

Mikaela D. Stewart, Ph.D.

Associate Professor
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EDUCATION

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

RESEARCH

Peer-Reviewed Publications (* denotes TCU Students)

Baker CNS*, Pajela PGC*, Martin DE*, Dzyuba SV, Stewart MD. Proline variants in the BRCA1 coiled-coil domain disrupt folding and binding to PALB2. *Protein Science*. 34 (1): e5240. <https://doi.org/10.1002/pro.5240> (2025)

Claton LE*, Baker C*, Martin H*, Dzyuba SV, Zaman K, Prokai L, Stewart MD, Simanek EE. Installation of an Indole on the BRCA1 Disordered Domain Using Triazine Chemistry. *Biomolecules*, 14(12), 1625. <https://doi.org/10.3390/biom14121625> (2024)

Thapa I*, Sellin Jeffries MK, Stewart MD. One of these strains is not like the others: *C. elegans* DW102 has an altered dependence on *brc-1* and *brd-1* for regulation of *cyp* gene transcription. *microPublication Biology*. 10.17912/micropub.biology.001152 (2024)

Menke AJ*, Gloor CJ*, Claton LE*, Mekhail MA, Pan H, Stewart MD, Green KN, Reibenspies JH, Pavan GM, Capelli R, Simanek EE. A Model for the Rapid Assessment of Solution-Structures for 24-Atom Macrocycles: The Impact of β -Branched Amino Acids on Conformation. *The Journal of Organic Chemistry*. 88 (5): 2692–2702 (2023)

Thapa I*, Vahrenkamp R*, Witus SR, Lightle C*, Falkenberg O*, Sellin Jeffries MK, Klevit RE, Stewart MD. Conservation of transcriptional regulation by BRCA1 and BARD1 in *Caenorhabditis elegans*. *Nucleic Acids Research*. 51 (5): 2108–2116 (2023). Featured on journal cover.

Witus SR, Stewart MD, Klevit RE. The BRCA1/BARD1 Ubiquitin Ligase and its Substrates. *Biochemical Journal*. 478 (18): 3467-3483 (2021). Featured on journal cover.

Witus SR, Burrell AL, Farrell DP, Kang J, Wang M, Hansen JM, Pravat A, Tuttle LM, Stewart MD, Brzovic PS, Chatterjee C, Zhao W, DiMaio F, Kollman JM, Klevit RE. BRCA1/BARD1 site-specific

ubiquitylation of nucleosomal H2A is directed by BARD1. *Nature Structural & Molecular Biology*. 28, 268–277 (2021)

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

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

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

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

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

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

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

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

Stewart M, Dunlap T, Dourlain E, Grant B, McFail-Isom L. 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 (2013)

Stewart MD & Igumenova TI. Reactive cysteine in the structural Zn²⁺ site of the C1B domain from PKC α . *Biochemistry* 51: 7263–7277 (2012)

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

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

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

External Grants Received

NIH R15 Grant. Disrupting Protein-Protein Interactions with Self-Assembling Macrocycles.

\$336,625.00 (09/2023 - 08/2026)

NIH R15 Grant. Disrupting Protein-Protein Interactions with Self-Assembling Macrocycles.
\$399,355.00 (09/2019 - 08/2023)

NIH interdisciplinary training grant in cancer (T32). Aiming BRCA1 to find the targets. \$100,000.00
(08/2015 – 08/2017)

P.E.O. international scholar fellowship. Intrinsic dynamics of C1B domain contributes to Protein
Kinase C α activation. \$15,000 (2012)

NIH molecular biophysics training grant recipient. Using protein NMR to investigate regulation of
cell signaling. \$38,250 (08/2007 – 12/2008)

Internal Grants Received

Biology DARE to Meagan McMann. Exploring the BRCA1 relationship with ROS regulation
pathways in *C. elegans*. \$2000.00 (12/2025-05/2026)

Science and Engineering Research Center Grant to Madison Adam. Small Drug Molecules
Disrupt BRCA1-PALB2 Binding Interface. \$1485.00 (07/2025-05/2026).

