

Career
Academic and
Research
Experiences for
Students

2019 Hopkins C.A.R.E.S. Summer Symposium



Innovative Research - Towards a Better World

July 25, 2019
Armstrong Medical Education Building
10:00 a.m. - 4:00 p.m.

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The Hopkins C.A.R.E.S. SUMMER SYMPOSIUM and NETWORK:

1. **Showcase Summer Programs** that provide paid internships in Hopkins laboratories, clinics, and offices across the medical campus for nearly 300 students with more than half from Baltimore City high schools.
2. **Provide opportunities for 200 selected students** to deliver a professional presentation to an audience of 350 attendees, including Hopkins faculty, faculty and recruits from local colleges and universities, and each other.
3. **Bolster high school students' academic and social confidence** by enabling them to compete and compare the quality of their academic presentations to high achieving undergraduates from all over the United States.
4. **Inspire a generation of future leaders** by providing a stage for students and keynote speakers of international prominence to share their journey, struggles, and lessons learned in achieving their dreams.
5. **Invest in untapped local talent** to generate a homegrown workforce with a college degree and improve the odds of success among aspiring leaders to pursue a career in science, public health, or medicine.

2019 HOPKINS C.A.R.E.S. SUMMER PROGRAMS

- ❖ Basic Science Institute Summer Internship Program (BSI SIP)
- ❖ Biophysics Research for Baltimore Teens (BRBT)
- ❖ Bloomberg Distinguished Professor (BDP) Summer Undergraduate Research Program
- ❖ Careers in Science and Medicine Summer Internship Program (CSM SIP)
- ❖ Center for Talented Youth (CTY) Student Research Program
- ❖ Centro SOL Programa de Verano para Jóvenes (Centro SOL)
- ❖ The Foundation for Advanced Research in the Medical Services (FARMS)
- ❖ Generation Tomorrow: Summer Health Disparity Scholars
- ❖ Internships for Undergraduate Scholars in Computational Medicine (IUSCMP)/ Institute for Computational Medicine (ICM)
- ❖ Institute for NanoBioTechnology Research Experience for Undergraduates (INBT REU)
- ❖ The Johns Hopkins Internship in Brain Sciences Program (JHIBS)
- ❖ The Johns Hopkins Neuroscience Scholars Program (JHNSP)
- ❖ Kennedy Krieger Institute
 - Maternal and Child Health-Leadership Education, Advocacy, and Research Network (MCH-LEARN)
 - Maternal Child Health Careers/Research Initiatives for Student Enhancement-Undergraduate Program (MCHC/RISE-UP)
- ❖ Medical Education Resources Initiative for Teens (MERIT) Health Leadership Academy
- ❖ Pulmonary and Critical Care Medicine Summer Internship Program (PCCM SIP)
- ❖ Summer Academic Research Experience (SARE)
- ❖ Summer Provost's Undergraduate Research Award (PURA)

PRESENTATION SCHEDULE

TIME	SESSION	SPEAKER(S)	LOCATION
9:00 am – 10:00 am	REGISTRATION		AMEB, 1 st Floor Lobby
10:00 am – 10:05 am	WELCOME	Roy Ziegelstein, MD, Vice Dean for Education	AMEB, 1 st Floor Auditorium
10:05 am – 10:35 am	KEYNOTE SPEAKER	Nadia Hansel, MD, MPH	AMEB, 1 st Floor Auditorium
10:35 am – 11:15 am	FEATURED STUDENT STORIES	Scott Wilson, PCCM SIP Thinzar Htwe, SARE Destiny Moore, JHNSP Ngozi Alia, Generation Tomorrow Kristiana Smith, SARE Jay Fonticella, PCCM SIP	AMEB, 1 st Floor Auditorium
11:15 am – 11:45 am	RECEPTION	Nadia Hansel, MD, MPH	AMEB, 2 nd Floor Lobby
11:45 am – 12:45 pm	POSTER SESSION 1	2019 C.A.R.E.S. Summer Programs	AMEB, 1 st and 2 nd Floor Lobbies
12:45 pm – 1:25 pm	LUNCH		AMEB, 1 st Floor Lobby
1:25 pm – 2:15 pm	ORAL PRESENTATIONS	2019 C.A.R.E.S. Summer Programs	AMEB, 1 st Floor Auditorium
2:30 pm – 3:30 pm	POSTER SESSION 2	2019 C.A.R.E.S. Summer Programs	AMEB, 1 st and 2 nd Floor Lobbies
3:45 pm	SCHOLARSHIP AWARD PRESENTATION		AMEB, 1 st Floor Auditorium

KEYNOTE SPEAKER



Nadia N. Hansel, MD, MPH

Dr. Nadia Hansel is a Professor of Medicine and Director of the Division of Pulmonary and Critical Care Medicine at Johns Hopkins with joint appointments in the Division of Allergy and Clinical Immunology at the Johns Hopkins School of Medicine and the Department of Environmental Health Sciences at the Johns Hopkins Bloomberg School of Public Health. She assumed the position of the Associate Dean of Research for the Bayview Campus, Johns Hopkins University School of Medicine in July 2014.

Dr. Hansel received her undergraduate degree *magna cum laude* in biology from Harvard College and her medical degree from Harvard Medical School. She completed her internal medicine residency at the University of Pennsylvania and came to Johns Hopkins University to complete her Pulmonary and Critical Care fellowship. She subsequently completed her Masters of Public Health Degree from the Johns Hopkins Bloomberg School of Public Health.

Dr. Hansel's research is focused on environmental determinants of obstructive lung diseases. She is widely recognized as an international expert in defining the indoor air quality on asthma and chronic obstructive pulmonary disease (COPD) health. Her work is funded by the National Institutes of Health, Housing of Urban Development and the Environmental Protection Agency. Dr. Hansel is the Director of the Johns Hopkins Center for the Study of the Childhood Asthma in the Urban Environment (CCAUE) and the Director of the Johns Hopkins Center of Excellence on Environmental Health Disparities Research. Dr. Hansel serves on numerous editorial boards and professional organizations, is frequently an invited speaker nationally and internationally to present her research and has published over 150 peer reviewed publications. She received the David M. Levine Excellence in Mentoring Award in recognition of her dedication to training future physician scientists.

