

THE PROJECT

Fall 2011

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



UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE

I am thrilled to share with you that as you are reading this issue of The Project Magazine, The Miami Project Research Team will have submitted an application to the FDA to seek approval to begin the first-ever Human Schwann cells Trial in spinal cord injury

As someone who has lived with the challenges of paralysis for nearly 26 years, I am thrilled to share with you that by the time you read this issue of The Project Magazine, the Miami Project Research Team will have submitted an IND application to the FDA to seek approval to begin the first-ever Human Schwann cell Trial in spinal cord injury. What a historic moment in our history and the history of paralysis research.



As is detailed in these pages, the study was formulated by the collective efforts of Drs. Mary Bunge, Damien Pearse, and the entire Miami Project Research Team. This first trial will involve sub-acute spinal cord injury patients who will take part in one of the most remarkable medical endeavors to date. What makes our clinical trial so unique and full of promise is that the patient will be receiving their own Schwann cells, which will alleviate any concern in regards to rejection or auto immune suppression. In order to receive the Schwann cells for the trial, each patient will be thoroughly screened. Once the Schwann cells are harvested, it takes a few weeks to sufficiently grow enough cells for the auto transplantation. From the time of injury until transplantation, every patient will need to wait approximately 30 days. It is mind boggling to think about, and hard to believe that all the patients who will be subjects in our trial are not yet paralyzed. They are walking around today, oblivious to the fate that lies ahead. That is why spinal cord injury is such a devastating and world shattering experience. Just like a natural disaster, no one can predict when spinal cord injury will occur. This is why it is so important that we succeed in this endeavor and lay the critical groundwork for future clinical trials.

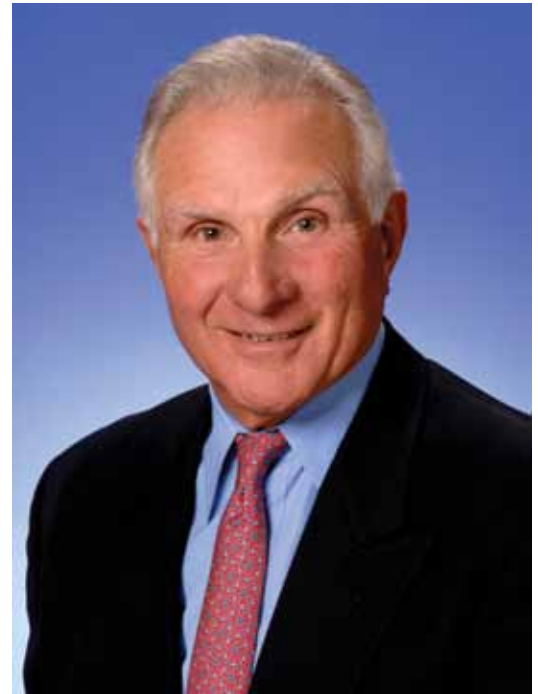
As we celebrate our 26th year of medical research and accomplishments, I want to take this opportunity to thank each and every one of you who have made a difference by supporting our goal of curing paralysis. I also encourage everyone to participate in SCI awareness month this September (see page 31). As always, continue to follow our progress via our websites www.themiamiproject.org or www.thebuonicontifund.com, Facebook, and Twitter page, and encourage your friends and colleagues to join our team as well. Through these avenues, you will find many ways to remain up to date on our clinical trials and other research activities at The Project.

On behalf of The Buoniconti Fund and The Miami Project, thank you for your support.

Marc A. Buoniconti

A handwritten signature in black ink, reading "Marc Buoniconti". The signature is stylized and cursive.

On Father's Day, as I do every day, I paused once again to think why my son Marc had suffered a paralyzing injury when he was a 19 year old college sophomore, doing what he loved best – making a tackle in a football game for The Citadel. He had broken his neck and severed his spinal cord and was left unable to move his arms or legs on his own and had no hope of walking again. I believe it was destiny that helped me begin a worldwide search to find someone who would save Marc's life. That search led me to Barth A. Green, M.D., who had made a career of treating spinal cord injuries. Together we forged a partnership with volunteers Don Misner and Beth Roscoe and founded The Miami Project to Cure Paralysis. It was our destiny to commit our spirit and energy to raise the funds and awareness for The Miami Project's revolutionary goal – to find a cure for spinal cord injury. Today, through the extraordinary efforts of The Board of Directors of The Buoniconti Fund, The Miami Project scientific research team, the entire Miami Project staff, and each of you, our destiny has led us to become the driving force to help save and improve the lives of paralyzed people.



