

Vinayak Agarwal, PhD

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Atlanta, GA 30332

POSITIONS

Associate Professor	2023–current
Assistant Professor	2017–2023
School of Chemistry and Biochemistry	
School of Biological Sciences	
Affiliate: Ocean Science and Engineering graduate program	
Affiliate: Petit Institute for Bioengineering and Bioscience	
Georgia Institute of Technology	
Postdoctoral Research Scientist	2012–2017
NIH K99 Pathway to Independence Fellow (2016–2017)	
Helen Hay Whitney Foundation Fellow (2014–2016)	
Scripps Institution of Oceanography	
University of California San Diego	

EDUCATION

Doctor of Philosophy, Ph.D.	2007–2012
Biophysics and Computational Biology	
University of Illinois Urbana-Champaign	
Master of Technology, M.Tech.	2002–2007
Biochemical Engineering and Biotechnology	
Indian Institute of Technology, Delhi	
Bachelor of Technology, B.Tech.	2002–2007
Biochemical Engineering and Biotechnology	
Indian Institute of Technology, Delhi	

AWARDS and HONORS

Matt Suffness Young Investigator Award	2024
American Society for Pharmacognsy	
Vasser Woolley Professorship	2024
Georgia Tech, School of Chemistry and Biochemistry	
Camille Dreyfus Teacher Scholar Award	2023
The Camille and Henry Dreyfus Foundation	
NSF CAREER Award	2023
National Science Foundation	

ACS Academic Young Investigator (Division of Organic Chemistry) American Chemical Society	2022
Cottrell Scholar Award Research Corporation for Science Advancement	2021
Blanchard Assistant Professorship Georgia Tech, College of Sciences	2020
Kavli Frontiers in Science Fellow The National Academies of Sciences, Engineering, and Medicine	2019
Sloan Foundation Fellow Alfred P. Sloan Foundation	2018
Class of 1969 Teaching Fellow Georgia Tech	2018
NIH K99/R00 Pathway to Independence Fellow National Institutes of Health	2016
Helen Hay Whitney Foundation Postdoctoral Fellow The Helen Hay Whitney Foundation	2014

POSTDOCTORAL TRAINEES

Dr. Nirmal Saha Ph.D., Centre of Biomedical Research, India	2022–current
Dr. Weimao Zhong Ph.D., Chinese Academy of Sciences	2022–2024
Dr. Shahima Islam Ph.D., University of Texas, Austin	2022–2024
Dr. Hem R. Thapa Ph.D., Texas A&M University	2017–2020
Dr. Armando Losada Ph.D., University of Oviedo	2017–2018

GRADUATE STUDENT TRAINEES

Ramon Xie School of Chemistry and Biochemistry, Georgia Tech B.S., Georgia Institute of Technology	2024–current
Mujeeb A. Wakeel School of Chemistry and Biochemistry, Georgia Tech B.S., Obafemi Awolowo University, Ile-Ife M.S., University of Tennessee, Knoxville	2023–current

Paul J. Branham School of Chemistry and Biochemistry, Georgia Tech B.S., Kennesaw State University	2023–current
Yifan Tang School of Chemistry and Biochemistry, Georgia Tech B.S., Georgia Institute of Technology	2023–current
Vidya School of Chemistry and Biochemistry, Georgia Tech B.S., Indian Institute of Science Education and Research M.S., Indian Institute of Science Education and Research	2022–current
Dongqi Yi School of Chemistry and Biochemistry, Georgia Tech M.S., Northwestern University B.S., Nankai University	2018–2023
Nguyet A. Nguyen School of Chemistry and Biochemistry, Georgia Tech B.S., Vietnam National University	2018–2023
Ipsita Mohanty School of Chemistry and Biochemistry, Georgia Tech M.S., Indian Institute of Technology, Kharagpur B.S., Indian Institute of Technology, Kharagpur	2017–2022

