**Angel Charles, MD**

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**Education**

**Howard University**

Bachelor of Science

**Weill Cornell Medical College**

Doctorate of Medicine

**University of Florida**

Doctorate of Philosophy

**2011-2015**

**2015-2020**

**2020-**

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**Post- Graduate Education**

**University of Florida**

General Surgery Residency

**2020-2027**

**Research**

**2018-2020** Doris Duke Charitable Foundation Clinical Research Mentorship

Memorial Sloan Kettering Cancer Center

Research Advisor: David Scheinberg, MD, PhD

Cyclin dependent kinase 4/6 inhibitors (CDK4/6i) lead to cell-cycle arrest, but also demonstrate antineoplastic activity through triggering T cell-mediated immunity. We investigated the ability of CDK4/6i to alter the immunopeptidome in different breast cancer cell lines. Subsequent analysis revealed an upregulation of cell surface HLA levels and HLA peptides derived from proteins involved in the “G1/S phase transition of cell cycle” pathway. These findings suggested CDK4/6i provided a tool for highly selective induction of HLA ligands that may be targeted by T cell-based immunotherapeutics.

Laboratory of Genome Maintenance, Rockefeller University

Research Advisor: Agata Smogorzewska, MD, PhD

**2016**

Biallelic mutations in BRCA2 cause Fanconi Anemia; a genetic condition characterized by a constellation of congenital abnormalities, bone marrow failure, and cancer predisposition. We hypothesized that the atypical FA phenotype experienced by some patients in the International was due to the development of a defect in repair of interstrand crosslinks but not double-stranded breaks. I characterized a variety of CRISPR/Cas9 generated BRCA2 mutant human fibroblast in an effort to test our hypothesis.

NSF Funded Environmental Biology Scholars Fellowship, Howard University

Research Advisor: Hemayet Ullah, PhD

**2012-2015**

Farmers in the developing world suffer disproportionately from environmental stress induced crop loss. Drought and salt stress in particular, account for the majority of crop loss annually. The RACK1 (Receptor for Activated C Kinase 1) gene has been known to play a role in salt stress and drought resistance pathways in plants. I studied the impact of RACK1 inactivation on salt and drought stress responses in *Arabidopsis thaliana*.

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| **2014** | |
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| Cerebral malaria accounts for approximately 900,000 deaths of children 5 years and younger in sub-Saharan Africa annually; the need for adjuvant therapies is urgent and little is understood about its pathogenesis. I investigated the heme-induced mechanism by which CD34 cells, a subset of endothelial progenitor cells, are depleted in the peripheral blood of individuals with cerebral malaria, because CD34 cells play an important role in the repair and rejuvenation of vascular endothelium during cerebral vascular diseases. | |
| **2013** | Ecology and Evolution Graduate Admission Pathway Scholars Program  University of California Davis  Research Advisor: Richard Grosberg, PhD |
| Investigating the behavior of primitive organisms provides deeper insight into the evolution of information processing and environmental adaptation. I investigated how prior exposure to different settlement substrates altered the pre-settlement behavior of *Bugula neritina,* a sessile marine organism,in order to determine whether the larval phase of these animals were capable of processing, retaining, and applying information about their environment toward making decisions that impact species survival. | |

NIH Funded Minority Health and Health Disparities International Research Training Program, Korle Bu Teaching Hospital, Noguchi Memorial Institute for Medical Research at University of Ghana, Morehouse School of Medicine, and Howard University

