

Juan R. Del Valle, Ph.D.

Associate Professor • Department of Chemistry • University of South Florida
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Education

Ph.D. in Organic Chemistry; University of California at San Diego, La Jolla, CA 1999-2004
B.A. in Chemistry; Carleton College, Northfield, MN 1995-1999

Positions and Employment

Associate Professor, Department of Chemistry 2015-present
University of South Florida

Assistant Professor, Chemical Biology and Molecular Medicine 2009-2015
H. Lee Moffitt Cancer Center and Research Institute

Assistant Professor, Department of Chemistry & Biochemistry 2006-2008
New Mexico State University

Postdoctoral Research Fellow, Department of Chemistry 2004-2006
University of Montreal (PI: Stephen Hanessian)

Graduate Research Associate, Department of Chemistry & Biochemistry 1999-2004
University of California San Diego (PI: Murray Goodman)

Undergraduate REU Fellow, Department of Pharmaceutical Chemistry 1998
University of Utah (PI: Bradley Anderson)

Research Interests

Peptidomimetics; Peptide folding; Natural product synthesis and SAR; Constrained amino acids;
Inhibitors of protein-protein interactions; Structure-based drug design; ER stress response

Publications

As independent investigator (underline denotes corresponding authorship):

37. Sarnowski MP, Pedretty KP, Giddings N, Woodcock HL, **Del Valle JR**. Synthesis and beta-sheet propensity of constrained *N*-amino peptides. *Bioorg. Med. Chem.* (2017), *in press*.

36. Sarnowski MP, Kang C, Elbatrawi YM, Wojtas L, **Del Valle JR**. Peptide *N*-amination supports beta-sheet conformation. *Angew. Chem. Int. Ed.* (2017), *56*, 2083.

**** Selected as a 'Hot Paper' by Angewandte Chemie****

**** Faculty of 1000 selection****

35. Kang C, Sarnowski MP, Elbatrawi YM, **Del Valle JR**. Access to enantiopure alpha-hydrazino acids for *N*-amino peptide synthesis. *J. Org. Chem.* (2017), *82*, 1833.

34. Tavernier S, Osorio F, Vandersarren L, Vettters J, Van-langenakker N, Van Isterdael G, Vergote K, Parthoens F, Van de laar L, Iwawaki T, **Del Valle JR**, Hu CA, Janssens S. Regulated Inositol-Requiring Enzyme 1 dependent mRNA decay sets the threshold for dendritic cell survival. *Nature Cell Biol.* (2017), *19*, 698.

33. **Del Valle JR**. Heterocyclic extended dipeptide surrogates for beta-strand stabilization. In *Topics in Heterocyclic Chemistry - Peptidomimetics II*; Lubell, W., Ed.; Springer International Publishing, 2017, p 25-49.

32. Tang CA, Zundell JA, Ranatunga S, Lin C, Nefedova Y, **Del Valle JR**, Hu CA. Agonist-mediated activation of STING induces apoptosis in malignant cells. *Cancer Res.* (2016), *76*, 2137.

31. Kang C, Sarnowski MP, Ranatunga S, Wojtas L, Metcalf RD, Guida WC, **Del Valle JR**. Beta-strand mimics based on tetrahydropyridazinedione (tpd) peptide stitching. *Chem. Comm.* (2015), *15*, 16259.

30. Kang C, Ranatunga S, Sarnowski MP, **Del Valle JR**. Solid-phase synthesis of tetrahydropyridazinedione-constrained peptides. *Org. Lett.* (2014), *16*, 5434.

29. Kim YB, Kang CW, Ranatunga S, Yang H, Sebt SM, **Del Valle JR**. Imidazo[1,2-*a*]pyridine-based peptidomimetics as inhibitors of Akt. *Bioorg. Med. Chem. Lett.* (2014) *24*, 4650.

28. Ranatunga S, Tang CA, Kang C, Kloppenburg B, Kriss CL, Hu CA, **Del Valle JR**. Synthesis of novel tricyclic chromenone-based inhibitors of IRE-1 RNase activity. *J. Med. Chem.* (2014) *57*, 4289.