Science and Engineering Research Center Grant to Nathalie Carlon. Determining the effect of
nucleosome ubiquitylation on the fertility of *C. elegans*. \$1493.00 (07/2025-05/2026)

Science and Engineering Research Center Grant to William Stites. Impact of BRCA1 on reactive
oxygen species in *C. elegans*. \$1469.00 (07/2025-05/2026)

Science and Engineering Research Center Grant to Meagan McMann. Understanding breast
cancer through exploring the enzymatic activity of BRCA1 in *C. elegans*. \$2000.00 (07/2025-
05/2026)

Honors College Undergraduate Research Grant to Madison Adam. Small Drug Molecules Disrupt
BRCA1-PALB2 Binding Interface. \$1000.00 (07/2025-05/2026)

Science and Engineering Research Center Grant to Elizabeth Hoff. Using worms to connect
tumor suppressor activity to function. \$1500.00 (06/2024-05/2025)

Science and Engineering Research Center Grant to Lauren Herrington. Investigating the ubiquitin
ligase activity of BRC1/BRD1 in *C. elegans*. \$ 1483.65 (06/2024-05/2025)

Science and Engineering Research Center Grant to Jamison Speed. The Effects on Binding
Affinity Between Proteins BRCA1 and PALB2 With the Introduction of PALB2 Proline Variants.
\$2000.00 (06/2024-05/2025)

Science and Engineering Research Center Grant to Chrissy Baker. Visualizing the Effects of
Proline Variants on the Structure of BRCA1 and PALB2. \$2000.00 (01/2024 - 05/2024)

Science and Engineering Research Center Grant to Hayes Martin. In Vitro Study of the
Phosphorylation Effect of PALB2 on PALB2-BRCA1 Binding Affinity. \$1,440.00 (06/2023 -

05/2024)

Science and Engineering Research Center Grant to Caitlin Lightle. Characterizing the Substrate Target of BRCA1/BARD1 in *C. elegans*. \$1,450.00 (11/2022 - 05/2023)

Science and Engineering Research Center Grant to Chloe Duvak. Investigating the effects of BRCA1 threonine phosphorylation on PALB2 interaction. \$1,384.00 (11/2022 - 05/2023)

TCU Research and Creative Activities Fund. Determining the molecular details of the interaction of BRCA1 with estrogen receptor. \$4,500 (06/2022 - 05/2023)

Science and Engineering Research Center Grant to Meenal Cascella. Investigating the effect of a brc-1 K66E/R67E gene mutation on *cyp* gene expression in worms. \$1,168 (1/2022 - 05/2023)

Honors College Undergraduate Research Grant to Meenal Cascella. Investigating the effect of a brc-1 K66E/R67E gene mutation on *cyp* gene expression in *C. elegans*. \$1400 (11/2021-11/2022)

Science and Engineering Research Center Grant to Mia Nguyen. Investigating the binding efficiency of BRCA1 variants of unknown significance to PALB2 for determination of breast cancer risks. \$1,485 (11/2021 - 05/2022)

Science and Engineering Research Center Grant to Owen Falkenberg. Investigation of conservation of BRD1 enzymatic activity in *C. elegans*. \$1,470 (11/2021 - 05/2022)

Science and Engineering Research Center Grant to Molly Sindelar. Characterizing the BRCA1 binding site to estrogen receptor alpha. \$1,220 (06/2021 - 05/2022)

Science and Engineering Research Center Grant to Anna Norman. Identifying the site of BRCA1 and P53 protein interaction. \$1183 (06/2021 - 05/2022)

Science and Engineering Research Center Grant to Jane Lee. Exploring the Variances of Unknown Significance of BRCA1 and their impact on Breast Cancer. \$1,350 (06/2020 - 05/2021)

Science and Engineering Research Center Grant to Davis Martin. Characterizing the Effects of Variants of Unknown Significance in PALB2 for Breast Cancer Predisposition. \$1,297 (06/2020 - 05/2021)

Science and Engineering Research Center Grant to Ishor Thapa. Identifying the role of BRCA1 in transcription regulation using *Caenorhabditis elegans*. \$1,600 (06/2020 - 05/2021)

Science and Engineering Research Center Grant to Russell Vahrenkamp. Identifying a Conserved Regulatory Pathway for Gene Expression in *Caenorhabditis elegans*. \$1,600 (06/2020 - 05/2021)

