Reclassifying Brain Tumors with Precision

A ground-breaking study that is part of The Cancer Genome Atlas Research Network will change the way patients with diffuse gliomas, a form of brain tumor, will be diagnosed and treated in the future. More than 300 researchers from 44 institutions contributed to a molecular analysis of the tumors. They found that molecular diagnostics are much more precise and reproducible than looking at tissue under a microscope for classification.

This is a major step in starting to classify and treat brain tumors based on their genetic makeup rather than their microscopic appearance, which has been the traditional diagnostic approach for over 100 years. The findings were published online in the New England Journal of Medicine on June 10.

Lead study author, Daniel J. Brat, MD, PhD, a researcher and neuropathologist at Winship Cancer Institute of Emory University, explains, “the use of the biomarkers in the diagnosis of these forms of brain tumors will lead to a much more consistent manner of diagnosis and patient management. It will also allow us to investigate these tumors as unified groups in a way that should advance our understanding.”

The researchers studied a group of six related brain tumors, referred to as the lower grade gliomas, which have been surrounded by diagnostic confusion for decades. They used a large number of advanced molecular platforms capable of examining the genetic make-up of brain tumors (e.g. mutations, gene deletions and other genetic changes) and were able to determine that there were three well-defined tumor types based on this molecular analysis, rather than the six that had been described under the microscope.

“This is important because the classification and grade that is given with these molecular tests will be more predictive of the tumor’s behavior and we’ll know whether a patient’s disease requires more aggressive therapy or is sensitive to specific chemotherapies,” says Brat.

“The new classification system by Dr. Brat and colleagues will improve the treatment decision-making process of patients and physicians at Winship and other major brain tumor centers,” says Walter J. Curran, Jr., MD, executive director of Winship.

About 10,000 cases of diffuse gliomas are diagnosed every year in the United States.

Symposium Highlights

Postdoctoral Research

Emory’s Office of Postdoctoral Education held its annual symposium and poster session on June 8. Awards were given out to nine oral presenters and nine poster winners, several of whom conduct cancer research and are mentored by Winship members.

Oral presentation award recipients included Amelia Hofstetter, PhD (mentor: J. David Lambeth, MD, PhD) and Subhas Mukherjee, PhD (mentor: Daniel J. Brat, MD, PhD). Brat also received an award for outstanding mentor of the year. Poster award recipients included Pratyusha Mandal, PhD (mentor: Edward Mocarski, PhD) and Erica Bozeman, PhD (mentor: Lily Yang, MD, PhD).

Bozeman’s poster, “Synergistic effect of targeted chemotherapy delivery using theranostic nanoparticles and PD-L1 blockade in an orthotopic mouse pancreatic cancer model,” received the highest score of the day.

Nursing Awardees Named

Catherine Caprara, BSN, RN, OCN, an oncology nurse at Emory University Hospital floor 7E, is this year’s recipient of the Sabrina Williams Oncology Nursing Education Award.

Caprara is also one of four winners of the Katie Ferraris Taylor Oncology Nursing Fund Award, which provides financial support for professional development. Other recipients include: Deatra Perkins, RN, BSN, OCN, Winship-Building C Ambulatory Infusion Center (AIC), Carmen Hancock, NP, Hematology, and Heather Billings, RN, Emory Johns Creek AIC.
Eleven dedicated high school students are spending their summer vacations immersed in the world of cancer research as part of Winship’s Summer Scholars Research Program (SSRP). The prestigious program, now in its 15th year, has grown from hosting one high school to receiving international applicants. SSRP offers young researchers the exciting opportunity to learn firsthand from Winship experts. Through the program, student scholars are paired with mentor research scientists and clinical oncologists who guide them through an intensive six-week research project, the results of which will be presented at a final symposium in July.

Mentor Ajay Nooka, MD describes the significance of the program to students: "SSRP is a great platform for the high school students to learn the basics of research. A successful mentee-mentor relationship can begin here that can be long lasting. My summer student this year is Anirudh Bikmar. He is working on a population based analysis on the outcomes of patients diagnosed with solitary plasmacytoma."

Like Bikmar, all of this summer’s scholars are conducting specific cancer-related research. Nehal Navali, who lives in Westford, Massachusetts, says that he applied to the SSRP because he wanted to gain real world exposure to science and research. Navali is achieving just that by studying head and neck cancer diagnosis and treatment with Charles E. Moore, MD and Oswaldo A. Henriquez, MD. Navali says he is grateful for the doctors who have taken time to mentor and teach him.

The scholars are not the only ones who understand the significance of the program. The mentor-mentee relationship is a mutually beneficial experience. SSRP Program Director Mary Jo Lechowicz, MD explains, "every year the students give us a renewed sense of enthusiasm and a new set of eyes to think about our mission." Lechowicz has seen this impact last beyond the program’s completion, and recently received a graduation invitation from a former scholar. SSRP alumni have gone on to Ivy League schools, careers in research and medicine, and many still keep in touch with their Winship mentors.

Inside the Latest Issue of Winship Magazine

Be sure to grab a copy of the new Winship magazine available for free at locations around Emory Healthcare hospitals and clinics. In this issue, you’ll learn about the latest diagnostic and treatment advancements in prostate cancer being offered by Winship Cancer Institute. The story lays out challenges and options to help patients navigate this complex journey. We also take a hard look at the reality of health disparities and what Winship members are doing about it. The story looks at both the research into why some groups have higher rates of certain cancers and how disparities impact access to care. Patients don’t often get to meet the researchers responsible for their advanced treatments, but our photo essay brings them together along with their stories.