

BIOGRAPHICAL SKETCH

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NAME Bradley S. Moore		POSITION TITLE Professor		
eRA COMMONS USER NAME (credential, e.g., agency login) bsmoore				
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
University of Hawaii		B.S.	1988	Chemistry
University of Washington		Ph.D.	1994	Bioorganic Chemistry
University of Zurich		Ph.D.	1995	Bioorganic Chemistry

Personal Statement

My scientific interests focus on chemically exploring and biosynthetically exploiting marine bacterial natural products as drug leads. Our research laboratory has contributed to the rational chemoenzymatic synthesis and genetic engineering of designer molecules through the discovery and detailed characterization of novel biosynthetic enzymes and their encoding genes. We further employ a genomics-guided discovery approach that has resulted in the rational discovery of new chemical entities. The Moore group at UCSD-SIO presently consists of 6 graduate students, 10 postdocs, a project scientist and several visiting scientists from chemistry, biochemistry, microbiology and molecular biology backgrounds to create a stimulating and diverse work group able to successfully spearhead multidisciplinary research projects.

Positions and Honors

Positions and Employment

1989	Research Associate, University of Hawaii, Hilo, HI
1990-1994	Graduate Teaching/Research Assistant, University of Washington, Seattle, WA
1994 – 1995	Postdoctoral Fellow, University of Zurich, Zürich, Switzerland
1996 – 1999	Research Assistant Professor of Chemistry, University of Washington, Seattle, WA
1999 – 2000	Affiliate Assistant Professor of Chemistry, University of Washington, Seattle, WA
1999 – 2003	Assistant Professor of Medicinal Chemistry, University of Arizona, Tucson, AZ
2000 – 2005	Faculty Member, Undergraduate Biology Research, University of Arizona, Tucson, AZ
2000 – 2005	Faculty Member, Biological Chemistry Program, University of Arizona, Tucson, AZ
2001 – 2003	Assistant Professor of Chemistry (joint), University of Arizona, Tucson, AZ
2002 – 2005	Comprehensive Member, Arizona Cancer Center, Therapeutic Development Program, University of Arizona, Tucson, AZ
2003 - 2005	Associate Professor of Medicinal Chemistry & Chemistry, University of Arizona, Tucson, AZ
2004 – 2005	Member, BIO5 Institute, University of Arizona, Tucson, AZ
2005 – Present	Professor of Marine Chemistry, SIO, UCSD, La Jolla, CA
2005 – Present	Professor of Pharmaceutical Sciences, SSPPS, UCSD, La Jolla, CA
2007 – Present	Member, Moores Cancer Center, UCSD, La Jolla, CA
2011 – Present	Associate Director of the Center for Marine Biotechnology and Biomedicine, SIO, UCSD, La Jolla, CA
2012 – Present	Director, Scripps Center for Oceans and Human Health, SIO, UCSD, La Jolla, CA

Honors

1992 - 1994	Predocctoral Training Fellow in Biotechnology, National Institutes of Health, Bethesda, MD
1999 - 2002	ACS-PRF Type G Award

2000 - 2005	California Sea Grant Committee member
2001	Matt Suffness Award (American Society of Pharmacognosy)
2002	NIH BNP Study Section ad hoc member
2004	NIH BPC-B Study Section ad hoc member
2005 - 2008	NIH SBCB Study Section founding member
2005	<i>Chemical Biology & Drug Design</i> , Editorial Advisory Board member
2005	<i>Natural Product Reports</i> , Commissioning Editor and Editorial Board member
2008	<i>Organic Letters</i> , Editorial Advisory Board member
2009	<i>Journal of Antibiotics</i> , Editorial Board member
2010	Novartis Lecturer in Organic Chemistry, Massachusetts Institute of Technology
2010	Fellow of the Royal Society for Chemistry
2010	<i>ChemBioChem</i> , Editorial Board member
2011	Chair of the Editorial Board, <i>Natural Product Reports</i>
2011	NIH Special Emphasis P01 Study Section ad hoc member
2012	Vice Chair of the Marine Natural Products Gordon Conference
2012 - 2013	Vice President of the American Society of Pharmacognosy
2013	NIH Special Emphasis BCBM-B Study Section member
2013	NIH MSFE Study Section ad hoc member
2013	NIH SBCB Study Section ad hoc member
2013	Arthur C. Cope Scholar Award (American Chemical Society)
2013	President of the American Society of Pharmacognosy

