

**BIOGRAPHICAL SKETCH**

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NAME: Ashley Varkey

eRA COMMONS USER NAME (credential, e.g., agency login): AVARKEY28

POSITION TITLE: Pediatric Hematology/ Oncology Fellow, PGY5

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

DEGREE (if applicable)	Start Date MM/YYYY	Completi on Date MM/YYYY
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		DEGREE (if applicable)	INSTITUTION AND LOCATION	FIELD OF STUDY
	Connecticut	BS		06/2025
New York Institute of Technology (NYIT)	Hackensack University Medical Center	DO	05/2015 07/2019	Life Sciences
NYIT College of Osteopathic Medicine		Resident Fellow	07/2022	Medicine
			05/2014	
University of	<b>A. Personal Statement</b>		07/2011	Pediatrics
			05/2019 06/2022	Pediatric Hematology/ Oncology

As one who has witnessed first-hand the grueling effects and consequences of treatment of relapsed acute myeloid leukemia (AML), I was taken aback by the knowledge that there might be immunotherapeutic agents for this aggressive cancer. The first year of pediatric hematology/oncology fellowship involved clinical rotations, both inpatient and outpatient, where one learned about the basics of cancer, bone marrow transplant, chemotherapy, cytoreduction, drug administration, drug side effects, gene therapy, diagnosis, remission, and relapse, to name a few. I was able to meet a wide array of patients, some of whom had better prognoses than others, but each who had some sort of side effect from their drug regimen. Through first year, I was exposed to the basics of research, of how drugs were formulated and how gene therapy and immunotherapies such as T cell engagers (TCE) and chimeric antigen receptors (CAR) T cells could be used for treatment. During my second and current year of fellowship, as a clinical fellow at the HMH-CDI under the mentorship of Dr. Zakrzewski, I was able to put my clinical background into a research perspective. I learned about B cell maturation antigen (BCMA) and found that it is expressed in mature B cells and plasma cells and portended a poor prognosis and increased disease burden for multiple myeloma. We found that BCMA is found on the surface of AML cells as well, and thus the research began. I was able to hone my technical skills in the lab by using flow cytometry to analyze BCMA surface expression in AML patient cell lines, sharpen my in vitro and in vivo skills by employing TCE approaches, luciferase assays and AML xenograft models. We hope that our studies will pave the way for repurposing of BCMA directed therapeutics for immunotherapy of AML. In summary, the first and second year of fellowship have taught me different aspects of cancer, and both years have illustrated that cures are on the horizon. My program has limited resources to allow me to take part in

conferences to relay this research and thus, any support would be beneficial and advance my research. This year, my one abstract, titled "B Cell Maturation Antigen (BCMA) As a Novel and Promising Target for Immunotherapy for Acute Myeloid Leukemia" has been accepted for an oral presentation at the Annual Meeting and the chance to present this research is not only exciting but also heralds hope for the future of cancer.

## **B. Positions, Scientific Appointments and Honors**

### **Positions and Scientific Appointments**

2025 – Present Supervisor, Research Assistant Member, Center for Discovery and Innovation 2022 – 2025 Clinical Fellow in Pediatric Hematology/Oncology, Hackensack University Medical Center 2019 – 2022 Resident in Pediatrics, University of Connecticut

### **Honors**

2026 Poster Presenter, American Society for Transplantation and Cellular Therapy 2025  
Poster Presenter, American Society of Clinical Oncology  
2025 Hyundai Young Investigator Grant Recipient  
2024 Oral Abstract Presenter, American Society of Hematology  
2024 Oral Abstract Presenter, American Society for Transplantation and Cellular Therapy 2024 Travel Grant Recipient, American Society for Transplantation and Cellular Therapy 2023 Poster Presenter, American Society of Pediatric Hematology/ Oncology 2021 Virtual Poster Presenter, American Society of Pediatric Hematology/ Oncology

## **C. Contributions to Science**

My career has included both a pediatric centered background, with focus on unique pediatric case presentations, and has now shifted to a pediatric oncology perspective, with focus on cancer research. My research is currently focused on the role of targeted agents for pediatric cancer, in particular acute myeloid leukemia. Through research and learning in both pediatrics and pediatric oncology, I have been able to curate my research to possibly find a new targeted agent for an aggressive pediatric cancer.

- 1. Quality improvement projects:** I spent 2 years (2020-2022) doing research in the Emergency Department at the University of Connecticut utilizing EMR data to ascertain the time to antibiotic initiation for patients with sickle cell disease and fever and create a workflow to initiate antibiotics more promptly. I have also participated in projects optimizing pain management in pediatric hematology/oncology patients by creating order sets to facilitate ordering patient-controlled analgesia (PCA) pumps for children within the hospital at the University of Connecticut (2020-2022) and by creating individualized pain plans for children with sickle cell disease who have had at least one vaso-occlusive crisis (Hackensack University Medical Center, ongoing).
- 2. Clinical Research during residency:** From 2020 to 2022 I worked with Dr. Joanna Gell at the University of Connecticut on a study with the purpose to ascertain whether miRNA would be an adequate tumor marker in the CSF of patients with intracranial germ cell tumors (iGCTs). Results showed that the studied miRNA molecules were present in the CSF of all studied patients with intracranial germ cell tumors, with research still underway to further explore whether brain biopsies are required to confirm the diagnosis of iGCTs.
- 3. Preclinical Research during fellowship:** My ongoing clinical fellowship research is focused on the development of novel immunotherapies for AML. This research entails both validation of novel targets and preclinical efficacy testing in vitro and in vivo. This research has the potential to be highly clinically relevant and we plan to pursue translational efforts on collaboration with biotech and pharmaceutical companies in parallel with our preclinical studies. The result of one of my projects introducing BCMA as a promising target for immunotherapy of AML lead to an abstract that was accepted for an oral presentation at the 2024 Annual Meeting of the American Society for Transplantation and Cellular Therapy (ASTCT), and I am the first author for the manuscript.

B Cell Maturation Antigen (BCMA) As a Novel and Promising Target for Immunotherapy for Acute Myeloid

Leukemia

**Ashley Varkey, DO**<sup>1,2</sup>, Mark Batistick<sup>1</sup>, Manpreet Bariana, PhD<sup>1</sup>, Shaina Anuncio<sup>1</sup>, Elena Cassella<sup>1</sup> and Johannes Zakrzewski, MD<sup>1,2,3</sup>,