In the past year, under the leadership of Dr. W. Dalton Dietrich, the Scientific Director of The Miami Project, tremendous gains have been made. I am happy to announce that The Miami Project's Schwann Cell Transplantation Program, for patients suffering from spinal cord injury paralysis, will now begin. The Schwann cell therapy project team is focused on initiating a clinical transplant trial injecting Schwann cells into people's spinal cords using the patients' very own Schwann cells. This research team has submitted an Investigational New Drug (IND) application this September 2011, and will begin human clinical trials after FDA approval. The Miami Project is also continuing our pioneering research in laboratory experiments that show that hypothermia (cooling the body temperature) immediately after spinal cord injuries, traumatic brain injuries, and heart attacks is beneficial in slowing down the injury processes and decreasing cell damage. This trial will change medical history forever and will be available in EMS vehicles, on the field in sports events, and on the battlefield for our wounded soldiers.

The Miami Project to Cure Paralysis has been the focus of our destiny and our legacy. Over the last 26 years, we have worked to assemble Great Sports Legends, Honorees, and Dinner attendees in New York to help raise significant funds for scientific research. Your support, unending encouragement, financial backing, and your belief that The Miami Project will find a cure for paralysis has brought us to where we are today, on the cusp of a cure. On behalf of Marc and the worldwide community living with paralysis, I want to thank University of Miami President Donna Shalala, the Dean of the University of Miami Miller School of Medicine Pascal Goldschmidt, M.D., and especially our dedicated Board of Directors of The Buoniconti Fund. Our Dinner Chairman Mark Dalton and our Directors have worked continuously to raise the money to support our research and their commitment to finding a cure is relentless. Marc and I pay special homage to them.

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

A handwritten signature in dark ink, appearing to read 'Nick'.



A message from the
Chairman and the
Scientific Director
Barth Green, M.D., F.A.C.S.
W. Dalton Dietrich, Ph.D.

Dear Friends and Colleagues,

The Miami Project to Cure Paralysis was created over 26 years ago to investigate spinal cord injury (SCI) and provide information regarding novel therapies to treat this devastating problem. Over the years, The Miami Project has become the world's most respected SCI research center. The internationally recognized interdisciplinary program has been established and has led to discoveries in the understanding of the complexity of this injury and ways to protect and promote recovery in experimental as well as clinical situations. It is very rewarding that today we are at a stage where Miami Project discoveries are being translated into people.

The Miami Project has developed cooling strategies to target the early injury phase to limit damage, thereby sparing tissue and promoting recovery. At our trauma center, therapeutic cooling has been administered to over 30 individuals with good success. We are now seeking grant funding to move this experimental therapy to a multicenter trial where a randomized approach will determine whether all people having a severe SCI should be cooled as a neuroprotective intervention. If this trial is successfully completed, it will change medicine and change lives.

In the area of reparative medicine, Miami Project investigators are testing novel cell therapies, innovative bridging strategies, and pharmacological treatments that reduce the effect of inhibitory factors as well as enhance circuit plasticity and axonal regeneration in preclinical

The Miami Project is touching the lives of thousands of individuals living with paralysis. Only through the hard work of The Miami Project investigators and the long-term support of our friends and colleagues has this progress been possible.

models. Combination approaches being tested are providing solid evidence for successful repair of the spinal cord resulting in improved functional outcome. However, before combination approaches can be tested in clinical trials, we must first test the components separately to evaluate safety. The Miami Project has taken the first step in that process and has submitted its IND application to the FDA to conduct a Phase I trial using autologous Schwann cells to reinsulate and repair part of the nervous system after injury. We believe this is the first of several steps that are required to promote a clinically relevant degree of recovery, with a long-term goal of providing a cure for paralysis which would be comprised of a combination of interventions administered at different times or tailored for different injuries.

Today, Miami Project investigators are utilizing a variety of exercise interventions and muscle spasticity evaluations to improve the lives of people with chronic SCI. These studies are demonstrating ways in which we can reduce the effects of progressive vascular disease, diabetes, muscle atrophy, and muscle spasticity, in our aging SCI population. In parallel, rehabilitation strategies targeting walking as well as hand function are making a difference in people's lives now. New investigations will enhance these programs by developing novel brain/computer interface neurostimulation approaches to promote neuroplasticity that results in clinically relevant improvements in function. Finally, studies targeting male fertility and neuropathic pain remain an important component of our mission.

