

*Curriculum Vitae*  
**Iris Nira Smith, PhD**

Cleveland Clinic, Lerner Research Institute  
Genomic Medicine Institute  
9500 Euclid Avenue, NE50  
Cleveland, OH 44195  
Office Phone: 216. 445.7885  
Mobile Phone: 281.726.0341  
Email: smithi4@ccf.org

---

## CURRENT POSITION

- 12/2022 – present    **Instructor**, Department of Molecular Medicine, Cleveland Clinic Lerner College of Medicine, Cleveland, OH
- 10/2021 – present    **Research Associate**, Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic, Cleveland, OH 44195

## EDUCATION AND TRAINING

### Post-Graduate Training

- 01/2017 – 10/2021    Postdoctoral Fellow, Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic, Cleveland, OH 44195

### Education

- 08/2011 – 12/2016    Doctor of Philosophy, Biochemistry and Biophysical Sciences, Department of Natural Sciences and Mathematics, University of Houston, Houston, TX 77004
- 05/2006 – 05/2010    Bachelor of Science, Biochemistry, Department of Natural Sciences and Mathematics, University of Houston, Houston, TX 77004

## RESEARCH EXPERIENCE

- 10/2021 – present    Research Associate, Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic, *Unraveling the PTEN Interactome: Modeling Structural and Functional Dynamic Network Architecture for Therapeutic Modulation in Cancer and Autism*. Laboratory of Charis Eng, MD, PhD
- 01/2017 – 10/2021    Postdoctoral Fellow, Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic, *Structure-based Computational Modeling: Structural and Dynamic Effects of PTEN in Autism and Cancer*. Laboratory of Charis Eng, MD, PhD
- 08/2011-12/2016    Doctoral Student, Department of Natural Sciences and Mathematics, University of Houston, Thesis Title: *Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer*. Laboratory of James M. Briggs, PhD
- 03/2009 – 05/2010    Undergraduate Research Student, Department of Natural Sciences and Mathematics, University of Houston, *Structural Investigation of Human PTPN22 (Lyp) and its Role in Endometriosis*. Laboratory of James M. Briggs, PhD

03/2007 – 05/2009 Undergraduate Research Student, Department of Natural Sciences and Mathematics, University of Houston, *A Mechanism for Antibody mediated Outside-in Activation of LFA-1*. Laboratory of Glenn B. Legge, MD, PhD

## PROFESSIONAL SERVICE

### Manuscript Reviewer

Present *Ad hoc* reviewer for: *Endocrine-Related Cancer, Human Molecular Genetics, Journal of Biomolecular Structure and Dynamics, and Nature Communications*

### Grant Review/Study Section Committees

2022 – present *F. Merlin Bumpus Abstract Review Committee Member, Cleveland Clinic 42<sup>nd</sup> Annual Research Day*

2022 – present *VeloSano Trainee Dream Experiment Fellowship Review Committee Member, Case Comprehensive Cancer Center Office of Cancer Training, Education and Research*

2021 – present *Grant Review Committee Member, Extreme Science and Engineering Discovery Environment, Expert Mentoring Producing Opportunities for Work Education and Research*

### Advisory Groups

2018 – present *Campus Champion – Cleveland Clinic, Extreme Science and Engineering Discovery Environment*

### Committee Service

2017 – 2019 *Chair, Mentorship and Advocacy Committee, Lerner Trainee Association (formerly Lerner Postdoctoral Association)*

2017 – 2018 *Chair, Social and Outreach Committee, Lerner Trainee Association*

## RESEARCH/GRANT SUPPORT

### Ongoing Research Support

**CC-IBM 10-year Partnership** (PIs: Eng, Charis; Chan, Timothy; Jones, Gavin) 02/2023-Present

Title: Quantum Simulations of Biochemical Reactions *This collaborative quantum project will provide the necessary structural and mechanistic detail combined with quantum chemistry for novel molecules, and promising compounds for previously undruggable kinase and phosphatase targets that can be utilized in prioritizing effective therapies for a multitude of human diseases.*

Role: Research Staff

### **K99GM143552**

Smith, Iris N (PI)

07/2021-Present

NIH/NIGMS MOSAIC (K99)

Title: Unraveling the PTEN Interactome: Modeling Structural and Functional Dynamic Network Architecture for Therapeutic Modulation in Cancer and Autism *The proposed multi-disciplinary project will identify the effects of germline PTEN mutations at the three-dimensional protein level that contribute to PTEN dysfunction, thus aiding in the development of therapeutics for individuals at risk for organ-specific cancers and autism.*

Effort: 100%

Direct Costs: \$92,778.00

Role: PI

**The Ambrose Monell Foundation** (PI: Eng, Charis) 01/2017-Present

Title: Cancer Genomic Medicine Fellowship Training Program *The goal of this fellowship program is to fund the salary and relevant costs of training cancer genomic medicine subspecialists at the bench and the bedside. (NB: Renewable every 3 years)*