RESEARCH SCIENTISTS

Subhasish Tapadar School of Chemistry and Biochemistry, Georgia Tech Ph.D., Osmania University	2020–2021
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PUBLICATIONS

submitted, 2025

Halogenase-assisted biocatalytic derivatization of aminothiazoles and cephalosporin antibiotics
Branham PJ, Saha N, Oyelere SE, **Agarwal V**

submitted, 2025

Highly conserved biosynthetic gene clusters underlie chalkophore production in marine bacteria
Zhong W, Tang Y, Vidya FNU, Asante E, Kostenko A, Mandelare-Ruiz P, Paul VJ, Aron A, **Agarwal V**

submitted, 2025

The mRNA and protein abundance of the bromoform-synthesizing halogenase in *Asparagopsis taxiformis* matches primary metabolic enzymes as revealed by a multi-omics investigation
Islam S, Lin Z, Hargrave MS, Singh R, Zhou L, Xie R, Smith JS,* Schmidt EW,* **Agarwal V***
co-corresponding authors(*)

73.

Methods Enzymol **2025** *accepted, in press*

Genome mining for the discovery of RiPP halogenases and their biochemical characterization

Saha N, **Agarwal V**

72.

Org Lett **2025** 27:984–8

Transformation-guided genome mining provides access to brominated lanthipeptides

Saha N, Vidya FNU, Luo Y, van der Donk WA, **Agarwal V**

71.

J Am Chem Soc **2024** 146:30009–13

Halogenase-assisted alkyne/aryl bromide Sonogashira coupling for ribosomally synthesized peptides

Saha N, Vidya FNU, Xie R, **Agarwal V**

70.

Org Lett **2024** 26:9378–82

Activity and biocatalytic potential of an indolylamide generating thioesterase

Zhong W, Budimir ZL, Johnson LO, Parkinson EI,* **Agarwal V***

co-corresponding authors(*)

69.

J Phycol **2024** 60:1567–84

The effects of temperature and CO₂ enrichment on the red seaweed *Asparagopsis taxiformis* from southern California with implications for aquaculture

Resetarits H, Dishon G, **Agarwal V**, Smith JE

68.

Biochemistry **2024** 63:2240–4

Gatekeeping activity of collinear ketosynthase domains limits product diversity for engineered type I polyketide synthases

Yi D, Wakeel MA, **Agarwal V**

67.

J Org Chem **2024** 89:12748–52

Discovery and folding dynamics of a fused bicyclic cysteine knot undecapeptide from the marine sponge *Halichondria bowerbanki*

Zhong W, Olugbami J, Rathakrishnan P, Mohanty I, Moore SG, Garg N, Oyelere AK, Turner T, McShan AC,* **Agarwal V***

co-corresponding authors(*)

66.

Bielstein J Org Chem **2024** 20:1635–51

Polymer degrading marine *Microbulbifer* bacteria: an un(der)utilized source of chemical and biocatalytic novelty

Zhong W, **Agarwal V**

65.

Nat Chem Biol **2024** 20:950–9

The power and pitfalls of AlphaFold2 for structure prediction beyond rigid globular proteins

Agarwal V*,* McShan AC*

co-corresponding authors(*)

64.

Nat Commun **2024** 15:1265

Disordered regions in proteusin peptides guide post-translational modification by a flavin-dependent RiPP brominase

Nguyen NA, Vidya FNU, Yennawar NH, Wu H, McShan AC,* **Agarwal V***
co-corresponding authors(*)

63.

Proc Natl Acad Sci USA **2024** 121(11):e2314383121
Short circular peptides in sponge genomes
Lin Z, **Agarwal V,*** Cong Y, Pomponi S, Schmidt EW*
co-corresponding authors(*)

62.

Front Mar Sci **2024** 10:1298518
Coral settlement induction by tetrabromopyrrole is widespread among Caribbean and Atlantic corals and compound specific
Sneed JM, Aylssa D, Margaret MW, Yi D, Moore BS, **Agarwal V**, Paul VJ

61.