Together with our international Outreach and Education Programs, The Miami Project is touching the lives of thousands of individuals living with paralysis. Only through the hard work of The Miami Project investigators and the long-term support of our friends and colleagues has this progress been possible. We thank all our supporters for their continued support and guidance and look forward to a very exciting year filled with new discoveries and progress.

W. Dalton Dietrich, Ph.D.
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The Miami Project to Cure Paralysis
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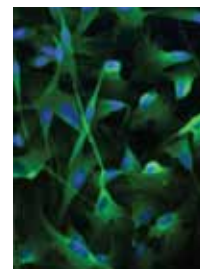
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Picture of human Schwann cells in the final product generated from the sural nerve of an organ donor. The cells were purified and grown in strict accordance with a manufacturing protocol developed in the laboratories at The Miami Project to Cure Paralysis. They were grown in the GMP Facility at the Diabetes Research Institute. The final product is of high purity and similar cells from a subject with spinal cord injury would be suitable for clinical transplantation.



Clinical Trials Initiative Update

Clinical trials update

Believe it or not, The Miami Project (MP) is already involved with several clinical trials aside from our pursuit for approval to test Schwann cells. Here you will find updated information about several trials for spinal cord injury (SCI) and on our website you can find additional information about clinical trials for traumatic brain injury (TBI), www.themiamiproject.org/clinicaltrials.

ARCTIC is the acronym for our next clinical trial testing the safety and efficacy of therapeutic hypothermia (cooling) in SCI, **A**cute **R**apid **C**ooling **T**herapy for **I**njuries of the Spinal **C**ord. We have already completed a Phase I clinical trial to start learning whether inducing hypothermia within the first few hours of traumatic SCI is safe and makes a difference in the severity of injury. When people with new cervical SCI were brought to the trauma center, doctors placed a cooling catheter in a large blood vessel (vena cava) that allows them to cool the body a few degrees to 33 degrees Celsius (or 92 degrees Fahrenheit). In that trial the cooling was started within 9 hours post-injury, on average, and was maintained for a duration of 48 hours. After which, participants were slowly re-warmed at one degree every eight hours and then proceeded with standard medical care. In that initial trial there were no serious safety concerns and there was a trend for more people to recover more function after 1 year post-injury than would normally occur spontaneously.

ARCTIC will be a Phase II/III clinical trial where we will evaluate the safety of different durations of hypothermia, initiated within 6 hours post-injury, and then confirm the

efficacy of the best duration. We have taken what may seem like a long time to plan this clinical trial, but for many good reasons. One, predicting whether someone has a “complete” or “incomplete” SCI within the first 6 hours is VERY difficult and unreliable. In fact, it is not reliable until after 72 hours post-injury. However, because we have such a short time window in which to intervene with hypothermia, it is a complication we must deal with. Two, this trial will involve more than 200 people with acute SCI and cost several million dollars. We have been working with the National Institutes of Health sponsored Neurologic Emergencies Treatment Trials (NETT) network for review and, hopefully, funding. Three, we have to get this right, the SCI field needs it! There have been too many “failed” Phase III clinical trials because of design issues. Drs. Michael Wang and Dalton Dietrich have been working with several experts in clinical trial design and statistics to develop the most appropriate design to capture clinically meaningful improvements, yet still be responsive to unknown safety issues. If this pivotal trial gets funded and the data positively demonstrate that the benefits significantly outweigh the risks, we could change the standard of care for SCI medicine worldwide.

NACTN

The Miami Project and UM Department of Neurological Surgery are part of the **N**orth **A**merican **C**linical **T**rials **N**etwork (NACTN). NACTN is a network of institutions that is developing the infrastructure, methods, and skilled personnel needed to conduct trials for SCI. Presently, the collaborative centers are collecting natural history data from newly injured people to determine the medical

and rehabilitative outcomes and complications that occur in people receiving standard of care. Participants are evaluated for one year post-injury. The Miami Project has already enrolled more than 35 people to this registry. This information will help determine the design of SCI clinical trials because we will better understand complications that are risky for interventions at specific times post-injury and what degree of spontaneous recovery would be considered normal for different types of injuries.

