

## Mikaela D. Stewart, Ph.D.

Assistant Professor  
Texas Christian University  
Department of Biology  
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### **EDUCATION**

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Postdoctoral Fellow, Biochemistry, University of Washington (2017)

Advisor: Prof. Rachel Klevit

Ph.D., Biochemistry/ Biophysics, Texas A&M University (2013)

Advisor: Prof. Tatyana Igumenova

Thesis Title: *Determining the intrinsic properties of the C1B domain that influence PKC ligand specificity and sensitivity to reactive oxygen species*

B.S., Biology, Chemistry Minor, University of Central Arkansas (2007)

Advisor: Prof. Lori Isom

Thesis Title: *Cations stabilize unstacked nucleic acids in DNA and RNA structures*

Summa cum laude

### **TEACHING**

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#### **Courses Taught**

Instructor – Fundamentals of Biochemistry BIOL 40513 – Biology Department, Texas Christian University	(Fall 2017-present)
Guest Lecturer – Structural biology BIOC 530 - Biochemistry Department, University of Washington	(Fall 2013-2017)
Co-Instructor – Senior seminar: cell signaling in cancer biology BIOL 485 - Biology Department, University of Washington	(Summer 2016)
Guest Lecturer – Biophysics BICH 624 - Biochemistry Department, Texas A&M University	(Spring 2013)
Guest Lecturer – NMR Spectroscopy CHEM 618 - Chemistry Department, Texas A&M University	(Spring 2009)
Recitation Instructor – Comprehensive biochemistry I BICH 410 - Biochemistry Department, Texas A&M University	(Fall 2008)

#### **Teaching Honors**

Best teaching assistant of the year (2008)

#### **Professional Development**

Science Teaching Experience for Postdocs Fellow, University of Washington (2015-2016)

Mentor: Prof. Becca Price

### **RESEARCH**

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#### **Grants Received**

-NIH interdisciplinary training grant in cancer recipient (2015-2017)

-P.E.O. scholar award: international merit-based fellowship (2012)

-NIH molecular biophysics training grant recipient (2007-2008)

## **Awards and Honors**

- Selected for the UW School of Medicine Postdoc Seminar Series. (2016)
- First runner up in the annual Texas A&M Biochemistry/Biophysics student research competition (two times, 2010 and 2012)
- Experimental nuclear magnetic resonance conference travel grant recipient (2010)
- Biochemistry Graduate Association travel grant recipient (five times, 2008-2013)

## **Peer-Reviewed Publications (\*students mentored)**

Pierce SB, Stewart MD, Gulsuner S, Walsh T, Dhall A, Lee MK, McClellan JM, Klevit RE, King MC (2018) Neurodevelopmental consequences of a RING1 mutation disrupting histone H2A ubiquitylation. *PNAS* 115 (7): 1558-1563.

Stewart MD, Zelin E, Dhall A, Walsh T, Upadhyay E, Corn JE, Chatterjee C, King MC, Klevit RE (2018) BARD1 is necessary for ubiquitylation of nucleosomal histone H2A and for transcriptional regulation of estrogen metabolism genes. *PNAS* 115 (6): 1316-1321.

Stewart MD and Igumenova TI (2017) Toggling of diacylglycerol affinity correlates with conformational plasticity in C1 domains. *Biochemistry* 56 (21): 2637–2640.

Stewart MD, \*Duncan ED, \*Coronado E, Brzovic PS, Klevit RE (2017) Tuning BRCA1 and BARD1 activity to investigate RING ubiquitin ligase mechanisms. *Protein Science* 26 (3): 475–483

Stewart MD, Ritterhoff T, Klevit RE, Brzovic PS (2016) E2 Enzymes: More Than Just Middle Men. *Cell Research* 26: 423–440.

Yang Y, Morales KA, Stewart MD, Igumenova TI (2015) Conditional Membrane Proteins: Solution NMR Studies of Structure, Dynamics, and Function. *eMagRes*, Vol 4: 767–778.

Vittal V, Stewart MD, Brzovic PS, Klevit RE (2015) Regulating the Regulators: Recent Revelations in the Control of E3 Ubiquitin Ligases. *J Biol Chem* 290: 21244-21251.