Selected Peer-reviewed Publications (selected from >140 peer-reviewed publications)

- DW Udvary, L Zeigler, R Asolkar, V Singan, A Lapidus, W Fenical, PR Jensen, BS Moore. Genome sequencing reveals complex secondary metabolome in the marine actinomycete *Salinispora tropica*. *Proc Natl Acad Sci USA*, **104**, 10376-10381 (2007). PMID: PMC1965521
- Q Cheng, L Xiang, M Izumikawa, D Meluzzi, BS Moore. Enzymatic total synthesis of enterocin polyketides. *Nature Chem Biol*, **3**, 557-558 (2007). PMID: PMC17704772
- AS Eustáquio, F Pojer, JP Noel, BS Moore. Discovery and characterization of a marine bacterial SAM-dependent chlorinase. *Nature Chem Biol*, **4**, 69-74 (2008). PMID: PMC2762381
- AS Eustáquio, RP McGlinchey, Y Liu, C Hazzard, LL Beer, G Florova, MM Alhamadsheh, A Lechner, AJ Kale, Y Kobayashi, KA Reynolds, BS Moore. Biosynthesis of the salinosporamide A polyketide synthase substrate chloroethylmalonyl-CoA from S-adenosyl-L-methionine. *Proc Natl Acad Sci USA*, **106**, 12295-12300 (2009). PMID: PMC2718359
- Y Liu, C Hazzard, AS Eustáquio, KA Reynolds, BS Moore. Biosynthesis of salinosporamides from α,β -unsaturated fatty acids: Implications for extending polyketide synthase diversity. *J Am Chem Soc*, **131**, 10376-10377 (2009). PMID: PMC2737082
- MC Wilson, TAM Gulder, T Mahmud, BS Moore. Shared biosynthesis of the saliniketals and rifamycins in *Salinispora arenicola* is controlled by the *sare1259*-encoded cytochrome P450. *J Am Chem Soc*, **132**, 12757-12765 (2010). PMID: PMC2946249
- P Bernhardt, T Okino, JM Winter, A Miyanaga, BS Moore. A stereoselective vanadium-dependent chloroperoxidase in bacterial antibiotic biosynthesis. *J Am Chem Soc*, **133**, 4268-4270 (2011). PMID: PMC3065929
- A Miyanaga, JE Janso, L McDonald, M He, H Liu, L Barbieri, AS Eustáquio, EN Fielding, GT Carter, PR Jensen, X Feng, M Leighton, FE Koehn, and BS Moore. Discovery and assembly line biosynthesis of the lymphostin pyrroloquinoline alkaloid family of mTOR inhibitors in *Salinispora* bacteria. *J Am Chem Soc*, **133**, 13311-13313 (2011). PMID: PMC3161154
- RD Kersten, Y-L Yang, Y Xu, P Cimermancic, S-J Nam, W Fenical, MA Fischbach, BS Moore, and PC Dorrestein. A mass spectrometry-guided genome mining approach for natural product peptidogenomics. *Nature Chem Biol*, **7**, 794-802 (2011). PMID: PMC3258187
- Y Xu, RD Kersten, S-J Nam, L Lu, AM Al-Suwailem, H Zheng, W Fenical, PC Dorrestein, BS Moore, and P-Y Qian. Bacterial biosynthesis and maturation of the didemnins anticancer agents. *J Am Chem Soc*, **134**, 8625-8632 (2012). PMID: PMC3401512