NACTN also recently completed enrollment for a Phase I open label multi-center safety trial of a drug (**Riluzole**) that reduces secondary damage after SCI in animals. In humans, Riluzole has been associated with improved life span in Lou Gehrig's disease. In the Phase I trial for SCI, several aspects of Riluzole's effects are being tested, hopefully as a prelude to a Phase II study testing the efficacy of Riluzole in a blinded manner, which is a more powerful clinical test. In Phase I the amount of drug that enters the blood stream and how quickly it is metabolized is being measured over 14 days. This is essential information to understand how to predict the dose that has the best chance to reduce secondary damage. Also, complications related to the drug's administration are being carefully monitored, again enabling more effective dosing in future trials. This trial is the first to carefully study the metabolism of Riluzole in acute SCI, an important step forward given the many changes in organ function that follow SCI. Finally, although not the primary aim of the study, efficacy measures such as motor and sensory changes and changes in daily key functions are being acquired and compared to the NACTN registry database, acquired from the same clinical centers.

BIOMARKERS

Over the past 12 months the MP has been investigating the use of **surrogate biomarkers** to predict the outcome of acute SCI. In this study, sponsored by Banyan Biomarkers, blood and spinal fluid samples were obtained from newly injured people who were already undergoing spinal fluid drainage as a part of their necessary clinical treatment. The presence of breakdown products from neural tissue or inflammatory mediators was analyzed with very promising results. A total of 7 participants have been enrolled by researchers Michael Wang, Matthew Cummock, and Dalton Dietrich. Samples indicating severe neural damage were found to be correlated with the degree of neurological impairment as well as native recovery. The study is currently still in the enrollment phase at UM/Jackson Memorial Hospital.

This study may reveal keys to early interventions for acute SCI. Examples of clinically relevant biomarkers in current use include the monitoring of cholesterol to manage cardiovascular disease and the measuring of prostate-specific antigen (PSA) levels to detect and track prostate cancer. In the SCI arena, early predictors of injury may have important prognostic significance, helping to direct patient care. This may be particularly important given the long time people with SCI need to be monitored clinically to assess for any neurological improvement. For researchers, an SCI biomarker may give early insight into the effects of experimental treatments, speeding study results and reducing the research subjects sample sizes needed. Ultimately, biomarkers may be used to tailor the intervention (surgical, pharmacologic, rehabilitation) to each individual SCI patient, much as cancer phenotyping is beginning to be used to target chemo- and immunotherapies.

LYRICA

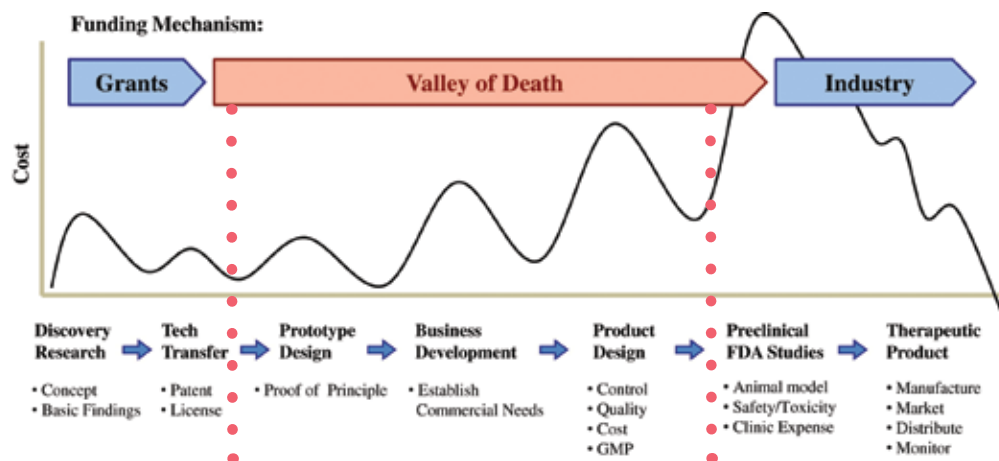
Dr. Diana Cardenas, Chair of the UM Department of Rehabilitation Medicine and Miami Project faculty member, participated in a Phase III trial evaluating the effectiveness of a drug called pregabalin in treating chronic neuropathic pain in people living with SCI. Pregabalin, also known as **Lyrica**, is an anti-convulsant that has already been approved by the FDA for the treatment of pain associated with Fibromyalgia, diabetic nerve pain, and Shingles. The recently completed study was a randomized, double-blind, placebo-controlled, multi-center clinical trial (the gold standard of clinical trial design) to identify whether Lyrica could reduce the neuropathic pain symptoms caused by SCI as well as reduce pain-related sleep interference, functional limitations due to pain interference, and other pain-related symptoms. The sponsor, Pfizer, recently announced that preliminary analyses of the data demonstrated that Lyrica was better at reducing central neuropathic pain compared to placebo. Further analyses are being conducted on these initial results. The preliminary results of the study indicate that the most common side effects associated with Lyrica were drowsiness, dizziness, edema, fatigue, dry mouth, insomnia, and blurred vision. Hopefully, the results of this trial will support FDA approval for the use of Lyrica in the treatment of SCI-induced central neuropathic pain. 🏠

Intellectual property, what does that have to do with curing SCI?