J Appl Phycol **2024** 36(1):321–9
The influence of light stress on bromoform synthesis and concentration in the red seaweed *Asparagopsis taxiformis*
Hargrave M, Islam S, **Agarwal V**, Smith JE

60.

J Algal Res **2023** 76:103304
The effect of light intensity, spectrum, and photoperiod on the physiological performance of *Asparagopsis taxiformis* tetrasporophytes
Dishon G, Resetartis, HM, Tsai B, Jones AL, **Agarwal V**, Smith JE

59.

J Nat Prod **2023** 86(10):2414–20
Pseudobulbiferamides: plasmid-encoded ureidopeptides with biosynthetic gene clusters shared among marine bacteria of different genera
Zhong W, Aiosa NM, Duetsch JM, Garg N, **Agarwal V**

58.

Biochemistry **2023**, 62(12):1838–43
A leader-guided substrate tolerant RiPP brominase allows Suzuki-Miyaura cross-coupling reactions for peptides and proteins
Nguyen NA, **Agarwal V**

57.

ChemBioChem **2023** e202300190
Discovery and biosynthesis of ureidopeptide natural products macrocyclized via indole *N*-acylation produced by marine *Microbulbifer* spp. bacteria
Zhong W, Deutsch JM, Yi D, Abrahamse NH, Mohanty I, Moore SG, McShan AC, Garg N, **Agarwal V**

56.

ACS Chem Biol **2023** 18(5):1060–5
Biosynthesis-guided discovery and engineering of pyrrolic alpha-pyrone natural products from type I polyketide synthases
Yi D, **Agarwal V**

55.

Mar Drugs **2023** 21(1), 53
Limited metabolomic overlap between commensal bacteria and marine sponge holobionts revealed by large

scale culturing and mass spectrometry-based metabolomics: an undergraduate laboratory pedagogical effort at Georgia Tech

Deutsch JM, Green MP, Akavaram P, Davis AC, Diskalkar SS, Du Plessis IA, Fallon HA, Grason EM, Kauf EG, Kim ZM, Miller II JR, Neal AL, Riera T, Stroeve S-E, Tran J, Tran V, Coronado AV, Coronado VV, Wall BT, Yang C, Mohanty I, Abrahamse NH, Freeman CJ, Easson CG, Fiore CL, Onstine AE, Djeddar N, Biliya S, Bryksin AV, Garg N,* **Agarwal V***

*co-corresponding authors

54.

ACS Chem Biol **2022** 17(6):1351–6

A non-functional halogenase masquerades as an aromatizing dehydratase in biosynthesis of pyrrolic polyketides by type I polyketide synthases

Yi D, Niroula D, Gutekunst WR, Loper J, Yan Q, **Agarwal V**

53.

ACS Chem Biol **2022** 17(6):1577–85

A cryptic biosynthetic gene cluster from a methanotrophic bacterium potentiates discovery of a substrate promiscuous proteusin cyclodehydratase

Nguyen NA, Cong Y, Hurrell RC, Arias N, Garg N, Puri AW, Schmidt EW, **Agarwal V**

52.

Biochemistry **2022** 61(3):206–15

Resolving the hydride transfer pathway in oxidative conversion of proline to pyrrole

Acharya A, Yi D, Pavlova A, **Agarwal V**,* Gumbart JC*

*co-corresponding authors

51.

Chemosphere **2022** 286:131620

Hepatic demethylation of methoxy-bromodiphenyl ethers and conjugation of the resulting hydroxy-bromodiphenyl ethers in a marine fish, the red snapper, *Lutjanus campechanus*, and a freshwater fish, the channel catfish, *Ictalurus punctatus*

Sultan A, Hindrichs C, Weaver CJ, Cisneros KV, Faux LR, **Agarwal V**, James MO

50.

J Am Chem Soc **2021** 143(20):7617–22

Gatekeeping ketosynthases dictate initiation of assembly line biosynthesis of pyrrolic natural products

Yi D, Acharya A, Gumbart JC, Gutekunst WR, **Agarwal V**

49.

