

Wendy K. Strangman, Ph.D.

Position Title: Assistant Professor, UNCW Department of Chemistry and Biochemistry

A. Academic Preparation

6/14/2002 B.Sc. Biochemistry and Cell Biology, University of California San Diego
12/15/2007 Ph.D. Oceanography, Scripps Institution of Oceanography, UCSD

B. Positions and Honors

Professional Appointments

2007-2010 – Postdoctoral Fellow – University of British Columbia, Earth and Ocean Sciences

2010-2019 - Research Associate Professor – Center for Marine Science, UNCW

2010-2019 – Group Leader – (Chemical and Molecular Diversity Group) MARBIONC (Marine Biotechnology in North Carolina) Program

2018-2019 – Adjunct Faculty – UNCW Chemistry and Biochemistry Department

Honors and Awards

2004-2007 NIH Training Program in Marine Biomedicine

2006 AAAAI Strategic Training in Asthma Research (STAR) Award Recipient

Professional Memberships and Service

2006 - Present Member of the American Chemical Society

2006 - Present Member of the American Society of Pharmacognosy

2009 – Present Contributing Reviewer for the Journal of Natural Products, Journal of Phytochemistry, Tetrahedron Letters, Harmful Algae, Toxicon, and Microorganisms

2016-2018 - Member of the UNCW, CMS Faculty Advisory Committee

2019 – Present: UNCW CMS Marine Council Space, Postdoctoral, and Personnel subcommittees; CMS Spectrometry Core Facility Administrator

C. Student Mentoring at UNCW

Undergraduate Advisor: DIS: Leah Palian, Sarah Barr, Avery Loy, T. Patrick Faragher
Honors: Kylie Wright, Bradley Hlebak

Master's Thesis Advisor: Katie Clements

Undergraduate Honors Thesis Committee: Sarah Gymburch, Matthew Anttila, Blair Byrd, Rachel Davey, Christina Makris, Sarah Barr

Masters Thesis Committee: Larria Birkenfeld, Amy Barbera, Matthew Anttila, Megan Cheney, Michael Recchia, Michela Montgomery, Liam O'Neil, Charles Johnson, Kylie Morin

PhD Thesis Committee: Lauren Olinger (Pawlik Advisor)
Amy Grogan (Cahoon Advisor)

D. Peer-Reviewed Publications (17 – UNCW student authors underlined)

Identification of portimine B, a new cell permeable spiroimine that induces apoptosis in oral squamous cell carcinoma. Fribley, A.M., Xi, Y, Makris, C., Alves-de-Souza, C. York, R., Tomas, C., Wright, J.L.C., **Strangman, W.K.** *ACS Med. Chem. Lett.* 2019, 10, 175-179.