BACKGROUND STORIES



Scott Wilson

“We all have our own narrative...what will you make of yours?”

Program: Pulmonary and Critical Care Medicine Summer Internship Program (PCCM SIP)

Current School: Cornell University

Future Goals: I want to become a Physician and obtain a Masters of Public Health (MD/MPH).



Thinzar Htwe

“You can do more than you think you can.”

Program: Summer Academic Research Experience (SARE)

Current School: Eastern Technical High School

Future Goals: I aspire to pursue a career as a physician-scientist (MD/PhD) and have an extensive influence on patient care through understanding mechanisms of disease as well as having the scope of practice to treat patients in a clinical setting.



Destiny Moore

“Embrace your past as a reminder of how far you have come and how much potential you have to reach your goals.”

Program: The Johns Hopkins Neuroscience Scholars Program (JHNSP)

Current School: Howard University

Future Goals: After completing my undergraduate studies in Psychology and Biology, I plan to pursue a PhD in Clinical Psychology. Eventually I would like to work with at-risk youth or prisoners with severe mental illnesses.

Ngozi Alia

“The obstacles that an individual faces should not be hidden in shame, but serve and spread as potential affirmations that should be used to inspire and help others.”



Program: Generation Tomorrow: Summer Health Disparity Scholars

Current School: Frostburg State University

Future Goals: I plan to obtain a MD/MPH degree with the hopes of working with or leading the World Health Organization or a local health department. I also plan to create health education initiatives that focus on secondary and primary prevention and social media integration in developing countries and urban communities.

Kristiana Smith

“Do not waste time trying to be a piece that fits into a puzzle others have created for you. There is no shame in standing out.”



Program: Summer Academic Research Experience (SARE)

Current School: Baltimore Polytechnic Institute

Future Goals: I am interested in pursuing a career in research focused on understanding how proteins play a role in regulating the genome.

Jay Fonticella

“Listen and learn from those different than you, but continue to fight for what you believe in.”



Program: Pulmonary and Critical Care Medicine Summer Internship Program (PCCM SIP)

Current School: Tufts University

Future Goals: I hope to obtain a MD/PhD degree and to assist in running a series of clinics to provide care to the underserved, indigenous Latin-American communities.

POSTER PRESENTATIONS- SESSION 1 (11:45 am – 12:45 pm)

Session Guide:

<i>Program Name</i>	<i>Poster Board Numbers</i>
BDP SURP	1-21
BRBT	22
BSI SIP	23-32
CTY	33-36
FARMS	37-44
INBT REU	45-56
IUSCMP	57-58
JHNSP	59-71
MCHC/RISE-UP (KKI)	72-78
MERIT	79-85
PCCM SIP	86-91
Summer PURA	92-99

<i>#</i>	<i>Name(s)</i>	<i>Program</i>	<i>Title</i>
1	Axel Bax, Kaba Diakite	BDP SURP	Billie Holiday's Baltimore: A City of Enforcement
2	Keyi Chen	BDP SURP	Using EXR Image Formats For Scientific Applications
3	Isabella Cook	BDP SURP	Comparison of Fam49B Expression in T Cells of Primary and Secondary Lymphoid Organs
4	Ceylin Elmasli	BDP SURP	Cell migration on compliant substrates requires actin polymerization by the Arp2/3 Complex
5	Caroline Hoerner	BDP SURP	Pilot BinD: A Multicenter Retrospective Review of the Early Application of Circumferential Pelvic Compression in Volume Expanding Pelvic Ring Disruption
6	Rowan Ibrahim	BDP SURP	Commonalities in Theories of the State between Ex-Slaves and the Incarcerated
7	Preethi Kaliappan	BDP SURP	Time Preferences in Policy: The influence of discount rates in climate change mitigation
8	Zoya Khan	BDP SURP	High-Energy Orthopaedic Trauma in the Geriatric Population
9	Andrew Massoud	BDP SURP	Developing EBMonFHIR: A Standard for Clinical Research Knowledge Exchange
10	Jonathan Movsik	BDP SURP	Regulation of Translation by a Novel Micro Upstream Open Reading Frame

11	Jenlu Pagnotta	BDP SURP	The Effects of a <i>Cryptococcus neoformans</i> Infection on M1/M2 Polarized Macrophages
12	Alix Park	BDP SURP	Experimental design in assessing the methylation profiles of cells during growth
13	Sarah Rosenberg	BDP SURP	Assessing priority in the global public health research arena: issue representation over a 15 year period
14	Dong-Woo Seo	BDP SURP	Incentivizing agricultural producers to self-report water usage
15	Taharat Sheikh	BDP SURP	Food Purchasing Patterns of Hypertensive African Americans with Chronic Kidney Disease in the 5+ Nuts and Beans for Kidneys Clinical Trial
16	Brian Soong	BDP SURP	Probing an <i>E. coli</i> Helicase through its Structure-Function Relationship
17	Ariel Swett	BDP SURP	Identifying domains in Rif1 necessary for regulating telomere length
18	Lydia Wang	BDP SURP	Exposure enhanced goods and technology disadoption
19	Serena Wu	BDP SURP	Characterization of floxed NR1 mouse line using viral injections through craniotomy
20	Jinghang Zhang	BDP SURP	Nanopore measurements of Gibbs free energy differences between bound and unbound states of biological macromolecules
21	Zexi Zhou	BDP SURP	“Enabling FHIR for Clinical Research” with the subtitle of “standardizing the FHIR Python API”
22	Nevonah Darden, Hadiya Grier, Alexis Morton, Mael Ndalamba, Precious Ogunlade	BRBT	Proteins In Use Throughout The Summer
23	Kobe Abney	BSI SIP	Melanin binding as a strategy for sustaining drug delivery in the eye
24	Beloved Adenuga	BSI SIP	Mapping Protein-Protein Interaction of BTBD11 and PSD-95 Using Yeast Two-Hybrid system.
25	Dante Calise	BSI SIP	Purification and Identification of Shed Polysaccharides in the Pathogenic Fungus <i>Cryptococcus gattii</i> ”.
26	Gabrielle Coste	BSI SIP	AMPA Receptor Dynamics Underlying Fear Learning in the Retrosplenial Cortex
27	Elen-Sarrah Dolgopolskaia	BSI SIP	Calcium Homeostasis Abnormalities Associated with Bipolar Disorder and Characterization of Therapeutic Intervention

