

# Crystal Shana Conn

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[CSConnLab.com](http://CSConnLab.com)

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## EDUCATION

- 2008-2013     **Cornell University**, Ithaca, NY  
Department of Molecular Biology & Genetics  
Ph.D., Genetics, Genomics, & Development; *Minor*: Biochemistry
- 2003-2007     **The Pennsylvania State University**, University Park, State College, PA  
B.S., Biochemistry & Molecular Biology; *Minor*: Chemistry, Physics
- 1999-2003     **Shoreham-Wading River High School**, Shoreham, NY  
Regents diploma

## PROFESSIONAL & RESEARCH EXPERIENCE

- 2020-            **Assistant Professor**, University of Pennsylvania, Perelman School of Medicine  
Department of Radiation Oncology
- 2013-2019     **Postdoctoral Fellow**, University of California, San Francisco (UCSF)  
Helen Diller Family Comprehensive Cancer Center  
*Advisor*: Davide Ruggero (Cancer Biology)  
*Research*: mouse models of cancer development and progression; identification of selective mRNA translational pathways utilized in lung, prostate, and liver cancer
- 2008-2013     **Graduate Student**, Cornell University  
Department of Molecular Biology & Genetics  
*Advisor*: Shu-Bing Qian 2009-2013 (Molecular Biology)  
*Research*: identification of aberrant translation through nutrient and environmental stress; investigation of specialized ribosomes and co-translational degradation
- 2008            **Quality Assurance**, Pfizer (Johnson & Johnson), Lititz, PA
- 2007            **Undergraduate Student**, Penn State, University Park  
*Advisor*: John Golbeck (Biophysics)  
*Research*: FPLC restoration; developed protein purification protocols for all projects; optimized purification of *Heliobacterium Modesticaldum*
- 2006-2007     **Cooperative Education Internship**, McNeil Consumer Healthcare, PA  
*Advisor*: Shun-Por Li (Pharmacology)  
*Research*: formulation and development of sustained release dosage tablets
- 2004-2006     **Undergraduate Student**, Penn State, Berks  
*Advisor*: Jianbing Qi (Physical Chemistry)  
*Research*: built a magneto-optical trap to cool and trap neutral atoms for study

## HONORS AND AWARDS

- 2024            Michael P. Nusbaum Graduate Student Mentoring Award
- 2023-            Department of Defense, Idea Development Award - New Investigator
- 2023-            Department of Defense, Exploration-Hypothesis Development Award

2020-2021	The Thomas B. and Jeannette E. Laws McCabe Fund (\$50,000)
2020	Abramson Cancer Center Support Grant, pilot under P30CA016520, (\$100,000)
2017-2019	AACR-Bayer Prostate Cancer Research Fellowship (\$110,000)
2014-2017	American Cancer Society Postdoctoral Fellowship, PF-14-212-01-RMC, (\$163,500)
2014	NIH Ruth L. Kirschstein National Research Service Award ( <i>withdrew</i> )
2011-2012	NIH Training Grant extended support, T32GM00761 Cornell University
2007	NSF Summer Undergraduate award, Golbeck Lab
2003	Shoreham Pharmacy Award for student majoring in Biomedical science

## PROFESSIONAL ACTIVITIES

### Leadership and Committees

2023-	Review committee, Summer Undergraduate Program (SUPERS)
2022-	Review committee, PennPREP (Post-Baccalaureate Research Education Program)
2021-	Co-chair, Radiation Oncology DEI Education and Research Subcommittee
2021-	Internal Board, Cell & Animal Radiation Core, Abramson Comprehensive Cancer Center
2020-	Admissions Committee, Cell and Molecular Biology Graduate Group
2020-	Member, Cell and Molecular Biology Graduate Group, Biochemistry and Molecular Biophysics Graduate Group, Pharmacology Graduate Group, University of Pennsylvania
2020-	Invited Lecture and Panelist, Summer Undergraduate Programs (SUPERS and SUIP), Perelman School of Medicine
2020-	Member, Trainee Advocacy Alliance (TAA), Penn Biomedical research community
2022	Radiation Oncology Faculty Search Committee, Perelman School of Medicine
2022	Biomedical Sciences Faculty Search Committee, School of Veterinary Medicine
2022	ResearchHERS Ambassador, Invited Speaker, the American Cancer Society
2018	Invited Speaker, the American Cancer Society for Bay Area Relay for Life events
2013	Team Leader, Expanding Your Horizons (EYH) Workshop, Cornell University
2012-2013	Mentor, The Learning Web - hands-on experiential education, Tompkins County, NY
2012	Piazza Instructor, Women in Technology Sharing Online (WitsOn)
2010-2013	Founding member, Graduates Employing Empathy Knowledge & Service, Cornell University
2010	Invited Panelist, Hughes Summer Research Student Panel, Cornell University
2003-2007	Member, Women in Science and Engineering (WISE) and Association for Women in Science (AWIS), Pennsylvania State University

