

September 2018



Dr. Jeffrey Greenfield and Dr. Mark Souweidane,
co-directors of the Weill Cornell Medicine
Children's Brain Tumor Project

From the Desk of...

Kristine Wetzel, McKenna Claire Foundation



In January 2011, our healthy, active, intelligent 7-year-old daughter McKenna came down with what we thought to be a stomach virus. After a week of doctor visits, seeing her left eye begin to stray and her mouth begin to droop, we insisted on having a CT scan. Childhood cancer was never even a consideration in our minds before that scan, but less than 24 hours and one MRI later, we found ourselves surrounded by doctors at the nurses' station in the PICU waiting to hear the diagnosis.

It was in the midst of that chaos that we were told our daughter had diffuse intrinsic pontine glioma, or DIPG, an extremely rare pediatric brain tumor that typically strikes between the ages of 5 and 7, infiltrates the brain stem, and has a 0% survival rate.

Doctors explained that we would have 9 to 18 months with McKenna and to take her home and make the most of the time.

I immediately went into "mama bear mode," doing everything I could to protect my daughter from the reality of what was happening to her. Meanwhile, my husband and some amazing friends went to work searching out the most respected DIPG specialists around the world.

What we found crushed us.

Though astronaut Neil Armstrong lost his young daughter, Karen, to DIPG in 1962, protocols for treatment and life expectancy had not changed since that time. Radiation could potentially reduce symptoms for a few months, but no treatment or clinical trial had proven to have any significant effect on life expectancy for these children.

If you are a parent, I am sure you can imagine the pain of hearing that not only is there no cure available for your child's illness, but there is absolutely no hope that she will survive long enough to find one. Now imagine the guilt you experience when you look into her expectant face as she waits to hear you tell her everything will be OK.

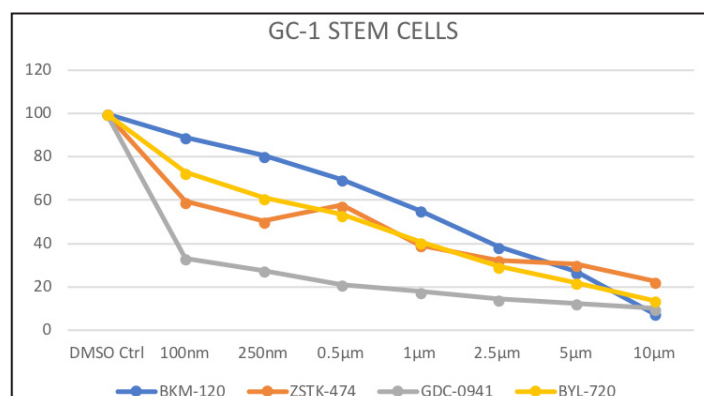
Our promise to her, at that point, was that we would do everything within our power to make her "feel" better during her illness, all the while hoping that there would be some miracle discovery that could give us more time — time in which a real cure might be found.

Gliomatosis Cerebri "Letter from the Lab"

The Children's Brain Tumor Project has a dedicated lab team that has been working with various tissue samples from gliomatosis cerebri (GC) patients that were donated over the past seven years with the goal of identifying mutations that can be better targeted with customized treatment.

The process can be long and arduous, but the results are very rewarding. Upon tumor donation, the tissue is sent for DNA and RNA sequencing so we can better understand the genetic footprint and identify mutations. As a next step, we attempt to grow a cell line from the tumor tissue. A cell line is a permanently established cell culture that will proliferate indefinitely given appropriate fresh medium and space, meaning we can replicate tumor growth repeatedly in order to conduct various types of tests.

Establishing a cell line is very difficult and often unsuccessful, therefore I am proud to report that the Children's Brain Tumor Project has successfully established four cell lines from gliomatosis cerebri tumor tissue that was collected straight from the OR. These include both stem cell lines and differentiated cell lines. A differentiated cell line is made up of single GC cancer cells that are adherent and less aggressive. This is an incredible accomplishment, and it means our research is better informed because both cell line types (stem cell and differentiated) give us different insight into the behavior of the tumor.



These cell lines have opened many different doors for investigation. Our team is able to explore and better understand the genomics of these tumors. We are identifying mutations, and testing the cells in vitro in order to identify agents that we can target against those mutations. For example, this chart shows the results from testing four different P13K inhibitors against three different GC cell lines.

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Gliomatosis Cerebri “Letter from the Lab” (continued)

Although these results appear promising, we know that drugs can show tremendous progress in vitro yet fail to perform in vivo. Therefore we are advancing into the next phase of testing the most promising agents discovered via xenograft mouse models in order to prove their potential.

We have recently seen success using GC stem cells to grow tumors in several mouse models, and we have confirmed active tumor growth via MRI. This is another tremendous advancement in GC research that has not been accomplished in any other lab. The CBTP lab currently has several viable mouse models under observation.