**** Highlighted in SciBx 'This Week in Therapeutics' DOI: 10.1038/scibx.2014.702****

27. Tang, CA, Ranatunga S, Kriss, CL, Cubbitt CL, Pinilla-Ibarz JA, **Del Valle JR**, Hu CA. Inhibition of ER stress-associated IRE-1/XBP-1 pathway reduces leukemic cell survival. *J. Clin. Inv.* (2014) *124*, 2585.

**** Highlighted in Cancer Discovery 'Research Watch' DOI: 10.1158/2159-8290.CD-RW2014****

**** Highlighted in SciBx 'This Week in Therapeutics' DOI: 10.1038/scibx.2014.702****

26. Kang C, Sun Y, **Del Valle JR**. Substituted imidazo[1,2-a]pyridines as beta-strand peptidomimetics. *Org. Lett.* (2012) 14, 6162-5.
25. Ranatunga S, Tang CA, Hu CA, **Del Valle JR**. Total synthesis and structural confirmation of lucentamycin A. *J. Org. Chem.* (2012) 77, 9859-64.
24. Cha JW, Park JS, Sim T, N SJ, Kwon HC, **Del Valle JR**, Fenical W. Structure assignment of lucentamycin E and revision of the olefin geometries of the marine-derived lucentamycins. *J. Nat. Prod.* (2012) 75, 1648.
23. Kim YB, Balasis ME, Doi K, Berndt N, DuBoulay C, Hu CC, Guida W, Wang HG, Sebti SM, **Del Valle JR**. Synthesis and evaluation of substituted hexahydronaphthalene derivatives as novel inhibitors of the Mcl-1/BimBH3 interaction. *Bioorg. Med. Chem. Lett.* (2012) 22, 5961-5.
22. Kriss CL, Pinilla-Ibarz JA, Mallioux A, Powers JJ, Tang CA, Kang C, Zanesi N, Epling-Burnette PK, Sotomayor EM, Croce CM, **Del Valle JR**, Hu, CA. Overexpression of TCL1 activates endoplasmic reticulum stress response: A novel mechanism of leukemic progression in mice. *Blood* (2012) 120, 1027-1038.
21. Ranatunga S, Kim JS, Pal U, **Del Valle JR**. An Ester Enolate-Claisen Rearrangement Route to Substituted 4-Alkylideneprolines. Studies toward a Definitive Structural Revision of Lucentamycin A. *J. Org. Chem.* (2011) 76, 8962-76.
** Selected for ACS 'Virtual Issue on Peptide Chemistry**
20. Ranatunga S, **Del Valle JR**. Synthesis of GSK3 β -Mimetic Inhibitors of Akt Featuring a Novel Extended Dipeptide Surrogate. *Bioorg. Med. Chem. Lett.* (2011) 21, 7166-9.
19. Kim YB, **Del Valle JR**. Synthesis of a diversifiable cis-dehydrodecalin scaffold based on meiogynin A. *Tetrahedron Lett.* (2011) 52, 6396-8.
18. Ranatunga S, Liyanage W, **Del Valle JR**. Synthesis and conformational analysis of bicyclic extended dipeptide surrogates. *J. Org. Chem.* (2010) 75, 5113-25. PMID: 2914495.
17. Ranatunga S, **Del Valle JR**. Synthesis of Boc-protected bicyclic proline. *Tetrahedron Lett.* (2009) 50, 2464-6.
16. Pal U, Ranatunga S, Ariyaratna Y, **Del Valle JR**. Total synthesis of the putative structure of lucentamycin A. *Org. Lett.* (2009) 11, 5298-301.
15. Liyanage W, Weerasinghe L, Strong RK, **Del Valle JR**. Synthesis of carbapochelins via diastereoselective azidation of 5-(ethoxycarbonyl)methylproline derivatives. *J. Org. Chem.* (2008) 73, 7420-3.