28	Kira Griffith	BSI SIP	Understanding miRNA Targeting of Genes in Neuronal Protein Synthesis
29	Zuri Jules-Culver	BSI SIP	Unbiased Screening for PAC Inhibitors
30	KiChang Kang	BSI SIP	KIFC1 Contributes to Polyploid Giant Cancer Cell Survival
31	Joanna Kim	BSI SIP	How does Electroconvulsive Therapy suppress Intractable Self-Injurious Behavior associated with Intellectual and Developmental Disabilities: Focus on Mechanism.
32	Alex Maya-Romero	BSI SIP	Homer1 a Regulator of Rheb in Upstream mTORC1 Signaling
33	Ingrid Altunin	CTY	Optimizing Methods for Isolating Intact Mitochondria from HEK 293T and THP-1 Cell Lines
34	Victoria Chang	CTY	Developing a Compensation Model for Early Childhood Educators in Alaska
35	Nikhil Krishnan	CTY	A Study on Interference in Textile Based Force Sensors
36	Alexander Kucher	CTY	Finding Pyramidal Cells with Deep Learning
37	Samuel Crowl	FARMS	Assessing the Fidelity of Engineered Neuron Protocols Using singleCellNet
38	Olivia Foster	FARMS	PAX7::GFP+Myogenic Progenitor Cells from hiPSCs have the Normal Myogenic Characteristics
39	Raúl García Rosario	FARMS	Understanding Mitochondrial Dysfunction in Parkinson's Disease
40	Mark González Pérez	FARMS	P2X7 receptor recognition by intra-arterial delivery of nanobodies in stroke models
41	Pemla Jagtiani	FARMS	Human Tau protein purification, aggregation and it's pathology in Alzheimer's disease
42	Maria Pratt	FARMS	LIF-3i Reversion Causes Global Chromatin Differences in Human Pluripotent Stem Cells
43	Will Rankin	FARMS/ICE	Activated c-Abl (pY245 c-Abl) is a potential biomarker candidate for Parkinson's disease
44	Leslie Watkins	FARMS/ICE	Gastrointestinal Dysfunction in Parkinson's Disease Model
45	Kenneth Adusei	INBT REU	Determining DNA Nanotube Internalization in Cancer Cells
46	Bhaargavi Ashok	INBT REU	Formation of Spheroids to Measure Vascular Sprouting in Induced Pluripotent Stem-Cell Derived Endothelial Cells
47	Yana Astter	INBT REU	Clustered Presentation of VEGF Ligands on Nanoparticles to Promote Angiogenesis

48	Melissa Cadena	INBT REU	In vitro Protein Synthesis in Unilamellar Nanoscale Liposomes
49	Marranne Conge	INBT REU	Effect of Amine alkyl side chain length in Poly(β -amino esters) GFP gene delivery
50	Salma Ibrahim	INBT REU	Tissue Stiffness Impacts the Function of Extracellular Vesicles in Metastasis
51	Erin Langille	INBT REU	The Role of Mechanosensitive Ion Channels on Renal Epithelial Barrier Strength
52	José Lasalde-Ramírez	INBT REU	Using Microfluidic Models to Understand Cancer Metastasis
53	Leyda Marrero	INBT REU	CD4+ Lymphocyte Targeting with Self-Assembling ARV Drug Amphiphiles
54	Aaron Rice	INBT REU	Blood-Brain Barrier Variation: Apparent Permeability in MDCK, WTC, and Huntington's Disease hiPSC
55	Jacob Staub	INBT REU	The Effect of the Composition of Plasmid DNA Nanoparticles on Transfection Efficiency In Vitro
56	Christopher Washington	INBT REU	Custom Implant Design & Fabrication for Cranio-Facial Trauma & Defect
57	John-Paul Akinbami	IUSCMP	Pharmacokinetics of Tocilizumab
58	Christopher Taylor	IUSCMP	Neural Correlates of Attention During Decision Making in Humans
59	Jeremiah Acosta	JHNSP	"Neuro-Behavioral Studies and Analysis in Humanized HIV-1 Mice"
60	Oludamilola Adeshina	JHNSP	TBD
61	Matthew Berrios	JHNSP	Developing human microglial cultures to understand HIV-1 neuropathogenic mechanisms
62	Ryleigh Board	JHNSP	Melanocytes and Lipofuscin in the Stria Vascularis in Juvenile and Aged Mice
63	Hannah Greaves	JHNSP	Identification of the Subpopulations of Gut Macrophages in the NSG Humanized Mice Model to Study HIV Infection
64	Jennifer Hinton	JHNSP	Various Strategies with Electroporation Enhance Pre-Onset Hearing Cochlea Transfection
65	Destiny Moore	JHNSP	Cognitive Impairment in HIV+ Patients with Comorbid Mood and Anxiety Disorders
66	Olivia Morrissey	JHNSP	Effort Optimization Within a Gig Economy
67	Naomi Newton	JHNSP	Cytotoxic Gene Therapies for the Safe and Effective Induction of Tumor Killing for the Treatment of High Grade Gliomas
68	Sarah Noble	JHNSP	Neuronal Expression of HA-tagged Nicotinic Acetylcholine Receptor $\alpha 9$ in Mice

