



For Immediate Release

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NICO Awards \$40,000 Grant to Study Genetic & Biological Make-Up of Meningioma Brain Tumors
Meningioma is most common non-malignant brain tumor with more than 170,000 diagnosed in U.S. annually

INDIANAPOLIS, IN (May 4, 2023) – [NICO Corporation](#), an Indianapolis-based pioneer and leader in minimally invasive neurosurgery, has awarded a \$40,000 grant to Daniel Prevedello, MD, vice chair for Academic Affairs and director of Skull Base and Pituitary Surgery Programs at the Ohio State University (OSU) Comprehensive Cancer Center. The grant supports an investigator initiated study – Circular RNA Analysis of Meningioma Invasion – aimed at providing new insight on the genetic and biological make-up of meningioma brain tumors that could ultimately guide new patient care decisions. Meningiomas are the most common form of non-malignant brain tumors that are slow-growing and form along the outermost layer of tissue that covers and protects the brain and spinal cord.

The study will include patients undergoing meningioma resection using NICO technologies for safe access and tumor removal, coupled with its novel Automated Preservation System (APS) for intraoperative collection and biological preservation of high-quality fresh tissue, which holds critical information on cellular architecture of the tumor. Through maintenance of the tumor microenvironment which preserves the tumor's molecular profile, it is anticipated that subsequent analysis of circular RNA (circRNA) in these tissue samples may reveal vital information about meningioma recurrence and progression, as well as insight for appropriate and effective responses to therapeutic options.

“One of the most difficult aspects of managing meningiomas is related to disease prognosis,” said Dr. Prevedello. “Typical pathology analysis and classification of meningiomas is far from perfect. This study is designed to help better classify meningiomas in relation to their prognosis using circular RNA.”

The answer to advanced patient treatments for meningioma and other brain cancers, both benign and malignant, can be found in the biology of the tissue, added Jim Pearson, president and CEO of NICO Corporation. “Our APS uniquely captures and biologically preserves tissue while still in the operating room. Published data demonstrates that viability of tissue captured with our APS is equal to or superior to tissue captured using conventional methods.”

Biological viability of tissue is important in any disease identification and the ability to achieve greater accuracy in predicting tumor responses to oncology precision medicine therapies. In this study, RNA family members are among those hard to capture biologically due to rapid degradation. The ability of APS to biologically preserve tissue may aid in better understanding why and how brain tumors survive after treatment(s).

Jose Otero, MD, PhD, associate professor in the Department of Neuroscience, Pathology, and Neuropathology at OSU and study colleague of Dr. Prevedello, added that traditional pathological sampling is

antiquated, noting the use of formalin fixation and paraffin embedding in tissue processing can result in losing multiple potential biomarkers.

“This technology, however, standardizes and automates the tumor preservation process for the first time, allowing researchers access to retrieve fresh viable tumor samples where new biomolecules may be assayed,” said Dr. Otero. “We are focusing on circular RNA in this study, but this proof of concept will be able to be used as a rubric for other assays, such as single cell transcriptomics and metabolomic studies.”

NICO’s 11-gauge Myriad handpiece will be used for tumor resection, allowing [surgeon-controlled removal of the tumor](#) for precision shaving, gross tissue debulking, microdissection, and variable aspiration all in one tool and without the use of thermal energy, which is destructive to tissue.

The NICO IIS grant program is dedicated to supporting novel pre-clinical and clinical research efforts related to improved patient and economic outcomes using NICO technologies. The program supports physicians and researchers across a wide range of neuro-specialties committed to building clinical and scientific data to achieve better outcomes for patients and healthcare providers, as well as expanding the body of evidence for vascular, tumor and oncology clinical practices. [Learn more about the IIS program areas of interest and how to apply for a grant.](#)

NICO is a leader in supporting development of scientific evidence promoting safe and novel approaches to brain disorders and expanding clinical research efforts in pursuit of improved patient outcomes using minimally invasive brain surgery techniques. All projects supported by this program are conducted by the applicant(s) and their respective affiliate institution(s); NICO is neither involved in collecting information, conducting research, or in the publication of any study project findings.

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