As graduate or postdoctoral researcher:

14. Dorich S, **Del Valle JR**, Hanessian S. Synthesis of functionalized octahydroindoles related to daphnyphyllum alkaloids. *Synlett* (2014) 25, 799-804.
13. **Del Valle JR**, Thierren E, Hanessian S. Aeruginosins as thrombin inhibitors. In *Natural Products in Medicinal Chemistry, Vol. 60*: Wiley-VCH; 2013. p. 333-56.

12. Hanessian S, Vakiti RR, Dorich S, Banerjee S, Lecomte F, **Del Valle JR**, Zhang J, Deschenes-Simard B. Total synthesis of pactamycin. *Angew. Chem. Int. Ed.* (2011) *50*, 3497-500.
11. Hanessian S, Wang X, Ersmark K, **Del Valle JR**, Klegraf E. Total synthesis and structural revision of the presumed aeruginosins 205A and B. *Org. Lett.* (2009) *11*, 4232-5.
10. **Del Valle JR**, Wang X, Ersmark K, Hanessian S. Beta-substituted D-leucines and their relevance in the total synthesis of natural and unnatural aeruginosins. In *Asymmetric Synthesis and Application of alpha-Amino Acids*: American Chemical Society; 2009. p. 443-61.
9. Ersmark K, **Del Valle JR**, Hanessian S. Chemistry and biology of the aeruginosin family of serine protease inhibitors. *Angew. Chem. Int. Ed.* (2008) *47*, 1202-23.
8. Hanessian S, Ersmark K, Wang X, **Del Valle JR**, Blomberg N, Xue Y. Structure-based organic synthesis of unnatural aeruginosin hybrids as potent inhibitors of thrombin. *Bioorg. Med. Chem. Lett.* (2007) *17*, 3480-5.
7. Hanessian S, **Del Valle JR**, Xue Y, Blomberg, N. Total synthesis and structural confirmation of chlorodysinoin A. *J. Am. Chem. Soc.* (2006) *128*, 10491-5.
6. Zapf CW, **Del Valle JR**, Goodman M. Utilizing the intramolecular Fukuyama-Mitsunobu reaction for a flexible synthesis of novel heterocyclic scaffolds for peptidomimetic drug design. *Bioorg. Med. Chem. Lett.* (2005) *15*, 4033-6.
5. Hanessian S, Tremblay M, Marzi M, **Del Valle JR**. Synthetic studies in the intramolecular carbocyclization of N-acyloxyiminium ions. Stereoelectronic and steric implications of nucleophilic alkene, alkyne, and allene tethers. *J. Org. Chem.* (2005) *70*, 5070-85.
4. **Del Valle JR**, Goodman M. An efficient RCM-based synthesis of orthogonally protected meso-DAP and FK565. *J. Org. Chem.* (2004) *69*, 8946-8.
3. **Del Valle JR**, Goodman M. Asymmetric hydrogenations for the synthesis of Boc-protected 4-alkylprolinols and prolines. *J. Org. Chem.* (2003) *68*, 3923-31.
2. **Del Valle JR**, Goodman M. Stereoselective synthesis of Boc-protected cis and trans-4-trifluoromethylprolines by asymmetric hydrogenation reactions. *Angew. Chem. Int. Ed.* (2002) *41*, 1600-2.
1. Goodman M, **Del Valle JR**, Amino Y, Benedetti E. Molecular basis of sweet taste in dipeptide taste ligands. *Pure Appl. Chem.* (2002) *74*, 1109-16.

Patents

1. Del Valle JR, Hu CA. Inhibitors of the IRE-1/XBP-1 pathway and methods of using thereof. PCT Int. Appl. (2014) WO 2014176348.

