Branden S. Moriarity, PhD

PEDIATRIC CANCER RESEARCHER

MEET **BRANDEN S. MORIARITY, PhD,** FHS CLASS OF 2003, ASSISTANT PROFESSOR AND ENTREPRENEUR.

More than 10,000 American children and adolescents are diagnosed with, and thousands die each year, from osteosarcoma, or bone cancer. Researching therapies for treatment of this rare disease is the mission of Dr. Branden S. Moriarity.

Dr. Moriarity graduated from Faribault High School in 2003. Even though he considered himself to be an indifferent student, he applied himself in his advanced German class and participated in a school-sponsored summer trip to Germany. This experience awakened him to the world outside his home town, and with his parents' encouragement, he applied to St. Olaf College planning to major in German.

An interest in science supplanted his passion for German after he was invited to participate in St. Olaf's Summer Bridge Program, part of TRIO Student Support Services, which provides academic support for first generation college students. The program required him to participate in a summer biology class to garner admission to St. Olaf, and, because he wanted to succeed, he applied himself. In his junior year, he received the Howard Hughes Medical Institute (HHMI) International Scholars Summer Research Award, allowing him to research cancer in the Czech Republic and to participate in a St. Olaf-sponsored biology research program in South India. He graduated cum laude in 2007, with a double major in biology and chemistry and a concentration in biomolecular sciences. In 2007, he also received the Courtland and Ellen Agre Award for highest-ranked chemistry student going on to graduate school.

Dr. Moriarity's experiences abroad led to investigating pediatric cancers in graduate school. Upon admission to the University of Minnesota Molecular, Cellular, Developmental Biology, and Genetics graduate program, he worked in the laboratory of Dr. David Largaespada, his dissertation advisor and world-renowned cancer geneticist. His research focused on genes related to pediatric cancers, including a rare pediatric bone tumor called osteosarcoma. He completed his PhD in 2012.

As his post-doctoral research progressed, Dr. Moriarity secured research funding and was also offered a tenured-track professorship with the Medical School's Department of Pediatrics. His numerous articles published in *Nature*, *Nature Genetics*, and *Genome Research* caught the attention of officials at the biotechnology company Vaccinex, which agreed to supply him with an experimental antibody that could block a specific protein Dr. Moriarity had implicated in the development of osteosarcoma. Dr. Moriarity's pre-clinical work using the antibody led to the initiation of a phase I/II clinical trial in February 2018 to treat osteosarcoma patients at 20 institutions across the country.

In addition, the Zach Sobiech Osteosarcoma Fund, named for a Lakeland, MN, teenager who died of cancer at the age of 18, provided more financial support, allowing Dr. Moriarity to develop additional promising new therapies for osteosarcoma patients. To further his research, Dr. Moriarity received the 2018 Department of Pediatrics' Innovator in Translational Research Award for preclinical work leading to the development of a new clinical trial at the University of Minnesota.

Dr. Moriarity remarked in an article published in the *St. Paul Pioneer Press* (Feb. 10, 2018) that "With new therapies, we could eliminate death from osteosarcoma. If this comes through, this will have vindicated Zach's goal to cure (the disease). What better way to honor his legacy."

Dr. Moriarity is also an entrepreneur, co-founding a biotechnology company in Minnesota called B-MoGen Biotechnologies where he serves as the Chief Scientific Officer. The company employs seventeen full-time employees and focuses on developing new genome engineering tools to generate cell-based cancer immunotherapies.

Dr. Moriarity's nominator, Fran Holmblad, remarked that "he has accomplished so much at such a young age." Based on his journey so far, this is no exaggeration.