As we observe the intercranial tumor growth, the lab team has simultaneously created successful flank models, meaning GC tumors are successfully growing subcutaneously (under the skin) in the mouse models. All of these avatars are important as we advance into the next phase of testing new agents against gliomatosis cerebri in order to discover effective new treatment options!

We have come so far, but there is still so much work to be done. Our dedicated team of scientists and clinicians are passionate about finding a cure for gliomatosis cerebri, and we thank our donors for enabling us to do so.

With gratitude,



Dr. Jeffrey Greenfield

**Gliomatosis cerebri (GC) is a rare, highly aggressive brain cancer that is very resistant to treatment. GC is commonly identified by its diffuse infiltration of the brain with thread-like malignancies that spread very quickly, affecting various areas of the cerebral lobes and surrounding brain tissue, making them very difficult to remove with surgery or treat with radiation.*

Elizabeth's Hope and the Children's Brain Tumor Project

The CBTP was founded in 2011 when the dedication of Drs. Mark Souweidane and Jeffrey Greenfield, neuroscientists at Weill Cornell Medicine Pediatric Brain and Spine Center, met up with the determination of Elizabeth Minter, a remarkable young woman diagnosed with gliomatosis cerebri. Inspired by Elizabeth, Drs. Souweidane and Greenfield joined forces on a monumental task: finding new treatment options for rare and inoperable brain tumors that strike children, adolescents, and young adults. These tumors strike “only” a few hundred patients a year, so they don’t get federal funding or support from larger foundations. That’s why we say the CBTP is “powered by families”—because families know all too well that even one child is too many to lose.



CBTP Volunteer Spotlight

Lauren Dinardo is a student studying Communications and Public Relations at Rutgers University New Brunswick. She recently joined the Cristian Rivera Foundation team in May 2018, and she couldn’t be happier about what they have accomplished since her start. The Cristian Rivera Foundation creates awareness, funds groundbreaking research and trials, and economically supports families impacted by DIPG (diffuse intrinsic pontine gliomas). She started out as an intern, and played an important role in organizing the Cristian Rivera Foundation’s “Full Steam Ahead” 5K Walk/Run in June 2018. She called numerous people for donations, kept track of who registered, and contacted those who were missing information. As a result, the Cristian Rivera Foundation provided Dr. Mark Souweidane and Dr. Jeffrey Greenfield with funds to help further their research in pediatric neuro-oncology.

After the success of the 5K walk/run, Lauren quickly got promoted to Founder’s Assistant within the foundation. Now, she oversees many more tasks. She manages several social media accounts and does a lot of work within Rivera Marketing and Media Group. She was a crucial part of the organizing and success of the Cristian Rivera Foundation’s Freestyle Flashback Boat Ride, which took place in July 2018. She helped promote the event on various social media platforms, helped with the check-in process, and made sure the event ran smoothly. The team is so thankful for her tremendous contributions, making the past two events successful. In addition to being a student and working with the Cristian Rivera Foundation, Lauren works as an office assistant for a plumbing company.



Lauren’s interest in working with a nonprofit started as a child. Her twin brother, Alex, is autistic and she’s seen the struggles he experiences firsthand. She participated in many Autism Awareness fundraisers and education initiatives throughout her life, and wants to continue raising awareness for both autism and DIPG. She’d like to thank the founder of the Cristian Rivera Foundation, John Rivera, for nominating her for the “Volunteer Spotlight” and for everything he has done for her and those impacted by DIPG.

If you are interested in volunteering for the Children's Brain Tumor Project, email info@childrensbraintumorproject.org.



The Children’s Brain Tumor Family Foundation is thrilled to present “No Laughing Matter - A Night of Comedy to Benefit the Children’s Brain Tumor Project” at the world-famous Carolines on Broadway, Tuesday, October 16th.

You are invited for a laugh-out-loud evening of family-friendly comedy from some of the most famous comics in the industry. The team is busy pulling together a very strong line-up (details to follow) and this is sure to be a sell-out event, so get your tickets and spread the word to your friends and family!

Visit nolaughingmatter2018.org for tickets and more information, or email cic2008@med.cornell.edu with questions.

Finding Answers on the Pacific Crest Trail

Written by Eric Montgomery, who hiked the PCT in memory of his friend, Michael Gustafson, who died of medulloblastoma in 2013. His corresponding "Four Pennies" fundraiser supported pediatric brain tumor research.

In the summer of 2015, before starting my third year at Pomona College, I decided to hike the Pacific Crest Trail. More specifically, I decided that a long walk along the western geological spine of the continental United States from Mexico to Canada was a goal that could not be left to slowly erode over time under the constant ebb and flow of career, family, and responsibility. The gravitational pull to hiking the Pacific Crest Trail was the challenging and minimalistic nature of the journey while gaining access to some of the most remote, diverse, and awe-inducing land the United States has to offer.