Funding

Active Grants:

N-Amino peptide-derived β -sheet mimics (8/1/17 – 7/31/20)

Source: National Science Foundation

Grant#: CHE1709927

PI: Del Valle JR

Role: Principal Investigator

Total award: \$418,108

Pharmacological blockade of XBP-1s expression in cancer (9/14/15 – 08/31/20)

Source: National Institutes of Health

Grant#: 1R01CA190860-01

PI: Del Valle JR, Hu CA (MPI)

Role: Principal Investigator and Contact PI

Direct costs: \$2,019,070

Total award: \$2,280,664

Optimization and efficacy of covalent IRE-1 RNase inhibitors in CLL (9/07/15 – 08/31/18)

Source: National Institutes of Health

Grant #: 1R21CA199553-01

PI: Del Valle JR

Role: Principal Investigator

Direct costs: \$283,154

Total award: \$395,091

Targeting antigen-induced ER stress response in B-cell CLL (9/13 – 06/18)

Source: National Institutes of Health

Grant #: 1R01CA163910-01A

PI: Hu, CA

Role: Co-Investigator

Direct costs: \$1,037,500

Total award: \$1,748,188

Completed Grants:

Targeting Akt with substrate-mimetic antagonists (9/12 – 08/15)

Source: National Institutes of Health

Grant #: 5R21CA167215

PI: Del Valle JR

Role: Principal Investigator

Direct costs: \$239,250

Total award: \$403,137

Chemical and biological studies of marine-derived non-ribosomal peptides

Source: Florida Department of Health (Bankhead-Coley)

Grant #: 1BN03

PI: Del Valle JR

Role: Principal Investigator
Direct costs: \$347,825
Total award: \$400,000

Natural product-inspired approaches targeting Mcl-1
Source: Florida Department of Health (James & Esther King)
Grant #: 1KN03
PI: Del Valle JR
Role: Principal Investigator
Direct costs: \$347,825
Total award: \$400,000

Synthetic methods toward antimicrobial tert-alkylamino carbocycles
Source: National Institutes of Health
Grant #: SC2AI081526
PI: Del Valle JR
Role: Principal Investigator
Direct costs: \$200,000
Total award: \$282,800

Synthesis of functional probes for siderocalin-induced apoptosis
Source: American Cancer Society
Grant #: IRG9309214
PI: Pledger WJ
Role: Project Leader
Direct costs: \$30,000
Total award: \$30,000

Probing novel mechanisms to target kinases for cancer drug discovery
Source: Anna Valentine Cancer Fund
PI: Sebti SM
Role: Project Leader
Direct costs: \$75,000
Total award: \$75,000

Synthesis of new ligands for the characterization of siderophore-ExFABP interactions
Source: National Institutes of Health
Grant #: U54CA132383
PI: O'Connell M
Role: Project Leader
Direct costs: \$245,066
Total award: \$345,317

Inhibition of the IRE-1/XBP-1 pathway in B-cell cancer
Source: Moffitt Team Science Fund
PI: Del Valle, JR/Hu, CA (MPI)
Role: Principal Investigator
Direct costs: \$150,000
Total award: \$150,000

Invited Talks

American Peptide Society Symposium, Whistler, BC	June 2017
Florida Annual Meeting of the American Chemical Society, Palm Harbor, FL	May 2017
Foldamer Workshop at New York University, New York, NY	June 2016
Chemistry Society of the University of South Florida, Tampa, FL	March 2016
University of Texas at Dallas, Dept. of Chemistry & Biochemistry	October 2015
University of Pennsylvania, Dept. of Chemistry	March 2015
249 th American Chemical Society National Meeting, Denver, CO	March 2015
16 th Florida Heterocyclic and Synthetic Conference, Gainesville, FL	March 2015
Wistar Institute, Molecular & Cellular Oncogenesis Program	January 2015
Purdue University, Dept. of Medicinal Chemistry and Mol. Pharm.	January 2015
University of Utah, Dept. of Medicinal Chemistry	December 2015
University of South Florida, Dept. of Molecular Medicine	November 2014
97 th Canadian Society for Chemistry National Meeting, Vancouver, BC	June 2014
University of New Mexico Cancer Center, Center of Molecular Discovery	May 2014
University of Denver, Dept. of Chemistry and Biochemistry	May 2014
University of Florida, Department of Medicinal Chemistry	February 2014
University of New Mexico, Dept. of Chemistry and Chemical Biology	February 2014
Florida Annual Meeting of the American Chemical Society, Palm Harbor, FL	May 2013
Southeastern Meeting of the American Chemical Society, Raleigh, NC	November 2012
Fred Hutchinson Cancer Research Center, Division of Basic Science	August 2008
New Mexico Institute of Mining and Technology, Dept. of Chemistry	November 2007

