NEUROSURGERY ACADEMIC DEVELOPMENT FUND

If you’ve ever wanted to feel a personal connection to neurosurgical research being done by our residents, here’s your opportunity. Our Neurosurgery Academic Development Fund is designed to encourage development of neuroscience research among younger faculty members and residents.

It opens the door to or helps continue research when seed money is needed or where current funding is insufficient or inadequate. “It makes a big difference,” said third-year resident David Darrow, MD. “A lot of neurosurgeons who get these seed grants end up going on to do larger projects.”

First-year resident Lauren Albert, MD, agrees. “There are so many research opportunities and the department really facilitates them well,” she said.

An unwavering commitment to research and discovery is built into the department’s Vision 2033: Through research and education, we lead the discovery of new neurosurgical knowledge and improvement of patient care throughout the world.

And with your donation, you can be part of that commitment.

Direct link to fund: http://tinyurl.com/ozoze3s

DISCOVERY

RESEARCH PUTS U OF M IN UNIQUE POSITION REGARDING BRAIN TUMOR VACCINES

Much work has been done over the past decade to develop allogeneic tumor cell vaccines to help fight brain tumors. The goal is to invoke a targeted immune response that keeps the tumor from growing.

Similar work done at the U of M initially focused on gliomas and used tumor cells from dogs to create vaccines. Gliomas arise from glial cells, non-neuronal cells that provide support and protection for neurons in the central and peripheral nervous systems.

Creating a vaccine for a meningioma – a type of brain tumor that develops in the meninges, the membranes that surround the spinal cord and brain – is difficult because no one could get this type of tumor to grow in a lab. Without a cell line developed outside a patient, a vaccine couldn’t be created.

Until now.

The lab team of neuro-immunologist Michael Olin, PhD, Assistant Professor in the Department of Pediatrics, Division of Hematology/Oncology, made the discovery. “We figured out the trick to get meningiomas to grow in the lab,” he said. “We’ll do experiments to see if the lab-grown tumors are different in any way from the donor’s tumor.”

Olin noted that this gives the university an opportunity to have a meningioma allogeneic vaccine clinical trial, working with the Neurosurgery Department’s Matt Hunt, MD, Associate Professor and Director of the Resident Education Program. Hunt provided Olin’s lab with the resected tumors that enabled the team to create the meningioma-based tumor cell line.

So far, Olin has only been able to grow low-grade meningiomas because he hasn’t received any high-grade tumors from Hunt. But that’s just a matter of time.

Vaccines like the one that Olin’s lab is working on help create targeted brain tumor therapy that isn’t as systemically damaging as either radiation or chemotherapy.

Dr. Michael Olin
As you can see by the articles in this edition of the newsletter, brain tumor patients form a large part of our practice. We treat adult and pediatric brain tumor patients and help them coordinate their ongoing care. A number of our neurosurgeons are involved in this part of the practice.

Our work with brain tumors includes collaborating with other specialties such as Otolaryngology (Ear, Nose and Throat), Neurology, Oncology, Radiology and Diagnostic Imaging, Radiation Oncology, and Neuropathology.

We also actively pursue research in this area, working with teams from the Brain Tumor Program and the School of Veterinary Medicine. Those endeavors have us looking at the genetic components of brain tumors as well as the cellular elements that enable us to create anti-tumor vaccines.

Our patients have primary or metastatic tumors in or near their brains, on their spinal cords, on their pituitary glands, in their ear canals, or on their nerves. We treat them individually, understanding that while each case may have common underpinnings, they are essentially unique.

Because this is a teaching hospital, our residents get involved in the care of brain tumor patients. Some have even chosen to pursue research in this area. As much as we learn from them, our brain tumor patients teach us about courage, resilience, and persistence. We feel privileged to be part of their lives.

Following is a summary of a story written by Elaine McCauley

Three years ago, Minnesota resident Elaine McCauley was diagnosed with a brain tumor.

Andrew Grande, MD, Assistant Professor and Co-Director of the Earl Grand Stroke and Stem Cell Laboratory, would lead the U of M team that removed McCauley’s golf ball-sized tumor — a benign meningioma. “He explained that the tumor was pressing on my brain, rather than being in my brain,” noted McCauley. “But it still needed to be removed. His calm and confidence were reassuring for us.”

Fast forward three years when her 29-year-old daughter Teresa, who never had headaches, started getting them frequently. With the combined family history of brain tumor and sudden onset of headaches, her doctor ordered an MRI.

The MRI showed what appeared to be a glioblastoma — another form of brain tumor. “Shocking and scary news,” McCauley wrote. “The good news was that I knew an excellent neurosurgeon at the University of Minnesota.”

Grande reviewed Teresa’s MRI and told the family that it looked like a grade III tumor (brain tumors are graded on a scale of I to IV; the higher the number, the more malignant). It needed to come out.

