(10) 3030–3040.
7) Mangat C.S., Vadlamani G., *et al.* (2019) Molecular basis for the potent inhibition of the emerging carbapenemase VCC-1 by avibactam. *Antimicrob Agents Chemother.* 63(4):e02112-18
8) Josts I., Stubenrauch C.J., Vadlamani G., *et al.* (2017). The structure of a conserved domain of TamB reveals a hydrophobic β taco fold. *Structure*. 25(12):1898-1906
9) Bouquet J., King D.T., Vadlamani G., *et al.* (2017) Selective trihydroxylated azepane inhibitors of NagZ, a glycosidase involved in *Pseudomonas aeruginosa* resistance to β-lactam antibiotics. *Org. Biomol. Chem*. 15(21):4609-4619
10) Vadlamani G., *et al.* (2017) Conformational flexibility of the glycosidase NagZ allows it to bind structurally diverse inhibitors to suppress β-lactam antibiotic resistance. *Protein Sci*. 26(6):1161-1170
11) Hamou-Segarra M., Zamorano L., Vadlamani G., *et al.* (2017) Synergistic activity of fosfomycin, β-lactams and peptidoglycan recycling inhibition against *Pseudomonas aeruginosa*. *J. Antimicrob. Chemother*. 72(2):448-454
12) Santana A.G., Vadlamani G., *et al.* (2016) N-Acetyl glycals are tight-binding and environmentally insensitive inhibitors of hexosaminidases. *Chem. Commun. (Camb)* 52(51):7943-7946
13) Vadlamani G., *et al.* (2015) The β-lactamase gene regulator AmpR is a tetramer that recognizes and binds the D-Ala-D-Ala motif of its repressor UDP-MurNAc-pentapeptide. *J. Biol. Chem.* 290(5):2630-2643
14) Mondon M., Hur S., Vadlamani G., *et al.* (2013) Selective trihydroxyazepane NagZ inhibitors increase sensitivity of *Pseudomonas aeruginosa* to β-lactams. *Chem. Commun. (Camb)* 49:10983-10985

Online resources

- SheCodes Basics project: https://www.shecodes.io/workshops/shecodes-basics-a5348804-efdf-4f64-a43c-00e2350c47b5/projects/607841
- Protein crystal structures deposited in the Protein Data Bank: 4MSS, 4WKM, 5FD0, 5FCZ, 5UTR, 5UTQ, 5UTP, 6MK6, 6MKQ, 7MPY, 7MMY

Experience in education outreach and teaching

Education outreach

2021-present	Tutoring in secondary school STEM subjects, Centre for asylum seekers, refugees and detainees (CARAD), Perth
2021-present	Creating and presenting current molecular biology workshops for primary school children, CSIRO STEM Professionals in Schools program, Perth
2021	Demonstrated molecular biology experiments to public, UWA Open Day
2021	Engaged with local community on soil health and agriculture as a UWA representative, Pingelly Astrofest, WA.
2021	Assisted in providing science workshops to members from ACTIV, a foundation providing disability support services, UWA, Perth

Teaching/Supervision

2018-present	Co-supervision of PhD student (Ms. Natalia Rosas-Bastidas, Lithgow lab)
2016	Invited to give a 2nd year university lecture in microbiology, University of Manitoba, Canada
2016	Supervised and directed a BSc Microbiology summer student's research project
2013-2014	Supervised and directed a BSc Microbiology student's honours research project
2011-2016	Laboratory Teaching Assistant (2nd and 3rd year Undergraduate Microbiology labs), University of Manitoba, Canada

Conference abstracts

1) Vadlamani G. (2018) Investigating the role of periplasmic chaperones on β-lactamase folding. *Lorne Conference on Protein Structure and Function, Lorne, Australia*
2) Vadlamani G. (2016) Structural insights into inhibitors designed to block the glycoside hydrolase NagZ and suppress β-lactam resistance in *Pseudomonas aeruginosa. Canadian Society of Microbiologists (CSM) Annual Symposium, Toronto, Canada* (selected for poster competition)
3) Vadlamani G. (2016) Structural evaluation of selective NagZ-inhibitors with the potential to mitigate AmpC β-lactamase resistance. *2nd annual Biophysical Society of Canada meeting, Winnipeg, Canada*
4) Vadlamani G. (2015) Suppressing AmpC β-lactamase resistance by selective inhibition of the glycoside hydrolase NagZ. *3rd Annual Protein Structure, Function and Malfunction Meeting, Saskatoon, Canada* (awarded 1st place for best student talk)
5) Vadlamani G. (2014) Molecular insight into transcriptional regulation of AmpC β-lactamase. *Canadian Society of Microbiologists (CSM) Annual Symposium, Montréal, Canada* (invited to give a student talk)
6) Vadlamani G. (2013) Suppressing AmpC β-lactamase-mediated resistance: structural basis for inhibition of glycoside hydrolase NagZ by a substituted azepane. *Annual Protein Structure, Function and Malfunction Meeting, Saskatchewan, Canada* (awarded 3rd place for poster)

Distinctions

2015	1st place for best student oral presentation, Protein Structure, Function and Malfunction Conference, Saskatoon
2015	Nominated for best teaching assistant in the Faculty of Science, University of Manitoba
2014	Nominated to give a talk at the Canadian Society of Microbiologists (CSM) Annual Symposium, Montréal
2013	3rd place poster award, Protein Structure, Function and Malfunction Conference, Saskatoon
2012-2013	Roma Zenovea Hawirko Graduate Research Scholarship
2011-2012	Faculty of Graduate Studies Special Award
2011-2013	Faculty of Science Award
2005-2007	Dean's list, University of New Brunswick