Role: Fellow

**Ohio Supercomputer Center, OSC PCCF0020** (PI: Eng, Charis) 03/2017-Present

Title: Insight into Structure and Dynamics from Computational Modeling and Simulation: The Effects of Germline *PTEN* Mutations in Autism Spectrum Disorder and Cancer *This award is provides computational infrastructure and storage to perform high performance 3-dimensional biophysics modeling of germline PTEN mutations that predict cancer versus autism outcomes.*  
Resources: 110,000 resource units and 2 TB data storage  
PI: Eng, Charis MD, PhD (co-wrote proposal with Dr. Eng)  
Role: Fellow/Account Administrator

#### Completed Research Support

**5T32CA059366-22 (Case Western Reserve University)** Smith, Iris N (PI) 06/2018-07/2020  
NIH/NCI (T32)

Title: Structural and Dynamic Effects of Germline *PTEN* Mutations Associated with Cancer versus Autism Phenotypes *This project identified the structural and dynamic effects of germline PTEN mutations in autism spectrum disorder and cancer.*

Effort: 100%

Direct Costs: \$46,011.00

Role: PI

**F31CA174316** Smith, Iris N (PI) 07/2012-09/2016

NIH/NCI (F31 NRSA)

Title: Structural Mutation Analysis of *PTEN* and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer *This study determined the structural and mechanistic effects of PTEN associated with endometriosis and cancer.*

Effort: 100%

Direct Costs: \$27,734.00

Role: PI

**XSEDE (TG-MCB140090)** Smith, Iris N (Co-PI) 07/2014-07/2015

Title: Computational Studies of Complex Biological Processes in Cancer Regulation Systems: Understanding Structure and Dynamics of *PTEN* and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer *This award provided computational infrastructure to perform high performance 3-dimensional biophysics modeling of somatic PTEN mutations associated with endometriosis and cancer.*

Resources: TACC and SDSC 85,000 service units

PI: Briggs, James M.

Role: Co-PI

**Bridge to Doctorate** Smith, Iris N (PI) 07/2011-07/2012

HLSAMP

Title: Structural Mutation Analysis of *PTEN* and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer *The goal of this project was to investigate the structural and mechanistic effects of PTEN associated with endometriosis and cancer.*

Role: PI

**Alliances for Graduate Education and Professoriate** Nira, Smith 08/2007

Title: A Mechanism for Antibody-mediated Outside-in Activation of LFA-1 *The goal of this project was to investigate the structural and mechanistic activation of leukocyte function associated antigen-1 (LFA-1).*

Role: Trainee

#### **HONORS AND AWARDS**

02/2020 American Society of Human Genetics Trainee Spotlight Award (Nascent Transcript Newsletter) – in recognition of my published article in American Journal of Human Genetics, “Conformational Dynamics and Allosteric Regulation of Landscapes of Germline *PTEN* Mutations Associated with Autism Compared to Those Associated with Cancer”

- 11/2019 Cleveland Clinic Toastmasters Club (Club# 00597775) Speech Contest Cleveland, OH (*First Place Award*)
- 11/2019 F. Merlin Bumpus Junior Investigator Basic Research Presentation Award – 39<sup>th</sup> Annual Cleveland Clinic Research Day, Cleveland, OH (*First Place Award*)
- 05/2019 Cuyahoga County Division of Children and Family Services Rising Star Award – Cleveland, OH – in recognition of my commitment to establish and organize Cleveland Clinic Lerner Research Institute’s campaign to support children in foster care and the surrounding community
- 05/2019 Case Comprehensive Cancer Center Trainee Travel Award, Case Western Reserve University, Cleveland, OH
- 12/2018 – present Ohio State Supercomputer Center Discovery Allocation Grant #PCCF0020 – awarded 110,000 Resource Units to Charis Eng, MD, PhD. Project: Insight into Structure and Dynamics from Computational Modeling and Simulation: The Effects of Germline *PTEN* Mutations in Autism Spectrum Disorder and Cancer
- 09/2018 6<sup>th</sup> Annual Genomic Medicine Institute Symposium, Genomic Medicine Institute, Cleveland Clinic - Cleveland, OH (*Best Poster Award*)
- 01/2017 – present Ambrose Monell Cancer Genomic Medicine Fellowship (PTEN-Switch Grant)
- 08/2014 – 08/2015 Extreme Science and Engineering Discovery Environment High Performance Computing Start-up Allocation – awarded 85,000 Service Units. This allocation was spread across Texas Advanced Computing Center’s Stampede cluster as well as San Diego Supercomputing Center’s Gordon cluster. Additionally, 5,000 Service Units were awarded for long-term archival storage. The purpose of this award was to provide computational infrastructure and space to perform high performance 3-dimensional biophysics modeling of somatic *PTEN* mutations associated with endometriosis and cancer
- 08/2011 – 08/2012 Bridge to Doctorate Fellowship (Houston Louis Stokes Alliance for Minority Participation) – Graduate Studies, University of Houston, Houston, TX
- 05/2009 – 05/2010 ¡Adelante! Biochemistry Scholarship (*Scholarship for Hispanic Minorities*) – Undergraduate Studies, University of Houston, Houston, TX
- 08/2007 Alliances for Graduate Education and the Professoriate (*Scholarship for Underrepresented Minorities in Science Technology, Engineering, and Mathematics Research*) – Undergraduate Studies, University of Houston, Houston, TX
- 08/2007 The N. Catherine Cominsky and Sara E. Higgins Scholarship Award – Undergraduate Studies, University of Houston, Houston, TX

