2010

THE PROJECT

A Publication of The Miami Project to Cure Paralysis & The Buoniconti Fund to Cure Paralysis

A New Day Has Come

Christine E. Lynn

UNIVERSITY OF MIAMI
MILLER SCHOOL of MEDICINE

"I can honestly say that I am more optimistic than I have ever been in my life, about my future and the future of The Miami Project and the SCI community."

As we celebrate the 25th Anniversary of The Miami Project to Cure Paralysis, I am proud to announce that the Fiscal Year was most successful in terms of fundraising and research. The Miami Project budget through the help of the Executive Director Suzie Sayfie and her team will reach an all time record of $23 million. Through the leadership of Scientific Director, W. Dalton Dietrich, PhD., The Miami Project research team will complete more experiments, publish more articles, and receive more grant funding than ever before in our history. The Buoniconti Fund continues to raise the bar and serves as the leading funding source for The Miami Project. The Buoniconti Fund Chairman, Jack Schneider, New York Dinner Chairman, Mark Dalton, and the entire Board of Directors continue to amaze me with their undying support and commitment to our mission and goal.

On September 27, 2010, The Buoniconti Fund will be hosting the 25th Annual Great Sports Legends Dinner. This milestone event will bring together leaders in the world of sports, business, entertainment, and philanthropy. This evening guarantees to be a sell-out and will undoubtedly break all previous fundraising records. I encourage everyone to attend and enjoy an evening of inspiration, not to mention a few surprises.

This Fall also marks the 25th anniversary of my injury. While many people may be upset and discouraged about the realization of life in a wheelchair for the past 25 years, I can honestly say that I am more optimistic than I have ever been in my life about my future and the future of The Miami Project and the SCI community. The Miami Project's first-ever human Schwann cell clinical trial is on the fast-track to obtain FDA approval. We recently concluded a successful pre-IND meeting with the FDA and are now conducting the critical animal safety studies required by the FDA. As you can imagine, The Miami Project is embarking on a clinical trial that has never been attempted in spinal cord injury. Our research team is doing everything possible to accelerate the pace to receive final approval. Believe me, nobody wants a cure more than me. I find myself being pulled in two directions. One direction is trying to be patient, while another part of me is jumping out of my skin.

All I know is that I am confident that we are doing our best. The SCI and research communities are looking to The Miami Project to deliver on its promise to cure paralysis. I will make sure that promise comes true and thanks to your continued support, I know it will happen!

Best wishes to all! See you in New York on September 27th!

A New Day Has Come

In the past year, beginning with my son Marc's cover story in *Sports Illustrated*, The Miami Project to Cure Paralysis has seen tremendous gains under the leadership of Drs. Barth A. Green and W. Dalton Dietrich.

On this 25th Anniversary, I am happy to announce we edge ever closer to finding a cure for paralysis. It's now 2010, and the scientific breakthroughs have been amazing! We are preparing for a clinical trial of the first-ever human Schwann cell transplantation study in people suffering from spinal cord injury. The FDA has required us to conduct pivotal animal safety studies, which are in progress.

We are not putting all our hopes on one scientific clinical trial. In addition to the Schwann cell clinical trial, we are embarking on an exploratory collaboration with adult stem cells. This effort will involve humans and will give us the ability to properly evaluate the merits of certain types of adult stem cells in restoring function to those with paralysis. So as you can see we have been busy. When you add in the hypothermia trials (cooling the nervous system), not only will this help the newly spinal cord injured civilians, but it will also be applicable to those injured in military combat who are either paralyzed or have suffered traumatic brain injury. Currently, the University of Miami is the only institution in the world conducting regimented hypothermia treatment and follow-up for patients with SCI.

Spinal cord injury paralysis is a global pandemic. In the U.S., there are 1,275,000 individuals living with SCI paralysis (12,000 new cases each year) – more than five times the number of Americans previously estimated in 2007. Approximately 42,000 are American war veterans. The total costs for caring for the injured individuals add up to a staggering $40.5 billion annually in the U.S. (a 317% increase from costs estimated in 1998). This is why The Miami Project exists. We must cure paralysis now!

Never have the prospects of finding a cure been better, but never has the economic challenge been greater to raise the money needed to expand and fund our research programs. Research costs account for over 84% of the total Miami Project annual budget. The budget for the Clinical Trials Initiative alone is dramatic – the costs associated with human research involve expenses not previously required in studies with laboratory animals.

Over the last 25 years, your support, unending encouragement, financial backing, and your belief that "A New Day Has Come" has brought us to where we are today; celebrating a new era in clinical research on our Silver Anniversary. And for that I am thankful. On behalf of Marc and the entire spinal cord injured community, I want to thank University of Miami President Donna Shalala and Dean of the University of Miami Miller School of Medicine Pascal Goldschmidt, our Board of Directors, Physicians, Scientific Research Team, and the entire Miami Project Staff for all their efforts.

Nicholas A. Buoniconti, Co-Founder
The Buoniconti Fund and The Miami Project

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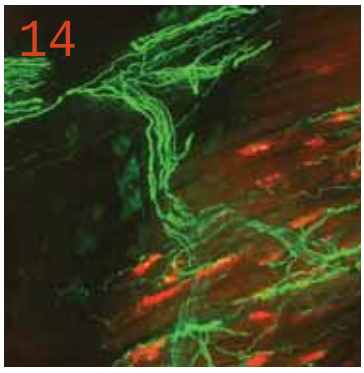
In Our Words

Research Journal Features



Philanthropy

Events to Benefit The Miami Project

Of Interest

Dear Friends,

Surreal best describes my emotions when I contemplate the 25th Anniversary of the founding of The Miami Project to Cure Paralysis. In 1985 I very naively told a recently paralyzed Don Misner that "if I could raise $1 million, I could hire the best scientists, purchase the best technology, and cure paralysis in a very short time." To think that that was 25 years ago and we have spent more than $350 million to get where we are today is mind-boggling to say the least. I guess that even a kid from the south side of Chicago has to be taught a lesson once in awhile about humility – and that is exactly what has happened.

Today we have over 250 scientists, physicians, graduate and post-doctorate students, support staff and volunteers who are focused both on our short-term goals to improve the quality of life for the millions of people around the world sitting in wheelchairs today, and our long-term goal which is to reestablish function in patients with paralysis. Over the last 25 years a new intermediate goal was added which was to minimize the paralysis that occurs following various injuries and diseases using neuroprotection. Our team of basic and clinical neuroscientists are recognized as among the top to be found anywhere in the world. Their credibility and productivity is unquestionable and is well documented in the peer-reviewed and scientific literature.

Today we are standing on the brink of human clinical trials in neuroprotection with modest hypothermia as well as with the use of human stem cells injected in the spinal fluid and blood stream of spinal cord injured patients, and finally, our most comprehensive strategy focused on the use of a patient's own Schwann cells to remyelinate and reactivate injured spinal cord connections. All of these projects are being pushed forward at "warp speed" as we are constantly challenging the frontiers of translational research. Many of our previous accomplishments in the research labs have become common clinical practice following FDA approval. Coming from a family with four generations of physicians, this is the ultimate accomplishment which has been achieved not by Barth Green, but by The Miami Project team of which I am both humble and proud to be a member.

Our clinical research teams are also about to embark on a major human study using the most aggressive rehabilitation technologies available to us in order to not only achieve excellent health and wellness, but increased longevity for our spinal cord injured volunteers and friends. All of these four major initiatives (hypothermia for neuroprotection, transplantation with stem cells and with Schwann cells, and aggressive rehabilitation) are complimented by multiple projects on pain, wheelchair design, and injury prevention to name a few. The list is almost endless of opportunities; we have to really make a difference in the lives of so many deserving people around the world.

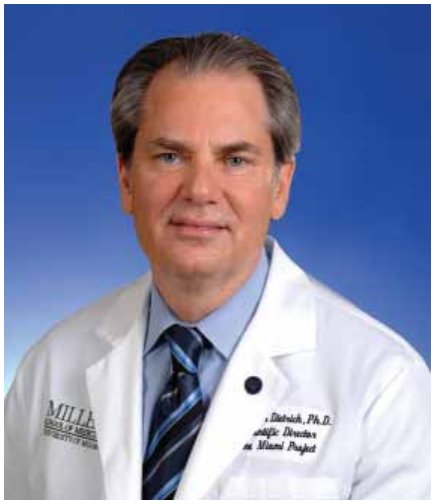
This is truly an anniversary of celebration for where we have been and where we are going. Our knocks on the FDA's doors are loud and intense and in a crescendoing mode. Our funding efforts in a very competitive world of philanthropy have been successful beyond our hopes or beliefs of reality. All because of you, the loyal and committed supporters of The Miami Project, some of whom have been with us for 25 years and others who have joined more recently. This 25 year anniversary will be heralded by a "renewal of our vows." Yes, we are committed, and more so than ever, to cross the finish line and to directly change the lives of people sitting in wheelchairs today and those destined to end up there tomorrow. Today's hopes and dreams are not based on emotion, but on scientific facts and reality.

Thank you for all that you have done and for all that you are going to do to allow us to turn The Miami Project into a paralysis museum. We look forward to the day when we can refocus our scientific efforts on the next challenge. With all my warmest regards and gratitude.

Sincerely,

Barth A. Green

Barth A. Green, M.D., F.A.C.S.
Professor and Chairman, Department of Neurological Surgery
Chairman, The Miami Project to Cure Paralysis



As we celebrate the 25th anniversary of The Miami Project to Cure Paralysis and the Great Sports Legends Dinner, one should take a moment and appreciate the significant progress that has been made over the last several years in the area of spinal cord injury research. Discoveries made by Miami Project scientists have already been successfully translated to the injured patient and have significantly improved outcome and quality of life. Important developments in critical care for the acutely injured, advances in temperature monitoring and physiological assessment as well as long-term rehabilitation strategies are affecting every stage of the injury and recovery process. Discoveries and new developments in understanding the cellular and molecular mechanisms of cell death and repair are not only influencing the way we treat spinal cord injured people today but other individuals with a variety of neurological disorders as well. Indeed, great progress has been made by The Miami Project scientific community.

In the area of protection, new targets for drug development are being identified. Newly discovered molecules as well as FDA approved compounds are being tested to protect the spinal cord tissue in the early injury setting. Therapeutic hypothermia, a technique that was first discovered by Miami Project scientists, has now been successfully translated to the clinic and is being used to treat neurological disorders including spinal cord injury, traumatic brain injury, and stroke.

In the regeneration field, reparative strategies are also being developed that could change the lives of millions of people living with chronic paralysis. High-content screening strategies have identified new compounds that appear to be critical in enhancing the ability of neurons to regenerate axons after adult spinal cord injury. Cellular therapies, including the use of human Schwann cells, are being moved to the clinic and will include FDA approved planned clinical trials in the near future. Research on adult and embryonic stem cells continues to progress and excitement is building in the field for the use of various cellular therapies to treat these conditions.

As we begin to identify potential subjects that would be appropriate for these clinical trials, proven conditioning and rehabilitation strategies are being initiated to maximize the potential for these therapies to improve outcome. It is critical that people with chronic SCI be as healthy as possible when considering participation in clinical trials. Conditions associated with aging in the SCI population are being identified and treated to improve and maintain physical health and quality of life in this growing group. The consequences of various rehabilitation strategies on inducing circuit plasticity in the human spinal cord and brain is helping us to understand the capacity of the injured nervous system to respond to various therapeutic interventions.

A new generation of scientists and clinicians are being trained in our laboratories and clinics, and outreach programs are educating the public on our progress. Doctors and patient care providers are using approaches developed and discovered by Miami Project investigators to target both the civilian and military populations. Our programs are focused on discovering an all encompassing, multi-faceted cure and no one will be satisfied until we cross the finish line and provide the combinatorial treatments necessary to improve the quality of life and health of people living with paralysis due to spinal cord injury. We thank our supporters and friends for their continual commitment to our research program.

W. Dalton Dietrich, III, Ph.D., Scientific Director
The Miami Project to Cure Paralysis

Clinical Trials Initiative Update

Where are we and where are we going?

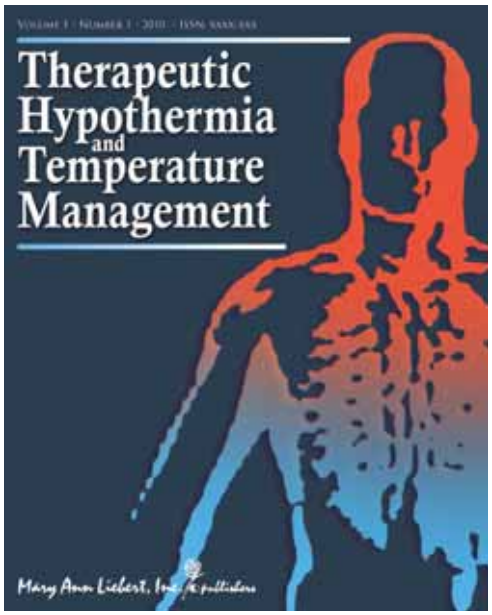
And the ever-burning question...*when will we get there?*

As everyone knows, repairing the damaged spinal cord is no simple task. There are multiple types of nerve cells and glial cells that are damaged or lost, there are ascending and descending nerve fibers that are interrupted, there are local spinal circuits that are lost or begin functioning abnormally, there is demyelination and remyelination, there are inhibitory molecules, and there is scar tissue. And that's not including the changes that occur in the muscles as a result of paralysis. During the 25 year existence of The Miami Project, however, significant progress has been made in understanding how to begin to repair the injured spinal cord. **Four key components to developing cures for SCI involve neuroprotection, cell replacement, regeneration, and rehabilitation.** Miami Project scientists are currently translating 3 of these 4 components as part of the Clinical Trials Initiative (neuroprotection, cell replacement, and rehabilitation) and are diligently moving forward with the fourth component (regeneration). Each of the 3 components being translated is described below along with updated progress.

Neuroprotection – Therapeutic hypothermia

There is a large body of evidence that controlled modest hypothermia (cooling the body temperature) is a safe and effective neuroprotective intervention in animal models of spinal cord injury (SCI) and traumatic brain injury (TBI). In late 2009 and early 2010, Miami Project researchers published the first evidence that therapeutic hypothermia is safe to administer to humans with acute SCI. There was also a trend for improved neurologic function. However, there were only 14 participants in this initial trial, which is too small of a number to definitively establish efficacy. The compiled data does strongly suggest that additional trials, including multiple medical centers, should be undertaken so more information can be generated. With a multi-center trial, the ability to enroll a larger number of participants is drastically increased and determination of the benefits of treatment is accelerated. **As a result, in early 2010 Miami Project researchers submitted a multi-center trial application to the NIH Neurologic Emergencies Treatment Trials (NETT) network for review.** The NIH review was positive in that the study section felt that this randomized trial was an important step necessary to move this experimental therapy forward. The review board also had some questions regarding subject recruitment and the availability of experienced SCI-trained physicians at the various study sites as well as other addressable comments. The revised proposal will be submitted later this year for re-review. If approved, the multi-center trial could start in 2011.

A great boost for research addressing therapeutic hypothermia is the development of a new journal titled *Therapeutic Hypothermia & Temperature Management*. This new journal will publish research studies investigating temperature sensitive mechanisms of protection or



Cover of new journal for hypothermia research

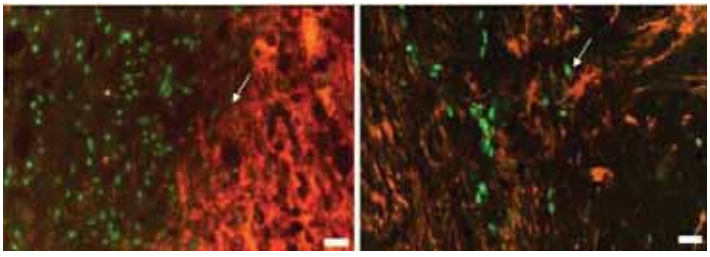
recovery after central nervous system injury. Excitedly, Dr. Dalton Dietrich, our Scientific Director, has agreed to be the Editor-in-Chief of the new journal, Dr. Helen Bramlett will be the Managing Editor, and Dr. Barth Green will be a member of the Editorial Board. They will now be able to help guide this field of research even more than ever!

Cell replacement – Schwann cell transplantation
We know everyone is anxiously awaiting progress on the proposed phase I clinical trial evaluating the safety of Schwann cell transplantation. Here are the facts!

In August 2008, we had an unofficial discussion with the FDA about the possibility of translating our discovery research into a clinical trial. The FDA was very supportive and told us that the next step was to generate specific safety data in animals. **This is a requirement for all proposed therapies regardless of it being a drug, device, or cell and it applies across the board for all diseases, not just SCI.** A critical requirement for cellular-based therapies is to keep the animals alive for 6 months after transplantation and then very thoroughly evaluate each animal for toxicity, biodistribution (movement of transplanted cells from the spinal cord to other organs), and tumorigenicity (development of cancer).