Research Advisors: Winston Anderson, MD, and Jonathan K. Stiles, MD

**Employment**

American Heart Association (AHA) COVID-19 Patient Registry Data Analyst,

New York Presbyterian Hospital/Columbia University

**2020**

Science and Mathematics Tutor

Howard University

**2013-2015**

**Certifications**

Advanced Cardiac Life Support

**2020-**

Advanced Trauma Life Support

**2022-2026**

**Memberships**

**2023-** Alpha Omega Alpha Honor Medical Society

**2022-** The Society of Black Academic Surgeons

**2022-** American College of Surgeons

**2022-** Association for Academic Surgeons

**2022-** University of Florida Chapman Chapter of the Gold Humanism Honor Society

**2013-** Beta Kappa Chi National Scientific Honors Society

**2012-2015** Golden Key International Society

**2012-2015** National Society of Collegiate Scholars, Howard University

**2012-2015** College of Arts and Sciences Honors Society, Howard University

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**Committees**

**2022-** The Society of Black Academic Surgeons, Medical School Committee

**2023-** The Society of Black Academic Surgeons, Membership Committee

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**Honors and Awards**

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| **2011-2015** | Legacy Scholar, Howard University |
| **2013-2014** | Luard-Morse Scholarship to Oxford University, English Speaking Union (ESU) of America |
| **2014** | Lucy E. Moten Undergraduate Study Abroad Fellowship, Howard University |
| **2013** | Preparing Leaders and Nurturing Tomorrows Scientists Student Travel Grant for the Ecological Society of America National Symposia |
| **2017**  **2018**  **2018-2019**  **2020**  **2020**  **2021**  **2022**  **2023**  **2023** | Biology Department Distinguished Alumni Award, Howard University  Howard Hughes Medical Institute Medical Research Fellowship- declined offer for Doris Duke Charitable Foundation Clinical Research Mentorship  Doris Duke Charitable Foundation Clinical Research Mentorship  **The Gustavo Cudkowicz Memorial Prize in Immunobiology from Weill Cornell Medicine**  **University of Florida Department of Surgery Fall Surgical Olympics Silver Medalist**  **University of Florida Department of Surgery Spring Surgical Olympics Silver Medalist**  **University of Florida Department of Surgery Spring Surgical Olympics Silver Medalist**  Department of Surgery Outstanding Resident Instructor Award, University of Florida  Hugh M. Hill, M.D. Outstanding Resident Educator Award, University of Florida |

**Peer-Reviewed Publications**

Bourne, C., Wallisch, P., Dacek, M., Gardner, T., Pierre, S., Vogt, K., Corless, B., Bah, M., Romero- Pichardo, J., **Charles, A**., Kurtz, K., Tan, D., Schienberg, DA. Host-cell Interactions of Engineered T cell Micropharmacies. Cancer Immunology Research. April 2021. Submitted.

**Charles, A.,** Thomas RM. The influence of the microbiome on the innate immune microenvironment of solid tumors. Neoplasia. March 2023. doi: 10.1016/j.neo.2023.100878. Epub 2023 Jan 23. PMID: 36696837; PMCID: PMC9879786.

**Charles, A.,** Bourne, C., Aretz, Z., Mun, S., Korontsvit, T., Dao, T., Klatt, M., Schienberg, DA. May 2021.

Low-Dose CDK4/6 Inhibitors Induce Presentation of Pathway Specific MHC ligands as Targets for Cancer

Immunotherapy. OncoImmunology, 10(1), 1916243. https://doi.org/10.1080/2162402x.2021.1916243

Knewitz D, **Charles A.**, Thomas RM. Association of Medical Appointment Cancellation Rates on

Survival After Esophagectomy for Esophageal Cancer. J Gastrointest Surg. 2022 Oct 26:1–8. doi:

10.1007/s11605-022-05491-x. Epub ahead of print. PMID: 36289186; PMCID: PMC9607859.

Herremans K, Riner A, **Charles A**, Balch J, Vudatha V, Freudenberger D, Nassour I, Hughes S, Trevino J,

Loftus, T. From Bench to Bedside: Pursuing Equity in Precision Medicine Approaches to Pancreatic

Cancer Care. Frontiers in Oncology. 2022 Dec 8;12:1086779. doi: 10.3389/fonc.2022.1086779. PMID:

36568255; PMCID: PMC9779942.

**Book Chapters**

**Charles, A.,** Feig, B., Thomas, R. “Transanal Excision of Rectal Tumors.” Operative Techniques in

Surgery. Wolters Kluwer Health. Part 4, chapter 41. (In press)

**Blogs**

**Charles, A**. For Her. Association for Academic Surgeons (Blog), August 4, 2022.

<https://www.aasurg.org/blog/for-her/>.