Honors and Awards

CIBA Young Scientist Award, awarded by the CIBA Foundation and ACS YCC	2010
Milestone Award, awarded by the Miles for Moffitt Foundation	2010
Teddy Traylor Award for graduate research	2003
American Peptide Society Travel Award	2002
Cota-Robles Graduate Fellowship	2001
San Diego Graduate Fellowship	1999
REU Fellowship, University of Utah	1998

Courses Taught

Course Title	Number	Year	Semester	Enrollment
Physical Organic Chemistry	CHM 6263	2017	Fall	12
Organic Chemistry II	CHM 2211	2017	Spring	167
Organic Chemistry II	CHM 2211	2016	Fall	177
Organic Chemistry II	CHM 2211	2016	Spring	174
Bioethics (guest lecturer)	PCB 6932	2014	Spring	17
Cancer Biology III (guest lecturer)	PCB 6205	2014	Spring	13
Cancer Biology I (guest lecturer)	PCB 6230	2014	Fall	12
Intro to Med Chem (guest lecturer)	CHM 4932/6938	2014	Fall	22
Intro to Med Chem (guest lecturer)	CHM 4932/6938	2012	Spring	26
Advanced Organic Chemistry	CHEM 466/515	2008	Fall	11

Organic Chemistry I	CHEM 313	2008	Spring	88
Advanced Organic Chemistry	CHEM 466/515	2007	Fall	10
Organic Chemistry I	CHEM 313	2007	Spring	80
Advanced Organic Chemistry	CHEM 466/515	2006	Fall	12

Postdoctoral Mentoring

Name	Ph.D. Institution	Year(s)
Dr. Justin Goodwin	University of Florida	2016-present
Dr. Changwon Kang	University of Texas Medical Branch	2010-present
Dr. Sujeewa Ranatunga	New Mexico State University	2013-2015
Dr. Yongmao Sun	Washington University	2009-2013
Dr. Young B. Kim	University of Mississippi	2010-2012
Dr. Jinsoo S. Kim	University of California Santa Barbara	2009-2011
Dr. Ujjwal Pal	IICT Hyderabad	2008-2009

Graduate Student Mentoring

Name	Degree	Undergraduate Institution	Year(s)
Benjamin Rathman	in progress	University of North Florida	2016-present
Khalilia Tillet	in progress	Murray State University	2016-present
Kyle Pedretty	in progress	College of the Holy Cross	2016-present
Chris Cain	in progress	Auburn University	2016-present
William Motsch	in progress	McGill University	2016-present
Yassin El-Batrawi	in progress	Cairo University	2015-present
Matthew Sarnowski	in progress	University of South Florida	2014-present
Sujeewa Ranatunga	Ph.D.	University of Kelaniya	2006-2012
Wathsala Liyanage	M.S.	University of Pradeniya	2006-2009

Pre-Doctoral Student Mentoring

Name	Position	Year(s)
Evan Howard	Undergraduate Researcher	2017-present
Megan Navarro	Undergraduate Researcher	2017-present
Evan Brown	Post-baccalaureate Intern	2017-present
Fabio Vasconcellos	Undergraduate Researcher	2016-2017
Hallie Lower	High School Intern	2016
Bomi Kim	International Undergrad Intern	2016
Leticia Montoya	MARC Undergraduate Researcher	2008-2009
Christian Talamantes	Undergraduate Researcher	2007
Lee Uranaga	Undergraduate Researcher	2006

Graduate Student Advising Committees

Name	Committee	Institution	Role
Nicole Avalon	Ph.D.	University of South Florida	Member