We began doing these experiments soon after the FDA discussion. Our **first approach** was to use **human Schwann cells** prepared using our official cell manufacturing protocol and inject them into rats. To try to prevent the rat immune system from killing the foreign human cells, we used rats that had an immune system that was not fully functional (i.e. immune compromised) plus we also gave them immunosuppression drugs. This was all in an effort to have significant Schwann cell survival at the end of 6 months post-transplantation. These experiments took over 1 year to conduct because they had to be designed, carried out, and analyzed. The problem we discovered while doing the experiments was that the **immune compromised rats had a larger injury response than normal rats, making a more hostile transplantation environment**; this negatively impacted Schwann cell survival and produced inconsistent graft results. Normally, 20% of rat Schwann cells transplanted into rats with SCI survive in the injury site. In the immune compromised rats, only 3.8% of human Schwann cells survived at 6 weeks post-transplantation and 1.1% survived at 6 months. These results were too inconsistent to properly evaluate safety.

So, our **second approach** was to use **rat Schwann cells** and inject them into non-immune compromised rats, something we have a significant amount of experience with. The caveat to that approach, however, is to show that rat and human Schwann cells are comparable in their safety profile and function. We feel confident that we can do that without any problems. Before we started this second round of experiments, however, we made an **interim discovery** with our pig model regarding the volume necessary to deliver the typical dose used in rats. By default, all of our rat studies throughout the years used the maximum number of rat Schwann cells that could fit in a specific volume. Well, you may not think about it, but rat Schwann cells are smaller than pig or human Schwann cells. Therefore, in order to deliver the same number of Schwann cells to the pig or human we would have to inject a much larger volume. When we delivered that larger volume in our pig model it actually caused additional damage to the spinal cord. **This is an important example of how critical these safety experiments are in order to properly translate our research from rats to humans**. As a consequence of that discovery, we are conducting a short-term experiment to identify the lowest dose in rats that is still effective (i.e. lowest efficacious dose). By using a smaller number of Schwann cells, we will be able to deliver them in pigs and humans without causing any damage. Once the lowest efficacious dose is determined, we will then perform the pivotal 6-month toxicity, biodistribution, and tumorigenicity experiments.



Human Schwann cells (green) surviving in immune compromised rat SCI (red) for 6 weeks (left) and 6 months (right). The more hostile immune compromised injury site impacts human Schwann cell survival

In July of 2010, we had an official pre-IND discussion with the FDA. We sent them a 135-page document describing our human Schwann cell preparation process (to ensure sterility and purity), our completed and planned animal pre-clinical safety experiments, and our proposed phase I clinical trial protocol. The FDA was incredibly supportive of our solution to the Schwann cell survival problem. This is very important feedback for us! They also stressed the importance of performing the experiments sequentially, i.e. identifying the lowest efficacious dose

in the rat model and finalizing the injection procedure in the pig model before we start the pivotal 6-month post-transplantation survival study. They were also very supportive of the proposed phase I clinical protocol; however, they strongly suggested that we consider doing a dose escalation in the trial. Our first proposed trial would be to transplant autologous human Schwann cells 3-5 weeks post-injury in 6 participants with a complete, thoracic SCI to establish safety. Depending on the safety outcome, subsequent trials would be opened up to include incomplete injuries, chronic injuries, and cervical injuries.

In just 2 short years we have made significant progress in fast-tracking this basic science discovery toward the clinic. **Our guiding principle is to translate therapies to the clinic while doing no harm**. We plan on submitting our IND application to the FDA in 2011.

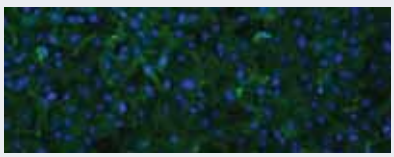
Rehabilitation – SCI-Fit: Function and fitness for life
Rehabilitation is important for all people living with SCI to better maximize function, fitness, and quality of life. Activity-based interventions have been shown to be beneficial, but there are many unanswered questions about what is most effective, when is the best time to intervene, and who receives the most benefit. The Miami Project clinical researchers are eager to answer these questions and have developed a large, randomized, comparative effectiveness clinical trial of two activity-based interventions.

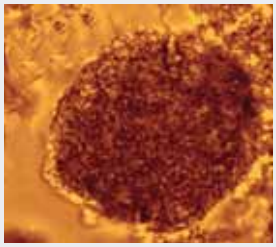
The SCI-Fit trial will be a comparison of locomotor training versus functional electrical stimulation (FES) cycling exercise and will include individuals with subacute SCI (2-6 months post-injury) and those with chronic SCI (≥ 1 year post-injury). These studies will answer a number of critical questions related to the influence of: *timing* of training onset, *type* of training, and *severity* of injury. Individuals with motor-complete SCI and those with motor-incomplete SCI will be included. We will assess the comparative effectiveness of these two activity-based interventions for restoration of physical function and quality of life (including pain, spasticity, bladder/bowel, and sexual function), cardiovascular and pulmonary fitness, and muscle activation/force-generating capacity.

Normally this type of clinical trial would be conducted as a multi-center trial to ensure expertise in all the scientific disciplines and adequate participant enrollment, however, the clinical research team and environment at The Miami Project possesses the benefits of a multi-center trial without the additional expense and difficulty of coordinating multiple sites. The clinical researchers have a productive working relationship and The Miami Project education department maintains a registry of 3,000+ individuals with SCI whom have expressed interest in participating in research studies. We are very excited to get this trial started and provide direct benefits to people already living with SCI!

MIAMI PROJECT PROVIDES SERVICE TO COMMUNITY REGARDING ADULT STEM CELLS

There are many places around the world selling questionable stem cell treatments to people with SCI. This "stem cell tourism" is surrounded by ethical controversy for many reasons, but primarily because 1) there is no scientific evidence that adult stem cells repair the damaged spinal cord, 2) people are required to pay tens of thousands of dollars for unproven treatments that hold significant risk to them, and 3) the people administering these treatments are not providing any unbiased evidence of short-term or long-term safety or efficacy. The Miami Project to Cure Paralysis and the University of Miami Miller School of Medicine have been approached by a company in Panama called Medistem Panama, Inc., whose mission is to discover, develop, and commercialize technologies related to adult stem cell therapeutic interventions. **In an attempt to provide unbiased information to the SCI community** regarding Medistem's intravenous infusions of umbilical cord and bone marrow stem cells, we have initiated scientific interactions. The Miami Project has set up an IRB-approved, retrospective chart review of people with SCI that have had adult stem cells infusions from Medistem Panama, Inc. The purpose is to try to assess the degree of safety and possible effectiveness of the treatment in an unbiased manner. The Miami Project is taking the first step in attempting to shed light on an extremely unclear situation. The results of the chart review will guide any future involvement.


Human neural stem cells


Adult stem cells

A love affair with science...

The passion of Mary Bartlett Bunge

Fashion designer… child psychiatrist…biologist…all were potential career paths in the heart of a young Mary Elizabeth Bartlett. Thankfully, biology won out! And, in reality, the scientific community won out when you think about all of her contributions.

As a young girl growing up in the woods of Connecticut, Mary used to row her little leaky row boat along a stream looking at the tadpoles in the water. Her curiosity peaked, wondering how tadpoles develop into frogs? Later, she began taking biology classes in school and loved the single cell animals

that she was assigned to draw. Becoming enthralled, she decided that biology was the career for her. **1st defining moment.** After high school at Northfield School for Girls, she attended Simmons College to earn her Bachelors of Science degree. While there, she took a summer course at Jackson Laboratories in Bar Harbor, Maine, that changed the course of her life. One day she put rabbit heart muscle into tissue culture and days later saw it still beating. **2nd defining moment.** Mary graduated in 1953 and went on to the University of Wisconsin (UW) to earn her Master's and Doctoral degrees. At UW, her Master's mentor was Dr. Robert Schilling; they studied intrinsic factor in gastric juice and its role in binding vitamin B12. "I saw him recently. He's now 90 years old, still working. He said that our papers published in 1956 and 1957 are still highly regarded." But Mary wasn't really interested in intrinsic factor and pernicious anemia. She had taken a course in cell biology with a prominent cell biologist, Dr. Hans Ris, and had looked at images in the electron microscope. **3rd defining moment**. "We were using one of the first electron microscopes in the United States; we had to hammer the lenses into place. But still, the images were so captivating." This led her to decide to work towards the PhD degree with Dr. Ris.

> The final moment to seal her career path in science, and forever fuel her passion, came when she met Richard Bunge

The **final moment** to seal her career path in science, and forever fuel her passion, came when she met Richard Bunge in her classes. "There was this lanky looking guy. I used to sit in the front row and he sat in the front row at the other end. Then, for a summer Richard worked in Dr. Schilling's lab, on blood samples in the cold room. I didn't see him during the day. Then at 5 he would vanish into the hospital cafeteria where he washed dishes to help support himself while in medical school. I thought, this guy needs fresh air. I invited him to go sailing and that's how we got to know each other. When the wind died down in the middle of Lake Mendota we had wonderful long conversations. Dick was going to medical school so he could be a missionary; his hero was Albert Schweitzer." From this passion bloomed a lifelong collaboration. Between earning her MS and PhD, Mary Bartlett became Mary Bartlett Bunge. And Richard changed his mind about becoming a missionary in favor of pursuing research. "He really introduced me to neuroscience. From the PhD work on, we worked together for 40 years."

While at UW, the Bunges demonstrated that, after a demyelinating lesion, myelin could be reformed in the mature mammalian spinal cord, a first. Then the question arose whether initial myelin formation in development was the same as during remyelination in the adult. The mechanism of central nervous system (CNS) myelination was unknown at the time. "When I put a section of kitten spinal cord into the electron microscope, there in the first area of the first section I looked at, was an image like the old fashioned ice tongs with the oligodendrocyte cell body at the top and two cytoplasmic arms coming off the cell body where myelin was forming at the end of each arm. And that's how I discovered that the oligodendrocyte was the cell that made the myelin sheath for the CNS. **That was one of my big moments in research**."

Their path to eventually study Schwann cells involved a 10 year "stint" at Columbia Presbyterian College of Physicians and Surgeons in New York. They worked with a very famous woman, Dr. Margaret Murray, who helped develop nerve tissue culture. It was there that Mary and Dick made one of their seminal contributions to science. They were the first to describe synapse formation in tissue culture. It was also in New York that their two sons were born, Jonathan and Peter. Mary worked part-time initially, but demonstrated that she could successfully juggle motherhood and a full-time career in science and, in 1978, she was promoted to full professor. In 1970, the Bunges

Mary Bartlett Bunge receives The Wakeman Award in 1996

had moved to Washington University School of Medicine in St. Louis and began dissecting peripheral nerve tissue so they could grow purified populations of nerve cells or Schwann cells or mixed populations of both. **Enter Dr. Patrick Wood,** who, with Dick, developed the culture techniques to better understand the basic biology of Schwann cells. The trio began learning more about the interactions between Schwann cells and neurons. Whereas Mary and Pat were basic scientists, Dick was trained in medical school and their overarching goal was to make their research clinically relevant. Initially, they focused primarily on multiple sclerosis and remyelination. But in 1988, Dick received a call from Åke Seiger and Barth Green about his interest in becoming the Scientific Director of The Miami Project to Cure Paralysis. The Bunge-Wood lab had begun some preliminary studies involving Schwann cell transplantation in spinal cord injury (SCI), but Mary and Dick thought that that this would be an opportunity for them to assemble a larger team focused on SCI and eventually lead to transplantation of Schwann cells into humans with SCI. So they decided to move south to Miami! But they had been at Wash. U. for 18 years and it was one of the best places in the world to do their work. People said, "You're going where? You're going to do what?" Dick, however, believed in the quote by Goethe "When the harbor feels safe, it's time to leave" and that was his guiding principle. Miami needed the Bunges and the Bunges desired a new challenge…a match made in heaven.

Images from top to bottom: Bunge lab soon after joining the Miami Project; Pat Wood; Dick Bunge entertaining friends; Bunge lab members supporting Dick while going through chemotherapy by wearing hats; Dick and Mary at the electron microscope

Though moving their lab all the way to Miami was a challenge, Mary and Dick enjoyed their new surroundings. In the lab, they delved further into Schwann cell transplantation for SCI. To begin addressing axonal regeneration, they would create a complete gap of several millimeters in the rat spinal cord and place a polymer channel filled with purified Schwann cells in the gap with each end of the cut spinal cord inserted into the channel to form a bridge, a new research model. They saw regeneration of injured axons into the bridge! By this time, the Bunge lab had become one of the preeminent SCI labs in the world. Dick had also been busy recruiting a comprehensive team of scientists to The Miami Project, making it the leading center for SCI research. At the height of their success came misfortune, however. In 1996, Dick lost his battle with esophageal cancer. **Mary lost her partner, but not her passion**. With her own inner strength, the love of her sons, and the support of The Miami Project family, Mary forged on and continued leading the SCI field. She realized that Schwann cells by themselves were not enough to repair the injured spinal cord so her lab began developing combination strategies. They combined Schwann cells with a variety of other strategies, such as olfactory ensheathing cells, growth factors, chondroitinase (a scar modulating enzyme), and Rolipram (a drug that elevates cyclic AMP). In 2004, she and a post-doctoral fellow, Dr. Damien Pearse, demonstrated that a triple treatment combination of Schwann cells, Rolipram, and additional cyclic AMP was very effective in protecting the spinal cord

after injury, promoting regeneration of damaged axons, and significantly improving locomotor function. These collective results, as well as Dr. Pat Wood's expertise in culturing human Schwann cells, were enough to convince The Miami Project to forge ahead with all the pre-clinical safety experiments necessary to seek FDA approval for autologous human Schwann cell transplantation trials.

After a 57 year career in science, Mary Bartlett Bunge is not ready to retire. But she is trying to continue to focus on the projects closest to her heart and find more time for her non-science passions. "I love movies, I love books, and walking, I walk every day. I like Pilates, I've started that, and gardening, I love to work in the yard. I love gourmet food and have been watching cooking shows on some weekends!" What few may know is that Mary is an avid art aficionado. "I go to New York and Jonathan, my son, and I have art days when we visit galleries and view art shows. Glass sculpture is one of my passions." In fact, Mary commissioned and donated a museum-quality glass sculpture, by artist Jon Kuhn, to the University of Miami in honor and remembrance of Dick in 2001. Not only has Mary written over 160 scientific papers and reviews, after Dick passed away she began writing limericks as well. "I write limericks when people leave the lab." Having trained over 20 graduate students and post-doctoral fellows since then, not to mention the myriad of undergraduate students, high school students, and technical staff, we should be encouraging her to publish a collection soon!

When a young female scientist comes fresh out of training and into the SCI research field, they look up to Mary Bartlett Bunge with awe, and maybe a little bit of intimidation! **She is undoubtedly the grand dame of our field**. A mere glimpse of her accomplishments include being a member of the Christopher and Dana Reeve Foundation International Research Consortium from 1995-2009, receiving the prestigious Wakeman award in 1996 for her seminal contributions to the understanding of SCI repair, the Javits Neuroscience Investigator Award from 1998-2005 from the National Institute of Neurologic Disorders and Stroke (for which she served on its Council), and the Christopher Reeve Research Medal for Spinal Cord Repair in 2001. She served on the National Academy of Science's Institute of Medicine Committee on Spinal Cord Injury from 2003-2005, and received an honorary doctoral degree in Humane Science from her undergraduate alma mater, Simmons College, in 2006. Mary has also been awarded for her leadership in advancing women in neuroscience. She was the inaugural recipient of the Mika Salpeter Women in Neuroscience Lifetime Achievement Award in 2000. She received the Florida Woman of Achievement Award in 2002 and became the Christine E. Lynn Distinguished Professor in Neuroscience in 2003.

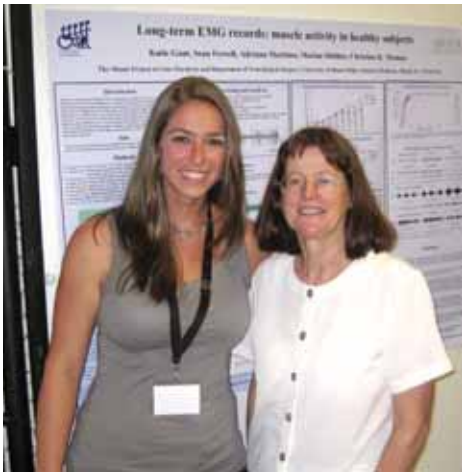
All in all, Mary Bartlett Bunge is a role model for all of us regardless of our track in life. She's smart, hard working, compassionate, and down to earth. **While still working countless hours on the preparation of the Investigational New Drug application for FDA approval of Schwann cell transplantation into humans with SCI, Mary hopes to find more time for herself these days**. So next time you see Mary, don't be intimidated. Say "hi" and say thank you for your passion.