69	Montrell Vass	JHNSP	Level of response conflict influences action initiation but not preparation
70	Sarinah Wahl	JHNSP	Dynamic Programming Tractography of Meyer's Loop in Subjects with Normal Hearing and Hearing Loss
71	Eli Wojahn	JHNSP	CIB2 Protein Mutations in Mice
72	Daria Anderson	MCHC/RISE-UP (KKI)	Pain Frequency Among Pregnant Women with Sickle Cell Disease: The Influence on Birth Outcomes
73	Makala Carrington	MCHC/RISE-UP (KKI)	Predictors Of Immigrant Women Remaining in the weWomen study at 6 Months: Implications for Retention
74	James Green	MCHC/RISE-UP (KKI)	Addressing Health Disparities: STI Prevalence and Incarceration Among African American Men Who Have Sex With Men in Baltimore City
75	Emmery Hammond	MCHC/RISE-UP (KKI)	Evaluating the effectiveness of training on cultural competence of healthcare professionals applied to the Babies Born Healthy Initiative
76	Jordan Jacintho	MCHC/RISE-UP (KKI)	Correlation Between Obesity and Developmental Disabilities in the Kabuki Syndrome Population
77	Kamryn Locklear	MCHC/RISE-UP (KKI)	The Relationship of Adverse Childhood Events and PTSD, Depression and Severity of Intimate Partner Violence Among Abused Native American Women
78	Mariamawit Lousleged	MCHC/RISE-UP (KKI)	An Evaluation of Project HEAL's Impact on Families of Neurobehavioral Unit and Center for Autism and Related Disorders
79	Autumn Costley, J'Lynn Davis, Nakayla Lawson	MERIT	Breast Cancer in African American Women
80	Adama Bockarie, Dev Mali	MERIT	Cervical Cancer in African American and Latina Women
81	Alin Guzman, Lidiya Muche, Obiutodike Nnabugwu	MERIT	Cervical Cancer
82	Nevaeh Myrick	MERIT	Drug Addiction in African Americans
83	Kayla White, Kerra Dukes, Mariah Pulliam	MERIT	Addiction in Black Young Adults
84	Isaiah Richardson, Jamarr Watson	MERIT	Cardiovascular Disease in African Americans
85	Ja'Nora White, Jayden Rhodes, Meiling Gao	MERIT	Bacterial STDs in Black Teens in Baltimore City

86	Temí Adekunle	PCCM SIP	Wearability of Personal Sample Monitors in the Cardiopulmonary Household Air Pollution Trials
87	Hosam Arammash	PCCM SIP	Investigating the Role of Androgen Receptor in M2 Macrophage Gene Activation in Allergic Lung Inflammation
88	Omayma Bseis	PCCM SIP	Influence of Gender on QT Variability Index
89	Meaghan Cabassa	PCCM SIP	Humanized Chemogenetic Approach to Treat Sleep Apnea
90	Princess Ekpo	PCCM SIP	The Efficacy of a Dedicated Tobacco Dependence Treatment Clinic: A 1-Year Review
91	Micheal Munson	PCCM SIP	Role of the Na ⁺ /H ⁺ Exchanger in Modulating Resistance to Apoptosis in Pulmonary Arterial Smooth Muscle Cells from Rats with Pulmonary Hypertension
92	Milind Agarwal	Summer PURA	An Integrated Web Based Analytics Platform for Genomic Data
93	Christopher Domalewski	Summer PURA	Locally Treating Lung Diseases with Targeted Drug Amphiphiles
94	Justin Greene	Summer PURA	Characterizing Growth Heterogeneity in Isogenic <i>Yersinia pseudotuberculosis</i> microcolonies
95	Gabrielle Grifno	Summer PURA	Three-dimensional in vitro model of the primary brain cancer perivascular niche
96	Joshua Krachman	Summer PURA	Investigating the Role of TRPC Channels in Vascular Photorelaxation
97	Michael Lan	Summer PURA	Assessment of Neuroprotection and Repair Induced by Nanofiber-Hydrogel Composite After Spinal Cord Injury
98	Marcos Perez	Summer PURA	Wind-Tunnel Testing and Analysis of Flow-induced Deformation and Flutter in Trees
99	Akanksha Suresh	Summer PURA	Dynamic recruitment of Nptx2 is preserved in a rat model of adaptive aging

PODIUM (ORAL) PRESENTATIONS

1:25 pm – 2:15 pm

<i>Time</i>	<i>Name of Student</i>	<i>Program</i>	<i>Title</i>
<i>1:25 pm</i>	Jordyn Reese	MCH-LEARN (KKI)	The Effect of Enriched Environment on Behavior in the Bird Rett Syndrome Mouse Model
<i>1:35 pm</i>	Daniella Asafu-Adjaye	MCH-LEARN (KKI)	Facilitating Temporal Integration of Parallel Gesture Elements through Learning Serial Cognates
<i>1:45 pm</i>	Randall Rainwater	INBT REU	Characterization of Membrane Protein Oligomers through Number and Brightness Analysis
<i>1:55 pm</i>	Micaylah Jones	MCH-LEARN (KKI)	The Role of Tolloid Like 1 in Stress-related Anxiety Disorders
<i>2:05 pm</i>	Macie Pile	MCH-LEARN (KKI)	The Influence of Emotional Support on Breastfeeding Rates across the U.S.

POSTER PRESENTATIONS- SESSION 2 (2:30 pm – 3:30 pm)

Session Guide:

<i>Program Name</i>	<i>Poster Board Numbers</i>
BDP SURP	1-10
BSI SIP	11-21
BRBT	22
CSM SIP	23-30
Centro SOL	31
CTY	32-35
Generation Tomorrow	36-43
JHIBS	44-52
ICM	53-54
INBT REU	55
INBT REU/PS-ON	56
Rosetta Commons REU	57
MCH-LEARN (KKI)	58-66
MCHC/RISE-UP (KKI)	67-73
MERIT	74-83
PCCM SIP	84-93
SARE	94-95
Summer PURA	96-99

<i>#</i>	<i>Name(s)</i>	<i>Program</i>	<i>Title</i>
1	Andrew Cho	BDP SURP	The Global Public Health Research Agenda: Trends in Issues and Institutional Supporters Over the Past Decade
2	William Cho	BDP SURP	Investigating Novel RNA Sequences from African Individuals: Identification of Possible Genes New to the Human Reference Genome
3	Brian Gu	BDP SURP	The Effect of ER Stress on ERAAP Function
4	Emily Lee	BDP SURP	Single Molecule Dynamics and Temporal Occupancy of General Regulatory Factors in Yeast
5	Elizaveta Naydanova	BDP SURP	Combined Analysis of Genetic Association Studies of Heterogeneous Traits Using a Subset-Based Approach
6	Fiona Pat	BDP SURP	Role of nucleus accumbens core and shell in flexible cue-triggered reward-seeking
7	Pitchaya Tanawattanacharoen	BDP SURP	Examining the Origins of Polyploidy in the Coast Redwood
8	Ashley Tetens	BDP SURP	Toward Epigenetic Targeted Therapy for Diffuse Intrinsic Pontine Glioma