TCU Research and Creative Activities Fund. Investigating tumor-suppressing protein interactions between BRCA1 and p53. \$10,500 (06/2019 - 05/2020)

Science and Engineering Research Center Grant to Suzanna Camp. Investigating the interaction

of the protein FANCA with BRCA1. \$1,491 (06/2019 - 05/2020)

Science and Engineering Research Center Grant to Courtney Skalley. Investigating the conservation of BRCA1 enzymatic activity in worms. \$1,485 (10/2018 – 05/2019)

TCU Research and Creative Activities Fund. Investigating tumor-suppressing protein interactions between BRCA1 and PALB2. \$10,500 (06/2018 – 05/2019)

Science and Engineering Research Center Grant to Brian Morote-Costas. The Effects of Serine Cluster activation on BRCA1's structure and function. \$1,500 (06/2018 – 05/2019)

Science and Engineering Research Center Grant to Khoa Dao. How does BRCA1 associate with p53? Investigating the molecular details of the interaction between 2 tumor suppressing proteins. \$1,491 (06/2018 – 05/2019)

Unawarded External Grants

Co-I. Welch Foundation Research Grant. Welch Foundation Center for Macrocyclic Design and Application. \$1,000,000.00 (2025 – 2030). Unawarded.

PI. Welch Foundation Research Grant. Investigating structure and function relationships in the BRCA1 intrinsically disordered region. \$300,000.00 (06/2023 – 05/2026). Unawarded.

Awards and Honors

- Lucy McCollum- Best undergraduate presentation at DAWGs (2025)
- Meagan McMann- Honorable Mention for graduate poster presentation at DAWGs (2025)
- Audrey Dolt – Student Research Competition Winner – TCU Biology (2025)
- Chrissy Baker – American Society Molecular Biology and Biochemistry travel grant recipient (2024)
- Chrissy Baker – Student Research Competition Winner – TCU Biology (2024)
- Chrissy Baker – Three-minute Thesis College of Science and Engineering Winner (2023)
- Thu Uyen Nguyen – Outstanding Undergraduate Presentation at the Texas Genetic Society Meeting (2022)
- Russell Vahrenkamp – Protein Science Anniversary Award – Virtual Symposium (2021)
- Davis Martin – College of Science and Engineering representative, Boller Award Competition (2021)
- Christine Hurd – Three-minute Thesis College of Science and Engineering Runner up (2019)
- Selected for the UW School of Medicine Postdoc Seminar Series. (2016)
- 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)

Invited Talks (* denotes TCU students)

Stewart MD, Herrington L*, Heidari S, Torabifard H (2025) Conserved functions and divergent interfaces: Probing proteins in gene expression regulation and DNA damage repair. Dallas-Area Worm Groups Meeting.

Stewart MD, Baker CNS*, Pajela PGC*, Lightle C*, Vahrenkamp R*, and Falkenburg O* (2024) Examining the molecular details in the web of BRCA1's protein-protein interaction network. Baylor

University Biology Department Seminar Series.

Stewart MD, Baker CNS*, Pajela PGC* (2024) Examining the molecular details in the web of BRCA1's protein-protein interaction network. Southwestern Oklahoma State University Chemistry Department Seminar Series.

O'Coyné S*, Caron A*, Stewart MD, McGillivray SM (2024) Repurposing a serotonin receptor antagonist as a potential novel antibiotic. Spring Meeting of the Texas Branch of the American Society of Microbiology.

Hurd CA*, Martin D*, Morote-Costas B*, Stewart MD (2019) Classifying variants of unknown significance in the BRCA1-PALB2 binding interface. International PALB2 Interest Group Meeting.

Stewart MD, Walsh T, Dhall A, Chatterjee C, King MC, Klevit RE (2019) Uncovering a function beyond folding for the BRCA1 binding partner, BARD1. Platform Presentation at Texas Protein Folders and Function Meeting.

Stewart MD, Zelin E, Dhall A, Walsh T, Upadhyay E, Corn JE, Chatterjee C, King MC, Klevit RE (2018) The role of BARD1 in ubiquitin ligase activity and gene repression functions of BRCA1. Invited Talk. Texas Woman's University Biology Department Seminar Series.