Images from top to bottom: Mary with Lois Pope (left) and UM President Donna Shalala (right); Mary with Dr.'s Green and Dietrich; Bunge-Wood lab at Wash. U. in 1985; Bunge-Wood lab at Miami Project in 2009

Embryonic spinal motor nerve cells reinnervating paralyzed muscle

Few scientists are able to successfully have one foot in basic science and one foot in clinical science, but Dr. Christine Thomas considers this an important approach. She joined The Miami Project in 1990 and has spent the last 20 years studying the effect spinal cord injury (SCI) has on muscle. Hailing from New Zealand, Dr. Thomas traveled the world before stopping in Miami…and she's been learning all the way. At Otago University in New Zealand, she earned her bachelor's and master's degrees, and then moved on to Alberta, Canada, to earn her doctoral degree in physiology. While in Alberta she began coupling human studies with training in basic science. She was primarily studying how human and cat muscles change after nerve damage. From there, it was over to New Haven, Connecticut, for a post-doctoral fellowship focusing on muscle fatigue; however, this time it was in humans. To learn more about single motor units in the thumb muscles, she participated in collaborations with researchers in Umeå, Sweden, before finally settling in Miami.

At The Miami Project, she began using her training to study the muscle weakness and atrophy of people with SCI. Her research has primarily focused on the changes to hand and arm muscles after cervical SCI. She has characterized many properties of paralyzed muscle and motor units, including fatigability, stimulation rates and patterns to optimize force output, motor unit firing patterns and recruitment, and motor unit behavior during spasticity. She performs these studies using surface and intramuscular electromyography (EMG), stimulation of single nerve fibers, and assessments of peripheral or central nerve conduction. Because electricity underlies nerve and muscle communication, her lab even includes a special room lined in copper to reduce interference from ambient electrical activity when performing experiments. Dr. Thomas and members of her lab have recently been delving into analyses of continuous 24hr EMG recordings to explore involuntary muscle contractions (spasms). First, with Jeff Winslow and Marine Didize, they designed and validated a mathematical algorithm that can automatically classify motor unit activity by tracking their firing behavior over a 24 hour period. This is very important because her lab is now able to analyze this kind of 24hr EMG recording within a 2-3 week period with minimal human input. Without this automatic classification algorithm, it would take a human 2 years to manually analyze the same amount of data! Now these algorithms have to be extended to automate analysis of whole muscle recordings. Just this summer, Dr. Thomas and Katie Gant, a bioengineer in her lab, traveled to

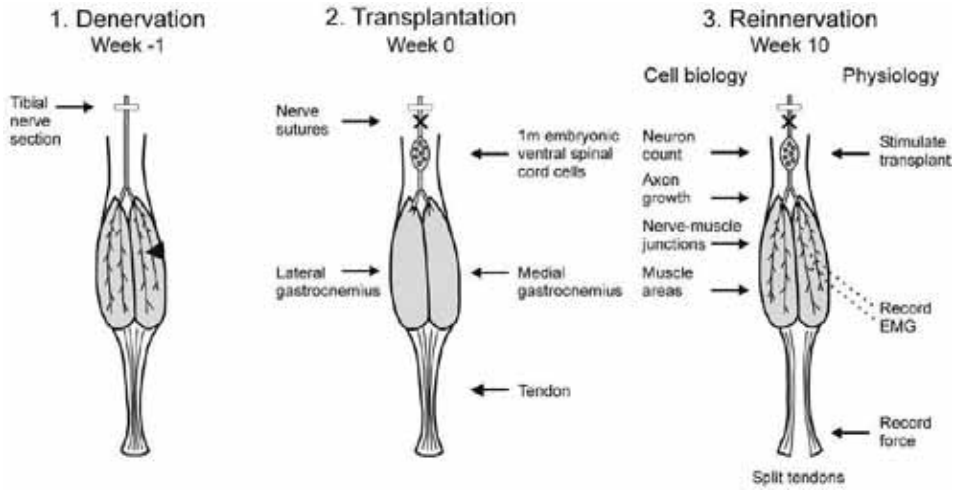


Katie Gant and Dr. Thomas

In 2009, they discovered that applying a specific combination of 3 growth factors to the embryonic motoneurons at the time of transplantation significantly enhances the survival of the motoneurons and the long-term function of the reinnervated muscle.

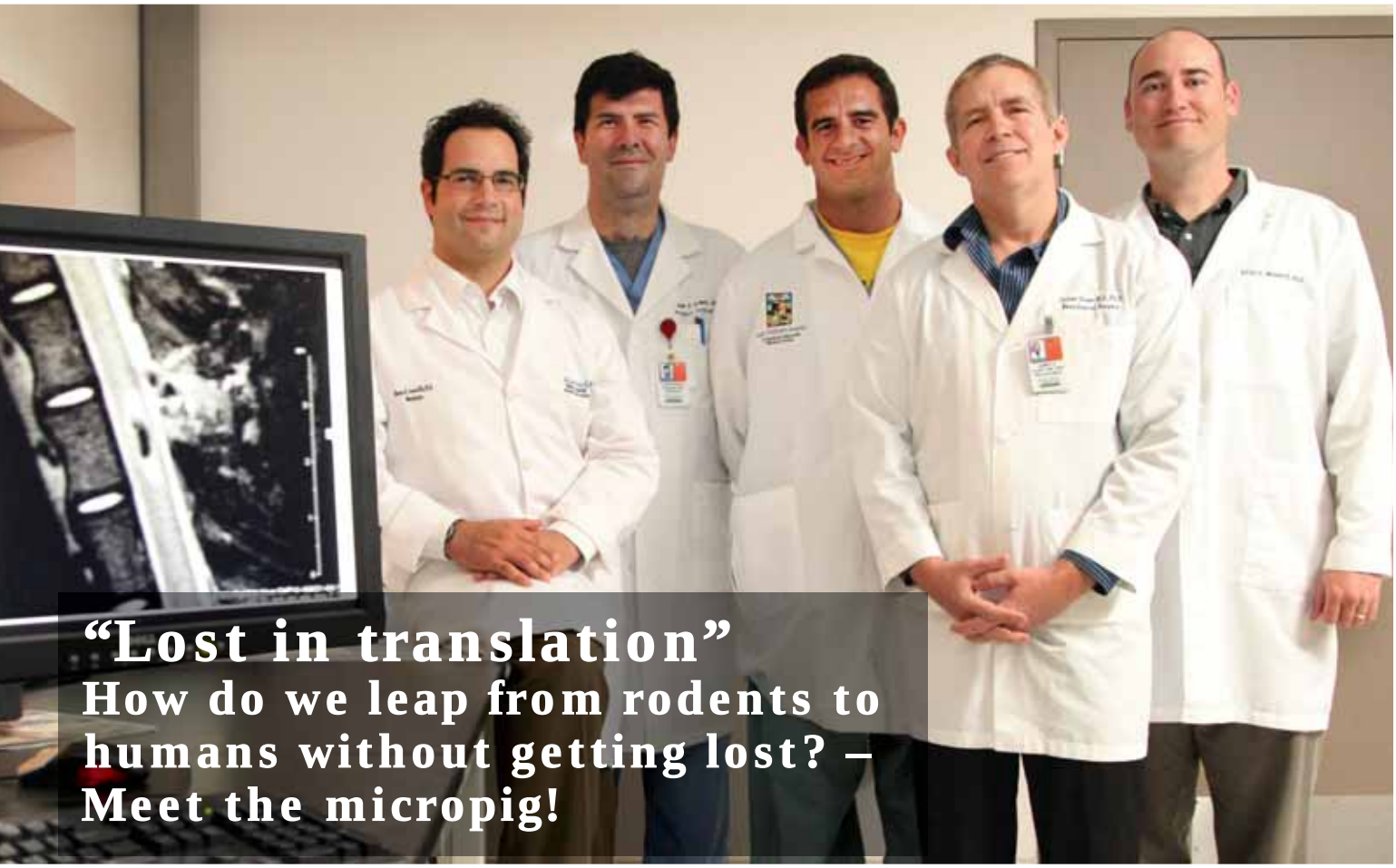
Paris, France, to present their most recent data involving these 24hr EMG recordings. In order to establish baseline activity, this first round of data was from non-SCI control subjects and the goal was to quantify and compare the duration and intensity of activity in 8 muscles. Two interesting results from this study are that hand and arm muscles are active longer than leg muscles and that there is virtually no muscle activity during sleep. Upcoming studies will include people with SCI and evaluate how their voluntary and involuntary muscle activity varies from control data.

As Dr. Thomas was discovering all the changes to paralyzed muscles of humans with SCI, she realized that a key component to restoring function includes restoring the nerve supply to the actual muscle, not just repairing the spinal cord. So she went back to her basic science training and began studying muscle reinnervation in rats. The model that her laboratory uses involves cutting a peripheral nerve in the hind limb and transplanting embryonic spinal cord motor nerve cells into the nerve stump (see the schematic diagram). In their first experiment, published in 2000, they demonstrated that these embryonic spinal cord motoneurons could extend nerve fibers into the muscle that had lost its neural input (i.e. had been denervated) and that these new nerve fibers produced neuromuscular junctions that could be used to trigger muscle contractions. They also demonstrated that these contractions were fatigue-resistant and dependent upon the innervation by the new nerve fibers. She has since published several other studies characterizing the properties of the reinnervated muscle, the timing of nerve cell transplantation, and signaling pathways that influence the function and type of muscle fiber reinnervated by the embryonic motoneurons. In 2009, they discovered that applying a specific combination of 3 growth factors to the embryonic motoneurons at the time of transplantation significantly enhances the survival of the motoneurons and the long-term function of the reinnervated muscle. Dr. Thomas is currently exploring the ability of stem cells to reinnervate muscle as well as ways to link the cell transplant with the spinal cord.



Experimental design to study muscle reinnervation by embryonic motor nerve cells

You may think that, in order to run 2 full-time labs, Dr. Thomas is a super-human and never rests! Well, she does put in long hours, but she also has a team of people working together each day to make all of this happen. Long time lab members and new, energetic trainees (Robert Grumbles. Sean Ferrell, Katie Gant, Adriana Martinez, Charles Cohan, Yang Liu, James Atkison, Sam Beckerman) have been essential to the success of the animal and human research. The results of Dr. Thomas' research are particularly important for people with chronic SCI as any treatments developed to repair the spinal cord will also likely require restoration and reinnervation of the paralyzed muscles.



"Lost in translation"
How do we leap from rodents to humans without getting lost? – Meet the micropig!

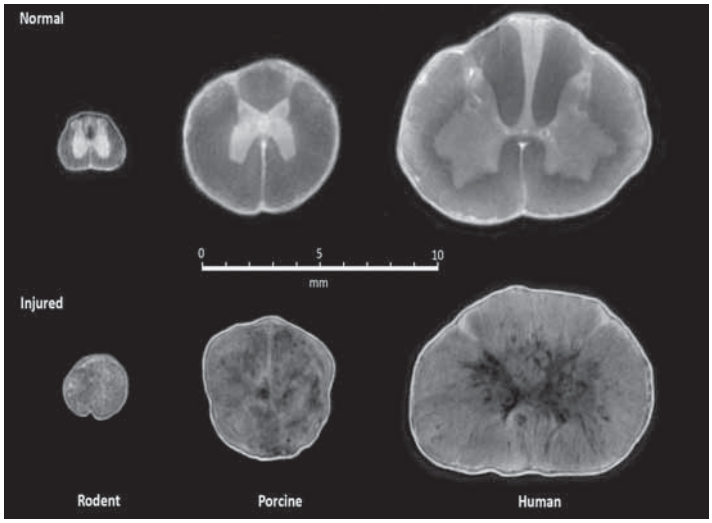
The micropig "Dream Team" from left to right: Drs. Howard Levene, Juan Solano, Manny Gonzalez-Brito, James Guest, and Kyle Padgett

As part of our Clinical Trials Initiative, investigators at The Miami Project to Cure Paralysis have created a large animal model of spinal cord injury (SCI) to answer critical, clinically-relevant questions regarding translation of results discovered in rodents to humans. This is especially important for interventions involving surgical procedures, such as cell transplantation. We are using a pig model of SCI because its spinal cord is larger than rats and more comparable to the human spinal cord. The rat thoracic spinal cord area is approximately 0.1-0.2 times that of the human spinal cord, whereas the porcine (pig) thoracic spinal cord area is approximately 0.5-0.6 times that of the human spinal cord. These size characteristics enable the use of this model for detailed safety studies of injection parameters and subsequent translation of these parameters to human application. Hence, Miami Project investigators, in collaboration with a team of pediatric intensive care specialists at the University of Miami initiated by Dr. John Kuluz, have developed a micropig contusion injury model.

It truly takes a multi-disciplinary team of dedicated individuals to make this effort successful. The surgical procedures required for this animal model are virtually identical to those required for human surgery. Drs. James Guest and Howard Levene, both neurosurgeons that operate on people with SCI, provide the expert surgical skills necessary to make this model relevant, reproducible, and ethical. Control of the anesthesia is another huge factor. The expertise of our pediatric intensive care specialists, Drs. Juan Solano and Manny Gonzalez-Brito, has enabled this project to move forward successfully. Other critically important components are animal care and behavioral assessment. Factors that are measured to evaluate safety include neurologic assessment, walking, somatosensory and motor evoked potentials, which measure the "connectedness" of the neural circuitry from the sensory nerves in the legs through the spinal cord to the sensory cortex of the brain, as well as magnetic resonance imaging (MRI) to measure lesion volume, bleeding, inflammation, and the effects of making an injection.

The **early results** of these experiments are **promising** and their completion will guide us in preparing to submit an IND application to the FDA **for a future clinical trial.**

MRI is an exquisitely sensitive tool for assessment of the spinal cord. MRI is being used to determine the volume of the experimental SCI that is created by contusive impact. These volumes may aid in determining the dose and volume to be implanted. After the cell injection is made, the MRI allows several important variables to be assessed, including spinal cord swelling, injection related bleeding, and a new concept called hydrodynamic dissection, which indicates that the injection pressures were excessive. MRI is important because it provides near-immediate feedback about the effects of injection. By correlating the changes visible on MRI with the changes in spinal cord conduction of evoked potentials, and changes in the porcine walking scale, we can help ensure that human spinal cord injections are made with much greater safety than would be possible without these studies.



MRI of rat, pig, and human spinal cords (image courtesy of Dr. Padgett)

The Miami Project is utilizing this model to generate critical pre-clinical safety data for our proposed clinical trial involving Schwann cell transplantation. Specifically, this model is being used to closely imitate human clinical conditions in safety evaluations of injection volume, cell concentration, needle size and profile, manner of cord perforation, rate to needle depth, injection rate, post-injection dwell stabilization time, and needle withdrawal time. These studies are being led by Drs. James Guest, Howard Levene, and Juan Solano with other members of the team including , Manny Gonzalez-Brito, Kyle Padgett, Gagani Athauda, Francisco Benavides, Donna Avison, and Johjan Nunez-Gomez.