J Am Chem Soc **2021** 143(27):10221–31

An obligate peptidyl brominase underlies the discovery of highly distributed biosynthetic gene clusters in marine sponge microbiomes

Nguyen NA, Lin Z, Mohanty I, Garg N, Schmidt EW, **Agarwal V**

48.

ACS Omega **2021** 6(48):33200–5

Stereochemical assignment and abundance of non-proteinogenic amino acid homoarginine in marine sponges

Mohanty I, Moore SG, Biggs JS, Freeman CJ, Gaul DA, Garg N, **Agarwal V**

47.

ChemBioChem **2021** 22(16):2614–8

Enzymatic synthesis assisted discovery of proline-rich macrocyclic peptides in marine sponges

Mohanty I, Nguyen NA, Moore SG, Biggs JS, Gaul DA, Garg N, **Agarwal V**

46.
J Phycol **2021** 57(4):1131–9
Obligate brominating enzymes underlie bromoform production by marine cyanobacteria
Thapa HR, **Agarwal V**
45.
mSystems **2021** 6(2):e01387-20
Presence of bromotyrosine alkaloids in marine sponges is independent of metabolomic and microbiome architectures
Mohanty I, Tapadar S, Moore SG, Biggs JS, Freeman CJ, Gaul DA, Garg N,* **Agarwal V***
*co-corresponding authors
44.
J Biol Chem **2020** 295(46):15438–53
A blueprint for academic laboratories to produce SARS-CoV-2 quantitative RT-PCR test kits
Mascuch SJ, Fakhretaha-Aval S, Bowman JC, Ma MTH, Thomas G, Bommarius B, Ito C, Zhao L, Newnam GP, Matange KR, Thapa HR, Barlow B, Donegan RK, Nguyen NA, Saccuzzo EG, Obianyor CT, Karunakaran SC, Pollet P, Rothschild-Mancinelli B, Mestre-Fos S, Guth-Metzler R, Bryksin AV, Petrov AS, Hazell M, Ibberson CB, Penev PI, Mannino RG, Lam WA, Garcia AJ, Kubanek JM, **Agarwal V**, Hud NV, Glass JB, Williams LD, Lieberman RL
43.
ACS Chem Biol **2020** 15(8):2185–94
Precursor-guided mining of marine sponge metabolomes lends insight into biosynthesis of pyrrole-imidazole alkaloids
Mohanty I, Moore SG, Yi D, Biggs JS, Gaul DA, Garg N, **Agarwal V**
42.
ACS Chem Biol **2020** 15(6):1662–70
Genetic and biochemical reconstitution of bromoform biosynthesis in *Asparagopsis* lends insights into seaweed ROS enzymology
Thapa HR, Lin Z, Yi D, Smith JE, Schmidt EW, **Agarwal V**
41.
Microbiome **2020** 8(1):97
A genomic view of trophic and metabolic diversity in clade-specific *Lamellodysidea* sponge microbiomes
Podell S, Blanton JM, Oliver A, Schorn MA, **Agarwal V**, Biggs JS, Moore BS, Allen EE
40.
Mar Drugs **2020** 18(2). E124
Multi-omic profiling of *Melophlus* sponges reveals diverse metabolomic and microbiome architectures that are non-overlapping with ecological neighbors
Mohanty I, Podell S, Biggs JS, Garg N, Allen EE, **Agarwal V**
39.
Biochemistry **2019** 58(7):918–29
Insights into thiotemplated pyrrole biosynthesis gained from the crystal structure of flavin-dependent oxidase in complex with carrier protein
Thapa HR, Robbins JM, Moore BS, **Agarwal V**
38.
J Am Soc Mass Spectrom **2019** 30(8):1373–84
Mass spectrometry-based integration and expansion of the chemical diversity harbored within a marine sponge

Cantrell TP, Freeman CJ, Paul VJ, **Agarwal V**,* Garg N*

*co-corresponding

37.