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.

External Poster Presentations (* denotes TCU students)

McMann M*, Carlon N*, and McCollum L*, and Stewart MD (2025) Connecting protein function to phenotype: investigating nucleosome ubiquitylation by BRCA1 in *C. elegans*. Dallas-Area Worm Groups Meeting.

McCollum L*, McMann M*, Carlon N*, and Stewart MD (2025) Exploring the enzymatic function of BRCA1 through BRC-1 nucleosome ubiquitylation in *C. elegans*. Dallas-Area Worm Groups Meeting.

Stites W*, Manuel S*, Stewart MD (2025) Investigating the Role of BRCA1 in Regulating Reactive Oxygen Species and Maintaining Genomic Stability. Dallas-Area Worm Groups Meeting.

Speed J*, Dzyuba S, Stewart MD (2025) Investigation of Inherited Cancer Associated PALB2 Variants. Protein Society Meeting.

Chadwick B*, O'Coynne S*, Caron A*, Stewart MD, McGillivray SM (2025) Efficacy of repurposed ClpXP protease inhibitors in *Bacillus anthracis* Sterne. Spring Meeting of the Texas Branch of the American Society of Microbiology.

Herrington L*, Heidari S, Torabifard H, Stewart MD (2025) Evolutionary insights into BRCA1 enzyme specificity: conserved mechanisms and divergent interfaces. Protein Society Meeting.

Herrington L*, Stewart MD (2025) Conserved Mechanism of Gene Repression? Characterization of an E3 Ubiquitin Ligase Inactive BRCA1. American Society for Molecular Biology and Biochemistry topic meeting on Evolution and Core Processes in Gene Expression.

Hoff E*, Thapa I*, McMann M*, Stewart MD (2025) Identifying the nucleosome ubiquitylation role of BRCA1 in transcriptional regulation using *C. elegans*. American Society for Molecular Biology and Biochemistry topic meeting on Evolution and Core Processes in Gene Expression.

McMann M*, Carlon N*, McCollum L*, Stewart MD (2025) Exploring the enzymatic function of BRCA1 through BRC-1 nucleosome ubiquitylation in *C. elegans*. Texas Genetics Society.

Heidari S, Torabifard H, Stewart MD (2025) Structural Insights into BRCA1 Complexes in Human and *C. elegans* via GPU-Accelerated molecular dynamics Simulations. American Chemical Society Conference.

Dolt A*, Speed J*, Baker C*, Castillo P*, Martin H*, Stewart MD (2025) Investigating the effects of patient variants and phosphorylation on the BRCA1/PALB2 interaction. American Chemical Society Conference.

Baker C* and Stewart MD (2024) Visualizing the Structural Effects of Proline Variants on the BRCA1-PALB2 Binding Interface. Meeting of the American Society for Molecular Biology and Biochemistry.

Cascella M* and Stewart MD (2024) Determining the functions of BRCA1 that are mediated through nucleosome ubiquitylation. Meeting of the American Society for Molecular Biology and Biochemistry.

Martin H* and Stewart MD (2024) In Vitro Study of the Effect of PALB2 Phosphorylation on BRCA1-PALB2 Dimerization. Meeting of the American Society for Molecular Biology and Biochemistry.

Castillo P*, Martin D*, Stewart MD (2024) Investigating the effects of variants of unknown significance on the binding interaction between BRCA1 and PALB2. Meeting of the American Society for Molecular Biology and Biochemistry.

Dolt A*, Martin H*, Stewart MD (2024) Investigating the effects of phosphorylation on the

BRCA1/PALB2 interaction. American Chemical Society Conference.

Cascella M* and Stewart MD (2023) BRC-1 and BRD-1 Nucleosome Ubiquitylation: Conserved Features and Functional Importance. International *C. elegans* Conference.

Castillo P*, Martin D*, Stewart MD (2023) Investigating the Effects of Variants of Unknown Significance on the Binding Interaction between BRCA1 and PALB2 for Breast Cancer Predisposition. American Chemical Society Meeting.