Chiyu Wei	Ph.D.	University of South Florida	Member
Teng Yang	Ph.D.	University of South Florida	Member
Katrina Tirado	Ph.D.	University of South Florida	Member
Faez Mahzamani	Ph.D.	University of South Florida	Member
Sofia Kokkaliari	Ph.D.	University of South Florida	Member
Steven Motika	Ph.D.	University of South Florida	Member
Michael Williams	Ph.D.	University of South Florida	Member
Jeanine Yacoub	M.S.	University of South Florida	Member
Yi Liang	Ph.D.	University of South Florida	Member
Lulu Wei	Ph.D.	University of South Florida	Member
Santana Thomas	Ph.D.	University of South Florida	Member
Andrea Lemus	Ph.D.	University of South Florida	Member
Daniel Utic	M.S.	University of South Florida	Member
Brent Kuenzi	Ph.D.	Moffitt Cancer Center	External Member
Hyun Joo Kil	Ph.D.	University of South Florida	Member
Courtney DeBoulay	Ph.D.	University of South Florida	External Member
Kris Waynant	Ph.D.	New Mexico State University	Member
Sarah Gibson	M.S.	New Mexico State University	Member
Jon Shirley	M.S.	New Mexico State University	Member
Paul Wiget	Ph.D.	New Mexico State University	Member
Ritwik Burai	Ph.D.	New Mexico State University	Member
Shaofeng Duan	Ph.D.	New Mexico State University	Member
Jennifer Bell	Ph.D.	New Mexico State University	Member
Jacob Strousse	Ph.D.	New Mexico State University	Member

National Service

Position	Organization	Year(s)
Standing Member, SBCB Study Section	National Institutes of Health	2017-present
Council Member and Secretary	American Peptide Society	2015-present
Travel Award Judge	American Peptide Society	2017
Ad Hoc Member, SBCB Study Section	National Institutes of Health	2016
Session Chair, Peptidomimetics	American Peptide Society	2015
Nominating Committee Member	American Peptide Society	2013-2015
Ad Hoc Member, DMP Study Section	National Institutes of Health	2014
Session Chair, Peptidomimetics	American Peptide Society	2013
Early Career Reviewer, SBCB Study Section	National Institutes of Health	2013
Ad Hoc Member, NCI R21/R03 Study Section	National Institutes of Health	2013
Travel Award Judge	American Peptide Society	2013
Co-Chair, Student Affairs Committee	American Peptide Society	2011-2013
Ad Hoc Member, SBIR 255 Study Section	National Institutes of Health	2012
Ad Hoc Member, SBIR 255 Study Section	National Institutes of Health	2011
Ad Hoc Member, CRIF-MU Grant Panel	National Science Foundation	2008

Reviewer of submitted manuscripts for the following publications (2005-present):

Journal of the American Chemical Society, Accounts of Chemical Research, Chemical Reviews, Journal of Organic Chemistry, Organic Letters, Tetrahedron, Tetrahedron Letters, Chemical Communications, European Journal of Medicinal Chemistry, Bioorganic and Medicinal Chemistry, Bioorganic and Medicinal Chemistry Letters, PLoS One

Institutional Service

Position	Organization	Year(s)
Organic Division Coordinator	University of South Florida	2017-present
Instrumentation Committee	University of South Florida	2017-present
Faculty Advisory Committee	University of South Florida	2016-present
Mass Spec Core Advisory Committee	University of South Florida	2015-present
NMR Core Advisory Committee	University of South Florida	2015-present
Research Value Analysis Committee	Moffitt Cancer Center	2013-2015
Chemical Biology Advisory Committee	Moffitt Cancer Center	2013-2015
Institutional Product Advisory Committee	Moffitt Cancer Center	2011-2013
OTMC Internship Review Committee	Moffitt Cancer Center	2012
ACS IRG Grant Reviewer	Moffitt Cancer Center	2012
Safety Committee	New Mexico State University	2006-2009
Chemistry Club Committee	New Mexico State University	2006-2009

Professional Associations

American Peptide Society
American Chemical Society
American Association for the Advancement of Science