Of course, it all sounded lovely and romantic and Thoreau-esque, navigating deserts and mountain ranges while sleeping under the Milky Way, so it was inevitable that the first couple weeks on trail would be a primer as to what, exactly, life outdoors entailed.

From those first steps departing the Mexican border, I often found myself hiking alone and camping with a new group almost every night. The long days of isolation permeated an inescapable sense of my aloneness. The land, which altered daily as the trail oscillates from desert valley floor to rocky mountain ridge, offered little sense of home. After hiking a few hundred miles, the desire for kinship overtook my stubbornness to not sacrifice hiking pace, and I met my first trail family in Frodo and Everest.

As our smelly family grew, with people named Saint Bernard, Good News, Bear, Bear Can, and Hot Sauce, it rapidly became evident that the people on the trail provided the sense of home-ness and camaraderie I was initially missing. Ultimately I found, the fellow hikers served as my greatest source of joy, in getting to share the daily ups and downs, excitement and boredom with them. The last month and a half was particularly challenging as I spent nearly all of the time alone (except for the section from Etna to Ashland with Roadrunner), and it cemented the notion that experiences are most rewarding and fulfilling when shared with people you care about.

Back when the idea of a PCT hike had more figurative than literal meaning, I approached the Gustafson family about helping to fundraise for pediatric brain cancer research through the Swiftly Foundation. The prospect of combining my love of science with that of the outdoors was greatly appealing and added another dimension of personal meaning to the journey. Yet, like most other aspects of a hike from Mexico to Canada, I did not fully appreciate the role being involved in the pediatric brain cancer community would play in my day-to-day life on trail. Little could I have predicted the profound impact the Four Pennies campaign, from the four foundations (Swiftly, Dragon Master, Kortney Rose, and Pediatric Brain Tumor Foundations) that came together to spearhead fundraising to the bench-side work

it supports through Open DIPG (and the Children's Brain Tumor Tissue Consortium and the Children's Brain Tumor Project), would have. A long hike requires the commitment to being removed from the meaningful interactions of life for an extended period of time.

It may sound enticing, to be detached from the daily news cycle, but as the days turned to months, a discontent burgeoned that I came to recognize as a lack of satisfaction in my emotional need to feel that what I was doing was worthwhile for someone other than myself.

That is why getting the opportunity to see the work being done at the Children's Hospital of Philadelphia and at the Weill Cornell Brain and Spine Center was immeasurably gratifying, and quite honestly, left me speechless. To see the cancerous cell lines—live cells maintained in the lab for future study and generated from tissue donations via patient tumor biopsy—the groups had established was overwhelming.

Each cell, which could be seen clear as day under the microscope, was the fundamental unit of a living human being. In each of these cases, that human was a child who drew the short straw of a having a minute alteration in their genetic code, which drove a small cohort of cells in the brain into cancerous overdrive. The gravity of the meaning each cell line carried, to the parents of the child, to the researchers, and to the field as a whole, was palpable.

As I look forward to the start of medical school at the University of Texas, Southwestern, I cannot help but envision myself alongside those doctors and researchers, families and patients. The topic of my future specialty was one of frequent thought on the trail, even talking to myself aloud when I was particularly lonely, and I am hard-pressed to think of anything more gratifying than being able to treat children, to meet them at that most vulnerable moment and to see them live full, complex, meaningful lives. I now know, all those long days, the nights spent alone with only the company of the galaxies, it was all worth it.



Upcoming Events

September 1-30 – Childhood Cancer "Action" Month
September 1-30 – Team Campbell "Go Gold" lawn sign campaign
September 15 – TLC TYathlon (Triathlon and 5K)
September 20 – Iron Matt Gala
September 29 – Bronxville Luncheon for Elizabeth's Hope
September 30 – Ride for Hope in Armonk
October 15 – Strides and Sips 5K with Head for a Cure in NYC
October 16 – No Laughing Matter – A Night of Comedy for the CBTP
October 19 – Play it Forward Golf Tournament for the McKenna Claire Foundation

November 4 – NYC Marathon
November 14 – 10th Annual Cristian Rivera Celebrity Gala
November - December – "Light up the Lab" annual appeal
March 10, 2019 – TLC Gala, Greenwich Regency Hyatt
April 25, 2019 – CBTP Family Council Meeting **SAVE THE DATE**
May 2019 (TBD) – Pediatric Brain Tumor Lectureship hosted by Weill Cornell Medicine's Children's Brain Tumor Project
July 2019 – McKenna Claire Foundation's Chevron Butterfly Tour

Be sure to check childrensbraintumorproject.org for details and updates. If you're planning an event, let us know—we'd love to include it!
[ChildrensBrainTumorProject.org/updates/events/](https://childrensbraintumorproject.org/updates/events/)

From the Desk of Kristine Wetzel

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Those hopes were dashed when we lost our precious girl on July 21st, 2011 — exactly six months from her diagnosis.