### Societies

2020-	Member, Radiation Research Society, Early Career Investigator
2018-	Member, RNA Society
2016-	Member, American Association for Cancer Research (AACR)
2015-	Member, American Association for the Advancement of Science (AAAS)

### Teaching Experience

2023-	Lecturer: UPenn graduate program courses BIOM6000
2023-	Lecturer: UPenn graduate program courses CAMB530
2023-	Thesis advisor, Morgan McGrath, Cancer Biology graduate program
2022-	Thesis advisor, Nora Kiledjian, Genetics & Epigenetics graduate program
2022-	Panelist, West Philadelphia High Schools for STEM career and cancer biology concepts
2021-	Lecturer: UPenn, Summer Undergraduate Program (SUPERS)
2020-	Lecturer: UPenn graduate program courses CAMB512, 605, 704
2020-	Mentoring committee member/chair, currently 15 <i>PhD candidates</i>
2021-2022	Co-Director CAMB512: Concepts in Cancer Biology
2016-2019	Mentor for High School & Undergraduate students, Job Shadowing
2010	Laboratory Instructor, BioGD2810: Genetics & Development, Cornell University

2005 Teaching Assistant, Experimental Chemistry II, Penn State, Berks

## INVITED ORAL PRESENTATIONS

### External

2024 Department of Biological Chemistry Seminar, University of Michigan  
2024 Molecular and Cellular Oncogenesis Program, The Wistar Institute  
2023 Biomedical Sciences Seminar Series, Cornell University, Ithaca, NY  
2021 7th International Conference on Tumor Microenvironment and Cellular Stress, Kos, Greece  
2021 Prostate Cancer Center of Excellence at the Tisch Cancer Institute, Mount Sinai  
2020 Protein Synthesis & Translational Control, CSHL  
2019 Pharmacology Seminar Series, University of Michigan Medical School  
2018 Protein Homeostasis in Health & Disease, CSHL  
2017 Protein Synthesis and Translational Control, EMBO

### Internal

#### ° Awarded

2023 Dr. George W. Raiziss 39<sup>th</sup> Annual Retreat (BMB), Skytop Lodge Poconos  
2022 Student invited speaker, Women+ in STEM at Penn Research Symposium  
2022 RadioBiology and Imaging Program (RBI) Retreat, University of Pennsylvania  
2020 Distinguished Lectures in Cancer Research, Abramson Family Cancer Research Institute  
2017 °UCSF Annual Prostate Cancer Retreat, *awarded best fellow's talk*  
2015 °Helen Diller Family Comprehensive Cancer Center Scientific Retreat, Santa Cruz  
° [Press Release](#) "Building a Culture to Fight the Disease"  
2012 Nutrition, Metabolism & Disease 1st symposium, Cornell University