## TEACHING / MENTORING EXPERIENCE

Trained all incoming researchers of the *Briggs laboratory* at the University of Houston and supervised the design and implementation of all research intern students.

### Trainees / Mentees

#### Postdoctoral Fellow

2012 – 2015

Guedmiller Souza de Oliveira, “*Molecular Modeling of Enzyme Attachment on AFM Probes and Application in Nanobiosensors*”, Current Position: Professor in Chemistry Department at Universidad Federal de Uberlândia, Brazil

#### Predoctoral Fellows

2014 – 2016

Yanyun Liu, “*Optimization and Development of New Quorum Sensing Inhibitors for Pseudomonas aeruginosa*”, Current Position: Senior Research Specialist at the University of Arizona

- 2014 – 2016 Ben Skidmore, “*Computational Tool for the Combination of RNA Secondary Structure Predictions*”, Current Position: Senior Field Application Scientist at L7 Informatics
- 2012 – 2016 Khushboo Singh, “*Computational Analysis of Bcl-2 Mutations in Lymphoma*”, Current Position: Research Fellow at Amgen

#### Undergraduate Students

- 2015 Julia Kirsten, “*Structural and Computational Analysis of Type 1 17 $\beta$ -Hydroxysteroid Dehydrogenase: A Key Player in Hormone-Dependent Breast Cancer*”, Current Position: Diagnostic Radiology Resident at Washington University School of Medicine
- 2015 Melanie Lopez, “*Computational Analysis of Human FBW7 with Substrate Cyclin E*”, Current Position: I am not sure where she is currently located.
- 2013 Juliette Cao, “*pKa and Electrostatic Potential Analysis of Matrix Metalloproteinase 9*”, Current Position: I am not sure where she is currently located.
- 2013 Shivali Narang, “*Structural Analysis of Macrophage Migration Inhibitory Factor (MIF) by Molecular Modeling and Electrostatic Potentials*”, Current Position: Deloitte Program Consultant
- 2013 Masa Kharboutli, “*Computational Analysis of Crystal Structure Human Cell Cycle Checkpoint Kinase Chk1*”, Current Position: Process Engineer at Kuraray America
- 2013 Marwa Kharboutli, “*Computational Analysis of Human PIM1 Serine / Threonine Kinase with Cofactors*”, Current Position: Orthodontics Resident at St. Louis University
- 2012 – 2013 Amir Ali, “*Structure Validation of the Complex Formed Between Tissue Factor Cytoplasmic Domain (TFCD) and Pin-1 WW Domain*”, Current Position: Emergency Medicine Resident and the University of Rochester
- 2012 – 2013 Jeff T. Mindrebo, “*Computational Docking and Analysis of Peptide Linked Inhibitor of Rho-Associated Kinase*”, Current Position: Postdoctoral Fellow at Scripps Research Institute
- 2012 Maria Williams, “*Structural Analysis of PTEN Mutations Correlated with Endometriosis, Endometrial and Ovarian Cancers*”, 2012, Current Position: I do not know where she is currently located.

#### High School Students

- 2015 – 2016 Alison Vicary, “*Interaction Between the Tumor Suppressor PTEN and the Substrate PIP<sub>3</sub>*”, Current Position: Graduate Student at the University of California San Diego.
- 2012 Cameron D. Lee, “*Structural and Electrostatic Comparison of the Botulinum Neurotoxin, Serotypes A, B, and E*”, 2012, Current Position: I am not sure where he is currently located.