9	Joseph White	BDP SURP	Anti-Democratic Sentiments in Comments on Policing Under Jim Crow
10	Alan Xu	BDP SURP	Characterization of <i>C. neoformans</i> exopolysaccharides isolated in 3-10 kDa fraction
11	Jonathan Moran	BSI SIP	Three-Dimensional Relationships among the Axonal Projections of Layer Six Corticothalamic Projection Neurons in the Ventral Posteromedial Nucleus of the Thalamus
12	Keira Mull	BSI SIP	Using Virtual Reality to Quantify Cochlear Synaptopathy in Adult and Juvenile Mice after Acoustic Trauma
13	Benjamin Nieves	BSI SIP	Diabetes Mellitus Prevalence And Severity In Older Adults With And Without A History Of Cancer
14	Chiamaka Okoye	BSI SIP	Screening for ZnT8 Anti-TMD Monoclonal Antibodies
15	Yasmin Padovan Hernandez	BSI SIP	Encoding and enhancement of the motivation to consume alcohol by the central nucleus of the amygdala
16	Prutha Patel	BSI SIP	The Role of Pyruvate Kinase in the Phosphorylation of the Reverse Transcriptase Inhibitor Tenofovir
17	Cailyn Robertson	BSI SIP	Pharmacological Inhibition of BACE1 in Increasing Compensatory Sprouting in Mouse Model of ALS
18	Sarah Sweet	BSI SIP	Analysis of Viral Susceptibility to Antibody Neutralization in a Quantitative Viral Outgrowth Assay
19	Reginald Taylor-Smith	BSI SIP	Prostate Cancer Micro-Environment Simulation using Collagen Gels to Determine the Impact of Androgens on the motility patterns of T cells
20	Avery Wooten	BSI SIP	Confidence in multisensory decisions
21	Eunice Yiu	BSI SIP	A Triad3A/RNF216 Mutation in a Mouse Model for Gordon-Holmes Syndrome with a Focus on Arc Ubiquitination and Cerebellar Structure
22	Gregory Rosario, Colton Ross, Marianne Grace Villafior, Mekhi Wesson, Sam Cure	BRBT	Proteins In Use Throughout The Summer
23	Xavier Aviles	CSM SIP	P2X4 Purinergic Receptor Detection in Mouse Tumors
24	Joshua Carreras	CSM SIP	Characterizing how pharmacologic modulators of cytoskeletal dynamics disrupt mammary organoid branching morphogenesis
25	Bisola Forlorunsho	CSM SIP	Characterization of Oxygen-Releasing Scaffolds for Bone Tissue Engineering

26	Takiel Gibson	CSM SIP	Assessing the potential of IFN-alpha and IL15 to enhance the HIV suppressive capacity of NK Cells
27	Maria Grajeda	CSM SIP	TSC2 serine 1365 modulates mTORC 1 signaling in myocardial ischemia reperfusion
28	Janelle Herring	CSM SIP	Pathophysiology-Driven Antinociception through Gi Activation by GIV and Derivatives
29	Danielle Jones	CSM SIP	Determination of SMAD4 Status in Pancreatic Cancer Organoids
30	Amity Tran	CSM SIP	Does Trappc10 knockdown inhibit Sonic Hedgehog-dependent differentiation of C3H10T1/2 cells?
31	Daniela Sedano	Centro SOL	E-Cigarettes
32	Joseph Aboudi	CTY	Identification and Validation of Proteomic Signatures in Prader-Willi Syndrome
33	Ilana Chalom	CTY	OF MICE AND tetraHYMENa: Investigating H3K23me3 in Mammals and Ciliates
34	Amanda Hogan	CTY	Applying Rolling Circle Amplification to Genomic DNA for Long Read Sequencing
35	Shray Vats	CTY	Improving the Real-Time Processing and Visualization of Electrochemical Biosensor Measurements with Open-Source Python Programming
36	Ngozi Alia	Generation Tomorrow	Examining Mobile Health Interventions and its Impact on Care Coordination
37	Nhu Dang, Brian Davis, John Swift	Generation Tomorrow	The relationship between historical redlining and HIV prevalence in Baltimore City
38	Victoria Garrow	Generation Tomorrow	Examining the Overlap of Alcohol Use and Hepatitis C Virus Infection Among People Who Inject Drugs
39	Katelyn Howell	Generation Tomorrow	Barriers to Care in the Hepatitis C Care Continuum: A Provider Perspective
40	Daneva Moncrieffe	Generation Tomorrow	Staff attitudes towards trauma-informed care in a therapeutic community for substance use disorder treatment
41	Sadé Orejobi	Generation Tomorrow	Age differences in grade level among Hispanic/Latino high school students: estimating prevalence of risk behaviors
42	Kevin Yoon	Generation Tomorrow	Improving transplant patient social support through academic and faith based partnerships
43	Stefany Zelaya	Generation Tomorrow	Substance Abuse Disorder and Access to Treatment among Latinx in Baltimore
44	Shawnie Allen	JHIBS	The study of Tele-ophthalmology on Sickle Cell Retinopathy
45	Raymond Amor	JHIBS	Use of Drone Technology for Cornea Transportation