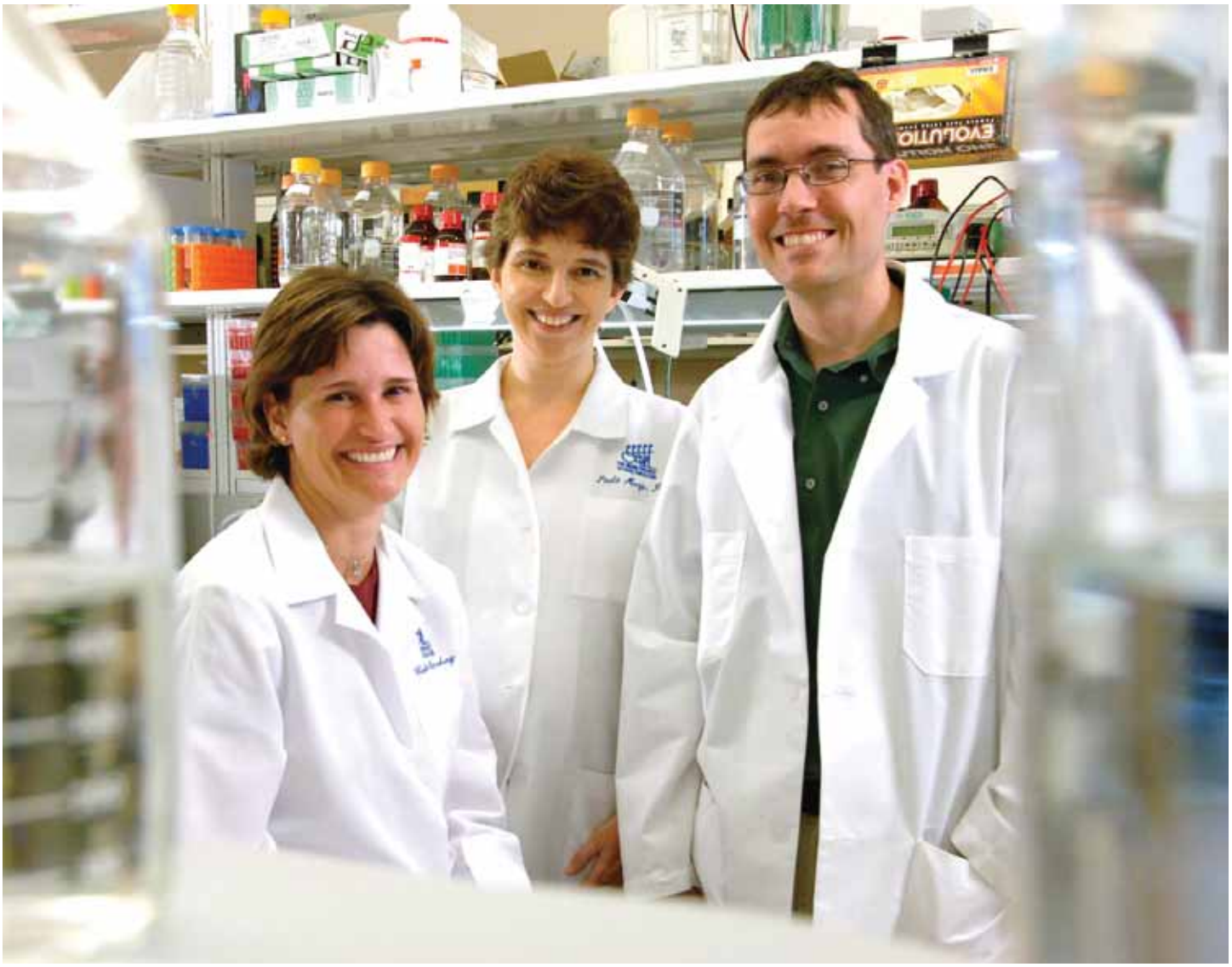
Critical discoveries have been made regarding the volume of cells that can be injected into the injury site without causing harm as well as the rate of injection. A factor often overlooked by the public is the danger associated with simply inserting a needle in the spinal cord. When mammals breathe, the spinal cord moves as well. As a result, holding a syringe free-hand to perform an injection is risky because the syringe and the spinal cord could move and tissue damage could occur. We have been collaborating with experts at Geron Corporation, who will soon begin a Phase I clinical trial injecting embryonic stem cells into the spinal cord of acutely injured individuals, to optimize a syringe positioning and injection device for safer cell transplantation.

The Miami Project is also utilizing this large animal model to conduct pre-clinical studies to identify the optimal methods for delivering Rolipram as a neuroprotective therapy for acute SCI. These studies are being led by Dr. Damien Pearse and are carried out by members of the porcine SCI team as well as Dr. Cheng-Chih Liao within the Pearse laboratory. The work follows on from results published in 2004 by Dr. Pearse and Dr. Mary Bunge demonstrating the beneficial effect of combining Rolipram with Schwann cells and cyclic AMP in laboratory rats with SCI. Porcine studies are being employed to examine the safety, toxicity, and efficacy of Rolipram as an acute neuroprotective agent in a larger animal model of SCI. For these studies, animals receive a contusion injury to the thoracic spinal cord and within hours an intravenous (i.v.) infusion of Rolipram or a control solution (placebo) is given. Additional administration of Rolipram is provided during the first two weeks following injury. Preliminary results indicate that i.v administration of Rolipram for two weeks after SCI appears to be safe. The early results of these experiments are promising and their completion will guide us in preparing to submit an IND application to the FDA for a future clinical trial.

Obviously, it takes a significant amount of man power and expertise to make this animal model a successful tool. Factors critical to success include excellence in 1) anesthesia, 2) surgical technique, 3) animal care, 4) behavioral testing, 5) electrophysiology, and 6) access to state-of-the-art equipment such as MRI and injection devices. The academic environment at the University of Miami Miller School of Medicine is tailor-made for this truly collaborative research effort.

The Next Generation

Miami Project Junior Faculty



Drs. Coleen Atkins, Paula Monje, and Murray Blackmore

We must always think forward to the next generation, for they bring bright, new ideas to our field, shake up the status quo, and will continue our mission to develop cures for people who have suffered neurotraumatic injuries. The Miami Project takes seriously the necessity to train the next generation of scientists. Not only does that include students and post-doctoral fellows, but also new junior faculty members. We have three new junior faculty members within the last year and a half and we're proud to highlight them here.

Dr. Coleen Atkins is a fireball of energy! She's been quite active in her young career, having published 20 peer-reviewed research articles and 4 book chapters. Her current research interests surround understanding the signaling mechanisms that are altered by neurotraumatic injuries and discovering ways to change that signaling to enhance functional recovery. Last year she was awarded a 2-year National Institutes of Health (NIH) grant to begin evaluating signaling pathways and was just recently awarded a large 5-year NIH grant to further investigate rehabilitative strategies to improve memory in an animal model of traumatic brain injury. Coleen is also becoming an active leader in the scientific community. This past spring, she spearheaded the hugely successful Brain Fair 2010 during the national Brain Awareness Week. This free event was at the Miami Science Museum, had more than 1,100 people in attendance, and included high quality educational activities for children about how the brain and spinal cord work. She was recently invited to speak about "Mixing Science and Motherhood: Achieving Balance" at the Women in Neurotrauma Research mentoring luncheon during the National Neurotrauma Society (NNS) annual meeting. If that's not enough, she was also elected to serve as the Secretary Treasurer for NNS in 2012!

Dr. Murray Blackmore is calm and collected, but don't mistake that for indifferent! Dr. Blackmore's high tech research is at the forefront of the field in identifying and evaluating genes that promote regeneration of the corticospinal tract following spinal cord injury. The corticospinal tract is a group of motor nerve cells in the brain that send their axons all the way down to the spinal cord. They are very important for voluntary movement of muscles, especially muscles requiring fine motor control. He recently received a 2-year Craig H. Nielsen Foundation grant to evaluate the ability of specific genes to enhance or inhibit regeneration in animals with SCI and has a large NIH grant currently under review. If these studies are successful, they will motivate drug discovery studies to find ways to turn on or off these genes in individuals with SCI. Dr. Blackmore has published several peer-reviewed research articles and has presented his results at many scientific meetings. In fact, he was recently an invited speaker at the 7th Annual High Content Analysis meeting in San Francisco and received the Cellome Award by Thermo Fisher for the *"Best published peer-reviewed scientific paper using high-content screening in 2009"*.

Dr. Paula Monje is the studious scientist who has made the leap from plant cells and cancer biology to Schwann cells! Dr Monje's scientific training began in Argentina studying steroid hormone receptors while earning her PhD and through the twisted path of life ended up in the US, first at the NIH, where she studied signaling mechanisms in cancer cells, and then at The Miami Project, studying Schwann cells. As a freelance "garage" biologist, she has studied plant cells for more than 15 years. Her current research focuses on understanding the communication between axons and Schwann cells during development to promote proliferation (rapidly multiplying in number) and myelination, as well as to understand how mature Schwann cells are able to transition back to their immature state and, subsequent to transplantation, remyelinate axons that have lost their myelin after an injury. Dr. Monje also has several peer-reviewed publications and meeting presentations. To further her research, she currently has a large NIH grant under review.

...comes the charge of **discovering the unknown**, stirring up the waters of science, and **carrying the torch** for continued **development of therapies** for treatment of humans having sustained paralysis.

Congratulations are in order for our junior faculty for the successful launch of their careers! Along with that comes the charge of discovering the unknown, stirring up the waters of science, and carrying the torch for continued development of therapies for treatment of humans having sustained paralysis.

Drs. Monje, Blackmore, and Atkins discussing grants

The Buoniconti Fund to Cure Paralysis

Instrumental in making possible significant scientific advances in the field of spinal cord injury.

A New Day Has Come

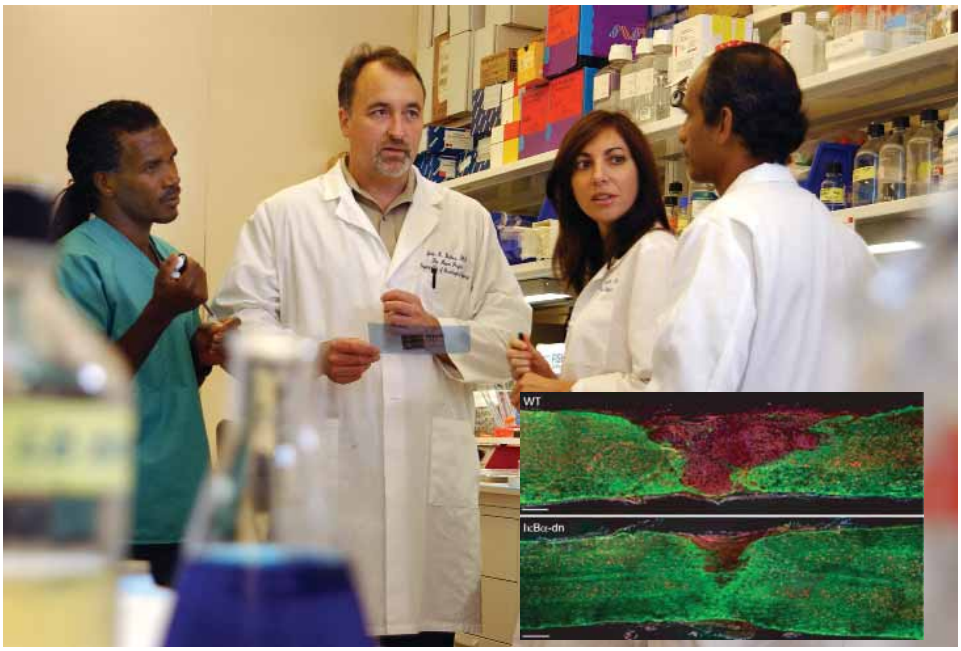
The Miami Project to Cure Paralysis is a unique center for many reasons, but probably one of the most important reasons is the leveraging power made possible by all of the donors to **The Buoniconti Fund to Cure Paralysis**.

In today's world of grant funding, the pool of applicants is increasing while the pot of available funds is remaining level or, in some cases, decreasing. Hence, in order for grant applications to be competitive, preliminary data regarding the research questions being tested need to be included to show the likelihood of success if funded. However, that creates a situation similar to "putting the cart before the horse". How is one supposed to generate data without funds to conduct the experiments? That is where philanthropy becomes critically important and The Buoniconti Fund to Cure Paralysis has been instrumental in making possible significant scientific advances in the field of spinal cord injury.

All of the private funds that have been generously donated to The Miami Project via The Buoniconti Fund over the last 25 years have enabled our researchers to generate the crucial preliminary data necessary to be awarded larger grants to further enhance our understanding of trauma to the nervous system and work towards developing effective therapeutic interventions. The ability to purchase supplies for experiments and support personnel to conduct the experiments, without fear of interruption between grants, is critical to the success of The Miami Project in carrying out its mission.

It is only appropriate, at this 25 year landmark, to show our generous donors examples of how philanthropic funds have been used to leverage additional, large sources of funding and advance the scientific understanding of spinal cord injury (described below). By no means is this an exhaustive list; that could fill an entire magazine on its own!

Using the **power of genetic technology**, Dr. John Bethea and his laboratory created mice that contained an inactive form of a gene that is very important in regulating inflammation and secondary tissue damage in the nervous system. These mice are called transgenic, meaning they've had a change to their genetic makeup. The gene that was inactivated is called nuclear factor κB (NF-κB) and it was only inactivated in astrocytes. Astrocytes are a type of support cell found in the brain and spinal cord and after an injury they become strongly activated and actually end up causing additional tissue damage, i.e. secondary damage. Dr. Bethea found that when mice that had NF-κB inactivated in astrocytes were subjected

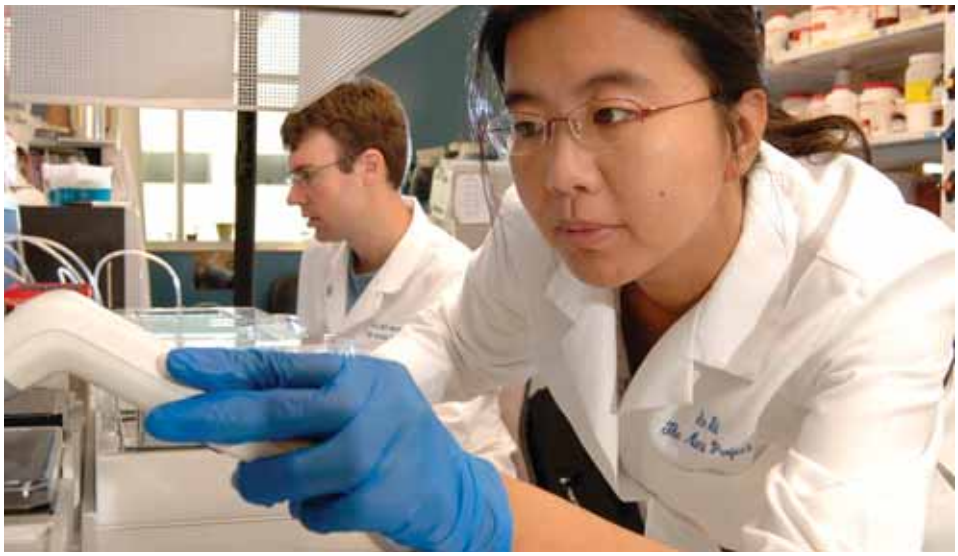


Dr. Bethea and lab members; example of neuroprotective strategy

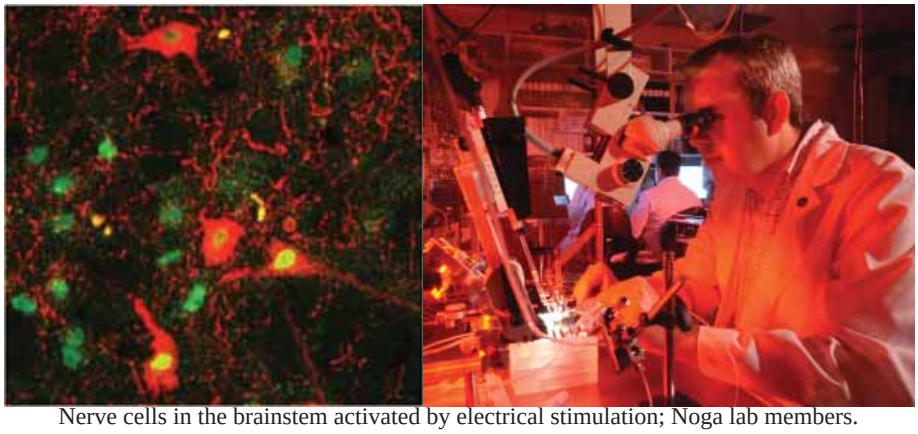
to a spinal cord injury, there was a reduced inflammatory response which led to less secondary damage and a smaller lesion size when compared to non-transgenic mice that were spinal cord injured. As a result of those neuroprotective effects, there was significant improvement in locomotor function. These mice have also been used to investigate the disease process underlying multiple sclerosis. In a progressive model of multiple sclerosis, the absence of NF-κB in astrocytes reduces the disease severity and, thereby, limits the degree of functional loss. The philanthropic investment in the generation of those transgenic mice has enabled Dr. Bethea to publish multiple research articles and to successfully compete in several grant opportunities. He has been awarded 3 large National Institutes of Health (NIH) grants that last for 5 years each, 2 grants from the Craig H. Nielsen Foundation (CHNF), and 1 grant from the Department of Defense (DoD).

Similarly, Dr. Dan Liebl generated a mutant mouse that is missing the gene for EphB3, a cellular signaling molecule that has been shown to be important in controlling many aspects of the developing and injured nervous system. With these mutant mice, Dr. Liebl discovered that EphB3 is important in the generation of new nerve cells from **adult stem cells** already present in the brain. When EphB3 is missing, adult stem cells are capable of surviving better and expanding/self-renewing at a faster rate. Slow self-renewal is one of the significant barriers to the utilization of adult stem cells as an autologous therapy for diseases requiring neural cell replacement, such as spinal cord injury and traumatic brain injury. These mice were also instrumental in determining that Ephs are very important in regulating synaptic activity (i.e. communication) between individual nerve cells. In the brain, this is critical for learning and memory. In the spinal cord, this could be significant in the re-establishment of functional circuitry following injury. The initial investment in these mice has resulted in multiple publications and 3 successful NIH grants awarded to Dr. Liebl.