#### Teaching Activities

- 02/-04/2023 Co-Facilitator for *ASBMB The Art of Scientific Communication 8-Week Course*, lead scientists in one-hour weekly discussions to increase their confidence and competence in scientific communication. Provided participants the fundamental skills required to effectively communicate their research and scientific interests to non-expert audiences.
- 05/2022-05/2023 “*Visualizing Molecular Protein Structures (for Beginners)*”, engaged Cleveland Clinic Lerner College of Medicine graduate students for one day in a two-hour course on molecular modeling during Bioinformatics Molecular Medicine Week.
- 11/2021 “*Trading Places: My Journey from Patient to Scientist, Knowing Your ‘Why’*”, engaged undergraduate students at Providence College and encouraged them to pursue graduate studies in Biochemistry.

08/2021	“Artificial Intelligence Aided-Drug Discovery and Biomolecular Simulation in Human Disease”, engaged Lerner Research Institute summer research students and encouraged them to pursue a career in Biophysics research.
06/2020	“Trading Places: My Journey from Patient to Scientist”, engaged undergraduate students at Case Comprehensive and encouraged them to pursue a career in STEM-related research.
08/2019	“Career Paths: What’s Your Plan?”, organized and moderated a panel discussion for Lerner summer research students.
06/2019	“How to Give a Successful Conference Poster and Oral Presentation”, engaged Lerner summer research students on how to prepare and present successful conference poster and oral presentation.
05/2012	Teaching Assistant for <i>Molecular Modeling</i> engaged students for one day in a two-hour graduate-level course at the University of Houston.

## BIBLIOGRAPHY

### Original Peer-Reviewed Publications

1. Carreño R, Li D, Sen M, **Nira I**, Yamakawa T, Ma Q, and Legge GB. (2008). [A Mechanism for Antibody-mediated Outside-in Activation of LFA-1](#). *Journal of Biological Chemistry*, 283:10642-10648. [DOI: [10.1074/jbc.M704699200](https://doi.org/10.1074/jbc.M704699200)]
2. **Smith IN** and Briggs JM. (2016). [Structural Mutation Analysis of PTEN and its Genotype-Phenotype Correlations in Endometriosis and Cancer](#). *Proteins, Structure, Function, and Bioinformatics*, 84:1625-1643. [DOI: [10.1002/prot.25105](https://doi.org/10.1002/prot.25105)]
3. **Smith IN**, Thacker S, Jaini R, and Eng C. (2018). [Dynamics and Structural Stability Effects of Germline PTEN Mutations Associated with Cancer versus Autism Phenotypes](#). *Journal of Biomolecular Structure and Dynamics*, 37:1766-1782. [DOI: [10.1080/07391102.2018.1465854](https://doi.org/10.1080/07391102.2018.1465854)]
4. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2019). [Conformational Dynamics and Allosteric Regulation Landscapes of Germline PTEN Mutations Associated with Autism Compared to Those Associated with Cancer](#). *American Journal of Human Genetics*, 104:861-878. [DOI: <https://doi.org/10.1016/j.ajhg.2019.03.009>]
5. Jang H\*, **Smith IN\***, Eng C, and Nussinov R. (2021). [The Mechanism of Full Activation of Tumor Suppressor PTEN at the Phosphatidylinositol-Enriched Membrane](#). *iScience*, 24:102438. [DOI: <https://doi.org/10.1016/j.isci.2021.102438>]
6. Dawson JE\*, **Smith IN\***, Martin W, Khan K, Cheng F, Eng C. (2022). [Shape Shifting: The Multiple Conformational Substates of the PTEN N-terminal PIP<sub>2</sub>-Binding Domain](#). *Protein Science*, 31, e4308. [DOI: <https://doi.org/10.1002/pro.4308>]
7. **Smith IN**, Dawson JE, Krieger J, Thacker S, Bahar I, Eng C. (2022). [Structural and Dynamic Effects of PTEN C-terminal Tail Phosphorylation](#). *Journal of Chemical Information and Modeling*, 62:4175-4190. [DOI: <https://doi.org/10.1021/acs.jcim.2c00441>]
8. **Smith, IN**, Dawson, JE, and Eng, C. (2023). [Comparative Protein Structural Network Analysis Reveals C-terminal Tail Phosphorylation Structural Communication Fingerprint in PTEN-associated Mutations in Autism and Cancer](#). *Journal of Physical Chemistry B*, 127:634-647 [DOI: <https://doi.org/10.1021/acs.jpcc.2c06776>]
9. Dawson, JE, **Smith, IN**, Tushar AM, and Eng, C. (2023). [Elucidating PTEN Phosphatase and C2 Domain Conformational Exchange via Integrative Modeling](#). *Journal of Biological Chemistry*, (Submitted May 2023).
10. Mulkearns-Hubert, EE, Esakov Rhoades, EL, Ben-Salem, S, Bharti, R, Hajdari, N, Johnson, S, Myers, A, **Smith, IN**, Bandyopadhyay, S, Eng, C, Downs, E, Lathia, JD, and Reizes, O. (2023). [Targeting the](#)

Cx26/NANOG/Focal Adhesion Kinase Complex via Cell Penetrating Peptides in Triple Negative Breast Cancers. *Molecular Cancer Therapeutics*, (In Press).