- The biosynthesis of ¹⁵N-labeled microcystins and the comparative MS/MS fragmentation of natural abundance and their ¹⁵N-labeled congeners using LC-MS/MS. Stewart, A.K., **Strangman W.K.**, Percy, A., Wright, J.L.C. *Toxicon* 2018,144, 91-102.
- Identification of the new chymotrypsin inhibitor micropeptin 996 by metabolomics-guided analysis. **Strangman W.K.**, Stewart, A.K., Herring, M.C., Wright, J.L.C. *Tet. Lett.* 2018, 59, 934-937.
- Sulfated diesters of okadaic acid and DTX-1: Self-protective precursors of diarrhetic shellfish poisoning (DSP) toxins. Hu, T.; LeBlanc, P.; Burton, I.W.; Walter, J.A.; McCarron, P.; Melanson, J.E.; **Strangman, W.K.**; Wright, J.L.C. *Harmful Algae* 2017, 63, 85-93.
- (5S)-5-[(4aR,8aS,9E,11S,13R,14S,16R,17R,19S)-11,19-Dihydroxy-8,10,13,16-tetramethyl-18-methylidene-3,4,5,6,8a,11,12,13,14,15,16,17,18,19,20,21-hexadecahydro-2H-14,17-epoxybenzo[2,3]cyclohexadeca[1,2-b]pyridine-7-yl]-3-methylfuran-2(5H)-one (12-Methylgymnodimine B). **Strangman, W.K.**, Anttila, M., Tomas, C., Wright, J.L.C. *Molbank*, 2016, doi:[10.3390/M896](https://doi.org/10.3390/M896).
- Microginins 680, 646, and 612 - New Chlorinated Ahoia-Containing Peptides from a Strain of Cultured *Microcystis aeruginosa*. **Strangman, W.K.**, Wright, J.L.C. *Tet. Lett.* 2016, 57: 1801-1803.
- Biosynthetic Studies of 13-Desmethylspirolide C Produced by *Alexandrium ostenfeldii* (= *A. peruvianum*): Rationalization of the Biosynthetic Pathway Following Incorporation of ¹³C-Labeled Methionine and Application of the Odd–Even Rule of Methylation. Anttila, M., **Strangman, W.**, York, R., Tomas, C., Wright, J.L.C. *J. Nat. Prod.* 2016, 79, 484-489.
- 7-Deoxy-desulfo-cylindrospermopsin and 7-deoxy-desulfo-12-acetylcylindrospermopsin: Two new cylindrospermopsin analogs isolated from a Thai strain of *Cylindrospermopsis raciborskii*. Wimmer, K.M., **Strangman, W.K.**, Wright, J.L.C. *Harmful Algae* 2014, 37, 203-206.
- Microcystins and two new micropeptin cyanopeptides produced by unprecedented *Microcystis aeruginosa* blooms in North Carolina's Cape Fear River. Isaacs, J.D., **Strangman, W.K.**, Barbera, A.E., Mallin, M.A., McIver, M.R., Wright, J.L.C. *Harmful Algae* 2014, 31, 82–86.
- Identification of Micromonolactam, a New Polyene Macrocyclic Lactam from Two Marine *Micromonospora* Strains Using Chemical and Molecular Methods: Clarification of the Biosynthetic Pathway from a Glutamate Starter Unit. E. J. Skellam, Stewart, A.K.; **Strangman, W.**; Wright, J. L. C. *J. Antibiot.*, 2013, 66: 431-441.
- Toxic *Alexandrium peruvianum* (Balech and de Mendiola) Balech and Tangen in Narragansett Bay, Rhode Island (USA) Borkman, DG, Smayda, TG; Tomas, CR; York, R; **Strangman, WK**; Wright JLC; *Harmful Algae*; 2012, 19, 92-100.
- Methicillin-resistant *Staphylococcus aureus* (MRSA) pyruvate kinase as a target for bis-indole alkaloids with antibacterial activities. Zoraghi, R.; Worrall, L.; See, R.H.; **Strangman, W.K.**; Popplewell, W.L.; Gong, H.; Samaai, T.; Swayze, R.D.; Kaur, S.; Vuckovic, M.; Finlay, B.; Brunham, R.C.; McMaster, W.R.; Michael T. Davies-Coleman, M.T.; Strynadka, N.C.; Andersen, R.J.; Reiner, N. *J. Biol. Chem.* 2011; 286: 44716–44725. PMID: PMC 3248012
- Synthesis of Phosphatidylinositol 3-Kinase (PI3K) Inhibitory Analogues of the Sponge Meroterpenoid Liphagal. Pereira, A R.; **Strangman, W.**; Marion, F.; Feldberg, L.; Roll, D.; Mallon,R.; Hollander, I.; Andersen. R.J. *J. Med. Chem.*; 2010; 8523–8533.

Potent Inhibitors of Pro-Inflammatory Cytokine Production Isolated From a Marine Bacterium
Strangman, W.; Kwon, H.C.; Jensen, P.; Broide, D.; Fenical, W. *J. Med. Chem.*; 2009;
52(8):2317-27. PMID: PMC 2735501.

Anti-Siglec-F antibody inhibits oral allergen induced intestinal eosinophilic inflammation in a mouse model Song, D.J.; Cho, J.Y.; Miller, M.A.; **Strangman, W.K.**; Zhang, M.; Varki, A.; Broide, D. *Clin. Immunol.*; 2009 131:157-169. PMID: PMC 2683248.

Thalassospiramides A and B, Immunosuppressive Peptides from the Marine Bacterium
Thalassospira sp. Oh, D.C., **Strangman W.**, Kauffman, C., Jensen, PR, Fenical, W., *Org. Lett.*; 2007; 9(8) pp 1525 – 1528.

New Anticancer Drugs from Cultured and Collected Marine Organisms Fenical, W.; Jensen, P.R.; Kauffman, C.; Mayhead, S.L.; Faulkner, J.D.; Sincich, C.; Rao, R.M.; Kantorowski, E.J.; West, L.M.; **Strangman, W.K.**; Shimizu, Y.; Li, B.; Thammana, S.; Drainville, K.; Davies-Coleman, M.T.; Kramer, R.A.; Fairchild, C.R.; Rose, W.C.; Wild, R.C.; Vite, G.D.; Peterson, R.W. *Pharmaceutical Biology*, 41,S1, 6-14