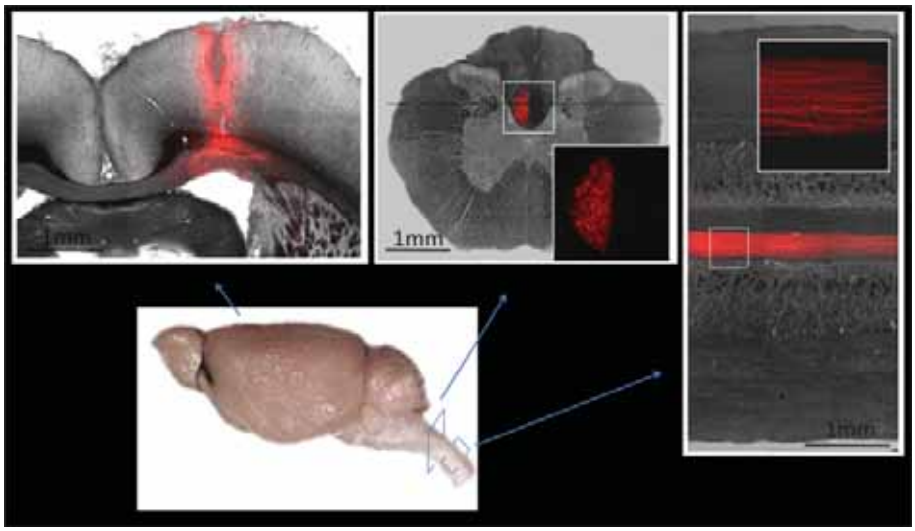
Recently, Drs. Vance Lemmon and John Bixby have utilized philanthropic funds to set up a highly specialized laboratory with automated equipment that enables them to **screen thousands of gene products (proteins) simultaneously** and to measure their **effects on nerve growth and regeneration**. Without this technology, they would only be able to screen a few genes at a time. Because of this technology, however, they recently discovered a family of genes that plays a significant role in regulating nerve regeneration. They are also using this technology to screen a multitude of compounds


Members of Lemmon-Bixby lab

Dr. Hentall guiding a lab member; nerve fibers in the spinal cord after electrical stimulation.



Nerve cells in the brainstem activated by electrical stimulation; Noga lab members.



The Blackmore lab has developed a way to visualize (red) regeneration of corticospinal axons.

to identify drugs that promote regeneration. Positive hits can then be further investigated in animal models of spinal cord injury. In 2009-2010, they have been awarded 4 NIH grants as well a very large State of Florida King Biomedical Research grant and 4 manuscripts have been published. Dr. Murray Blackmore, who was a post-doctoral fellow with Drs. Lemmon and Bixby, and is now one of our new junior faculty members, has utilized this facility to discover genes that promote or inhibit growth of nerve cells in the cortex of the brain that send axons all the way down to the spinal cord. Those particular nerve cells play a significant role in controlling voluntary movement and have proven particularly difficult to regenerate their axons once damaged. Dr. Blackmore recently received a grant from CHNF to evaluate the ability of these genes to stimulate regeneration in a laboratory animal model of spinal cord injury.

Pilot research by Dr. Ian Hentall led to the discovery that **electrical stimulation in the brainstem** can improve behavioral and anatomical recovery when given within a few days after spinal cord injury in rats. Philanthropic funds were used to develop a special wireless brain stimulator for long term implantation in rats, as well as to study improvements in locomotor behavior following spinal cord injury. As a result, additional competitive funding was obtained from the DoD and CHNF. Additionally, Dr. Brian Noga received support to study 1) spinal neurotransmitter release during stimulation of brainstem regions important for the control of locomotion, 2) transmitter concentrations within the spinal cord following their topical application or microinjection, and 3) for research regarding the descending monoaminergic (serotonin and noradrenaline) innervation of spinal locomotor central pattern generating neurons. As a result, he was awarded a large NIH grant to further understand how brainstem stimulation can be used to enhance function after spinal cord injury and currently has another NIH grant under review, and has published 5 manuscripts already with another 2 in progress.

Philanthropy has been very important in the development of **Schwann cell transplantation strategies** for spinal cord injury repair. Dr. Mary Bunge began investigating the transplantation of Schwann cells when she joined The Miami Project in 1989. Seed funding from donations has contributed to many aspects of her research and has provided results contributing to multiple NIH grants.

Currently, philanthropic funds are enabling her graduate student, Ryan Williams, to make some interesting discoveries. He has made some adult brainstem neurons "young" by inserting a gene for a transcription factor that is normally expressed during development (particularly during growth of axons). As a result, the neurons have been more able to regenerate into a Schwann cell bridge after complete transection and hindlimb joint movements were found to be improved. He has also discovered that delivering Schwann cells to the spinal cord injury site in a liquid mixture, rather than a pre-gelled mixture, leads to a more permissive interface between the implant and the host cord; when more permissive there are fingers of astrocytes that extend into the Schwann cell bridge and there is a correlation between the number of these fingers, the number of regenerated axons, and an improvement in hindlimb joint movements. During the past year, Dr. Paula Monje, one of our junior faculty members, has used support from The Buoniconti Fund to study the cellular and molecular mechanisms controlling the transition of Schwann cells from the mature to the immature state, which leads to myelin loss. This research is relevant to our increased understanding of disorders involving myelin loss, which includes spinal cord injury as well as multiple sclerosis, and the potential of Schwann cells to promote nerve repair after transplantation. She currently has one manuscript and one large NIH grant submitted for review as a direct result of this support. Dr. Pantelis Tsoulfas developed a modified, multi-action nerve growth signaling molecule, which is more powerful than naturally existing single-action molecules. He has used this in collaboration with other Miami Project faculty to test different combinations of therapeutic interventions.

A child born as a result of Dr. Brackett's male fertility research program

Switching to a very different aspect of spinal cord injury, Dr. Nancy Brackett has been leading the highly successful **Male Fertility Research Program**. For most of us, becoming a parent is an important goal in life. We may take this goal for granted, and expect that when the time is right, achieving this goal will be no problem. What happens to this goal if we have a spinal cord injury? Many spinal cord injuries occur to young people who are at the peak of their reproductive lives. The desire for children remains strong in men and women with spinal cord injury. For most women with spinal cord injury, conception is possible without medical intervention. In contrast, most men with spinal cord injury are infertile. The Miami Project Male Fertility Research Program was created in 1990 to understand and improve impairments to male fertility as a result of spinal cord injury. When the program was created, little was known about this topic. It was not known that most men with spinal cord injury have a unique semen profile characterized by normal sperm numbers, but abnormally low sperm motility. It was not known that toxic factors in the seminal plasma contribute to this problem. An algorithm of treatment had not yet been established. Thanks in large part to philanthropy provided to The Miami Project to Cure Paralysis, physicians and scientists in the Male Fertility Research Program have made these discoveries, as well as many more. The Miami Project Male Fertility Research Program is now widely recognized as the world leader in this field and has received grants from the NIH, CHNF, Christopher and Dana Reeve Foundation (CDRF), and the Paralyzed Veterans Association (PVA). Before this program started, men with spinal cord injury were often told: "You will never father children." Now, most men with spinal cord injury can expect not only to father children, but to be provided with a treatment plan optimized for their needs. The work of the Male Fertility Research Program continues to improve the quality of life for countless men with spinal cord injury and their loved ones.

Another very productive line of research has been addressing the **effects of exercise on strength, endurance, and cardiovascular health** in people living with spinal cord injury. Dr. Mark Nash has been a faculty member of The Miami Project since its founding. During early years of The Miami Project, private donations contributed to his development of a circuit resistance training program for the upper extremities of persons with spinal cord injury, which was proven to be safe and effective at improving attributes of fitness and reducing risks for all-cause cardiovascular disease. These initial studies have led to numerous publications and provided data used to support 13 competitively awarded

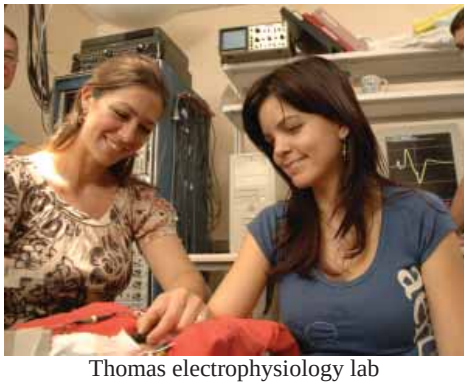
Nash lab members and research subject

grants investigating both early cardio-endocrine disease and the effects of circuit resistance training on many secondary conditions associated with spinal cord injury, including fat metabolism and risk for heart disease, sugar metabolism and risk for diabetes, obesity, and premature aging.

As a direct result of philanthropic funding, Dr. Edelle Field-Fote demonstrated for the first time ever that a specific **hand training therapy program** could induce some recovery of hand function in individuals with chronic cervical spinal cord injury, and that there were changes in the brain that accompanied the improved function. This generated 2 research publications and a large NIH grant award to continue understanding and optimizing this training program

Field-Fote hand function research

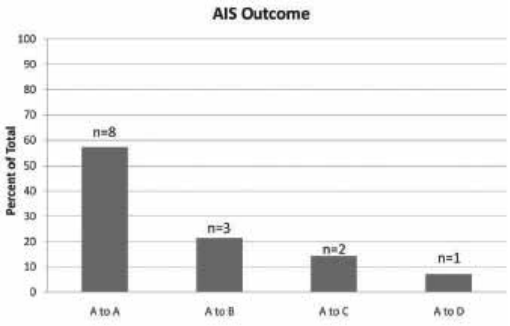
Field-Fote kid's locomotor training camp



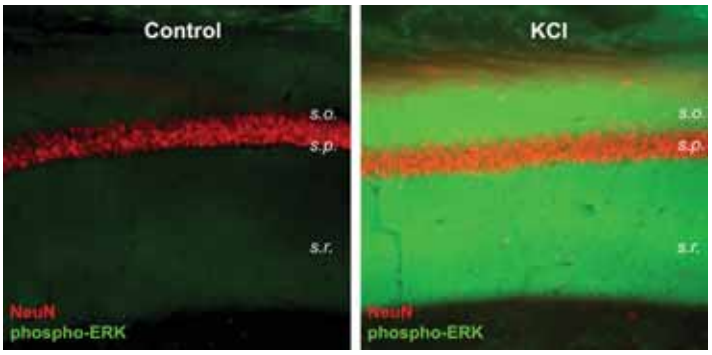
Thomas electrophysiology lab

to translate it to the clinical realm. Two current pilot studies enabled by private donations involve the use of **whole body vibration** to enhance the outcome of locomotor training and the **Children's Locomotor Training Summer Camp**. Dr. Christine Thomas has recently utilized donated funds to develop a system to record 24 hour **muscle activity** in humans with spasticity due to spinal cord injury. This enabled her to compete for and receive a CHNF grant to develop software to automate these analyses which will enable her to ask clinically important questions about involuntary muscle contractions, such as how they are influenced by medication and training.

The **Clinical Trials Unit,** started a couple years ago with donated funds, provides the necessary infrastructure to be able to perform multiple clinical trials in spinal cord injury as well as traumatic brain injury. Drs. Ross Bullock, James Guest, and Allan Levi are all utilizing this infrastructure to conduct clinical trials funded by the NIH, DoD, CDRF, and multiple biopharmaceutical companies. Funding from The Buoniconti Fund has allowed Dr. Dalton Dietrich and colleagues to examine the effects of **therapeutic hypothermia** in preclinical models of spinal cord injury. These exciting findings have now been successfully translated to people with acute spinal cord injury through the Clinical Trials Unit. Ongoing studies in this area are now directed to testing this experimental therapy in a randomized multicenter trial which has been submitted to the NIH for funding. As Scientific

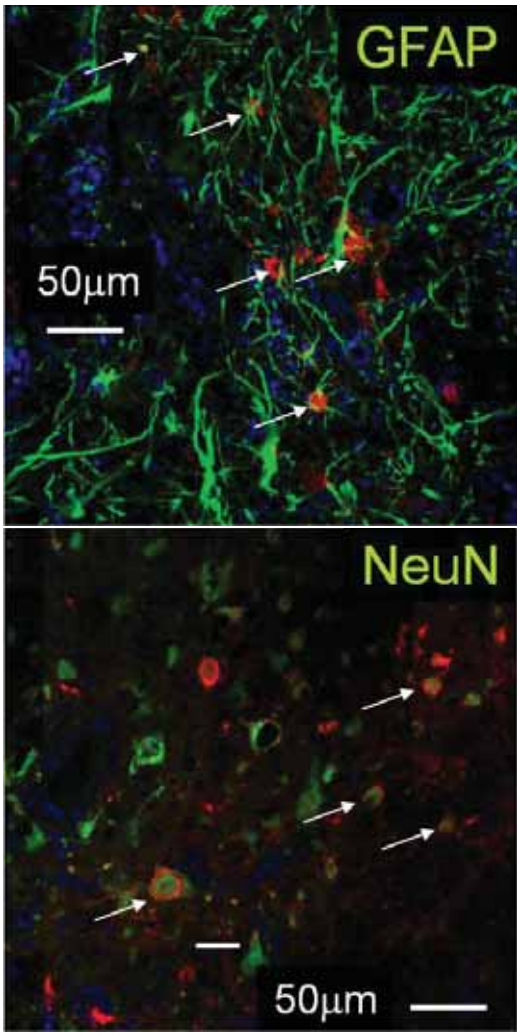


Trend for improvements from therapeutic hypothermia



Atkins lab can measure learning and memory mechanisms

Director, these funds have also allowed Dr. Dietrich to support a variety of new Miami Project research initiatives that have resulted in important discoveries and progress. Fundraising dollars have also supported the recruitment of new scientists to study SCI and the purchase of specialized equipment necessary to conduct cutting edge science. One of our junior investigators, Dr. Coleen Atkins, has used philanthropic funds to generate preliminary data regarding learning and memory deficits associated with traumatic brain injury. She recently received funding approval for a 5-year NIH grant to further identify the molecular mechanisms that underlie memory deficits after brain injury. The overall objective of this research is to design a therapeutic intervention to improve hippocampal-dependent learning and memory deficits at chronic time points following injury. Many humans that sustain spinal cord injury unfortunately also suffer a brain injury, so the results of this research initiative could be applicable to both populations.



Glial cells (top) and nerve cells (bottom) in which the Sagen lab has introduced a peptide that interferes with pain mechanisms

Chronic pain is a frequently debilitating and poorly understood consequence of spinal cord injury. **Neuropathic pain**, in particular, is notoriously difficult to treat, and the complexities of available animal models impede the rapid identification and screening of promising pharmacotherapies and novel interventive strategies. Fundraising dollars have been used in Dr. Jacqueline Sagen's laboratory to develop a strong predictive model in animals, using a clip compression spinal cord injury, to streamline this process and facilitate translation of promising therapies more rapidly to the clinic. This model has jump-started her program for testing novel therapeutic strategies, including combination pharmacologic strategies, cell transplantation, and gene therapy, which are currently being pursued in numerous ongoing projects that have been funded by the NIH, CHNF, and the Ralph Wilson Medical Research Foundation. Similarly, Dr. Eva Widerström-Noga has used donated funds to understand chronic pain in humans with spinal cord injury. This has led to significant research funded by the Veterans Administration (VA) and CHNF to characterize phenotypes (clusters of symptoms and triggers) underlying different types of chronic pain.

As you can gather simply from the few examples discussed here, the generosity of our philanthropists to The Buoniconti Fund over the last 25 years has enabled many discoveries that would have never been made without a funding source. **These discoveries are impacting science, medicine, and people living with injuries.** The ability to generate data to then leverage additional funding is critical to the success of understanding how to develop cures for spinal cord injury. Though one may think science is slow, the phenomenal progress since the development of The Miami Project cannot be denied; and significant thanks are due to our donors for having the vision and kindness of heart to support our mission. It is true, you can make a difference.

A DREAM IS BORN

1985 Co-Founders lead the way in forming The Miami Project to Cure Paralysis.
Don Misner, Barth A. Green, M.D., and Beth Roscoe establish spinal cord injury research laboratories within the University of Miami School of Medicine Department of Neurological Surgery. Roscoe named first Executive Director.

October 1985
Marc Buoniconti sustains spinal cord injury. Nick Buoniconti consults with Dr. Barth Green and learns of fledgling research effort. National attention to Marc's injury galvanizes fundraising efforts.

The Miami Project Mission: Dedicated to finding more effective treatments and, ultimately, a cure for paralysis resulting from spinal cord injury.

1986-1992 (6 years)State of Florida provides $250,000 per year for laboratory equipment acquisition and research programs.

1986 Åke Seiger, M.D., first Scientific Director, begins building a team of basic and clinical research scientists.