The days before McKenna's passing were heartbreaking and traumatic. Our focus was on making our daughter feel comfortable and loved, to the exclusion of all else. Because of that, we will forever be grateful to our good friend, and McKenna's second mom, Lisa, who was brave enough to research tumor donation in the weeks preceeding our daughter's death.

In helping us search for a viable clinical trial, Lisa had developed a relationship with Dr. Michelle Monje of Stanford University, who was accepting tumor donations for study. Lisa arranged to have the paperwork ready should we choose to donate McKenna's tumor.

It was something that I could not bear to consider beforehand, as I felt it was a betrayal to concentrate on anything but her life while McKenna was with us. However, knowing that scarcity of tumor tissue was one of the reasons for lack of progress in the study of DIPG, as McKenna was taking her final breaths both my husband and I agreed to the donation.

We really didn't know what would become of the tumor donation at the time. We just knew that the mechanisms of this disease were still a mystery, and that we would do anything we could to save the next child and family from the pain we were experiencing.

In the months following McKenna's death, we learned that a cell line had been developed from her tumor. In one of our first acts as a foundation, we made sure that her cell line, and others, were made available without charge to researchers around the world for study. It was our way of honoring McKenna's courageous battle by doing whatever we could to fight this evil monster of a disease.

We were fortunate. Our friend knew us well enough to judge what our reaction would be when asked whether we would want to donate. Tumor donation is not an easy topic to broach with parents and loved ones. Because time is of the essence in the viability of the donation, arrangements have to be made in advance of a child's passing. However, parents are trying to hold on to *hope*, and donation is a subject not many want to talk about while their child is still fighting for their lives. I know I couldn't.

But it is an important topic to bring forward. Working with children and families through our foundation in the years since McKenna's loss, I am now often the one who must try to feel out parents' wishes, or help other family members or friends do the same. It is not easy.

I have learned never to underestimate the strength of parents in this situation. There are times I judged wrongly whether I thought it would be the parents' wishes to donate, and have had those families tell me they wish I would have stepped forward and said more. I will forever regret those mistakes, but because of them I have learned that it is better to give parents an option, even if doing so is painful.

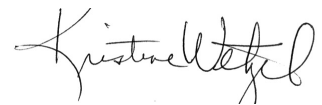
I will never forget going to the lab and seeing McKenna's cell line under the microscope for the first time. Holding the petri dish in my hands, I sobbed. Grief, anger, regret, and guilt all churned to the surface. All I could think was what was left of my child was living in that dish, and it was the part that killed her. Part of me wanted to throw the dish against the wall, to destroy the beast that had destroyed my daughter. It would be so easy.

But another part of me was so proud. My girl was a fighter, and here she was, fighting still, for the children who would follow in her footsteps. Her little life meant more than I could ever imagine, and though we would do anything to have her back, knowing that her time here is making a difference brings us some modicum of peace.

What we have come to learn is that we were lucky in that regard. There is no guarantee that a cell line will be developed, and in fact most won't. But it is important to note that something is learned from every donation. A new piece of the puzzle is found and fitted in to place.

And with every piece, the picture becomes more clear. Because of the increasing number of donations made by families in the last seven to eight years, we are seeing incredible breakthroughs in the understanding of DIPG for the first time ever. Researchers are beginning to speak of increased time and quality of life, words that were never uttered when our daughter was diagnosed. These children, whose tumors were donated, have produced a new source of light, shedding the first glimmers of *hope* on this disease for those yet to be diagnosed.

McKenna's light still shines.



September is Childhood Cancer Awareness/Action Month

September is "Childhood Cancer Awareness Month." As many know, childhood cancer is represented by the color gold, and as a community we have seen the "go gold" movement generate increased momentum in recent years.

Although increased awareness = increased funding = increased research = increased success in discovering new treatment options, progress remains too slow. Awareness simply isn't enough. This September, we are asking you to take action.

Taking action can be a grand gesture, or a simple post on social media. Host a fundraiser, sign up for a newsletter, share the Facebook page of a child in treatment, make a donation to research. Any action brings us one step closer to cures.

There is a CBTP profile picture frame that can be used for the month of September. Please consider changing yours to "go gold" for the month of September. Follow our posts on Facebook for ideas on how you can take action this month, and, most of all, we hope you are touched by the individual stories we will be sharing about the children who are part of our family council. We are proud to say that we are, indeed, "Powered by Families."



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