Integr Comp Biol **2019** 59(4):765–76

Chemical ecology of marine sponges: new opportunities through ”-omics”

Paul VJ, Freeman CJ, **Agarwal V**

36.

Chemosphere **2019** 226:132–9

Sulfonation and glucuronidation of hydroxylated bromodiphenyl ethers in human liver

Cisneros KV, **Agarwal V**, James MO

35.

MBio **2019** 10(3)

Comparative genomics of cyanobacterial symbionts reveals distinct, specialized metabolism in tropical Dysideidae sponges

Schorn MA, Jordan PA, Podell S, Blanton JM, **Agarwal V**, Biggs JS, Allen EE, Moore BS

34.

Environ Microbiol **2019** 21(5):1575–85

Diversity and distribution of the *bmp* gene cluster and its polybrominated products in the genus *Pseudoalteromonas*

Busch J, **Agarwal V**, Schorn M, Machado H, Moore BS, Rouse GW, Gram L, Jensen PR

33.

ISME J **2019** 13(2):468–81

Pangenomic comparison of globally distributed Poribacteria associated with sponge hosts and marine particles

Podell S, Blanton JM, Neu A, **Agarwal V**, Biggs JS, Moore BS, Allen EE

32.

Methods Enzymol **2018** 604:333–66

Chemoenzymatic synthesis of starting materials and characterization of halogenases requiring acyl carrier protein-tethered substrates

Thapa HR, Lail AJ, Garg N, **Agarwal V**

31.

Methods Enzymol **2018** 604:499–521

Assaying oxidative coupling activity of CYP450 enzymes

Agarwal V

30.

Environ Sci Technol **2018** 52(9):5469–78

Organohalogens naturally biosynthesized in marine environments and produced as disinfection byproducts alter sarco/endoplasmic reticulum Ca²⁺ dynamics

Zheng J, McKinnie SMK, El Gamal A, Feng W, Dong Y, **Agarwal V**, Fenical W, Kumar A, Cao Z, Moore BS, Pessah IN

29.

Nat Chem Biol **2017** 13(5):537–43

Metagenomic discovery of polybrominated diphenyl ether biosynthesis by marine sponges

Agarwal V, Blanton JM, Podell S, Taton A, Schorn MA, Busch J, Lin Z, Schmidt EW, Jensen PR, Paul VJ, Biggs JS, Golden JW, Allen EE, Moore BS

28.
Chem Rev **2017** 117(8):5619–74
Enzymatic halogenation and dehalogenation reactions: pervasive and mechanistically diverse
Agarwal V, Miles ZD, Winter JM, Eustáquio AS, El Gamal AA, Moore BS
27.
Nat Chem Biol **2017** 13(6):668–74
The pimeloyl-CoA synthetase BioW defines a new fold for adenylate-forming enzymes
Estrada P, Manandhar M, Dong SH, Deveryshetty J, **Agarwal V**, Cronan JE, Nair SK
26.
J Am Chem Soc **2016** 138(40):13167–70
Enzymatic reductive dehalogenation controls the biosynthesis of marine bacterial pyrroles
El Gamal A, **Agarwal V**, Rahman I, Moore BS
25.
Nat Biotechnol **2016** 34(8):828–37
Sharing and community curation of mass spectrometry data with Global Natural Products Social Molecular Networking
Wang M et al.
24.
Proc Natl Acad Sci U S A **2016** 113(14):3797–802
Biosynthesis of coral settlement cue tetrabromopyrrole in marine bacteria by a uniquely adapted brominase-thioesterase enzyme pair
El Gamal A, **Agarwal V**, Diethelm S, Rahman I, Schorn MA, Sneed JM, Louie GV, Whalen KE, Mincer TJ, Noel JP, Paul VJ, Moore BS
23.
Curr Opin Chem Biol **2016** 31:31–9
Unusual flavoenzyme catalysis in marine bacteria
Teufel R, **Agarwal V**, Moore BS
22.
Proc Natl Acad Sci U S A **2016** 113(49):14037–42
Molecular basis for the broad substrate selectivity of a peptide prenyltransferase
Hao Y, Pierce E, Roe D, Morita M, McIntosh JA, **Agarwal V**, Cheatham TE 3rd, Schmidt EW, Nair SK
21.
Org Lett **2015** 17(18):4452–5
Chemoenzymatic synthesis of acyl coenzyme A substrates enables *in situ* labeling of small molecules and proteins
Agarwal V, Diethelm S, Ray L, Garg N, Awakawa T, Dorrestein PC, Moore BS
20.
Environ Sci Technol **2015** 49(3):1339–46
Complexity of naturally produced polybrominated diphenyl ethers revealed via mass spectrometry
Agarwal V, Li J, Rahman I, Borgen M, Aluwihare LI, Biggs JS, Paul VJ, Moore BS
19.
Proc Natl Acad Sci U S A **2014** 111(34):12278–9
Fungal polyketide engineering comes of age
Fungal polyketide engineering comes of age