11. Zhigang, L, Xin, B, **Smith, IN**, Sency, V, Szekely, J, Alkelai, A, Shuldiner, A, Efthymiou, S, Rajabi, F, Coury, S, Brownstein, CA, Rudnik-Schöneborn, S, Bruel, AL, Thevenon, J, Zeidler, S, Jayakar, P, Schmidt, A, Cremer, K, Engels, H, Peters, SO, Zaki, MS, Duan, R, Zhu, C, Xu, Y, Gao, C, Sepulveda-Morales, T, Maroofian, R, Alkhwaja, IA, Khawaja, M, Alhalasah, H, Houlden, H, Madden, JA, Turchetti, V, Marafi, D, Agrawal, PB, Schatz, U, Rotenberg, A, Rotenberg, J, Mancini, GMS, Bakhtiari, S, Krueger, M, Thiffault, I, Posey, JE, Lupski, JR, Lee, H, Sarn, N, Eng, C, Gonzaga-Jauregui, C, Zhang, B, and Wang, H. (2023). [Hemizygous Variants in Protein Phosphatase 1 Regulatory Subunit 3F \(PPP1R3F\) Cause a Neurodevelopmental Disorder Characterized by Developmental Delay, Intellectual Disability, and Autistic Features](#). *American Journal of Human Genetics*, (In Press).

**\*Co-First Authors**

**Invited Seminars/Symposia**

International

05/2014 “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer” – Universidade Federal de São Carlos, São Carlos, Brazil

National

04/2023 “Unraveling PTEN Structural and Functional Dynamic Network Architecture for Therapeutic Modulation in Cancer and Autism” – IBM Thomas J. Watson Research Center, Quantum Molecular Drug Discovery Technologies, Yorktown Heights, NY

04/2022 “Structure-based Computational Modeling of Germline *PTEN* Mutations in Cancer and Autism Risk: Implications for Therapeutic Targeting” – Experimental Biology and American Society for Biochemistry and Molecular Biology Annual Conference, Philadelphia, PA

10/2021 “Unraveling the PTEN Interactome: Modeling Structural and Functional Dynamic Network Architecture for Therapeutic Modulation in Cancer and Autism” – 1<sup>st</sup> Inaugural National Institutes of Health, National Institute of General Medical Sciences, Maximizing Opportunities for Scientific and Academic Independent Careers Scholars Annual Conference

Regional / Midwest

06/2013 “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer” – National Institutes of Health-Sponsored Hands-on Computational Biophysics Workshop at the University of Pittsburgh Supercomputing Center, Pittsburgh, PA

02/2013 “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer” – Texas Southern University, Houston, TX

Local

10/2022 “Structure-based Computational Modeling: Structural and Dynamic Effects of PTEN in Autism and Cancer” – IBM-Cleveland Clinic Quantum Computer Partnership Workshop, Cleveland Clinic Lerner Research Institute

08/2022 “Shape Shifting: The Multiple Conformational Substates of the N-terminal PIP<sub>2</sub>-binding Domain – Genomic Medicine Institute Seminar, Cleveland Clinic Lerner Research Institute

05/2021 “Unraveling the Role of the C-terminal Tail and Mechanism of Full Activation of Tumor Suppressor PTEN” – Genomic Medicine Institute Seminar, Cleveland Clinic Lerner Research Institute



- 03/2020 “Conformational Dynamics and Allosteric Regulation of Germline *PTEN* Mutations in Autism and Cancer” – Genomic Medicine Institute Seminar, Cleveland Clinic Lerner Research Institute
- 10/2019 “Conformational Dynamics and Allosteric Regulation of Germline *PTEN* Mutations in Autism and Cancer” – 39<sup>th</sup> Annual Cleveland Clinic Lerner Research Day (*First Place F. Merlin Bumpus Junior Investigator Basic Research Award*)
- 09/2019 “Structural Insights into the Stability and Inter-residue Communication of Germline *PTEN* Mutations Associated with Autism and Cancer” – Case Western Reserve University Trainee Seminar, Cleveland, OH
- 02/2019 “Conformational Dynamics and Allosteric Regulation Landscape of Germline *PTEN* Mutations Associated with Autism and Cancer” – Genomic Medicine Institute Seminar, Cleveland Clinic Lerner Research Institute
- 11/2017 “A Structure Network Approach to Predict the Dynamics and Structure Stability Effects of Germline *PTEN* Mutations Associated with Cancer Versus Autism Phenotypes” – Genomic Medicine Institute Seminar, Cleveland Clinic Lerner Research Institute, 11/2017

