Dr Tamra Werbowetski-Ogilvie examines MRI scans of human medulloblastoma tumour growth progression in a mouse brain.

DAVID LIPNOWSKI AND CHUI CHOY

A NEXUS OF MEDICAL DISCOVERY

Stem cell research and brain tumour biology are key areas at the UNIVERSITY OF MANITOBA.

The University of Manitoba has long been a hotbed of discovery in both regenerative medicine and brain cancer research, but rarely did the two fields intersect until the arrival of Tamra Werbowetski-Ogilvie.

A stem cell biologist who studies aggressive pediatric brain tumours, Werbowetski-Ogilvie came to the university in 2010 and holds a Canada Research Chair in neuro-oncology and human stem cells. Since then, she has helped grow the university's Regenerative Medicine Programme into a national leading initiative, while expanding brain tumour research on campus, and creating forums for dialogue between scientists working at the interface of her specialty disciplines.

"For the past 10 years, we have been building our strengths in stem cell biology, regenerative medicine, and brain tumour research at the University of Manitoba," Werbowetski-Ogilvie says. "We have this critical mass now, and it is beginning to pay off in the form of impactful and clinically relevant research findings." she says.

Last year, for example, Werbowetski-Ogilvie and her colleagues identified a surface protein that could help guide the diagnosis and treatment of medulloblastoma, the most common type of cancerous brain tumour in children. What's more, they showed that tumour cells expressing this protein had an activated signalling pathway that made them uniquely vulnerable to selumetinib, a drug being tested for other childhood cancers, but not for medulloblastoma.

With a goal to improving outcomes for children afflicted with this devastating disease, Werbowetski-Ogilvie's team is now evaluating whether selumetinib given in combination with other cancer-fighting drugs improves clinical outcomes in mouse models of medulloblastoma.

"WE HAVE THIS CRITICAL MASS NOW."

Leading the project is Brent Guppy, a postdoctoral fellow who received the prestigious William Donald Nash Brain Tumour Foundation of Canada Fellowship in 2018, the only one awarded last year.

Previously, the foundation's postdoctoral training awards have all gone to academic centres in Canada's three largest cities. Bringing the prize to Manitoba is a testament to the university's emerging strengths in brain cancer and regenerative medicine, says Guppy. "It really speaks of the calibre of the research."

The University of Manitoba, in particular, its Regenerative Medicine Programme, also offers an ideal place for young scientists to learn in a supportive and academically diverse environment, says Lisa Liang. A former graduate student in Werbowetski-Ogilvie's lab, Liang won the Right Honourable Don Mazankowski Award for Excellence in Oncology Research, and the Manitoba Medical Service Foundation PhD Award for her work on the medulloblastoma project.

"Everyone is very helpful, and there's a lot of collaboration between people in the programme," she says. "Honestly, I could not have asked for a better experience." ■

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