1986 First clinical studies at Miami Project focused on lower extremity cycle ergometry, biofeedback, functional electrical stimulation and rehabilitation strategies.

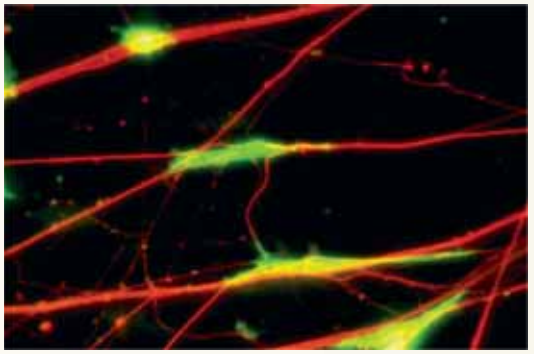
September 1986 The Miami Project occupies 800 sq. ft. on 8th floor of Rosenstiel Medical Science Building.

April 1987 Twenty-three laboratories are dedicated.
Seven principal investigators are housed in 6,000 sq. ft.

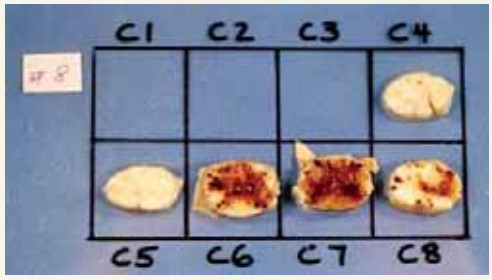
Fall 1986 The Buonicontis sponsor First Great Sports Legend Dinner at Waldorf=Astoria Hotel in New York City.

1988 A four-center study on electrical stimulation benefits published. In 1992, evidence is obtained by Miami Project researchers that electrically-stimulated exercise positively influences cardiopulmonary function and strengthens the immune system in paralyzed persons.

1988 Dr. Seiger returns to Karolinska Institute in Sweden. **Richard P. Bunge, M.D.** is selected as second Scientific Director.



1988-present Methods to isolate human Schwann cells from the adult human nervous system were developed at The Miami Project. Cell biology studies help define factors that influence the function of myelin-forming cells.



1989 The Miami Project initiates and continues to carry out a comprehensive study of the pathology of human spinal cord tissue after injury to better understand the cellular damage caused by SCI, and guide the development of innovative treatment strategies. Findings published in 1993 clarify the pathology of central cord syndrome and change medical textbooks


EXTRA! EXTRA! EXTRA!

The Bantle Center Is Dedicated

September 1989 The Louis and Virginia Bantle Rehabilitation Research Center is dedicated.

1991 University of Miami School of Medicine names The Miami Project a Center of Excellence.
The Miami Project gains international credibility.


The Washington Post

SCIENCE

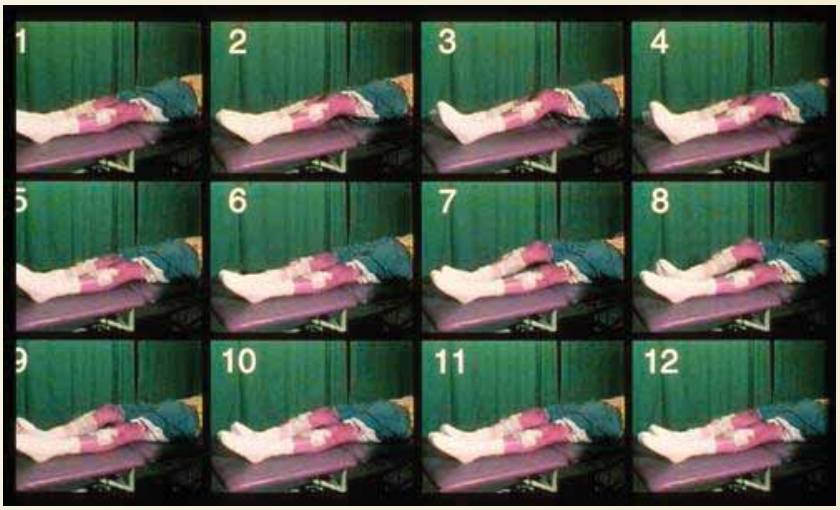
Reconnecting Central Nervous System's Broken Circuits

COAXING DAMAGED NERVES TO REWIRE THE BODY

1991 Miami Project scientists offer first evidence of regeneration in the human nervous system. Adult nerve cells are shown to regenerate if they are provided with a growth environment containing Schwann cells.

1991 National Institutes of Health awards a five year multi-million dollar Program Project Grant to The Miami Project for studies of 'Cellular Responses.'

1992-1999 (7 years) State of Florida provides $500,000 each year through the Brain and Spinal Cord Injury Trust Fund. This seed money helps Miami Project laboratories compete for and successfully obtain NIH funding.



1993 Miami Project researchers reported the first clear evidence for neuronal circuitry in the human spinal cord that generates the rhythmic movements needed for walking. Findings are impetus for rehabilitation studies of body weight support gait training.

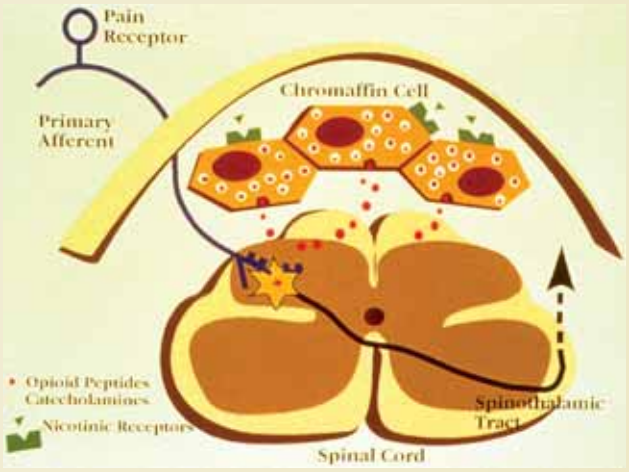
1994 A novel intraoperative monitoring method, conceived and developed at The Miami Project, is named a 'standard of medical care' for pedicle screw placement.


Buoniconti Fund Launches $30 Million Capital Campaign for The Miami Project to Cure Paralysis

Buoniconti Fund

Founding Board

1994 The Miami Project contributes the majority of data in a multi-center study of a Functional Neuromuscular Stimulation Assisted Walking device. The findings lead to the first FDA approval for such a device.



1994 Miami Project researchers use genetic engineering to develop cell lines that secrete selected neurotransmitters and growth factors. The efficacy of cellular therapies, such as chromaffin cell transplants to alleviate chronic pain, are tested.

October 26, 1995 On the tenth anniversary of Marc Buoniconti's injury, The Miami Project breaks ground for its new research facility.

1995 Developed and initiated testing of Schwann cell bridges in experimental spinal cord transections.

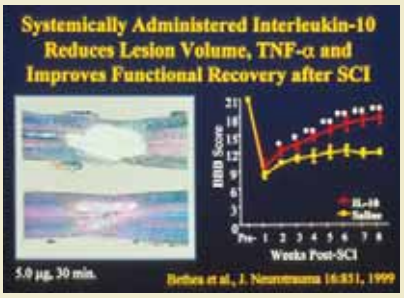
1995 The Kinetic Concepts, Inc. Distinguished Chair in Neurosurgery is established for The Miami Project Scientific Director.

1996 Lois Pope donates $10 million, the largest private gift made to the University, for spinal cord injury and neuroscience research.

September 10, 1996 Scientific Director, Richard P. Bunge passes away following long illness.

November 1996 Richard and Mary Bunge receive Wakeman Award that recognizes outstanding scientists for research findings that will lead to a better understanding of recovery from spinal cord injury.

1996-present Researchers strive to understand if novel therapies such as body weight support gait training can influence rewiring of the nervous system and whether these interventions retrain the spinal cord to coordinate walking.

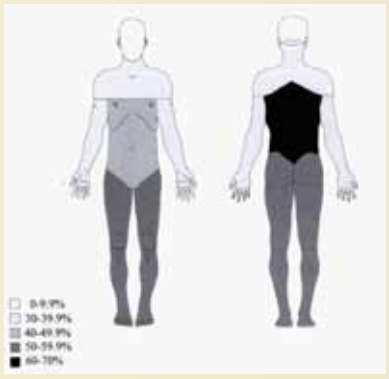


1997 Studies to develop new strategies for protecting the spinal cord after injury are initiated.

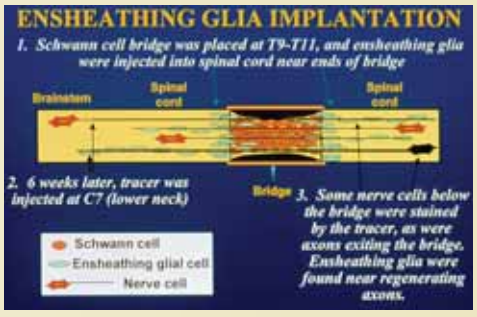
1999 Findings demonstrate beneficial effects of Interleukin-10. Preclinical studies of hypothermia also encouraging.

1997 State of Florida pledges $10 million toward capital campaign to build a new research facility.

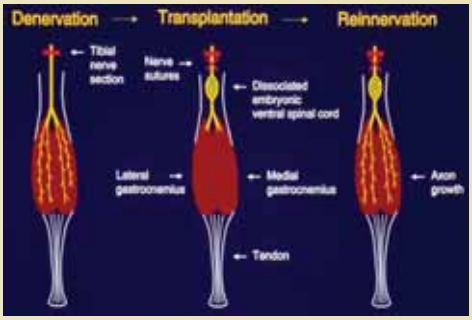
June 1997 W. Dalton Dietrich, Ph.D. accepts the position as the third Scientific Director.



1997 The Miami Project embarks on a research initiative related to pain following spinal cord injury. Effort encompasses both basic and clinical science.



1998 The Miami Project tests Schwann cell bridges in combination with other growth promoting strategies to stimulate spinal cord regeneration.

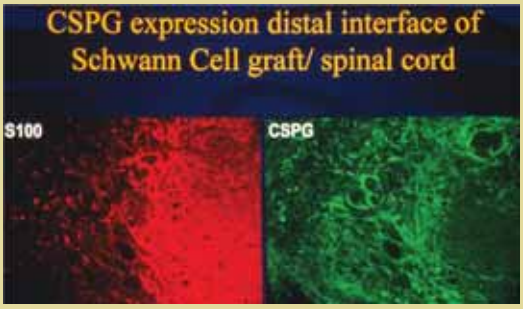


2000 Novel motor neuron transplant strategy to salvage completely denervated muscles tested.

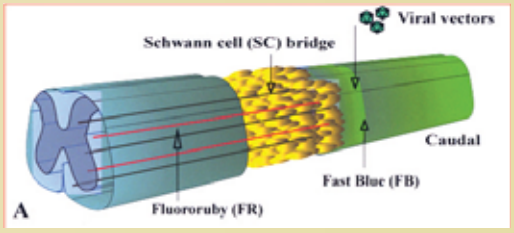
2000 Scientific Director, W. Dalton Dietrich proposes Five Steps To A Cure.
I. Patient selection and pretraining
II. Surgical interventions and neuroprotection
III. Transplantation/regeneration
IV. Overcoming barriers for regeneration
V. Rehabilitation

October 26, 2000
Lois Pope LIFE Center officially opened.
118,000 sq. ft. research facility. Houses multi-disciplinary neuroscience research team. Maintains Core facilities for Image Analysis, Electron Microscopy, Histology, Experimental Surgery, Behavioral Testing, and Clinical Trials.

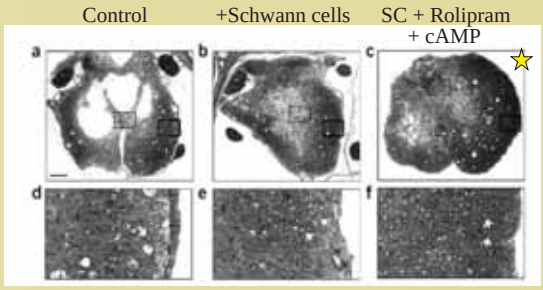
2001-2003 (2 years)
State of Florida apportions $1.4 million per year to support basic and clinical science research at The Miami Project.

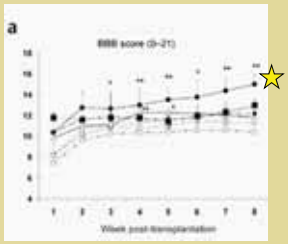


2001 Miami Project researchers examine the inhibitory environment that may prevent regeneration.



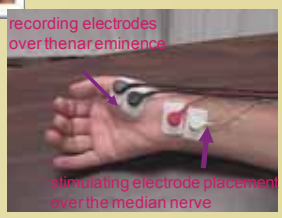
2002 Miami Project researchers use gene vectors to promote cellular secretion of growth promoting factors in combination with Schwann cell bridges. Viral vectors are also tested as a method to deliver analgesic agents in experimental models of pain.

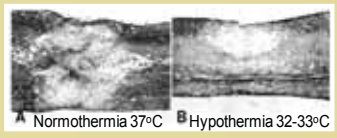


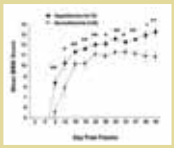


2004 Miami Project researchers discover a triple treatment combination therapy involving Schwann cells, Rolipram, and cAMP that promotes neuroprotection, axonal growth, and improved locomotion. This triggers the Clinical Trials Initiative to begin pre-clinical safety studies for a future clinical trial in humans.

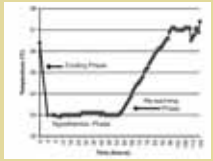
2005 Miami Project clinical researchers demonstrate for the first time that a specific motor training and sensory stimulation protocol improves hand function and cortical representation of upper extremity function after chronic SCI.



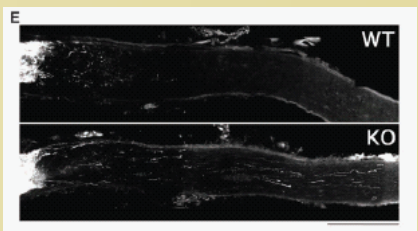




2007 Injured NFL player receives therapeutic hypothermia because team surgeon heard of Miami Project research. Stimulates Miami Project neurosurgeons to conduct a phase I clinical trial evaluating safety of therapeutic hypothermia in a cohort of 14 people with acute SCI. Trial is successful and generates peliminary data for planned multicenter study.



2009 Automated microscopy allows Miami Project scientists to screen thousands of genes to measure their effects on nerve growth and regeneration.



2010 Miami Project team holds successful pre-IND meeting with the FDA regarding future phase I clincal trial of Schwann cell transplantation in humans with sub-acute SCI. Pivotal animal safety studies addressing toxicity, biodistribution, and tumorigenicity are underway.

University of Miami Miller School of Medicine Leadership Helps Us Forge a Path Toward Clinical Trials

At some point in the development and growth of any scientific endeavor, there comes a time when all the hard work begins to bear fruit and, throughout the twenty five year history of The Miami Project, there has already been plenty of fruit borne in the form of scientific breakthroughs and first discoveries. Dr. Barth Green on many occasions has been heard proudly mentioning the satisfaction he feels being part of a team that is changing the way people are treated in the acute and chronic spinal cord injury setting, thus "rewriting" the medical textbooks. The Miami Project now finds itself at the threshold of another great milestone that has been in the works for the past quarter century, a Food and Drug Administration (FDA) approved clinical trial involving human Schwann cell transplantation. The Miami Project, being a Center of Excellence at the University of Miami Miller School of Medicine, thankfully does not have to navigate the maze that is the regulatory process alone. With the complexities and details involved in cutting edge clinical breakthroughs, the University had the foresight a number of years ago to create a dedicated department and allocate experts across disciplines to assist investigators in taking discoveries to industry partners and the clinic. The result today is called UM Innovation. One of the main goals of UM Innovation is to nurture and integrate the University's vibrant and comprehensive research initiatives and help move treatments from basic science to the clinical setting.

Senior Vice President for Medical Affairs and Dean of the Miller School of Medicine, Dr. Pascal Goldschmidt has been behind The Miami Project's research since he set foot on campus. As our aspirations to initiate FDA approved clinical trials became a reality, he asked Dr. Bart Chernow, Director of UM Innovation and Vice Provost of Technology Advancement, to be a part of the advisory committee and working group to bring his expertise to the process. Their wealth of knowledge has been instrumental in keeping the process moving forward and helping us avoid the pitfalls that can add time and money to an endeavor that is as important as any we've undertaken in our history.

"The most important thing we do in medicine is make discoveries in our laboratories that can then be translated into treatments for patients," said Pascal J. Goldschmidt, M.D.,. "The work of our Miami Project investigators holds incredible promise for patients all over the world."