## PUBLICATIONS

### First/Last Author

- Lines CL, McGrath MJ, Dorwart T, and **Conn CS**. The integrated stress response in cancer progression: a force for plasticity and resistance. *Front. Oncol.* 2023 Aug 3;13:1206561. PMID: 37601686
- **\*Conn CS**, \*Yang H, Tom HJ, Ikeda K, Osés-Prieto JA, Nair S, Oguri Y, Vu H, Kajimura S., DeBerardinis RJ, Burlingame AL, Ruggero D. The major cap-binding protein eIF4E regulates lipid homeostasis and diet-induced obesity. *Nature Metabolism.* 2021 Feb;3(2) :244-257. PMID: 33619378  
° [Press Release](#) "Store Fat or Burn It? Targeting a Single Protein Flips the Switch" \* - **Co-first**
- \*Nguyen HG, ✧**\*Conn CS**, Kye Y, Xue L, Forester CM, Cowan JE, Hsieh AC, Cunningham JT, Truillet C, Tameire F, Evans MJ, Evans CP, Yang JC, Hann B, Koumenis C, Walter P, Carroll PR, ✧Ruggero D. Development of a stress response therapy targeting aggressive prostate cancer. *Science Translational Med.* 2018 May 2;10(439). PMID: 29720449  
° [Focus Cancer Article](#) in Science Translational Medicine Issue 439  
° [Press Release](#) "Research Finds 'Achilles Heel' for Aggressive Prostate Cancer"  
✧ - **Co-corresponding**; \* - **Co-first**
- \*Truitt ML, **\*Conn CS**, Shi Z, Pang X, Tokuyasu T, Coady AM, Seo Y, Barna M, Ruggero D. Differential Requirements for eIF4E Dose in Normal Development and Cancer. *Cell.* 2015; 162(1):59-71. PMID: 26095252  
° [Press Release](#) "Cancer Blocked by Halving Levels of Protein thought to be 'Untouchable'"  
° *Recommended by Faculty 1000, September 2015*  
\* - **Authors contributed equally to this work**

- **Conn CS** and Qian SB. Nutrient signaling in Protein Homeostasis: an increase in quantity at the expense of protein quality. *Science Signaling* 2013; 6(271):ra24. PMID: 23592839
  - Editor's choice for Cell Biology in *Science* Volume 340, Number 6131, April 2013
  - *Recommended by Faculty 1000, May 2013*
- **Conn CS** and Qian SB. mTOR signaling in protein homeostasis: Less is more? *Cell Cycle* 2011; 10(12). PMID: 21555915
- \*Sun J, \***Conn CS**, Han Y, Yeung V, Qian SB. PI3K-mTORC1 attenuates stress response by inhibiting cap-independent Hsp70 translation. *J Biol Chem* 2011; 286:6791-800. PMID: 21177857
  - \* - **Authors contributed equally to this work**

## Additional Co-author

- Zhang D, Li AM, Hu G, Huang M, Yang F, Zhang L, Wellen KE, Xu X, **Conn CS**, Zou W, Kahn M, Rhoades SD, Weljie AM, Fuchs SY, Amankulor N, Yoshor D, Ye J, Koumenis C, Gong Y, Fan Y. PHGDH-mediated endothelial metabolism drives glioblastoma resistance to chimeric antigen receptor T cell immunotherapy. *Cell Metabolism*. 2023 Mar 7;35(3):517-534.e8. PMID: 36804058
- Chiu H, Buono R, Jackson LV, Herzog L, Mallya S, **Conn CS**, Ruggero D, and Fruman D. Reduced eIF4E function impairs B-cell leukemia without altering normal B-lymphocyte function. *iScience*. 2021 Jun 17;24(7):102748. PMID: 34278258
- Tameire F, Verginadis II, Leli NM, Polte C, **Conn CS**, Ojha R, Salas Salinas C, Chinga F, Monroy AM, Fu W, Wang P, Kossenkov A, Ye J, Amaravadi RK, Ignatova Z, Fuchs SY, Diehl JA, Ruggero D, and Koumenis C. ATF4 couples MYC-dependent translational activity to bioenergetic demands during tumor progression. *Nat Cell Biol*. 2019 Jul;21(7):889-899. PMID: 31263264
  - *Recommended by Faculty 1000, 2019*
- Wei J, Kishton RJ, Angel M, **Conn CS**, Dalla-Venezia N, Marcel V, Vincent A, Catez F, Ferré S, Ayadi L, Marchand V, Dersh D, Gibbs JS, Ivanov IP, Fridlyand N, Couté Y, Diaz JJ, Qian SB, Staudt LM, Restifo NP, Yewdell JW. Ribosomal Proteins Regulate MHC Class I Peptide Generation for Immunosurveillance. *Mol Cell*. 2019 Mar 21;73(6):1162-1173.e5. PMID: 30712990
- Gwinn DM, Lee AG, Briones-Martin-Del-Campo M, **Conn CS**, Simpson DR, Scott AI, Le A, Cowan TM, Ruggero D, Sweet-Cordero EA. Oncogenic KRAS Regulates Amino Acid Homeostasis and Asparagine Biosynthesis via ATF4 and Alters Sensitivity to L-Asparaginase. *Cancer Cell*. 2018 Jan 8;33(1):91-107.e6. PMID: 29316436
  - *Recommended by Faculty 1000, February 2018*
- Truillet C, Cunningham JT, Parker MF, Huynh LT, **Conn CS**, Ruggero D, Lewis JS, Evans MJ. Non-invasive measurement of mTORC1 signaling with 89Zr-transferrin. *Clin Cancer Res*. 2016 Dec 22. pii: clincanres.2448.2016. PMID: 28007777
- Zhang X, Gao X, Coots RA, **Conn CS**, Liu B, Qian SB. Translational control of the cytosolic stress response by mitochondrial ribosomal protein L18. *Nat Struct Mol Biol*. 2015; 22(5):404-10. PMID: 25866880
  - Editor's choice in *Science* Volume 348, Number 6239, June 2015
  - News & Views in *Nature Structural & Molecular Biology* 22, 350–351, May 2015
- Liu B, **Conn CS**, and Qian SB. Viewing folding of nascent polypeptide chains from ribosomes. *Expert Rev Proteomics* 2012; 9(6):579-81. PMID: 23256666