Agarwal V, Moore BS

18.

ACS Chem Biol **2014** 9(9):1980–4

Enzymatic synthesis of polybrominated dioxins from the marine environment

Agarwal V, Moore BS

17.

Nat Chem Biol **2014** 10(8):640–7

Biosynthesis of polybrominated aromatic organic compounds by marine bacteria

Agarwal V, El Gamal AA, Yamanaka K, Poth D, Kersten RD, Schorn M, Allen EE, Moore BS

16.

J Biol Chem **2014** 289(50):34965–77

Structural and biochemical basis for mannan utilization by *Caldanaerobius polysaccharolyticus* strain ATCC BAA-17

Chekan JR, Kwon IH, **Agarwal V**, Dodd D, Revindran V, Mackie RI, Cann I, Nair SK

15.

MedChemComm **2014** 5:1567–70

Exploring the substrate promiscuity of an antibiotic inactivating enzyme

Agarwal V, Vondenhoff G, Gadakh B, Severinov K, van Aerschot A, Nair SK

14.

J Bacteriol **2014** 196(19):3377–85

The RimL transacetylase provides resistance to translation inhibitor microcin C

Kazakov T, Kuznedelov K, Semenova E, Mukhamedyarov D, Datsenko KA, Metlitskaya A, Vondenhoff GH, Tikhonov A, **Agarwal V**, Nair S, Van Aerschot A, Severinov K

13.

Chem Biol **2014** 21(1):125–35

Structure and function of phosphonoacetaldehyde dehydrogenase: the missing link in phosphonoacetate formation

Agarwal V, Peck SC, Chen JH, Borisova SA, Chekan JR, van der Donk WA, Nair SK

12.

Proc Natl Acad Sci U S A **2013** 110(32):12954–9

Structural and functional insight into an unexpectedly selective N-methyltransferase involved in plantazolicin biosynthesis

Lee J, Hao Y, Blair PM, Melby JO, **Agarwal V**, Burkhardt BJ, Nair SK, Mitchell DA

11.

Lab Chip **2013** 13(16):3183–7

A microfluidic approach for protein structure determination at room temperature via on-chip anomalous diffraction

Perry SL, Guha S, Pawate AS, Bhaskarla A, **Agarwal V**, Nair SK, Kenis PJ

10.

MedChemComm **2012** 3:887–98

Aminoacyl tRNA synthetases as targets for antibiotic development

Agarwal V, Nair SK

9.