**Posters and Oral Presentations**

2023 **Angel Charles**, Pavel Mazirka, Kathleen Ehresmann, Thomas Read, Krista Terracina,

Johan Nordenstam. Preoperative MRI Staging in Patients Who Received Total Neoadjuvant

Therapy Compared with Long Course Chemoradiotherapy for Locally Advanced Rectal

Cancer. University of Florida Department of Surgery Research Day, Gainesville, FL. June

2023.Oral Presentation. (Accepted).

2023 **Angel Charles**, Pavel Mazirka, Kathleen Ehresmann, Thomas Read, Krista Terracina,

Johan Nordenstam. Preoperative MRI Staging in Patients Who Received Total Neoadjuvant

Therapy Compared with Long Course Chemoradiotherapy for Locally Advanced Rectal

Cancer. American Society of Colon and Rectal Surgeons, Seattle, Washington. June 2023.

Poster Presentation. (Accepted).

2023 Kathleen Ehresmann, **Angel Charles**, Pavel Mazirka, Thomas Read, Krista Terracina,

Johan Nordenstam. A Case Report of Lymphoepithelioma-like Carcinoma of the Anal

Canal and Review of Literature. American Society of Colon and Rectal Surgeons, Seattle,

Washington. June 2023. Poster Presentation. (Accepted).

2023 Pavel Mazirka, **Angel Charles**, Kathleen Ehresmann, Thomas Read, Krista Terracina,

Johan Nordenstam. Metastatic Gastrointestinal Neuroectodermal Tumors (GNET);

multidisciplinary approach and the role of surgery. American Society of Colon and Rectal

Surgeons, Seattle, Washington. June 2023. Poster Presentation. (Accepted).

2022 Daniel Knewitz, **Angel Charles**, Ryan Thomas. Association of pre-pandemic medical

appointment cancellation rates on survival after esophagectomy for esophageal cancer.

University of Florida Department of Surgery Research Day, Gainesville, FL. June 2022. Oral

presentation.

2019 **Angel Charles,** Christopher Bourne, Zita E. Aretz, Sung M. Mun, Tanya Korontsvit,

Tao Dao, Martin G. Klatt, David A. Schienberg. Low-Dose CDK4/6 Inhibitors

Induce Presentation of Pathway Specific MHC ligands as Targets for Cancer Immunotherapy.

Doris Duke Charitable Foundation Annual Conference, New York, New York. May 2019. Oral

presentation.

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| 2015 | **Angel Rogers**, DeAna Smalls, Victor Leonard, Hemayet Ullah. Small Compounds Regulate Scaffold Protein RACK1 Mediated Cellular Stress Signaling Pathways in *Arabidopsis* and in rice. Beta Kappa Chi and National Institute of Science 72nd Joint Annual Meeting, Jackson, Mississippi. March 2015. Oral presentation |
| 2015 | **Angel Rogers**, DeAna Smalls, Victor Leonard, Hemayet Ullah. Small Compounds Regulate Scaffold Protein RACK1 Mediated Cellular Stress Signaling Pathways in *Arabidopsis* and in rice. Howard University Undergraduate Research Symposium, Washington, DC. April 2015. Poster |
| 2013 | **Angel Rogers**, DeAna Smalls, Victor Leonard, Hemayet Ullah. Small Compounds Regulate Scaffold Protein RACK1 Mediated Cellular Stress Signaling Pathways in *Arabidopsis* and in rice. Botanical Society of America National Conference New Orleans, Louisiana. July 2013. Poster |
| 2012 | **Angel Rogers**, DeAna Smalls, Victor Leonard, Hemayet Ullah. Small Compounds Regulate Scaffold Protein RACK1 Mediated Cellular Stress Signaling Pathways in *Arabidopsis* and in rice. American Society of Plant Biologist National Conference Austin, Texas. July 2012. Poster |