Lightle C*, Vahrenkamp R*, Falkenburg O*, Stewart MD (2023) Characterizing the substrate target of BRCA1/ BARD1 in *C. elegans*. Texas Genetics Society.

Nguyen TU*, Thapa I*, Jeffries M, Stewart MD (2022) Transcriptional Regulation as a Conserved Function of BRCA1/ BARD1 in *Caenorhabditis elegans*. Texas Genetics Society.

Stewart MD, Martin DE*, Lee J* (2022) Targeting protein-protein interactions in the DNA damage response pathway. Federation of American Societies for Experimental Biology: Cell Signaling in Cancer Conference.

Thapa I*, Jeffries M, Stewart MD (2021) Identifying the role of BRCA1 in transcriptional regulation using *Caenorhabditis elegans*. International *C. elegans* Conference.

Martin D*, Lee J*, Stewart MD (2021) In vitro evaluation of variants of unknown significance in the tumor suppressor protein, PALB2. International Protein Society Meeting.

Vahrenkamp R*, Witus S, Klevit R, Stewart MD (2021) Investigating the functional conservation of BRCA1/BARD1 E3 ligase activity in *C. elegans*. International Protein Society Meeting.

Thapa I*, Jefferies M, Stewart MD (2021) Identifying the role of BRCA1 in transcriptional regulation using *Caenorhabditis elegans*. Texas Genetics Society.

Hurd CA*, Martin D*, Morote-Costas B*, Stewart MD (2019) Classifying variants of unknown significance in the BRCA1-PALB2 binding interface. American Society of Human Genetics Meeting.

Morote-Costas B*, Hurd CA*, Stewart MD (2019) Determining the effects of BRCA1 activation on its structure and function. American Society for Biochemistry and Molecular Biology Regional Meeting.

Hurd CA*, Morote-Costas B*, Stewart MD (2019) Coming together in the DNA damage response: interactions with the intrinsically disordered region of BRCA1. International Protein Society Meeting.

Witus S, Zelter A, Henry E, Stewart MD, Davis T, Klevit RE (2019) Chromatin as Viewed by Ubiquitin Writers: Determinants of H2A Site Specificity by RING Ubiquitin E3 ligases. International Protein Society Meeting.

Hurd CA*, Stewart MD (2019) In all disorder a secret order: the interactions of the intrinsically disordered region of BRCA1. Texas Protein Folders and Function Meeting.

Stewart MD, Zelin E, Walsh T, Corn JE, King MC, Klevit RE (2018) The role of the “silent” partner, BARD1, in BRCA1 ubiquitin ligase activity. International Protein Society Meeting.

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 α . Texas protein folders meeting.

Stewart MD, Igumenova TI (2011) Dynamics of a zinc coordination site in C1B domain of protein kinase C α . 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 α C1B domain. A. I. Scott symposium.

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

Master's Theses Directed

Meagan McMann (2024-2026) H2A ubiquitylation drives BRC-1 loss phenotypes in *C. elegans*.

Jamison Speed (2024-2026) Structure and function of PALB2 variants of unknown significance.

Chrissy Baker (2023- 2024) Effects of proline variants in the BRCA1/PALB2 binding interface.

Russell Vahrenkamp (2019-2021) Conservation of BRCA1/BARD1 nucleosome-binding in *C. elegans*.

Ishor Thapa (2019-2021) Conservation of transcription regulation by *C. elegans* BRCA1/BARD1.

Christine Hurd (2018-2020) Developing an in vitro system to study PALB2 / BRCA1 interaction.

Undergraduate Honor's Theses Directed

Styrling Murray (2025-current) Investigating structure changes in PALB2 VUS.

Shobe Manuel (2025-current) Use of antioxidants to restore health in BRC-1 mutant worms.

Linette Medrano (2024-current) Exploring Exo1 as a synthetic-lethal BRCA1 target.

Maddie Adam (2024-current) Targeting the BRCA1/PALB2 interface with small molecules.

Will Stites (2024-current) Nucleosome ubiquitylation effects on generation of ROS in worms.

Lauren Herrington (2023-2025) Assessing a ligase dead mutant in BRCA1 *C. elegans*.