### **Scientific Media Appearances & Coverage / Podcasts**

1. “[Together We Rise](#)” Initiative for Foster Kids – collaborative initiative with Cleveland State University (CSU) Pratt Center and Cuyahoga County Division of Children and Family Services, which provides a forum for foster youths to engage with CSU and LRI trainees to discuss the experiences of their STEM-related careers. We aim to help youth to think about careers in science and to inspire them to pursue post-secondary education options while increasing interest in STEM-related careers, 04/2022
2. “[Science Behind Science](#)” podcast interviews of me on: (1) how to plan, write, and successfully submit a K99/R00 application, and (2) the road to becoming an independent investigator, 02/2022
3. My Alma Mater, University of Houston, published an online interview of me in recognition of receiving the National Institutes of Health, National Institute of General Medical Sciences, Maximizing Opportunities for Scientific and Academic Independent Careers K99/R00 award.  
<https://uh.edu/nsm/biology-biochemistry/news-events/stories/2021/1101-mosaic-scholar.php>, 11/2021
4. American Society of Human Genetics interviewed me as the Trainee Paper Spotlight Awardee highlighting my 2019 published article in the *American Journal of Human Genetics*.  
<https://www.ashg.org/careers-learning/trainee/paper-spotlight/trainee-paper-spotlight-iris-nira-smith/>, 03/2020
5. An interview and overview of my research was published in the 2019 Genomic Medicine Institute Newsletter titled, “Visualizing *PTEN*: Seeing Mutations Differently”.  
<https://www.lerner.ccf.org/news/Visualizing-PTEN-Seeing-Mutations-Differently>, 05/2019
6. Ohio Supercomputer Center interviewed me and my primary mentor, Dr. Charis Eng, MD, PhD on our bimolecular modeling approach to study *PTEN* germline mutations using a computational microscope.  
[https://www.osc.edu/research/research-reports/2018/genetic\\_mutation](https://www.osc.edu/research/research-reports/2018/genetic_mutation), 08/2018

### **Abstract / Poster Presentations**

1. **Smith IN** and Eng C. (2022) Experimental Biology and American Society for Biochemistry and Molecular Biology Annual Conference, Philadelphia, PA - “Structure-based Computational Modeling of Germline *PTEN* Mutations in Cancer and Autism Risk: Implications for Therapeutic Targeting.”
2. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2019) Case Comprehensive Cancer Annual Scientific Retreat, Cleveland, OH - “Conformational Dynamics and Allosteric Regulation Landscapes of Germline *PTEN* Mutations Associated with Autism Compared to Those Associated with Cancer.”
3. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2019) 63<sup>rd</sup> Annual Meeting of the Biophysical Society, Baltimore Conference Center, Baltimore, MD - “Conformational Dynamics and Allosteric



Regulation Landscapes of Germline *PTEN* Mutations Associated with Autism Compared to Those Associated with Cancer.”

4. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2017, 2018) Annual Genomic Medicine Institute Symposium, Genomic Medicine Institute, Cleveland Clinic - Cleveland, OH - “A Structure Network Approach to Predict Dynamics and Structural Stability Effects of Germline *PTEN* Mutations Associated with Cancer versus Autism Phenotypes.” (2018, **Best Poster Award**)
5. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2017, 2018) Annual Cleveland Clinic Research Day, Learner Research Institute, Cleveland Clinic – Cleveland, OH – “A Structure Network Approach to Predict Dynamics and Structural Stability Effects of Germline *PTEN* Mutations Associated with Cancer versus Autism Phenotypes.”
6. **Smith IN**, Thacker S, Seyfi M, Cheng F, and Eng C. (2018) 76<sup>th</sup> Annual Pittsburgh Diffraction Conference Case Western Reserve University, Cleveland, OH - “A Structure Network Approach to Predict Dynamics and Structural Stability Effects of Germline *PTEN* Mutations Associated with Cancer versus Autism Phenotypes.”
7. **Smith IN**, Thacker S, Jaini R, and Eng C. (2018) Annual American Association of Cancer Research - Chicago, IL “A Structure Network Approach to Predict the Dynamics and Structural Stability Effects of Germline *PTEN* Mutations Associated with Cancer versus Autism Phenotypes.”
8. **Smith IN** and Briggs JM. (2015) 7<sup>th</sup> Annual Graduate Student Symposium, Department of Biology and Biochemistry, University of Houston - Houston, Texas - “A Structure Network and Elastic Network Model Approach to Predict the Dynamics and Structural Communication of PTEN and Its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer.”
9. **Smith IN** and Briggs JM. (2015) 20<sup>th</sup> Annual Sealy Center for Structural Biology, University of Texas Medical Branch - Galveston, TX - “Understanding Structure, Dynamics and Mechanism of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer.”
10. **Smith IN** and Briggs, JM. (2014, 2015) Supercomputing International Conference for High Performance Computing - Austin, TX and New Orleans, LA - *An overview of my research was presented by my PI, James M. Briggs, PhD: “Computational Simulations of Cancer Mutations in a Tumor Suppressor.”*
11. **Smith IN** and Briggs JM. (2014) 12<sup>th</sup> World Congress on Endometriosis, World Trade Center - São Paulo, Brazil - “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer.”
12. **Smith IN** and Briggs JM. (2012-2014) Annual Graduate Student Symposium, Department of Biology and Biochemistry, University of Houston - Houston, Texas - “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer.”
13. **Smith IN**, Williams M, and Briggs JM. (2012) 22<sup>nd</sup> Annual Keck Center Research Conference, Gulf Coast Consortia - Houston, Texas - “Structural Mutation Analysis of PTEN and its Possible Genotype-Phenotype Correlations in Endometriosis and Cancer.”
14. **Nira I**, Carreño R, and Legge, GB. (2007) American Heart Association Conference - Orlando, FL - “Mechanism for Outside-In Activation of LFA-1.”