46	Keanna Brown	JHIBS	Development and Formation of Motor Habits in your Brain
47	Maria Chacona	JHIBS	Double-label Immunohistochemistry to Identify Activated Microglia in the Brain of HIV Infected Humanized Mice
48	Zaria Dancer	JHIBS	Hydrogen Sulfide (H ₂ S) and Anxiety Reduction: Breathing Retraining to Decreasing Oxidative Stress and Increasing Neuroplasticity
49	Aleah Ellerbee	JHIBS	Managing Stroke Patients Throughout the Care Continuum
50	Noor Huma	JHIBS	Cytotoxic Gene Therapies for the Safe and Effective Induction of Tumor Killing for the Treatment of High Grade Gliomas
51	Melina Lawton	JHIBS	Improving Ventriculoperitoneal Shunts For Patients With Hydrocephalus
52	Jaden Queen	JHIBS	TBD
53	Isabelle Rivera	ICM	Using Augmented Reality to Help Parkinson's and Epilepsy Patients
54	Sam Bidwell	STEM-HEAR @ ICM	A Comparison of Cortical Modeling Methods
55	Alexander Betancourt	INBT REU	The Role of Solvents in the Dissolution of Lead-Halide Salts
56	Stephanie Lux	INBT REU and Bioengineering/PS-ON Summer Research Program	The mechanical properties and genetic agents related to vasculogenesis-associated extracellular matrix remodeling in soft tissue sarcoma
57	Carlos Guerra	Rosetta Commons REU	A Deep Learning Approach to H3 Structure Prediction
58	Daniella Asafu-Adjaye	MCH-LEARN (KKI)	Facilitating Temporal Integration of Parallel Gesture Elements through Learning Serial Cognates
59	Alham Ashkar	MCH-LEARN (KKI)	“Assessing the Clinical Utility of the ADOS-2 Toddler Module”.
60	Helena Getachew	MCH-LEARN (KKI)	The Influence of Maternal Stress on Infant Tobacco Exposure in Sleep-Related Infant Deaths
61	Micaylah Jones	MCH-LEARN (KKI)	The Metalloprotease Tolloid-Like 1 (TLL1) in Stress-related Anxiety Disorders
62	Shatera McNair	MCH-LEARN (KKI)	The Impact of Parental Stress on the Parental Estimate of Developmental Age
63	Briana Nemieboka	MCH-LEARN (KKI)	Examining trends in ACE scores among Baltimore City youth homicide victims
64	Macie Pile	MCH-LEARN (KKI)	The Influence of Emotional Support on Breastfeeding Rates across the U.S.
65	Melanie Schupler	MCH-LEARN (KKI)	SLRP and J-1 Visa Waiver Program Retention Evaluation: Lessons Learned

66	LaShae Williams	MCH-LEARN (KKI)	Transfusions and Adverse Birth Outcomes among Pregnant Women with Sickle Cell Disease
67	Kathryn McLaughlin	MCHC/RISE-UP (KKI)	Patterns of Language and Behavior Comorbidity in a Preschool Intra-Disciplinary Clinic
68	Phuoc Nhan	MCHC/RISE-UP (KKI)	An abbreviated version of a comprehensive language measure (CELF-5) efficiently identifies children at risk of speech and language disorders
69	Marleny Nunez	MCHC/RISE-UP (KKI)	Deinstitutionalizing Birth: Addressing The Generational Affect of Systematic Trauma & Stress on Maternal/Infant Health
70	Ndukwo Okoronkwo	MCHC/RISE-UP (KKI)	“What are the risk factors for Suicidality in individuals with intellectual and developmental disabilities?”
71	Taylor Paul	MCHC/RISE-UP (KKI)	The ethical issue of influence in equity and access to healthcare
72	Saraf Salim	MCHC/RISE-UP (KKI)UP	Protein Kinase C Gamma in relation to Pediatric Anxiety and Neuroplasticity
73	Maresa Tate	MCHC/RISE-UP (KKI)	All I Did Was Turn 18: A Systematic Review of the Permanency Literature and Recommendations for Best Practice
74	Arielle Avidor, Shantika Bhat	MERIT	Lung Cancer in African American Males
75	Adamaris Bautista, Jaznai Womack, Tiffany Rodriguez	MERIT	Lead Poisoning in Children
76	Khaliah Busby	MERIT	Mental Illness Within the African American Community
77	Naomi Condado-Amador	MERIT	Mental Health Within the Hispanic/Latino Community of Baltimore
78	Ian Davis	MERIT	Sickle Cell Anemia in African Americans
79	A'shayia Freyman, Anthony Wilkins, Jade Taylor	MERIT	Herpes in Baltimore
80	Devin Harris	MERIT	The Connection Between PTSD in African-Americans and Homicides, Racism and Other Health Disparities
81	Kanira Jones, Vina Chen, and Zoe Meggett-Johnson	MERIT	Lead Paint Poisoning in Roland Park Compared to Baltimore City Overall
82	Jacqueline Villano-Cano	MERIT	Diabetes in the Hispanic Community
83	Zaniya Williams	MERIT	HIV/AIDS and its Impact on MSM Men
84	Jay Fonticella	PCCM SIP	The Effect of Fatty Acid Concentration on Mitochondrial Quantity and Intracellular Calcium Ion Levels in Microvascular Endothelial Cells.

85	Keirah Jefferson	PCCM SIP	Pulmonary hypertension and NHE1/actin filament co-localization in pulmonary arterial smooth muscle cells
86	Alexander Lee	PCCM SIP	Improving the Algorithm to Detect Stove Use in the Cardiopulmonary and Household Air Pollution (CHAP) Trial
87	Michael Osie	PCCM SIP	Racial Differences in QT Variability Index
88	Micaela Resta	PCCM SIP	The Role of Ca ²⁺ /Calmodulin-dependent Kinase II d in the Remodeling of Hypertensive Pulmonary Blood Vessels
89	Sean Reuven	PCCM SIP	Does nuclear localization of Caspase-3 potentiate apoptosis in etoposide induced Non-small cell lung cancer cells?
90	Mario-Cyriac Tcheukado	PCCM SIP	Assessing the Precision of the Richmond Agitation-Sedation Scale in the Medical Intensive Care Unit
91	Jacquelyn Willis	PCCM SIP	Prognostic Role of Plasma Xanthine Oxidoreductase In ARDS Patients
92	Scott Wilson	PCCM SIP	Identification and Functional Analysis of Chemosensory Brush Cells in the Airway Epithelium
93	Marcos Zachary	PCCM SIP	Induction of CD4 ⁺ CD49a ⁺ Tissue Resident Memory Cells in vitro as an Adoptive Transfer Therapy for Lung Fibrosis
94	Hawa Sidy	SARE	Investigating proportions of LHX6- expressing neurons of GABAergic neurons in the Hypothalamus and Cortex
95	Kristiana Smith	SARE	"Exploring the localization of chromatin-organizing proteins during the cell cycle"
96	Tihitina Aytenfisu	Summer PURA	Compensating for Arrhythmogenic S1904L Mutation in Voltage-Gated Sodium Channel Nav1.5
97	Colin Bowen	Summer PURA	Statistical Validation Metrics for Power System Network Models
98	Hsuan Wei Chen	Summer PURA	Learning Through Imitation: Different Routes to Performance in Autism and Peers
99	Courtney Whilden	Summer PURA	Understanding the role of cortical layer 6 in sensory perception

Scholarship Award Winner



Thinzar Htwe

Summer Academic Research Experience
(SARE)

2019 HOPKINS C.A.R.E.S PROGRAM DESCRIPTIONS

Basic Science Institute Summer Internship Program (BSI SIP): BSI SIP provides experience in research laboratories to students of diverse backgrounds, including underrepresented minority students, students from economically disadvantaged and underserved backgrounds and students with disabilities that have completed one-two or more years of college. The purpose of this exposure to biomedical and/or public health research is to encourage students to consider careers in science, medicine and public health.