Hayes Martin (2021-2024) Effect of variants on PALB2 - BRCA1 interaction.
 Aiza Butt (2021-2024) Molecular details of the BRCA1 interaction with estrogen receptor.
 Caitlyn Lightle (2020-2023) Determining the H2A ubiquitylation sites modified in *C. elegans*.
 Owen Falkenberg (2020-2022) Enzymatic activity of BARD1 mutants from *C. elegans*.
 Anna Norman (2020-2022) Determining the P53 and BRCA1 binding regions.
 Molly Sindelar (2019-2022) Study of the BRCA1 interaction with estrogen receptor.
 Jane Lee (2019-2021) Effects of BRCA1 construct length on PALB2 interaction.
 Davis Martin (2019-2021) Assessing the protein function in PALB2 inherited mutations.
 Brian Morote-Costas (2017-2019) Characterization of BRCA1 phospho-mimicking mutants.
 Khoa Dao (2017-2019) Characterization of P53 and BRCA1 interaction interface.
 Natali Shumlak (2016-2018) Characterization of *C. elegans* BRCA1 and BARD1 homologs.

Additional Independent Research Projects Directed

Anna Sugg (2025-current) Nucleosome ubiquitylation effects on meiosis in worms.
 Collin Stone (2025-current) Effects of BRCA1 phosphorylation on PALB2 interaction.
 Cherokee Wooley (2025-current) Generating high-throughput BRCA1/PALB2 binding assays.
 Nathalie Carlon (2024-current) Nucleosome ubiquitylation effects on worm embryonic lethality.
 Lucy McCollum (2024-2026) Nucleosome ubiquitylation effects on fecundity in worms.
 Elizabeth Hoff (2023-2025) Nucleosome ubiquitylation effects on gene expression in worms.
 Audrey Dolt (2022-2025) Effects of BRCA1 phosphorylation on PALB2 interaction.
 Coby Gratzler (2022-2024) Effects of BRCA1 nucleosome ubiquitylation on worm fecundity.
 Precious Castillo (2021-2024) Characterization of BRCA1 variants of unknown significance.
 Colby McClaugherty (2021-2023) The role of enzymatic activity in worm BRCA1 function.
 Jack Magtiby (2022-2023) Modification of BRCA1 shortest with fluorescent compounds.
 Chloe Duvak (2021-2023) Effects of BRCA1 phosphorylation on PALB2 interaction.
 Meenal Cascella (2020-2023) Investigating the function of BRCA1 in Cyp pathway function.
 Thu Uyen Nguyen (2021-2022) Effects of *brc-1/brd-1* on estrogen response in *C. elegans*.
 Suzanna Camp (2018-2020) Characterization of BRCA1 / FANCA interface.
 Russell Vahrenkamp (2018-2019) Determining the role of the Ube2H tail in function / localization.
 Sophia Cosmich (2018-2019) Characterization of human variants in the PALB2/ BRCA1 interface
 Courtney Skalley (2017-2019) Specificity of substrate interactions in BRCA1 homologs.
 Christine Hurd (2017) Cloning of the BRCA1 binding region in PALB2.
 Emily Duncan (2014-2015) Purification and characterization of two novel ubiquitin ligases.
 Ernesto Coronado (2014-2015) Purification and characterization of hyperactive BRCA1 variants.

Research Professional Development

Rethinking Your Research Funding Course by NCFDD	(2025)
Molecular mechanisms of genome integrity and therapeutics webinar	(2025)
Regulation of cancer-associated genes via DNA damage and repair webinar	(2025)
Dallas Area Worm Group Meeting	(2025)
International Protein Society Meeting	(2025)
American Society for Molecular Biology and Biochemistry Conference	(2024)
International <i>C. elegans</i> Conference	(2023)
Basser Center for BRCA annual symposium	(2023)
Cell Signaling in Cancer Conference	(2022)
International <i>C. elegans</i> Conference	(2021)
International Protein Society Meeting	(2021)
COVID-19: A Protein Science Approach Webinar	(2020)
Texas Protein Folders and Function Meeting	(2019)

International Protein Society Meeting (2018)

TEACHING

Courses Taught

Instructor – Fundamentals of Biochemistry (Fall 2017-2025, Spring even years)
 BIOL 40513 – Biology Department, Texas Christian University