E. Book Chapters:

Emerging therapeutic potential of marine dinoflagellate natural products. **Strangman, W.K., Anttila, M.,** Wright, J.L.C. In Blue Biotechnology: Production and Use of Marine Molecules, La Barre, S. and Bates S (Eds.) Wiley, Weinheim. 2018

“HTI-286 (Taltobulin), A Synthetic Analog of the Antimitotic Natural Product Hemiasterlin.” RJ Andersen, DE Williams, **WK Strangman**, and M Roberge. In Anticancer Agents from Natural Products, Second Edition 2011 Taylor & Francis Group, LLC

F. International Patent:

WO2016023106A1. Bis-indole alkaloids for use in the treatment of infections. (2015) Inventors: Raymond J. Andersen, Neil E. Reiner, Roya Zoraghi, Wendy K. Strangman, Tina Bott.

G. Recent National/International Meeting Oral Presentations: (UNCW student co-authors underlined)

Marine Drug Discovery: From Sponges and Deep Sea Mud to Therapeutic Leads. Strangman, W. K. 2019, Invited *Keynote* Speaker at the China Marine Economy Expo, Shenzhen, China.

Toxins and Treasures from Harmful Algae. Strangman, W.K. 2019 Waters’ Users meeting, American Society for Mass Spectrometry, Atlanta, GA

Untargeted metabolomics-based analysis of HAB-forming dinoflagellate cultures. Alves-de-Souza, C., Wingert, C., York, R., Tomas, C., Wright, J.L.C, **Strangman, W.K.** 2018 International Conference on Harmful Algae, Nantes, France

What are we missing? Metabolomics, toxin analysis, and new compound discovery from marine and freshwater HAB species. Alves-de-Souza, C., Recchia, M., Stewart, A.K., Wingert, C., York, R., Tomas, C., Wright, J.L.C, **Strangman, W.K.**, 2018 **Invited speaker** at the North American Chemical Residue Workshop (NACRW), Naples, FL

Untargeted metabolomics of spiroimine toxin producing dinoflagellates and discovery of the potent cytotoxin portimine B. **Strangman, W.S.**, Fribley, A., Xi, Y., Stewart, A.K., Makris, C., York, R., Alves-de-Souza, C., Tomas, C., Wright, J.L.C. 2017 9th US Symposium on Harmful Algae, Baltimore, MD

Microcystins and Beyond: Untargeted UPLC-ToF-MS metabolomics and ¹⁵N labeling in cyanobacterial harmful algal bloom (CHAB) research. **Strangman, W.S.**, 2017. **Invited speaker** to the Canadian Trace Organics Workshop, Milton, Ontario, Canada.

Emerging targets of UPLC-ToF-MS metabolomics and ¹⁵N labeling in cyanobacterial harmful algal bloom research: Microcystins and Beyond. **Strangman, W.S.**, Stewart, A.K., Wright, J.L.C. 2017, **Invited speaker** at the American Chemical Society's National Meeting, San Francisco, CA.

H. Research Support

Current Support

- 1) NIEHS STTR (PI = McCall, UNCW CHHS, Co-PI = Strangman) 2019-Present \$412,000
Development of user-friendly fluorescence-based assays for marine toxins
- 2) UNCW CMS Pilot Project (PI = Strangman, UNCW) 1-15-2019 – present \$12,000
Are microplastics an environmental vector for Harmful Algal Bloom Toxins: This funds student support and supplies
- 3) UNCW OIC (PI= Strangman, UNCW) 1-10-2019 – present \$15,000
The purpose of this funding is to provide supplies and student support to develop lead compounds discovered from cultured algae.
- 4) UNCW Cahill Award (PIs Strangman and Julia Buck 12-2019 – present \$12,000
“That’s disgusting! Chemical ecology-based drug discovery from marine parasite-associated microbes

Pending Support:

- 1) NIH R21 (UNCW Subcontract PI = Strangman 1 month summer per year) 07/01/2020-06/30/2022 Inhibition of encephalitic alphaviruses using bioactive natural compounds isolated from marine microorganisms \$450,000 total, UNCW = \$51,335

Recent Support:

NOAA URH35-040130 (Baden, Pomponi PIs) 07/1/09- 6/30/2017

Role: co-Investigator

Title: CIOERT: Cooperative Institute for Ocean Exploration, Research and Technology

Chemical ecology of the oceans and discovery new natural product resources from cultured marine microorganisms.

UNCW Marine Science Pilot Project W. Strangman – PI 02/2016- 02/2017

Title: Chemical Investigations of Re-occurring Cyanobacterial Blooms in Southeastern North Carolina

Development of annotated secondary metabolite profiles of cultured freshwater cyanobacteria and to use this data to efficiently investigate cyanobacterial bloom events in Southeastern North Carolina