Chem Biol **2012** 19(11):1411–22

Structures of cyanobactin maturation enzymes define a family of transamidating proteases
Agarwal V, Pierce E, McIntosh J, Schmidt EW, Nair SK

8.
Proc Natl Acad Sci U S A **2012** 109(43):17406–11
Structure of the enzyme-acyl carrier protein (ACP) substrate gatekeeper complex required for biotin synthesis

Agarwal V, Lin S, Lukk T, Nair SK, Cronan JE

7.
J Biol Chem **2012** 287(42):34946–60
Biochemical and structural insights into xylan utilization by the thermophilic bacterium *Caldanaerobius polysaccharolyticus*

Han Y, **Agarwal V**, Dodd D, Kim J, Bae B, Mackie RI, Nair SK, Cann IK

6.
Proc Natl Acad Sci U S A **2012** 109(16):6331–6
Mutations that stabilize the open state of the *Erwinia chrisanthemi* ligand-gated ion channel fail to change the conformation of the pore domain in crystals

Gonzalez-Gutierrez G, Lukk T, **Agarwal V**, Papke D, Nair SK, Grosman C

5.
Proc Natl Acad Sci U S A **2012** 109(12):4425–30
Structure and function of a serine carboxypeptidase adapted for degradation of the protein synthesis antibiotic microcin C7

Agarwal V, Tikhonov A, Metlitskaya A, Severinov K, Nair SK

4.
Chem Biol **2011** 18(10):1230–40
Structural and mechanistic insights into C-P bond hydrolysis by phosphonoacetate hydrolase

Agarwal V, Borisova SA, Metcalf WW, van der Donk WA, Nair SK

3.
J Biol Chem **2011** 286(24):21295–303
Structural basis for microcin C7 inactivation by the MccE acetyltransferase

Agarwal V, Metlitskaya A, Severinov K, Nair SK

2.
J Am Chem Soc **2010** 132(44):15499–501
Circular logic: nonribosomal peptide-like macrocyclization with a ribosomal peptide catalyst

McIntosh JA, Robertson CR, **Agarwal V**, Nair SK, Bulaj GW, Schmidt EW

1.
J Biol Chem **2010** 285(45):34665–76
Mutational insights into the roles of amino acid residues in ligand binding for two closely related family 16 carbohydrate binding modules

Su X, **Agarwal V**, Dodd D, Bae B, Mackie RI, Nair SK, Cann IK

CURRENT GRANT SUPPORT

NSF (MPS-CHE-CLP)
CAREER: Peptidic natural products in research and education
Budget awarded: 700,000

2023–2028

Direct costs: 493,432
Effort: 0.5 summer months
Role: PI

NIH (NIGMS) 2021–2026
R35GM142882
Halogenation biochemistry in human and environmental health
Budget awarded: 1,862,034
Direct costs: 1,250,000
Effort: 1.5 summer months
Role: PI

Camille and Henry Dreyfus Foundation Teacher Scholar Award 2023–2028
Marine biosynthetic chemistry in research and education
Budget awarded: 100,000
Direct costs: 100,000
Effort: none
Role: PI

COMPLETED GRANT SUPPORT

Smithsonian Institute 2022–2024
Evaluation of coral settlement inducing chemical cues
Budget awarded: 40,000
Direct costs: 34,783
Effort: 0.1 summer months
Role: PI

NSF (BIO-MCB-CDF) 2021–2024
2129490
Collaborative Research: bromoform production and ROS response to stress in seaweeds
Budget awarded: 748,357
Direct costs: 527,784
Effort: 1.0 summer months
Role: PI
co-PI: Schmidt (U. Utah); Smith (UC San Diego)

NSF (MPS-CHE-CLP) 2020–2023
2004030
Collaborative research: pyrrole biosynthesis and participation in natural product biosynthetic schemes
Budget awarded: 438,000
Direct costs: 308,733 (292,309 Agarwal)
Effort: 0.5 summer months
Role: PI
co-PI: Gumbart (Goergia Tech); Schmidt (U. Utah)

Blanchard Assistant Professorship 2020–2022
Natural production of volatile environmental pollutants in the oceans—the who, the how, and the why
Budget awarded: 70,000
Direct costs: 70,000
Effort: none
Role: PI