Co-Instructor – Professional Development (Fall 2019, 2021-2025)
 BIOL 60401 – Biology Department, Texas Christian University

Instructor – Biology Pedagogical Techniques (Spring 2024)
 BIOL 60220 – Biology Department, Texas Christian University

Instructor – Structural Biology of Drug Design (Spring 2019, 2021, 2023)
 BIOL/CHEM 40523, BIOL 70950, CHEM 60130 - Texas Christian University

Instructor – Current Research in Biology Seminar (Spring 2023-2024)
 BIOL 40001 – Biology Department, Texas Christian University

Co-Instructor – Cellular, Molecular, and Developmental Biology (Spring 2020-2022)
 BIOL 30603 – Biology Department, Texas Christian University

Instructor – DNA Damage Signaling Seminar (Fall 2020)
 BIOL 60910 – Biology Department, Texas Christian University

Guest Lecturer – Structural Biology (Fall 2013-2016)
 BIOC 530 - Biochemistry Department, University of Washington

Co-Instructor – Senior Seminar: Cell Signaling in Cancer Biology (Summer 2016)
 BIOL 485 - Biology Department, University of Washington

Guest Lecturer – Biophysics (Spring 2013)
 BICH 624 - Biochemistry Department, Texas A&M University

Guest Lecturer – NMR Spectroscopy (Spring 2009)
 CHEM 618 - Chemistry Department, Texas A&M University

Recitation Instructor – Comprehensive Biochemistry I (Fall 2008)
 BICH 410 - Biochemistry Department, Texas A&M University

Teaching Honors

Nominated by the Biology Department for the Dean's Award for Teaching (2023)
 Teaching assistant of the year (2008)

Teaching Professional Development

Read, Respond, Reflect Workshop – Koehler Center (2025)

Teaching in large classrooms workshop – BIOL lunch and learn (2025)

Case-Based Active Science Education (CASE) Fellow (2024-2025)

Recognizing and assisting distressed students – TCU Dean of Students (2024)

Conducted a pedagogy in practice workshop called “Exploring Inquiry-Based Learning” for the Koehler Center (2022&2023)

Exploring Difference in the Biology Classroom workshop - Personal Genetics Ed Project (2023)

Trauma Informed Classroom workshop – Koehler Center (2023)

Organized the “What Inclusive Instructors Do” book club (2022)

The Student Experience Reimagined, D2L webinar (2022)

Protein Society Primarily Undergraduate University Virtual Brainstorm (2022)

Building Inclusive Teams workshop - Koehler Center (2021)

DEI 21 Day Challenge (2021)

Hybrid Course Training (2020)

Protein Society Educators Workshop, International Protein Society Meeting	(2018,2019)
Inclusive Communication Workshop, Texas Christian University	(2019)
Faculty Bystander Intervention Program, Texas Christian University	(2019)
TCU new faculty orientation workshops	(2017)
Science Teaching Experience for Postdocs Fellow, University of Washington	(2015-2016)

SERVICE

Student Engagement

Faculty Supervisor of TCU Women in Science & Engineering	(2021-current)
STEM Scholar Mentor for three mentees – TCU	(2020-current)
Health Professions Academic Advisor – TCU CSE	(2018-current)
EPIC (Experiential Projects to Impact the Community) project mentor	(2022-2024)
College 101 Mentoring – TCU Center for Academic Services	(2020, 2022, 2023)

Committees

A&P Instructor hiring committee – TCU Biology	(2025-current)
Koehler Center Faculty Advisory Board – TCU	(2025-current)
Co-chair of Committee on Graduate Studies – TCU Biology	(2023-current)
Chair of the ad hoc DEI committee in Biology – TCU Biology	(2023-current)
Curriculum and Assessment Committee – TCU Biology	(2023-current)
College Curriculum Committee – TCU CSE	(2022-current)
Mondays at TCU – TCU Biology	(2018-current)
Health Professions Advisory Committee – TCU CSE	(2018-current)
Tenure-track Neuroscientist Hiring Committee – TCU Psych	(2024)
Co-chair of the Biology Green Honors Chair Committee	(2022-2023)
TCU Invests in Scholarship Review Committee – TCU Sponsored Programs	(2022)
Cell Biology Lecturer Hiring Committee – TCU Biology	(2022)
Cell Biology Instructor Hiring Committee – TCU Biology	(2022)
Committee on Graduate Studies – TCU Biology	(2018-2023)