## PATENTS

- D Ruggero, H Nguyen, P Carroll, C Conn; Cancer Treatment Targeted to Tumor Adaptive Responses to Protein Synthesis Stress. US Patent App. 17/576,623

## SCIENTIFIC MENTORING

### Research Students, Technicians, Summer Scholars

<u>Current Students</u>	<u>Degree</u>	<u>Duration</u>	<u>Following Position</u>
Marissa Howard	B.S.	August 2023- <i>present</i>	
<u>Past Students</u>	<u>Degree</u>	<u>Duration</u>	<u>Following Position</u>
Lucy Kamlewechi	<i>-in progress</i>	Summer 2023	B.S. in progress
Tanis Dorwart	B.S.	August 2021- 2023	PhD CAMB program UPenn
Caleb Lines	B.S.	Summer '21, July 2022- 2023	MD/PhD program WashU
Mariaassumpta Ezedimma		Summer 2022	B.S. in progress
Julia Fiedor	<i>-in progress</i>	Spring – Fall 2022	B.S. in progress
Susana Pariona	<i>-in progress</i>	Summer 2021	B.S. in progress
Brian Hochstuhl	B.S. & M.S.	Fall 2020 – Fall 2021	MBA, manager at CHOP
Harrison Jas Tom	B.S. & B.A.	Fall 2019 – Fall 2021	graduate school at UTSW
Yae Kye	B.S.	Winter 2015 - Sping 2018	M.D. candidate
Elizabeth Ferrie	B.S.	Summer 2012 - Fall 2013	J.D. Candidate, Harvard Law
<b>Thesis Title:</b> “ <i>Functional Analysis of Ribosomal Protein L8 (RPL8) in Mammalian Cells</i> ”			
XiaoXing Shen	B.S.	Spring 2011 - 2012	Master’s at John Hopkins Univ.
Haerin Paik	B.S.	Fall 2010 - 2012	M.D. at Seoul Nat. Univ.
<b>Thesis Title:</b> “ <i>Functional analysis of Ribosomal Proteins using systemic RNA interference</i> ”			
Jessie Luk	B.S.	Summer 2009 - 2010	Master’s at Georgetown Univ.

### Post-doctoral and Graduate Trainees

<u>Current</u>	<u>Degree</u>	<u>Duration</u>	<u>Following Position</u>
Sayantani Das	Ph.D.	Fall 2023- <i>present</i>	
Morgan McGrath	B.S.	Spring 2023- <i>present</i>	
Ashley Yang	B.S.; M.S.	Spring 2023- <i>present</i>	
Nora Kiledjian	B.S.	Summer 2022- <i>present</i>	
<u>Past Mentees</u>	<u>Year Began</u>	<u>Position/Duration</u>	<u>Following Position</u>
Ian Yannuzzi	Fall 2023	Rotation/ 2024	CAMB CB graduate student
Anna Thickens	Fall 2023	Rotation/Fall 2023	CAMB CB graduate student
Eleanor Sams	Fall 2022	Rotation/ Spring 2023	CAMB graduate student
Pratibha Srivastava	Ph.D.	Spring- Winter 2022	Scientist at CHOP
Ashvathi Raghavakaimal	2021	Rotation/ 2022	CAMB CB graduate student
Maya Foster	Fall 2021	Rotation/ 2022	CAMB CB graduate student
Romie Azor	Fall 2021	Rotation/ 2022	BMB graduate student
Ellen Lavorando	Fall 2021	Rotation/ 2022	BMB graduate student
Nora Kiledjian	Fall 2021	Rotation/ Fall 2021	CAMB G&E graduate student
Paul Billing-Ross	Fall 2012	Rotation/Jan-March 2013	PhD Candidate GG&D
Ryan A. Coots	Fall 2010	Rotation/Fall 2010	PhD Qian Lab
Elliot Kahen	Fall 2009	Rotation/March-May 2010	Moffitt Cancer Center
Botao Liu	Fall 2009	Rotation/Jan-March 2010	PhD Qian Lab