## MEMBERSHIPS IN PROFESSIONAL SOCIETIES

2022 – present	<i>Member</i> , Cleveland Clinic SALUD Hispanic/Latinx Employee Resource Group
2020 – present	<i>Member</i> , Population and Cancer Prevention Program, Case Comprehensive Cancer Center (CCCC)
2019 – 2021	<i>Member</i> , American Society of Human Genetics (ASHG)
2014 – 2021	<i>Member</i> , Biophysical Society
2014 – present	<i>Member</i> , American Society for Biochemistry and Molecular Biology (ASBMB)
2014 – 2016	<i>Member</i> , Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
2014 – 2015	<i>Member</i> , American Association for the Advancement of Science (AAAS)

- 2012 – 2013      *Secretary*, University of Houston BioScience Graduate Society (BSGS)  
 2008              *Public Relations*, University of Houston Biology and Biochemistry Undergraduate Association (BBUA)  
 2007 – present    *Member*, American Chemical Society (ACS)

## **CERTIFICATIONS AND CONTINUING EDUCATION**

- 2022              Introduction to Clinical Research (Case Western Reserve University)  
 2022              The Art of Scientific Communication, ASBMB  
 2020 – 2021      Innovative Planning Leadership Training (Levels 1-5), Toastmasters International  
 2020              Introduction to Molecular Modeling in Drug Discovery, Schrödinger  
 2017              Tumor Genomic Profiling: Current Status and Future Directions, Cleveland Clinic

## **LEADERSHIP AND COMMUNITY INVOLVEMENT**

- 2023              Cleveland Clinic Lerner Research Institute Microaggression Awareness Training  
*Co-Facilitator*
- Defined microaggression and types of microaggression in the workplace.
  - Provided a framework for identifying verbal and nonverbal microaggressions and how to address them in the workplace.
  - Communicated and provided a safe place to discuss implicit and explicit bias, stereotypes, inclusion and resulting microaggressions.
  - Practiced constructive interventions and corrections adjusting after microaggression missteps to create a safer work environment for diverse employees.
  - Encouraged bystander intervention to minimize microaggressions.
- 2023              ASBMB Community Day - Meet a Scientist Panel  
*Research Scientist Panelist*
- Participated in panel discussion for local Seattle Washington-area local high school students to inspire the next generation of scientists while increasing interest in STEM-related careers.
- 2023              ASBMB One-on-One Mentoring  
*Mentor (Specifics Aims Review)*
- Provided one-on-one on-the-spot feedback and guidance to mid-level, junior, and senior research scientists on their Specific Aims page. Discussed and advised on the feasibility of their overall scope, significance, innovation, and research approach.
- 2022 – present    DEI Outreach - Together We Rise Initiative for Foster Kids  
*Partnership Developer and Organizer*
- Established a collaborative initiative with Cleveland State University Pratt Center, which focuses on enriching the scientific education of students from underrepresented backgrounds in foster care to inspire them to pursue STEM-related careers.
  - Organized and encouraged LRI trainees (graduate and postdoc) to participate as mentors to foster youth inspiring them to pursue post-secondary options while increasing interest in STEM-related careers.
- 2017 – 2021      District 10 Toastmasters Area 53 Team  
*Program Quality Director / Oratio Newsletter Editor*
- Oversaw and trained five Area 53 Toastmasters clubs and division officers.
  - Designed, edited, and promoted Area 53 *Oratio* Newsletter and District 10 Conference program with division officers.

