BIOGRAPHICAL SKETCH

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NAME: Boskovic, Zarko Vladislav

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Assistant Professor of Medicinal Chemistry

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (*if applicable*)	Completion Date MM/YYYY	FIELD OF STUDY
University of Niš, Serbia	B.S	12/2004	Chemistry
University of California, Santa Barbara	Ph.D.	03/2011	Organic chemistry
The Broad Institute of MIT and Harvard	Postdoctoral	04/2017	Chemical biology

A. Personal Statement

1. I have training and expertise in protein- and phenotype-centered discovery of bio-active molecules with novel mechanisms of action. My primary research objective is to establish chemistry- and chemical biology-based technologies that can be used to study basic and disease biology. My research focused on interaction of small molecules and proteins, specifically through covalent and metal-ligating interactions.

    a. Zarko V. Boskovic, Melissa M. Kemp, Allyson M. Freedy, Vasanthi S. Viswanathan, Marius S. Pop, Jason H. Fuller, Nicole M. Martinez, Samuel O. Figueroa Lazú, Jiyoung A. Hong, Timothy A. Lewis, Daniel Calarese, James D. Love, Amedeo Vetere, Steven C. Almo, Stuart L. Schreiber, and Angela N. Koehler. Inhibition of Zinc-Dependent Histone Deacetylases with a Chemically Triggered Electrophile. ACS Chemical Biology, 11(7):1844–1851, jul 2016
    b. Z. Zhang, Z. Boskovic, M.M. Hussain, W. Hu, C. Inouye, H.-J. Kim, A. Katherine Abole, M.K. Doud, T.A. Lewis, A.N. Koehler, S.L. Schreiber, and R. Tjian. Chemical perturbation of an intrinsically disordered region of TFIID distinguishes two modes of transcription initiation. eLife, 4(AUGUST2015), 2015
    c. Zarko V. Boskovic, Mahmud M. Hussain, Drew J. Adams, Mingji Dai, and Stuart L. Schreiber. Synthesis of piperlogs and analysis of their effects on cells. Tetrahedron, 69(36):7559–7567, sep 2013

2. In addition to this, my research is focused on defining principles for designing libraries of small molecules based on the biological fingerprints recorded concurrent to their synthesis.

    a. C.J. Gerry, B.K. Hua, M.J. Wawer, J.P. Knowles, S.D. Nelson, O. Verho, S. Dandapani, B.K. Wagner, P.A. Clemons, K.I. Booker-Milburn, Z.V. Boskovic, and S.L. Schreiber. Real-Time Biological Annotation of Synthetic Compounds. Journal of the American Chemical Society, 138(28), 2016

B. Positions and Honors

Positions and Employment

2018 – Assistant Professor, Department of Medicinal Chemistry, University of Kansas, Lawrence, KS
2011 – 2017 Postdoctoral fellow, The Broad Institute of MIT and Harvard, Cambridge, MA
2006 – 2011 Graduate student researcher, University of California, Santa Barbara, CA
2004 – 2006 Project scientist, Faculty of Sciences and Mathematics, University of Niš, Serbia

Other Experience and Professional Memberships

2010 – Member, American Chemical Society

Honors

2010 Dean's Fellowship, University of California, Santa Barbara
2006 Government of the Republic of Serbia Fellowship, Belgrade, Serbia

C. Contribution to Science

1. My early research focused on the development of new synthetic reagents for small molecule synthesis, primarily rooted in transition metal (copper, palladium, ruthenium) catalyzed processes. Specifically, I have shown that ligated copper hydride can be used to control various levels of selectivity (chemo-, regio-, or stereoselectivity) in organic reactions. Practical and robust reaction conditions described in these publications have since been used by synthetic chemists pursuing important biologically relevant targets.

    a. Bruce H. Lipshutz, Zarko V. Boskovic, and Donald H. Aue. Synthesis of Activated Alkenylboronates from Acetylenic Esters by CuHCatalyzed 1,2Addition/Transmetalation. Angewandte Chemie International Edition, 47(52):10183–10186, 2008
    b. Ralph Moser, Zarko V Bosković, Christopher S Crowe, and Bruce H Lipshutz. CuH-catalyzed enantioselective 1,2-reductions of alpha,beta-unsaturated ketones. Journal of the American Chemical Society, 132(23):7852–3, 2010
    c. Benjamin A. Baker, Žarko V. Bošković, and Bruce H. Lipshutz. (BDP)CuH: A "Hot" Stryker's Reagent for Use in Achiral Conjugate Reductions. Organic Letters, 10(2):289–292, jan 2008

2. I have used synthetic organic chemistry to elucidate structure–activity relationships and mechanisms-of-action of several biologically active molecules. This was primarily accomplished through detailed, hypothesis-driven structure–activity relationship studies, quantitative data analysis, and synthesis of probe molecules capable of profiling cellular proteome or reporting on cellular localization of small molecule-induced processes.

    a. D.J. Drew J Adams, Z.V. Zarko V Boskovic, J.R. Jimmy R Theriault, Alex J A.J. Wang, A.M. Andrew M Stern, B.K. Bridget K Wagner, A.F. Alykhan F Shamji, and Stuart L S.L. Schreiber. Discovery of small-molecule enhancers of reactive oxygen species that are nontoxic or cause genotype-selective cell death. ACS chemical biology, 8(5):923–9, 2013
    b. Zarko V. Boskovic, Mahmud M. Hussain, Drew J. Adams, Mingji Dai, and Stuart L. Schreiber. Synthesis of piperlogs and analysis of their effects on cells. Tetrahedron, 69(36):7559–7567, sep 2013

Complete List of Published Work in MyBibliography:

https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/55138471/?sort=date&direction=ascending

D. Research Support

Ongoing Research Support

No current research support.

Completed Research Support

BroadNext10 Boskovic (co-PI) 06/01/2016–05/31/2017
Assessing the biological performance of photochemically generated compound libraries
The goal of this project was to synthesize a collection of structurally complex molecules and generate signatures of their biological activities in a phenotypic, multiplexed, cell morphology-based assay.
Role: PI