### Committee Member for Graduate Trainees

<u>Past Students</u>	<u>Year Began</u>	<u>Duration</u>	<u>Following Position</u>
Krittin Trihemasava	Fall 2021	January 2024- <i>present</i>	PhD Candidate IGG
Kaeri M. Medina	Fall 2021	Summer 2023- <i>present</i>	PhD Candidate MVP
Morgan Brown	Fall 2021	Summer 2023- <i>present</i>	PhD Candidate CB
Romie Azor	Fall 2021	Summer 2023- <i>present</i>	PhD Candidate BMB
Dominic Santoleri	Fall 2017	Summer 2023- <i>present</i>	PhD Candidate BMB
Eliana von Krusenstiern	2021	Spring 2023- <i>present</i>	PhD Candidate PHARM
Prithvi Sinha	Fall 2021	Summer 2022- <i>present</i>	PhD Candidate PHARM
Timothy Cater	Fall 2020	Fall 2022- <i>present</i>	PhD Candidate CAMB- G&E
Heidi Elashal	Fall 2019	Fall 2021- <i>present</i>	PhD Candidate BMB
Bianca Pingul	Fall 2019	Fall 2021- Fall '23	PhD -BMB

Michael Scaglione	Fall 2019	Summer 2021- <i>present</i>	PhD Candidate IGG
Yanqing Jiang	Fall 2019	Summer 2021- <i>present</i>	PhD Candidate CAMB- CB
Duo Zhang	Fall 2016	Summer 2021- Spring '23	PhD CAMB- CB
Julian Stoute	Fall 2017	Summer 2021- Spring '23	PhD -BMB
Mike Noji	Fall 2018	Summer 2020- <i>present</i>	PhD Candidate CAMB- CB

## MENTORING TRAINING

***Academics for Black Survival and Wellness***, created by Pearis Bellamy and Dr. Della Mosley

- *Academics for Black Survival and Wellness (7-day training), 06/2020*
- *Academics for Black Survival and Wellness -Remix (5-day training), 08/2020*

***Trainee Advocacy Alliance (TAA)***, started alongside *Minority Students Network (>12hr of training)*

- CAPS' I CARE training for Faculty/Staff – February 25, 2021
- Restorative Justice: experiencing a circle, facilitation skills, planning a Circle – Spring 2021
- Center for Teaching and Learning (CTL), inclusive mentorship training – June 28, 2021
- Racial Literacy Training – September 24, 2021

### ***Research Mentor Training***

- Effective Communication and Aligning Expectations; Dr. Emma Meagher – May 16, 2023

## ADDITIONAL VOLUNTEER WORK & SOCIETIES

RadOnc DEI committee outreach and local teaching/donation drives 2020-*present*, Association for Cancer Research (AACR) Runners for Research (2023 – Broad St Run and Philadelphia half-Marathon), American Cancer Society invited speaker for Summer Healthcare Experience (SHE) in Oncology Summer 2022-2023, American Cancer Society Ambassador 2022, Job shadowing upon request for Bay area HS student 2019, Presenter at the California Academy of Sciences Fall 2018, American Cancer Society invited speaker for Relay for Life events in 2018, Madera Science Fair - El Cerrito 2018, Alliance for a Healthier Generation 2016, Fairyland 2016, Red Cross donor & volunteer 2002-2013, Relay for Life 2011-2013, Hands on New Orleans 2011, AWIS 2007, SWIS 2007, YSCP Science fair judge 2007, Volunteer NJ 2006, Johnson & Johnson Community Leadership Day 2006, WISE 2003-2005, Science Club 2003-2005, Race for the Cure 2004, Habitat for Humanity 2000-2003, NEXUS 1999-2003