"The most important thing we do in medicine is make discoveries in our laboratories that can then be translated into treatments for patients."

Dr. Bart Chernow, Dean Pascal Goldschmidt and University of Miami President Donna Shalala

In explaining his role in the process, Dr. Chernow said, "Schwann cells are something that has been studied for some time at The Miami Project and I think that I've helped to accelerate the process, but the most important people in the process are the scientists like Dr. Bunge and Dr. Pearse and others on the team. I think The Miami Project to Cure Paralysis and the Lois Pope LIFE Center are shining stars at the University of Miami, without question. It is our responsibility as a faculty and administrative leadership to advance the technologies discovered at The Miami Project and hopefully bring them to a point that we can evaluate them in human beings and hopefully, underline hopefully, have a product that is safe and efficacious to help others."

Said Dr. Dietrich, "The support of Drs. Goldschmidt and Chernow has been tremendous and very much appreciated. Dr. Goldschmidt early on emphasized that both he and the University of Miami were here to provide the resources and support to help move our program 'across the finish line'. Dr. Chernow has taken time out of his busy schedule over several months to attend our weekly human Schwann cell trial meetings and has contributed to its progress and success. We are very fortunate to have a university administration that is engaged with and committed to our mission of providing new treatments to people living with paralysis. "

It is with this support and these tools from the University that we continue to move forward to gain FDA approval for the Schwann cell transplantation trial that we feel will lay the translational foundation for our future trials involving combinatorial strategies.

Faculty notes

For Federal Fiscal Year 2009, the Department of Neurological Surgery at the University of Miami Miller School of Medicine was ranked #3 in the nation based on NIH Funding.

Damien D. Pearse, Ph.D., Mary Bartlett Bunge, Ph.D., and **James D. Guest, M.D., Ph.D.** received a $2.1 million dollar grant from the U.S. Department of Defense to study Schwann cell implantation for SCI repair: optimization of dosing, long-term cell persistence and the evaluation of toxicity and tumorigenicity.

W. Dalton Dietrich, Ph.D. recently spoke at the 5th Pannonian Symposium on Central Nervous System Injury held in Pécs, Hungary. His lecture was entitled *Therapeutic Hypothermia in Models of Brain and Spinal Cord Injury*.

Coleen Atkins, Ph.D. is Secretary/Treasurer-Elect of the National Neurotrauma Society, received the Stanley J. Glaser Research Award for her proposal titled *Rehabilitation Strategies for Cognitive Disabilities after Traumatic Brain Injury*. She also received a 7th percentile ranking on her first submission of a RO1 application. The overall objective of her proposal is to understand the molecular mechanisms that contribute to hippocampal-dependent LTP deficits and learning impairments in the weeks to months after traumatic brain injury.

John Bethea, Ph.D. was promoted to full Professor.

Helen M. Bramlett, Ph.D. is Vice President-elect of the National Neurotrauma Society and spoke at the 5th Pannonian Symposium on Central Nervous System Injury held in Pécs, Hungary. She spoke on *Posttraumatic Epilepsy Following Experimental Traumatic Brain Injury: Mechanisms and Treatment*.

M. Ross Bullock, M.D., Ph.D., is President-Elect of the National Neurotrauma Society and will organize the 2011 National Meeting to be held in south Florida.

James D. Guest, M.D., Ph.D., along with **Kim Anderson-Erisman, Ph.D**. Director of Education, authored *Hopes and Illusions*, for a special issue on the ethics of stem cell tourism in the *American Journal of Bioethics*. Dr. Guest also published *Grading System to Objectively Evaluate the Strength of Preclinical Data of Acute Neuroprotective Therapies for Clinical Translation in Spinal Cord Injury* in the *Journal of Neurotrauma*. Finally, he was an invited speaker, Global Stem Cell Blueprint Conference in Toronto and presented *Clinical Spinal Cord Injury Researcher Perspective: Challenges In Translating Basic Science Discoveries Into Spinal Cord Injury Clinical Trials* and was Moderator, Government-Regulator Perspective: Regulation of Stem Cells.

Mark S. Nash, Ph.D. has been awarded a $1.9 million dollar grant from the U.S. Department of Defense to conduct a trial of diabetes prevention in persons with chronic SCI. The grant was part of the Congressionally Directed Medical Research Program, and will be conducted with research partners at the Shepherd Center (Atlanta) and Veterans Affairs Medical Centers in Miami and Atlanta. Dr. Nash also presented a paper entitled *Niaspan Monotherapy for Treating Dyslipidemia in Persons with SCI* which was named the outstanding oral presentation at the 2010 Annual Meeting of the American Spinal Injury Association. These results have recently been accepted for publication in the *Archives of Physical Medicine and Rehabilitation*. With his research colleague, **Rachel Cowan, Ph.D**., Dr. Nash also published *Cardiovascular disease, SCI and exercise: unique risks and focused countermeasures in Disability and Rehabilitation*.

Both **Dr. Roberta Brambilla** and **Jessica Ashbaugh**, an Immunology graduate student, from **Dr. John Bethea's** lab, received travel awards to attend the International Society of Neuroimmunology meeting in Barcelona, Spain in October, 2010. Jessica will be discussing her studies with IL7Ra and EAE and Roberta will discuss her TNF work. This is especially impressive because these awards are very difficult to obtain and to get two from the same lab is an almost unheard of accomplishment.

Matthew Saccino, an undergraduate student in **Drs. Bixby** and **Lemmon's** lab, was one of only twenty undergraduate students in the entire country recognized as a member of the All-USA College Academic First Team in USA Today. Matthew also recently received Honorable Mention from the Barry M. Goldwater Scholarship and Excellence in Education Program, which is a premier undergraduate award designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering.

Michelle Theus, a post-doctoral fellow from **Dr. Dan Liebl's** lab, won the honor of being bestowed the best "Woman in Neurotrauma Research" award at this year's Neurotrauma Society Meeting for her work on Eph receptors in adult neurogenesis following traumatic brain injury.

The Miami Project to Cure Paralysis and The Buoniconti Fund are honored to salute our dear friend and benefactor, Christine E. Lynn

For years, the name of Christine E. Lynn has been synonymous with outstanding generosity and humanity in the world of philanthropy. Christine has dedicated her entire life to improving the health, education, and welfare of the people of south Florida and around the world. In addition to her exceptional background in healthcare as a nurse, Christine Lynn has shown outstanding business acumen in her senior administration positions over the years at the Lynn Insurance Group. Her husband gave her the reins of the company because he knew she was so astute, faithful and honest, and would do the best to follow in his principles and footsteps in guiding the company. She serves as Chairman of the Board of the Lynn Insurance Group.

Christine Lynn has always cared for people. When she married her husband, insurance magnate and philanthropist Eugene M. Lynn, who died in 1999, he was chairman of the Board of the Boca Raton Community Hospital—so it was a perfect fit, and she just continued in his philanthropy in the healthcare areas in which he was involved. Mrs. Lynn has been and remains an active chairperson and volunteer for many charitable organizations and events. Her good works are legendary and reflect her belief in and passion for nursing, as she understands the importance of quality healthcare. She has committed her energy and resources to enhancing the health, education, and well-being of the entire south Florida region. Though she shuns the limelight, Christine Lynn is leaving a legacy that will benefit humanity for decades and decades to come.

Christine Lynn has been an exceptional and long-time major supporter of The Miami Project to Cure Paralysis. In 1999, Christine and her late husband Eugene granted funding to build the lobby at the Lois Pope LIFE Center, which houses The Miami Project. Then in January 2003, Mrs. Lynn, endowed The Christine E. Lynn Distinguished Chair in honor of Dr. Barth A. Green, Co-Founder and Chairman of The Miami Project with a $2.5 million gift. The income generated from this gift has funded spinal cord regeneration research in Dr. Mary Bartlett Bunge's

Christine Lynn with Miami Project and University dignitaries at a press conference announcing a gift

Marc and Mrs. Lynn on the red carpet in New York City

Drs. Goldschmidt and Green with Mrs. Lynn and John Gallo

laboratory and has had a profound impact and significantly advanced progress in regeneration research at The Miami Project. Christine also gave an additional two million dollars to start the Human Clinical Trials Initiative, thus giving way to the most cutting-edge research project in The Miami Project's history.

In January 2003, Mrs. Lynn established the Christine E. Lynn Distinguished Chair in Orthopaedic Trauma at the University of Miami School of Medicine in honor of Dr. Gregory Zych, through a $2.5 million gift to the Miami Center For Orthopaedic Research and Education (CORE).

In 2008, Christine was awarded The Buoniconti Fund Award at the 23rd Annual Great Sports Legends Dinner. In 2004, she was honored as a "Woman of Substance and Style" at The Buoniconti Fund's Destination Fashion event at Bal Harbour Shops for her outstanding generosity to so many worthy causes. In 2003, The Women's Guild of The Miami Project presented Christine E. Lynn with The Ann Bishop Spirit of Excellence Award at a luncheon to honor her contributions promoting independence, volunteerism, and benevolence towards others. In 2000, the University of Miami inducted Christine E. Lynn into the IBIS Society and in 2002, Christine Lynn was given permanent recognition by The University of Miami when she was elected to membership in the George E. Merrick Society. Then, in 2005, Mrs. Lynn was inducted into the Gables Society of the University of Miami, which recognizes those who have contributed $5 million and above to the University.

A native of Norway, but born in Denmark, Christine Lynn was trained as a Registered and Surgical Nurse in Oslo, Norway, starting her on a path to promote excellence in medical research and care. A long-time resident of Boca Raton, in December 2008, the *Boca Raton Magazine* referred to Christine Lynn as its "Hometown Hero" for her outstanding generosity and love for her Community. The Lynn name appears on buildings as well as entire institutions. Lynn University which was formerly The College of Boca Raton was renamed Lynn University in 1991 in recognition of the Lynns' long years of support. She currently serves as Chairman of the Lynn University Board of Trustees.

Because of her strong background in nursing, The Christine E. Lynn College of Nursing was established at Florida Atlantic University. The Christine E. Lynn Center for Caring and The E.M. Lynn Foundation Congenital Heart Disease Research Program are both also based at Florida Atlantic University. Other institutions in the area include The Lynn Regional Cancer Center and The Christine E. Lynn Cardiac Institute, both at the Boca Raton Community Hospital, where Mrs. Lynn serves as Vice Chairman of the Board of Trustees. In 2008, a new state-of-the-art, 98,000 square foot facility was erected -- the Eugene and Christine E. Lynn Cancer Institute. In addition, Mrs. Lynn has been a major donor to Stetson University in DeLand, Florida, Hospice By The Sea, the Center for Group Counseling, YMCA, the Florence Fuller Child Development Center, The ARC, and The Junior League.

In addition to being honored by The Miami Project to Cure Paralysis and The Buoniconti Fund, as well as The University of Miami, Christine Lynn is the recipient of numerous honors and awards. She has received Honorary Degrees from Lynn University, Florida Atlantic University, Saint Anselm College in Manchester, New Hampshire, and Stetson University. Mrs. Lynn has also been honored by the City of Boca Raton, Rotary International, the *Sun-Sentinel*, and the American College Dublin, among many others.

24th Annual Great Sports Legends Dinner

2009 Great Sports Legends and Honorees

NFL Hall of Famer **Nick Buoniconti** and his son **Marc** again welcomed a full house of 1,300 guests at the **24th Annual Great Sports Legends Dinner** chaired by **Mark Dalton** at New York City's famed Waldorf=Astoria, all to benefit The Buoniconti Fund to Cure Paralysis, the fundraising arm of The Miami Project to Cure Paralysis which is housed in the Lois Pope LIFE Center at the University of Miami Miller School of Medicine. The Buonicontis and The Buoniconti Fund Board of Directors were joined by an amazing array of sports legends, philanthropic heroes and business leaders who were all gathered to support paralysis research. The 2009 Great Sports Legend honorees, who pledged their support to find a cure for paralysis, were **Troy Aikman, Clyde Drexler, Mike Piazza, Ivan Lendl, Rusty Wallace, Brett Hull, Dara Torres, Pat Day** and **Chris Waddell.** Apollo 11 Astronaut **Buzz Aldrin** made a special appearance and saluted the sold out crowd which brought the house down. Sports broadcaster **Bob Costas** returned as Master of Ceremonies and engaged everyone with his wit and up to the moment baseball scores.

Over the course of the past twenty-four years, the Great Sports Legends Dinner has honored 273 of the world's greatest athletes and individuals.

Humanitarian Award recipient, Maya Angelou

Master of Ceremonies, Bob Costas

Marc Buoniconti personally honored **Stewart Rahr**, President and CEO of Kinray with the *2009 Outstanding Philanthropist Award*; **Adrienne Arsht,** Chairman Emerita of TotalBank, who received The *Buoniconti Fund Award*; **Jack Schneider,** Managing Director, Allen & Company, Chairman of The Buoniconti Fund to Cure Paralysis**,** who received *The Barth A. Green, M.D. Spirit Award;* and Writer, African-American activist and educator, **Dr**. **Maya Angelou,** who received The *Buoniconti Fund Humanitarian Award*.

Over the course of the past twenty-four years, the Great Sports Legends Dinner has honored 273 of the world's greatest athletes and individuals. They are recognized for their contributions to sports, commitment to high ethical standards, dedication to their community, worthy causes and achievements as positive role models. The Dinner is one of the premiere charity events in the country and all proceeds go to research in paralysis resulting from spinal cord injury. Special thank you awards were given to Continental Airlines, Diageo, HBO Sports, Edie Laquer, Phil Knight of Nike, Tiffany & Co. and Vehicle Production Group's MV1.

Troy Aikman with Marc and Nick Buoniconti

Dara Torres, Marc Buoniconti and Mike Piazza

Marc Buoniconti and Brett Hull

Edie Laquer and Marc Buoniconti

Marc Buoniconti and Buzz Aldrin

Mike Piazza

John Starks and Herb Williams

Sergio Gonzales, Adrienne Arsht and Paul DiMare

Jack Schneider with Terry Buoniconti

Mike Eruzione, Jack Schneider, Dick Anderson and Ivan Lendl

Henry Mull, Marc Buoniconti and Herman Jacobs

Waldorf=Astoria Ballroom

John Gallo, Christine Lynn, Clyde Drexler, Jack Schneider, Mark Dalton and Dr. Barth Green

Fred Drasner with Marc Buoniconti

Ivan Lendl with Marc and Nick Buoniconti

University of Miami President Donna Shalala, University of Miami Miller School of Medicine Dean Pascal Goldschmidt

8th Annual Buoniconti Fund Celebrity Golf Invitational At The Bear's Club with Jack Nicklaus

Nick and Marc Buoniconti, Jack Nicklaus and Mark Dalton

Ozzie Smith, Rick Barry, Mike Eruzione and Dick Anderson

Coach Don Shula

Mike Schmidt

KC Jones

Golf Legend Jack Nicklaus along with Nick and Marc Buoniconti hosted the 8th Annual Buoniconti Fund Celebrity Golf Invitational presented by the Tudor Group to benefit The Buoniconti Fund to Cure Paralysis, at Nicklaus' private course, The Bear's Club in Jupiter, Florida.

The star-studded two-day extravaganza featured sports legends including Don Shula, KC Jones, John Vanbiesbrouck, Jeff Conine, Ozzie Smith, Rick Barry, Mike Eruzione, Scott Erickson, Dick Anderson, Harry Carson, Gerry Cooney, Brian Kelley, Nat Moore, Earl Morrall, Mark Rypien and Mike Schmidt, all turned out to help raise funds for paralysis research.

The weekend kicked off with the Celebrity Golf Ball Dinner featuring an auction with items such as a Michael Jordan Autographed Basketball, a Royal Caribbean European Cruise and a Justin Bieber Autographed CD Collage. Partygoers mixed and mingled before heading upstairs in Nickalus' private clubhouse for a sumptuous dinner. Celebrities and golfers teed off with a chance to win prizes including airline tickets courtesy of Continental Airlines for the longest drive and closest to the pin and a Hole In One prize of VPG's new vehicle the MV-1. The spectacular weekend concluded with a fabulous lunch and award presentation at The Bear's Club.

Women's Guild of The Miami Project to Cure Paralysis

This year is proving to be a great one for the Women's Guild of The Miami Project to Cure Paralysis! Membership Renewal letters were sent out during the summer and the response was fantastic with the majority of members renewing their commitment to our cause.

The Guild is thrilled to announce that, following the first sensational event in 2008, the return of the Beaujolais Nouveau Release Party is in the works for 2010! The date has been set for Friday, November 19th. Formal invites will be sent.

The Women's Guild continues to promote and cultivate The Tree of Hope, a glowing sculpture of memory and honor that recognizes the generosity of donors to an annual giving campaign that will raise more than $300,000 for research. The Guild recently held a successful gold leaf sale on the Tree, selling the gold leaves for a discounted price during the summer for the months of June, July and August. For more information on the Women's Guild or the Tree of Hope, please call 305-243-9374.