Petit Institute Seed Grant Marine bromine bleach bomb NET to fight <i>Pseudomonas aeruginosa</i> Budget awarded: 100,000 Direct costs: 100,000 (50,000 Agarwal) Effort: none Role: PI. co-PI: Takayama (Georgia Tech)	2019–2021
Alfred P. Sloan Foundation Bromoform production in the oceans: sources and mechanisms Budget awarded: 65,000 Direct costs: 65,000 Effort: none Role: PI	2018–2021
NIH (NIEHS) R00ES026620 Understanding natural production of polybrominated toxins and pollutants Budget awarded: 750,000 Direct costs: 596,666 Effort: 1.2 summer months Role: PI	2017–2021
NIH (NIEHS) K99ES026620 Understanding natural production of polybrominated toxins and pollutants Budget awarded: 86,400 Direct costs: 80,000 Effort: 12.0 months Role: PI	2016–2017

TEACHING, (enrollment; CIOS score†) —————

†Course-Instructor Opinion Survey (CIOS) is a summative anonymized student survey. Scores range from 1.0 to 5.0, higher being better.

CHEM 4512: Biochemistry II (44; 4.7)	Fall, 2017
CHEM 6502: Biochemistry II (3; 4.5)	Fall, 2017
CHEM 4512: Biochemistry II (70; 4.8)	Spring, 2019
BIOL 4590: Biology Project Lab (11; 4.9)	Fall, 2019
CHEM 6501: Biochemistry I (17; 5.0)	Fall, 2020
CHEM 4512: Biochemistry II (85; 5.0)	Spring, 2021
CHEM 6502: Biochemistry II (3; 5.0)	Spring, 2021
CHEM 6501: Biochemistry I (15; 5.0)	Fall, 2021
BIOL 4590: Biology Project Lab (18; 5.0)	Fall, 2022
CHEM 6571: Enzymology and Metabolism (18; 4.8)	Spring, 2023

CHEM 6502: Biochemistry II (6; 5.0)	Fall, 2023
CHEM 3522: Biochemistry II (102; 4.9)	Spring 2024
BIOL 4590: Biology Project Lab (20; 4.5)	Fall 2024
CHEM 6571: Enzymology and Metabolism (18; <i>ongoing</i>)	Spring, 2025

SELECTED TALKS

Marine Natural Products Gordon Research Conference (GRC)	2024
Enzyme, Coenzymes, and Metabolic Pathways Gordon Research Conference (GRC)	2024
Southeastern Regional Meeting of the American Chemical Society (SERMACS)	2024
Princeton University	2024
Welch Emerging Leaders in Chemistry, UT Austin	2023
Canadian Society of Chemistry (CSC) Annual Meeting	2023
Southeastern Regional Meeting of the American Chemical Society (SERMACS)	2022
American Chemical Society (ACS), Fall meeting	2022
Society for Industrial Microbiology and Biotechnology (SIMB), Annual meeting	2022
University of Utah	2022
University of Georgia	2022
University of Illinois, Urbana-Champaign	2022
University of Texas, Austin	2022
North Carolina State University	2022
University of Florida, Gainesville	2022
Harbor Branch Oceanographic Institute	2022
Purdue University	2022
University of North Carolina, Greensboro	2022
Rutgers, The State University of New Jersey	2022
University of North Carolina, Chapel Hill	2022
University of Massachusetts, Dartmouth	2021
Marine Natural Products Gordon Research Conference	2020

University of West Florida	2019
Kavli Frontiers of Science; The National Academies of Sciences, Engineering, and Medicine	2019
ASBMB Annual Meeting	2018
The Southeastern Regional Meeting of the ACS (SERMACS)	2018
Natural Product Affinity Seminar Series; UC San Diego	2017
International Workshop on Cyanobacterial Natural Products; Sau Paulo, Brazil	2016
Young Microbiologists Symposium; John Innes Centre (UK)	2015
Helen Hay Whitney Foundation Annual Meeting	2015
12th International Symposium on Persistent and Toxic Substances; UC Riverside	2015
Pacificchem 2015	2015
12th International Symposium on CYPP450 Biodiversity and Biotechnology; Kyoto, Japan	2014
Marine Natural Product Gordon Research Conference	2014