- Cleveland Clinic Toastmasters Club  
*Vice President Education and Secretary*
- Created and maintained the meeting schedule for speakers and other roles.
  - Encouraged and mentored members to set goals and work on advanced manuals and projects through which they could develop their communication and leadership skills.
  - Organized speech competitions and encouraged members to participate.
- 2019  
Cleveland Clinic Lerner Summer Student Seminar Series  
*Co-Organizer and Presenter*
- Organized and enlisted support of both postdoc and graduate student trainees to participate in presenting on various research topics to summer research students.
  - Organized a panel of researchers to provide a diverse career panel discussion with summer research students.
- 2018 – present  
DEI Outreach – Cuyahoga County Division of Children and Family Services  
*Partnership Developer and Organizer*
- Organized and encouraged participation with trainees to campaign throughout Cleveland Clinic Lerner Research Institute to collect school supplies and holiday toys for children in foster care and their families.
  - Organized and distributed event advertising and online communications.
- 2017 – 2019  
Cleveland Clinic Lerner Research Institute (LRI) Science Day  
*Co-Organizer*
- Presented at local community middle school to encourage students from underprivileged backgrounds to participate in LRI annual research day event and to inspire them to learn more about science and medicine.
  - Encouraged and enlisted support of both postdoc and graduate student trainees to participate in the community outreach event with the mission to enrich the scientific education for students from underprivileged backgrounds and to encourage them to pursue STEM-related careers.
  - Assisted with coordinating LRI lab tour stops and demonstration stations.
  - Reached out to local companies seeking donations of science-related “swag” for the students in commemoration of their participation in the event.
- 2017 – 2019  
Cleveland Clinic Lerner Postdoctoral Association (LPDA)  
*Mentorship / Advocacy Committee (Chair)*
- Communicated and addressed concerns to the faculty and administration on behalf of postdocs.
  - Developed and established a sustainable mentor-mentee program that allows trainees to meet quarterly and interact with mentors in an open and engaging roundtable discussion.
- 2017 – 2018  
*Social / Outreach Committee (Chair)*
- Organized networking and social events to promote a supportive and unified network postdoc community.
- 2013 – 2015  
Gulf Coast Consortia (GCC), Keck Center  
*Ad hoc Recruiter*
- Assisted Director Melissa Glueck and her team in recruiting undergraduate represented minorities (URMs) to GCC inter-institutional cooperative graduate programs which include: the University of Houston, A&M Institute of Biosciences and Technology, Baylor College of Medicine, Rice, University of Texas Medical Branch, MD Anderson Cancer Center, Houston Methodist Research Center, and University of Texas Health Science Center.

- Attended the Annual ABRCMS and SACNAS conferences to recruit URMs to GCC inter-institutional cooperative graduate programs.
- 2012 – 2013 University of Houston BioScience Graduate Society (BSGS)  
*Secretary*
- Organized a council of six student leaders to foster leadership and advocacy among the college of natural sciences and mathematics graduate students.
  - Organized and invited speakers for annual graduate student symposium.
- 2008 University of Houston Biology & Biochemistry Undergraduate Association (BBUA)  
*Public Relations*
- Coordinated events for social interaction with undergraduate students of like interests and career goals.
  - Managed all BBUA event advertising and online communications

## INDUSTRY EXPERIENCE

Employed in industry for 9.5 years in various marketing and ISO 9001 quality positions for Ashbrook Simon-Hartley, L.P. (Manufacturing/Engineering firm) before entering academic research. This experience provided the necessary skills to effectively solve problems, implement sustainable solutions, and communicate with all levels of the organization, a skillset that parallels the requirements of a successful scientific researcher. It also provided practical time management and organizational skills that most early scientific investigators do not have such as developing project timelines, experience with budgets, and working in and optimizing complex business structures.

**1997 – 2006 Ashbrook Simon-Hartley, L.P.**, Houston, TX

**2002 – 2006 Marketing Assistant**, Marketing Department – Biosolids Unit

Maintained a close and highly responsive commitment to the Product Specialist and Marketing / Sales staff to ensure ongoing business development and growth of national and international territories.

**1997 – 2006 Lead Internal Auditor**, Quality System Unit

Assisted Quality System Director with effectively implementing and maintaining ISO 9001:2000 compliance. Conducted quarterly internal company audits, both nationally and internationally, which allowed management to identify key areas for improvement under ISO 9001:2000 certification requirements.

**1999 – 2002 Inside Sales / Trainer**, Aftermarket Department – Biosolids Unit

Consistently achieved sales targets and led department in revenues generated while maintaining a secure relationship with national and international customers in assigned territory. Trained new staff within the department and expanded territorial sales to include mass-market accounts.

**1997 – 1999 Secretary to President & VP of Finance**, Finance & Administration Business Unit

Maintained a close and highly responsive relationship with the President and executive staff to ensure ongoing business development and professional growth of staff. Scheduled tentative appointments and flight arrangements for all staff and guests.

**Reference:** Robert T. Williams (*former President*) bobwilliamssgii@gmail.com