Upcoming Events

September 21, 2010
2nd Annual Race for the Pennant
Benefits the Philadelphia Chapter of The Buoniconti Fund
Citizens Bank Park
Philadelphia, Pennsylvania

September 27, 2010
25th Annual Great Sports Legends Dinner presented by Stewart Rahr
Benefits The Buoniconti Fund
Waldorf=Astoria
New York, New York

October 17, 2010
Detroit Free Press Marathon - Run for a Reason
Benefits the Southeast Michigan Chapter of The Buoniconti Fund
Detroit, Michigan

October 25, 2010
9th Annual Golf Tournament presented by Saint Thomas Neurosciences Institute
Benefits the Nashville Chapter of The Buoniconti Fund
Hillwood Country Club
Nashville, Tennessee

November 6, 2010
Reverse Raffle Dinner
Benefits the Cleveland Chapter of The Buoniconti Fund
Cleveland, Ohio

November 12, 2010
7th Annual Raise A Glass For A Cure
Benefits the Philadelphia Chapter of The Buoniconti Fund
Simeone Foundation Museum
Philadelphia, Pennsylvania

November 13, 2010
3rd Annual Tampa Golf Classic
Benefits the Tampa Chapter of The Buoniconti Fund
Westchase Golf Club
Tampa, Florida

December 2, 2010
12th Annual Indulgence Night
Benefits the Chicago Chapter of The Buoniconti Fund
Gibson's Steakhouse
Chicago, Illinois

Spring 2011
Bal Harbour Shops Extravaganza Event
Bal Harbour Shops
Bal Harbour, Florida

May 1st and 2nd, 2011
9th Annual Buoniconti Fund Celebrity Golf Invitational
The Bear's Club
Jupiter, Florida

Let us know if your city could benefit from a Volunteer Chapter which develops fundraising events and awareness campaigns to help us reach our goal of finding a cure for paralysis. There's no better time ~ you can help! Send an email to bfchapters@med.miami.edu or contact Kristin Wherry, Director of National Chapters, at (305) 243-3863. The Chapters are located in 15 cities around the country; help us create a Chapter in your community.

The second annual "*Evening of the Enchanted Sea*" was hosted by the Charleston Chapter on May 14 at Wild Dunes Resort, SC. The event raised more than $20,000 and featured low country-inspired cuisine, specialty cocktails by Firefly Vodka, live music by Permanent Vacation, and shag dance contest with celebrity judges including local news WCBD's Chief Meteorologist Rob Fowler. Denise Mills was the Event Host and is Volunteer Director of the Charleston Chapter.

Denise Mills, Event Host, and Rob Fowler, WCBD's Chief Meteorologist at "Evening of the Enchanted Sea"

On November 13, the Philadelphia Chapter partnered with Magee Rehabilitation Hospital to host more than 300 guests at Simeone Automotive Museum. The sixth annual "*Raise A Glass For A Cure*" raised more than $100,000 to support spinal cord injury research. The event was led by Volunteer Regional Directors Dan and Caren Jones, along with a dedicated committee. Senator Christine Tartaglione was the event's special honoree. The Senator is spinal cord injured and highly recognized for her work in the state of Pennsylvania and humanitarian efforts to support The Miami Project to Cure Paralysis. The seventh annual "*Raise A Glass*" event is scheduled for November 12, 2010.

Senator Christine Tartaglione and "Raise A Glass" event guests

The Palm Beach-Broward Chapter hosted an event with USI Southeast on November 19 at La Playa in Fort Lauderdale. Guests experienced an "*Evening to benefit The Miami Project*" with a beautiful Intracoastal Waterway view, great appetizers and cocktails.

Please visit www.thebuonicontifund.com Events Calendar for the latest events and news in your area.

October 17 ~ Southeast Michigan's "Run for a Reason in the Detroit Marathon"
October 25 ~ Nashville Chapter's "9th Annual Golf Tournament" presented by Saint Thomas Health Systems at Hillwood Country Club
November 6 ~ Cleveland Chapter's "Reverse Raffle" Dinner
November 12 ~ Philadelphia Chapter's "7th Annual Raise A Glass" at Simeone Automotive Museum
November 13 ~ Tampa Chapter's 3rd Annual "Golf Classic hosted by Rick Hart" at Westchase Golf Club
December 2 ~ Chicago Chapter's 12th Annual "Indulgence Night" at Gibson's Steakhouse

"Chapters Summit 2010"

The Buoniconti Fund hosted its sixth "*Chapters Summit 2010*" on July 22-25, 2010. More than 50 volunteers from around the country, representing 12 Chapters, came to Miami to exchange ideas, promote volunteerism, learn new and innovative fundraising skills, and increase awareness of spinal cord injury research. The weekend conference featured educational workshops, a Research Update, tours of The Miami Project, and social and appreciation events.

Attendees heard the latest scientific achievements and progress directly from The Miami Project's Scientific Director, Dalton Dietrich, and an esteemed panel of researchers and scientists. The Research Update was also host to the south Florida spinal cord injury community and was offered live online.

The Miami Chapter hosted their annual Summer Happy Hour at Nikki Beach on Friday, July 23 welcoming the Summit volunteer attendees and the local community.

The Summit was graciously supported by presenting sponsor, Hollister Incorporated, and VPG, DMR, Permobil, Gro-eeze, Sunset Mobility, Ability Medical Supply, Loews Miami Beach, Smith & Wollensky Miami Beach, Shorty's Bar-B-Q, Coca-Cola, Smart Water, Barefoot Wines and Gallo Winery, Zuni Transportation and Dolphin Limousine and The Miami Project.

NYC Goes "All in 4 Life"

The Fifth Annual Poker4Life.org Charity Poker Tournament took place in New York City at the Manhattan Automobile Company on April 29th to support The Buoniconti Fund to Cure Paralysis. Two hundred and seventy poker players from the tri-state area came out to play the $250 buy-in event with re-buys and add-ons and along with guests who partook in silent auctions, helped Poker4Life raise close to $800,000 through its five year history. Madison Square Garden's icons of WWE Hall of Famer Jimmy "Superfly" Snuka, NY Rangers legend Ron Duguay, and NY Knicks All-Star David Lee who was a bounty, all took part in the event and interacted with fans in an electric atmosphere. "I'm a huge fan of poker," Lee said. "It's great to be able to play for something positive." All proceeds are going to The Buoniconti Fund as the players were vying for captivating final table prizes. The winner of the tournament was Hunter Gray who received a seat in the WSOP Main Event along with personal lessons with UB Pro and 2010 National Heads-Up Poker Champion Annie Duke. Players who finished second to tenth didn't have their run to the final table go unrecognized as they received prizes ranging from having a fighter pilot experience to getaways across the country.

Ethan Ruby and Jeremy Schwartz founded Poker4Life and organized this annual tournament in 2005 with a mindset to use poker as a tool to unite and to contribute to the good of charitable giving. Backtrack to the year 2000, Ruby was hit by a car and his injury of a T6 fracture of the spine caused confinement to a wheelchair. Even so, Ruby thrives as both a poker player and an entrepreneur. Invited to the 2008 WPT Invitational, Ruby finished second to Van Nguyen and banked a payday of $50,000. Now five years later since the birth of Poker4Life, Ruby and Schwartz are amazed with the progress of Poker4Life, the money it has raised and the players coming out to support this cause. "Poker4Life was established after we realized the power poker has to make a difference, we know what works and the support that we have gotten has been amazing," said Ruby. Poker4Life's motto is "The Positive Power of Poker" and it is evident that society and life can be made better through this game that we love and positive energy.

Poker4Life has chosen The Buoniconti Fund to Cure Paralysis as their charity of choice. The The Miami Project research they support represents the world's most cutting edge and they have an established ground-breaking approach to finding a cure for paralysis caused by spinal cord injury. With the vision to see people being able to walk again, The Buoniconti Fund maintains an unparalleled 86 cents of every dollar donated to be directly funded towards research to overcome this ordeal.

Filled with cars, models and intense play, the stage for this event was fitting for NYC. Poker4Life has grown since it inception in 2005 and with continued support from philanthropists, there is hope to expand and have more tournaments for charitable causes throughout the year. Undoubtedly, this is a harbinger for us to unite for causes we want to fight for but by the same token this is also a step in the right direction for poker and poker players in NYC itself. Even on a night with bad beats and coolers, everyone came out on top. Everyone was a winner. As poker goes, so goes life.

"It's great to be able to play for something positive."

Sabina Gadecki, David Lee, Ron Dugray, Ethan Ruby and Jeremy Schwartz

Ethan Ruby with Dee Dozier, Jamie Kreindler, Hunter Gray (back row) and Jeremy Schwartz.

We all seek financial security for ourselves and our families and we all wish to make the world a better place. There is a way to accomplish both – either through a bequest or a planned gift.

Margaret Ripley passed away a few years ago and made a five hundred thousand dollar bequest to The Miami Project for stem cell research. "Through the bequest, my mother was able to make a significantly larger donation to The Miami Project then she otherwise could have. The bequest allowed her to take care of her family while she was alive, while at the same time knowing that she left a legacy that will last forever through medical science," said St. Clair Ripley. "My mom wanted to make sure my brother Timothy, who is paralyzed, and the millions like him could one-day benefit from stem cell research and find a cure for paralysis."

There are many reasons for the popularity of charitable bequests. The opportunity to memorialize one's personal life values, the satisfaction of perpetuating an important cause for future generations, the increased financial ability we now have to make generous bequests. Through a bequest, a family can make a significant donation that doesn't affect their current financial situation but will leave a lasting legacy. If you would like to include The Miami Project in your estate plans, please use the following sentence: *I bequeath the sum of _____ dollars to the University of Miami, a charitable organization located in Coral Gables, Florida to be used only by The Miami Project to Cure Paralysis.*

Another type of investment many individuals make is a planned gift. Planned gifts can pay you, or someone you care about, income for a specified time. Such gifts may postpone, reduce or even eliminate capital gains, gift, estate, transfer, and income taxes. They can assist you in preparing for a child's education, transferring funds to grandchildren, planning for retirement, or memorializing family or friends. Planned giving presents the opportunity to transform your resources into your goals for the future. Your planned gift is an investment in the importance of The Miami Project. If you would like to learn more about the various ways in which you can establish a bequest or planned gift, please contact Randy Medenwald at 305.243.7147.

The United States Army - The Miami Project

OUR WOUNDED WARRIORS

Together – we are working side by side with our soldiers and the Army to provide the best possible care to our wounded warriors.

Nearly 64% of all the injured troops from Iraq and Afghanistan have suffered a form of brain injury and an estimated 100,000 veterans are suffering from a spinal cord injury/disorder. The Miami Project and the Department of Defense are committed to rapidly developing new treatments and standards of care to our wounded soldiers. We are transforming how medical care, research and private-public partnerships can meet the physical, mental and emotional needs of our soldiers and veterans

President Shalala and Dean Goldschmidt with Mark McKenney, Director of Ryder Trauma Center and Major Dereck Robinson

The Miami Project is situated to provide some of the best research in the world for traumatic brain and spinal cord injured soldiers. The Miami Project's relationships with the University of Miami Miller School of Medicine, Miami VA, Jackson Memorial Hospital and Ryder Trauma Center, all within a one block radius of one another, allows returning soldiers some of the best care and rehabilitation in the world. This is a unique relationship that few centers in the world can offer.

The Ryder Trauma Center is involved in training military personnel and doctors who are the first responders to injuries in the field. ***The U.S. Army Trauma Training Center, wherein virtually all of the Forward Surgical Teams deployed in the Global War on Terrorism are trained, is housed at the Ryder Trauma Center.*** The VA Medical Center has a long track record of evaluating psychological health in returning soldiers as well as PTSD. At The Miami Project and University of Miami, researchers are not only evaluating clinically relevant animal models of brain and spinal cord injury to develop new therapies, but also using the powerful discipline of genetics to better understand why some patients may have a predisposition to certain psychological problems after mild head injury.

The Miami Project has numerous ongoing pre-clinical studies that target the use of therapeutic hypothermia, enhancing nerve regeneration, pain research and neuroprotective strategies, such as Oxycyte (a synthetic blood that carries 4 times the oxygen level of real red blood cells) that, if successful, could rapidly be translated into clinical application, which would have an immediate impact on saving an injured soldier's life and/or preventing a lifetime of disability.

But conducting the research that will lead to new treatments and care for both brain and spinal cord injured patients isn't enough. The Miami Project has had several high level meetings with the Army to discuss how our research could quickly be translated into battlefield care. Last year, the Army sent down a delegation to tour The Miami Project and was briefed on our research findings that included Brigadier General Loree Sutton, MD, who was head of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE), Col. Robert Saum, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, Col. Mike Jaffee, M.D., National Director of Defense and Veterans Brain Injury Center at Walter Reed Medical Center and Dr. James Kelly, Director, The National Intrepid Center of Excellence.

In July, Col. Jonathan Jaffin, M.D., Director, Health Policy and Services with the Surgeon General's office toured The Miami Project. Finally, Nick Buoniconti and Dr. Dalton Dietrich have had separate meetings with Dr. Joseph Westphal, Under Secretary of the Army and General Peter Chiarelli, Vice Chief of Staff, United States Army in Washington, DC. Together – we are working side by side with our soldiers and the Army to provide the best possible care to our wounded warriors.

Florida Governor Charlie Crist Signs Bill Legalizing Use of Cameras to Stop Red Light Violators

The bill signing

The press conference in the APEX Center

Nick and Marc with Governor Charlie Crist

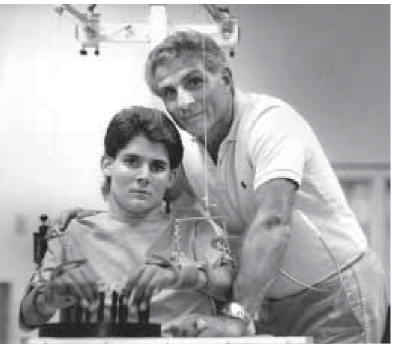
Florida Governor Charlie Crist was joined in Miami by University of Miami President Donna E. Shalala, Miller School of Medicine Dean Pascal J. Goldschmidt, M.D., University of Miami Board of Trustees members and The Miami Project founders Nick and Marc Buoniconti and Dr. Barth Green in May 2010 to ceremonially sign Florida House Bill 325 which authorizes cities to use cameras to crack down on drivers who run red lights. The measure, which took effect July 1, has a provision which allows for a portion of the fines to be allocated to The Miami Project for research into spinal cord and brain injuries, the majority of which occur as the result of motor vehicle accidents.

"I am confident the Mark Wandall Traffic Safety Act is another important measure to further securing the safety of Floridians and visitors while driving throughout the Sunshine State. In addition, by allocating funds to The Miami Project, we are helping pursue critical research that hopefully someday will eliminate the leading cause of these traumatic injuries," said Governor Crist.

University of Miami President Donna E. Shalala, was on hand for the signing and expressed her support for the stipulation that provides research dollars to help solve problems caused by the infractions. "Motor vehicle accidents are the leading cause of these devastating injuries and the University of Miami is the leader, not only in the state but the world in this area, so we are happy to be a part of making Florida a safer place to live, while providing world class research to the state."

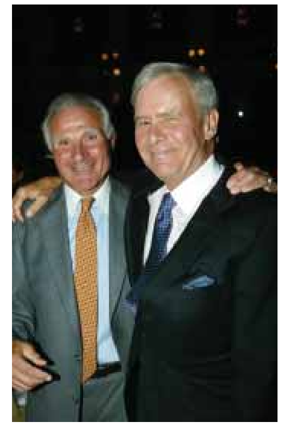
The law, sponsored by State Senator Thad Altman from Melbourne and State Representative Ronald Reagan from Bradenton, was named after a Bradenton man, Mark Wandall, who was killed by a red-light runner in 2003. His wife, Melissa, has tirelessly led efforts to get the law passed. According to the National Highway Traffic Safety Administration, Florida ranked third in traffic fatalities after California and Texas in both 2007 and 2008.

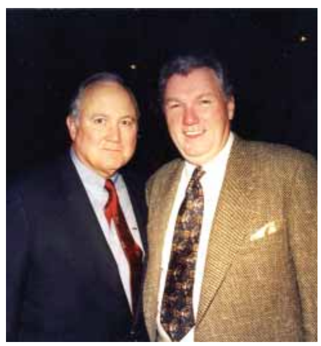
Marc Buoniconti added, "Every day at The Miami Project we see first-hand the ruin left behind by these tragic and preventable accidents in the form of those paralyzed and living with traumatic brain injuries. We take the designation of these funds very seriously and will use them in the best way we can to alleviate the suffering of those who are unfortunately injured by these accidents."

















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