“What we learned from my surgery and recovery would only begin to prepare us for helping Teresa,” McCauley recalled. “We joined her for many of her physical and occupational therapy sessions, to observe and support her while she worked hard to regain strength and mobility.”

Tumor growth led to a second surgery. “By now, we were well trained in her post-surgery care,” McCauley recalled. Radiation treatment and chemotherapy would follow.

“Through surgeries, hair loss, side effects of treatments and medications, and the emotional roller coaster that people living with cancer and their families ride, we continue to walk alongside Teresa and are grateful that she welcomes us to be there,” wrote McCauley.

For McCauley’s complete article: http://tinyurl.com/q67feo5
Pituitary Clinic patient weathers turbulence of a complex condition

“Please don’t let me go blind,” was the heartfelt request of 21-year-old U of M patient Safiyo Siad, when she was introduced to Ramu Tummala, M.D., Associate Professor, Neurosurgery Department. She believed her plea would be heard. “The first time I saw him, I knew he was a wonderful person,” said Siad. “I had found someone who could understand me … do what I want.”

Siad had Cushing syndrome, which led to weight gain, fatigue and high blood pressure. She then started having headaches and vision problems. She would eventually learn that she had a massive pituitary tumor that caused many of her symptoms.

After coming to Minneapolis, Minn., to be close to family, Siad was seen at the U of M’s Pituitary Clinic by Asad Saeed, M.D., Assistant Professor, Department of Medicine/Diabetes, Endocrinology and Metabolism.

Siad’s tumor affected several structures in her brain, including the optic nerve, which caused her vision problems. Saeed referred her to Tummala, who is another member of the Pituitary Clinic team.

While it wasn’t malignant, the large, aggressive tumor was a rare, secreting type, according to Tummala. It secreted a hormone known as ACTH, which triggered the adrenal gland to produce too much cortisol and caused the Cushing’s.

Because of the tumor’s size, Tummala would perform three surgeries on Siad – two through the skull (transcranial) and the final one through the nose (endoscopic). Finally, the tumor was reduced enough to begin radiation and chemotherapy.

“There were so many people helping me,” said Siad. “I’m so grateful to everyone.”

The complexities of her case required all those people. Siad needed what Tummala described as “multi-modal treatment” – surgery, medication and radiation. “Safiyo is an example of someone who experienced a lot of turbulence in her course of treatment,” said Tummala. “She stuck with it and she’s doing okay.”

Throughout it all, Siad maintained a positive attitude. “My life is almost back to normal,” she said. “When I’m doing well, I spend time with my family and help around the house. I have good days and bad days, but more good than bad.”

For Siad’s complete story: http://tinyurl.com/puj9a9o

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Pituitary Clinic – providing efficient care for complex cases

It’s not unusual for a large Neurosurgery Department to offer pituitary surgery. What sets the U of M apart is the fact that its Pituitary Clinic brings together under one roof all the providers a patient with a complex pituitary issue would need to see.

The clinic is held every Tuesday and is a team effort by Ramu Tummala, M.D., Associate Professor; Stephen Haines, M.D., Professor and Head, Department of Neurosurgery; and several other specialists. It’s primarily designed for patients who have complex, labor-intensive cases that require lots of effort.

Because many of their patients come from long distances, the clinic team tries hard to ensure that the patients can see everyone they need to see on the same day.

“We see a lot of challenging patients,” Tummala added. “For the vast majority, there have been good outcomes. We believe it’s because we have the right specialists to make sure their care is as good as it can be.”

If you have any questions about the Pituitary Clinic or would like to refer a patient, please call 612-624-6666.

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For Siad’s complete story: http://tinyurl.com/puj9a9o
Resident helps investigate development of common malignant brain tumor in kids

Sixth-year resident Paramita Das, MS, MD, recently helped with a research study looking at the role a particular gene plays in the development of medulloblastoma, the most common form of malignant brain tumors in kids.

She worked under the direction of Principal Investigator David Largaespada, PhD, Brain Tumor Program Director and Associate Director, Basic Sciences, Masonic Cancer Center.

Before Das joined his lab, Largaespada screened mice to look for genes that might be important in medulloblastoma development. Two genes from this screen are being investigated by the laboratory, Arhgap36 and FOXR2. Das took an active role in studying the role of FOXR2.

The Largaespada team designed several experiments involving FOXR2. "We've been overexpressing it in both mouse and human cells," said Das.

"Positive results from the in vitro [cellular] data gave us a clue that the FOXR2 gene is as important as we think it is," Das said.

Because the exact way that overexpression of FOXR2 may cause tumors is not known, further investigation continues.

"This work at the U is the kind that eventually leads to personalized cancer therapy," Das noted. "With developing technologies, we are able to not only identify genetic drivers for tumors, but identify potential targets for therapy."

For the complete story: http://tinyurl.com/oakpdhk