Biophysics Research for Baltimore Teens (BRBT): BRBT gives Baltimore City teens a chance to do basic biomedical research in Johns Hopkins biophysics labs on both the Homewood and JHMI campuses. BRBT is offered through the Johns Hopkins Program in Molecular Biophysics (PMB), and PMB graduate students on both campuses mentor BRBT interns. The interns' exposure to laboratory research is augmented with a weekly course in basic laboratory skills taught by graduate students and overseen by PMB faculty.

Bloomberg Distinguished Professor (BDP) Summer Undergraduate Research Program: HOUR's BDP Summer Undergraduate Research Program offers Hopkins undergraduates the opportunity to partner with participating Bloomberg Distinguished Professors on a full time project over the summer. The BDP faculty and affiliated research groups provide the projects, training and guidance.

Careers in Science and Medicine Summer Internship Program (CSM SIP): CSM SIP is the undergraduate component of the Johns Hopkins Initiative for Careers in Science and Medicine (CSM Initiative) pipeline program. The CSM Initiative seeks to develop scholars from low-income and diverse backgrounds to help them build the accomplishments, skills, network, and support necessary to achieve advanced careers in biomedical, medical, health-related, and STEM professions.

Center for Talented Youth (CTY) Student Research Program: CTY Student Research Program invites high achieving, academically advanced high school students to participate in residential research experiences across disciplines at both the Johns Hopkins University and School of Medicine. This six-week residential program pairs CTY students with research mentors through a highly selective process, which considers both student and mentor skills and interests. Students attend career and research seminars and participate in a journal club sponsored by each host lab.

Centro SOL Programa de Verano para Jóvenes (Centro SOL): Centro SOL is a summer program for Spanish/English bilingual high school students in Baltimore City. The program's goal is to expose bilingual high school students to the medical field by offering meaningful opportunities to work with JHU School of Medicine faculty in clinical settings that serve Latino patients with limited-English proficiency. In addition, students shadow Johns Hopkins Hospital Spanish language interpreters. This experience allows them to appreciate the importance of professional medical interpretation during clinical encounters and gives them an opportunity to pursue further training in this area if they are interested. Students who are fluent in both Spanish and English are invited to apply to the program. Through this program, we expose motivated Baltimore youth to careers in medicine, mentor them at a leading medical institution, and empower them to pursue further training that capitalizes on their Spanish language skills, while improving services to our Latino patients.

The Foundation for Advanced Research in the Medical Services (FARMS): FARMS offers opportunities in the Institute for Cell Engineering (ICE) in one of four program areas: Vascular Biology, Stem Cell Biology, Immunology or Neurodegeneration. Program participants may participate in a broad array of projects from computational biology, gene regulatory networks, immune system development, lymphoid malignancies, molecular and cellular mechanisms of oxygen regulation, molecular and cellular signals controlling neurodegeneration, neurogenesis, single cell biology, stem cell modeling, gene and stem cell therapies, MRI cell tracking techniques, or stem cell engineering. The rich environment and guidance by our faculty helps prepare students for successful careers as independent research scientists. Interns are expected to participate in all student related activities in ICE, conduct research and write a small program report at the end of their internship or present their work in a poster session at the end of the summer.

Generation Tomorrow: Summer Health Disparity Scholars: Generation Tomorrow and the Johns Hopkins Center for AIDS Research (CFAR) launched Generation Tomorrow: Summer Health Disparity Scholars in the summer of 2019. The program is a ten-week summer program for undergraduate students interested in HIV and/or hepatitis C virus (HCV) health disparities and their intersection with substance use (addiction and overdose), violence, mental health, and the social determinants of health. The program offers mentorship and training in HIV/HCV education, testing, and counseling; health disparities, cultural competence, and harm reduction. Through a lecture series, the program explores the intersection of HIV and/or HCV health disparities with the areas defined above. The program has a special focus on undergraduate students that are underrepresented in nursing, public health, and medicine with a special emphasis on first generation college students and individuals from disadvantaged backgrounds. The program consists of the following components:

1. Three-day intensive HIV and HCV testing and counseling training
2. Weekly lecture series
3. Health disparities related research (clinical, health services, biomedical)
4. HIV and/or HCV community-based organization or Johns Hopkins affiliated program internship/community outreach focused on health disparities

Internships for Undergraduate Scholars in Computational Medicine Program

(IUSCMP)/Institute for Computational Medicine (ICM): IUSCMP is a commuter program for students from the following local Maryland institutions/Scholar programs: UMBC MARC U*STAR Scholars, Loyola CPaMS Scholars, and the Morgan State University NIGMS-RISE and ASCEND Scholars. Interns are provided extended research experiences in the development of quantitative approaches for understanding the mechanisms, diagnosis and treatment of human disease through applications of mathematics, engineering and computational science. An internship at the Institute for Computational Medicine provides a significant research opportunity that can lead to authored publications, presentations at conferences, and a competitive advantage for students who pursue graduate programs and professional research-based careers.

Institute for NanoBioTechnology Research Experience for Undergraduates (INBT REU):

The Institute for NanoBioTechnology at Johns Hopkins University offers undergraduate students from colleges and universities around the country a chance to participate in research projects in the exciting and rapidly growing area of nanobiotechnology, a place where biology, medicine, and nanoscience meet. For more information, visit <https://inbt.jhu.edu/nanobio-reu/>.