Service on Graduate Theses Committees

Aeron Pennington, PhD Student Dr. Shauna McGillivray Lab, Biology Department	(2024-Current)
Liam Claton, Ph.D. Student Dr. Eric Simanek Lab, Chemistry Department	(2023-Current)
Casey Patterson-Gardner, Ph.D. Student Dr. Eric Simanek Lab, Chemistry Department	(2022-2025)
Alex Caron, MS Student Dr. Shauna McGillivray Lab, Biology Department	(2023-2024)
Bridey Brown, MS Student Hale and Chumley Labs, Biology Department	(2022-2024)
Kyle Gallegos, MS Student Dr. Shauna McGillivray Lab, Biology Department	(2021-2023)
Jason Mars, MS Student Dr. Eric Simanek Lab, Chemistry Department	(2020-2022)
Andrea Gabriela Guedez Pena, Ph.D. Student Dr. Youngha Ryu Lab, Chemistry Department	(2017-2022)

Service on Undergraduate Theses Committees

David Peebles – Dr. Matt Chumchal, Biology Department	(2025)
Halley Tamene – Dr. Giri Akkaraju, Biology Department	(2024)
Abi Plylar – Dr. Shauna McGillivray, Biology Department	(2024)
Sheridan O'Coynne – Dr. Shauna McGillivray, Biology Department	(2024)
Kennadi Cook – Dr. Uma Tauber, Psychology Department	(2023)
Leah Marut – Dr. Giri Akkaraju, Biology Department	(2023)
Joseph Mellberg – Dr. Eric Simanek, Chemistry Department	(2023)
Camryn Gloor – Dr. Eric Simanek, Chemistry Department	(2022)
Lauren Klingemann - Shauna McGillivray, Biology Department	(2022)
Chloe Ricke – Dr. Jean-Luc Montchamp, Chemistry Department	(2022)
Shriya Sachdeva – Dr. Matt Hale, Biology Department	(2022)
Emily Hoffer – Dr. Kayla Green, Chemistry Department	(2021)
Charles Edgar – Dr. Michael Chumley, Biology Department	(2020)
Caitlyn Vilas – Dr. Michael Chumley, Biology Department	(2020)
Sarah Taetz – Dr. Giri Akkaraju, Biology Department	(2019)
Caroline Wade – Dr. Marlo Jefferies, Biology Department	(2019)
Hannah Nettelblad – Dr. Marlo Jefferies, Biology Department	(2019)

Service Honors

Nominated for the Clark Society Endowed Faculty Fund Award	(2025)
Semi-Finalist for the TCU Chancellor's DEI Award	(2023)
Women in Science & Engineering won the TCU Excellence in Community Impact Award	(2023)
Mercy Clinic Women's Health EPIC project won best poster in category at TCU SRS	(2023)
Nominated for the Clark Society Endowed Faculty Fund Award	(2021)
National Residence Hall Honorary Advisor of the Month	(2019)
Nominated for the Wassenich Award for Mentoring in the TCU Community	(2019)

Other Professional Service

-Led TCU Biology faculty journal club on growth mindset	(2025)
-Biochemistry Advisory Board for Cengage	(2024-2025)
- <i>Protein Science</i> Early Career Researcher Review Board	(2022-current)
-Speed mentor for at the FASEB conference in Cell Signaling	(2022)
-TCU STEM Scholars Seminar on Biology Research Topics	(2018-2022)
-TCU faculty favorite lecture for public: DNA and Cancer Connection	(2022)
-Experience TCU research talk for perspective student families	(2022)
-Latina STEM Fellowship (LSF) Virtual Summer Camp Lab	(2020)
-Session chair for Protein Society Meeting	(2018 & 2019)
-Provided peer review for scientific journals	(2015-Current)
-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)
-Mentor for Postbaccalaureate Research Education Program (PREP) to diversify science	(2014-2015)
-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)