Stewart MD, Cole TR & Igumenova TI (2014) Interfacial Partitioning of a Loop Hinge Residue Contributes to Diacylglycerol Affinity of Conserved Region 1 Domains. *J Biol Chem* 289: 27653-27664

Stewart M, Dunlap T, Dourlain E, Grant B, McFail-Isom L (2013) Cations Form Sequence Selective Motifs within DNA Grooves via a Combination of Cation-Pi and Ion-Dipole/Hydrogen Bond Interactions. *PLoS ONE* 8(8): e71420

Stewart MD & Igumenova TI (2012) Reactive cysteine in the structural Zn<sup>2+</sup> site of the C1B domain from PKC $\alpha$ . *Biochemistry* 51: 7263–7277

Shu C, Sung MW, Stewart MD, Igumenova TI, Tan X & Li P (2012) The Structural Basis of Iron Sensing by the Human F-box Protein FBXL5. *Chem Bio Chem* 13: 788-91

Stewart MD, Morgan B, Massi F & Igumenova TI (2011) Probing the determinants of diacylglycerol binding affinity in the C1B domain of protein kinase C $\alpha$ . *J Mol Biol* 408: 949-70

Li X, Lu C, Stewart M, Xu H, Strong RK, Igumenova T & Li P (2009) Structural basis of double-stranded RNA recognition by the RIG-I like receptor MDA5. *Arch Biochem Biophys* 488: 23-33

## **Oral Presentations**

Stewart MD, Dhall A, Chatterjee C, King MC, Klevit RE (2017) BARD1 contributes to substrate specificity and tissue-specific tumor suppression of BRCA1. UW School of Medicine Postdoc Seminar Series.

Stewart MD, Dhall A, Chatterjee C, King MC, Klevit RE (2016) BARD1 contributes to substrate specificity and tissue-specific tumor suppression of BRCA1. Interdisciplinary Cancer Symposium at Fred Hutchinson Cancer Center.

Stewart MD, King MC, Klevit RE (2015) Aiming BRCA1 to find the targets. Interdisciplinary Cancer Symposium at Fred Hutchinson Cancer Center.

Stewart MD (2013) How protein NMR relates to you. P.E.O. Founder's Day.

Stewart MD, Igumenova TI (2012) C1B complete from "A" to zinc: zinc coordination dynamics in a PKC regulatory domain. Biochemistry/Biophysics student research competition.

Stewart MD, Igumenova TI (2010) Conformational dynamics contribute to ligand binding specificity of PKC C1 domains. Biochemistry/Biophysics student research competition.

## **Poster Presentations**

Stewart MD, Brzovic PS, Klevit RE (2015) "Aiming" BRCA1 to find the cellular targets. Genetic Instability and Cancer Symposium.

Stewart MD, Vittal V, Brzovic PS, Klevit RE (2014) A Tale of Two Tails: Studies on C-terminal extensions of ubiquitin-conjugating enzymes. Federation of American Societies for Experimental Biology meeting on ubiquitin and cellular regulation.

Stewart MD, Igumenova TI (2013) Loop dynamics in C1 domains: implications for ligand binding. Texas protein folders meeting.

Stewart MD, Igumenova TI (2012) Loop dynamics in C1 domains: implications for ligand binding. Experimental nuclear magnetic resonance conference.

Stewart MD, Igumenova TI (2011) Dynamics of a zinc coordination site in C1B domain of protein kinase C $\alpha$ . Texas protein folders meeting.

Stewart MD, Igumenova TI (2011) Dynamics of a zinc coordination site in C1B domain of protein kinase C $\alpha$ . Keystone frontiers of NMR biology.

Stewart MD, Morales KA, Igumenova TI (2010) From protein motions to functions: NMR characterization of membrane associating regulatory domains. Texas protein folders meeting.

Stewart MD, Morgan B, Massi F, Igumenova TI (2010) Conformational dynamics and ligand specificity of PKC $\alpha$  C1B domain. A. I. Scott symposium.

Stewart MD, Morgan B, Massi F, Igumenova TI (2010) Conformational dynamics and ligand specificity of PKC $\alpha$  C1B domain. Experimental nuclear magnetic resonance conference.

## **SERVICE**

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- Provided peer review for Science Signaling (2016) & Molecular Cell (2015)
- Association for women in science peer mentoring (2015-2016)
- Participated in the UW Health Sciences high school tour program (2015)
- Led a hands-on lab session for the Summer Medical and Dental Education Program (SMDEP) for underrepresented minority undergraduates (2015)
- Incoming graduate student peer mentor (2008-2013)
- Conducted the "Is graduate school right for you?" seminar for the research experience for undergraduates (REU) program (2010, 2011, 2012)
- Biochemistry graduate student association elected officer (2008-2009)
- Counselor for UCA Challenge: a science summer program for elementary school students (2007)
- Counselor for Junior University: program for potential first generation college bound students (2006)