11. K Yamanaka, KS Ryan, TAM Gulder, CC Hughes, and BS Moore. Flavoenzyme-catalyzed atroposelective *N,C*-bipyrrole homocoupling in marinopyrrole biosynthesis, *J Am Chem Soc*, **134**, 12434-12437 (2012). PMID: PMC3415713
12. AC Ross, Y Xu, L Lu, RD Kersten, Z Shao, AM Al-Suwailem, PC Dorrestein, P-Y Qian, BS Moore. Biosynthetic multitasking facilitates thalassospiramide structural diversity in marine bacteria, *J Am Chem Soc*, **135**, 1155-1162 (2013). PMID: PMC3563429
13. A Lechner, MC Wilson, YH Ban, J-y Hwang, YJ Yoon, BS Moore. Designed biosynthesis of 36-methyl-FK506 by polyketide precursor pathway engineering, *ACS Syn Biol*, **2**, 379-383 (2013). PMID: PMC3716868
14. R Teufel, A Miyanaga, Q Michaudel, F Stull, G Louie, JP Noel, PS Baran, B Palfey, BS Moore. Flavin-mediated dual oxidation controls an enzymatic Favorskii-type rearrangement. *Nature*, **503**, 552-556 (2013). PMID: PMC3844076
15. RD Kersten, N Ziemert, D Gonzales, BM Duggan, V Nizet, PC Dorrestein, BS Moore. Glycogenomics as a mass spectrometry-guided genome mining method for microbial glycosylated molecules. *Proc Natl Acad Sci USA*, **110**, E4407-E4416 (2013). PMID pending

Research Support

NIH/NCI R01 CA127622 Moore (PI) 4/1/07–5/31/17

“Salinosporamide Biosynthesis and Engineering”.

The major goals of this project are to study the salinosporamide biosynthetic enzymology, chemoenzymatically prepare new derivatives for biological evaluation, and to further explore the evolved proteasome resistance mechanism in the salinosporamide-producing bacterium to contrast against emerging human proteasome resistance to this growing class of drugs.

NIH/NIAID R01 AI47818 Moore (PI) 8/1/00–2/28/17

“Biosynthesis of Marine Polyketide Antibiotics”.

The major goals of this project are to study the biosynthetic enzymology of the enterocin, napyradiomycin, marinopyrrole and chlorizidine marine antibiotics and to explore new enzymatic reactions by high-resolution protein crystallography.

NIH/NIGMS R01 GM97509 Moore (PI) 4/1/12–2/29/16

“Experiment Based Genome Mining of Ribosomal Natural Products”.

The major goals of this project are to further develop and apply a mass spectrometry-guided genome mining platform to discover and characterize microbial natural product ribosomal and nonribosomal peptide natural products and their biosynthetic machinery.

NIH/NIGMS R01 GM857770 Moore (PI) 8/1/09–7/31/17

“Natural Product Genome Mining”.

The major goal of this project is to explore and exploit the natural product biosynthetic capabilities of marine bacteria belonging to the genus *Salinispora* using a genomics approach.

NIH/NIEHS P01 ES021921 Moore (PD) 9/24/12–7/31/17

“Scripps Center for Oceans and Human Health”.

The goal of the Scripps OHH Center is to identify, quantify and determine the biological source(s) of small, natural, brominated organic compounds that bioaccumulate and are available to enter the human population through sea food consumption. This multi-investigator Center aims to provide a complete view of brominated natural product cycling in coastal California with the added benefit of identifying the actual source and biosynthetic mechanism of production. This project is co-sponsored by the NSF.

NSF OCE-1313747 Moore (PD) 3/1/13–2/28/18

“Scripps Center for Oceans and Human Health”.

NSF is the co-sponsor of the NIH/NIEHS grant P01 ES021921.