The Johns Hopkins Internship in Brain Sciences Program (JHIBS): The long-term goal of the JHIBS program is to significantly increase the pool of qualified underrepresented professional candidates from Baltimore in the neurosciences and mental health medicine through an eight-week summer research and enrichment experience that targets high school juniors and seniors. The program provides the necessary exposure, knowledge, and career-long mentoring to help propel students toward a trajectory as a STEM professional. The program has been funded by the Cohen Foundation and by the National Institutes of Mental Health.

The Johns Hopkins Neuroscience Scholars Program (JHNSP): JHNSP is a multi-year, national program dedicated to mentoring underrepresented minority (URM) and deaf or hard-of-hearing (D/HH) undergraduates. It provides students mentoring and in-depth exposure to neuroscience research as they prepare for a career path toward a PhD or MD/PhD in this field. Participants attend professional development workshops, perform 10 weeks of intensive summer research, and network with other students. Throughout the academic year, scholars receive individualized advising. The program is supported by a grant from the National Institute of Neurological Disorders and Stroke (R25NS107167).

Kennedy Krieger Institute

Maternal Child Health-Leadership Education, Advocacy, and Research Network (MCH-LEARN): MCH-LEARN is a nine-week summer and academic year maternal child health (MCH) program that provides integrated public health, clinical and research learning experiences. MCH-LEARN is designed for college freshmen, sophomores and juniors in the Baltimore and Washington, D.C. areas, who are interested in MCH professions (pediatric medicine, nutrition, social work, nursing, pediatric dentistry, psychology, health education, occupational/physical therapy, speech-language pathology, public health). Students from underrepresented and/or disadvantaged populations are strongly encouraged to apply. Students must have an overall grade point average of at least 3.0 on a 4.0 scale. The program provides scholars with mentorship using interdisciplinary training experiences, leadership and professional development, and didactics focusing on promoting health equity within MCH populations. The ultimate goal of MCH-LEARN is to support diverse students' academic success to professional careers in MCH disciplines.

Maternal Child Health Careers/Research Initiatives for Student Enhancement

Undergraduate Program (MCHC/RISE-UP): The MCHC/RISE-UP Program is a nine-week summer program designed for undergraduate juniors and seniors, and recent baccalaureate degree students (within 12 months of the MCHC/RISE-UP program orientation), with a grade point average of at least 2.7 on a 4-point scale who are interested in learning more about public health and preventing health disparities. MCHC/RISE-UP is a national consortium of institutions including the Kennedy Krieger Institute, Maryland Center for Developmental Disabilities, Johns Hopkins University School of Medicine, Nursing, and Public Health, University of California – Davis, and the University of South Dakota Sanford School of Medicine Center for Disabilities and Tribal Serving Institutions. MCHC/RISE-UP offers public health leadership learning experiences in clinical, research, and community engagement and advocacy areas. All scholars interested in addressing health disparities are eligible to apply.

Medical Education Resources Initiative for Teens (MERIT) Health Leadership Academy:

The MERIT Health Leadership Academy is a nonprofit academic and career mentorship program supporting Baltimore City high school students who aspire to careers in medicine. MERIT scholars take advanced academic classes on Saturdays; work in hospitals, labs, and community organizations during paid internships; and receive long-term college and career mentorship.

This summer, scholars shadowed professionals in clinical and laboratory settings across the city. As rising juniors, MERIT scholars participate in clinical internships, giving them the opportunity to experience health care in the real world. MERIT scholars shadow up to 20 different health care providers in a variety of settings including intensive care, pediatrics, outpatient clinics, surgery, and more. As rising seniors, scholars conduct independent research based on their interests under the guidance of a mentor. Scholars participate directly in the research process, engaging in projects that drive scientific discovery and medical advancement.

Pulmonary and Critical Care Medicine Summer Internship Program (PCCM SIP): The Division of Pulmonary and Critical Care Medicine hosts undergraduate students each summer as part of an NIH-funded program to enhance diversity in biomedical sciences. Students from around the United States and Puerto Rico join faculty for a ten-week, research-focused experience that extends from Memorial Day weekend through the first week of August. Students are matched with mentors based on their interests. Students work on specific research projects under the supervision of their mentor. Projects span a broad range of research, from the basic science of endothelial or epithelial cell biology to asthma epidemiology. In addition to the research experience, students participate in a weekly journal club, during which they present primary research articles to their peers and members of the faculty. Students also attend a seminar series featuring faculty members from Johns Hopkins and the NIH. This forum provides students with the opportunity to interact with faculty members and hear different perspectives on issues related to career development. Students interested in clinical medicine are given the opportunity to “round” with the Johns Hopkins Medicine residents, providing a glimpse of life in clinical medicine as a resident at an academic institution.

Summer Academic Research Experience (SARE): SARE is an eight-week outreach program that seeks to develop exceptional high school students from the greater Baltimore area by introducing them to academic research with a secondary emphasis on STEM and health-related professions. We provide our scholars with a unique exposure to modern scientific research, combined with academic fortification to enhance science, writing, and mathematics skills. Throughout the summer, students work closely with experienced mentors who support the student as they experience the world of scientific inquiry and develop their own research.

Summer Provost’s Undergraduate Research Award (PURA): HOUR’s Summer PURA program offers Hopkins undergraduates the opportunity to stay in Baltimore during the summer to start or continue a research, creative, or scholarly project in any division, department, or program related to Johns Hopkins under the guidance of a Hopkins mentor.

2019 HOPKINS C.A.R.E.S ORGANIZING COMMITTEE

Amanda Brown, PhD: Director of The Johns Hopkins Internship in Brain Sciences and The Johns Hopkins Neuroscience Scholars Programs

Valerie Clarke: Administrative Secretary (Temporary), Office of Graduate Biomedical Education/ Office of Student Pipeline Programs

Gerri Cole, PhD: Chair, Hopkins C.A.R.E.S. Summer Symposium and Academic Program Manager, Office of Student Pipeline Programs

Jasmine Griffin: Academic Program Assistant, Office of Graduate Biomedical Education

Monica Guerrero Vazquez: Executive Director, Centro SOL

Tahirah Hall: Administrative Supervisor, Summer Internship Program Coordinator for Pulmonary and Critical Care Medicine Summer Internship Program

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Casey Jacobs: Administrative Secretary, Biophysics for Baltimore Teens

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HOPKINS C.A.R.E.S SPONSORS

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