A lot, actually, but first, what is intellectual property? Intellectual property, more commonly known as IP, has to do with creations of the mind for which a defined set of exclusive rights are recognized by law, i.e. patented. Scientists are great at coming up with ideas. When those ideas lead to novel discoveries, that is when they need to be protected by patent law. Why is it important that they be protected? Well, that has to do with money and the ability to translate discoveries in the laboratory into effective treatments in the clinic.

Miami Project scientists have already received or applied for patents for over 30 discoveries.

The figure below shows all the steps that a novel drug must go through from the time it is discovered until it becomes an approved therapeutic product. As you can see, on the far left side, funding for the discovery phase typically comes from grants. On the far right side you see that funding for the clinical trials, manufacturing, marketing, and distribution usually comes from industry, i.e. “big pharma” (large pharmaceutical companies like Pfizer, Merck, Johnson & Johnson, etc.). However, *between the discoveries and the approved treatments is a gigantic valley of death*. This is a very big problem for SCI research and this is where IP becomes important.



©Elsevier Ltd; Aboody et al., 2011, Neuron 70:597-613.


The number of people living with SCI is small relative to other diseases, such as Alzheimer's, diabetes, cancer, HIV/AIDS, and “big pharma” is not always interested in funding the critical work spanning the valley of death because there is a high risk of failure for a lower return in the end. So we have to figure out a strategy to bridge that great divide. *Patenting research discoveries makes them more attractive to companies*. Many universities are creating technology transfer offices to help their scientists navigate the IP laws and obtain patents. Miami Project scientists have already received or applied for patents for over 30 discoveries. Small start-up companies can then be created whose value is based on IP. These start-up companies are very attractive to angel investors and venture capitalists because if the investment risk pays off, the returns can be

huge. In general, investors will give the start-up company money to traverse the valley of death, which involves conducting experiments to show proof of principle that the drug/technology is safe and beneficial to the target disease as well as crucial design improvements to ensure that the drug is optimized and manufactured according to strict quality and control standards so that it qualifies for testing in humans. *If a drug can make it successfully through these stages, it then becomes very attractive to “big pharma” because the likelihood of making it through the clinical trials process to FDA marketing approval is much greater*. Big pharma will then buy the IP from the start-up company, which can then take the profit to re-invest in the next exciting discovery.

A similar strategy is being supported by a new program at the National Institutes of Health (NIH). It is called the Blueprint Neurotherapeutics Network and it will specifically help researchers with promising drugs successfully traverse the valley of death. Miami Project scientist

Dr. John Bixby was recently funded by this program to test and further develop an exciting regeneration-inducing drug that he and his colleagues discovered. He will receive funds to conduct the biological testing, and research service organizations contracted with NIH will conduct the medicinal chemistry, pharmacokinetics, and toxicology testing as well as the Good Manufacturing Practice (GMP) formulation of the drug. Importantly, Dr. Bixby and colleagues jointly with the

University of Miami will retain all IP rights for the drug and the resulting formulations.

Through these pipelines of discovery and product development across the valley of death, research findings can be successfully translated into novel diagnostic and therapeutic treatments. For The Miami Project, a major benefit of this pipeline to industry strategy is that a major portion of the profits made off IP patents goes back into The Miami Project and Departments to fund ongoing research programs. Thus, a win-win situation is created that benefits the investigator(s), The Miami Project, the University of Miami, and most importantly, the people living with SCI who will directly benefit from the therapies that make it past FDA approval. 

Miami Project Scientists Host Free Science Education Event as part of the 2011 National Neurotrauma Symposium



Miami Project researchers for the first time hosted a free public informational event during this year's National Neurotrauma Symposium at Hollywood, Florida's Westin Diplomat Resort and Spa in July. The event featured experts in the field of brain and spinal cord injury research and treatment, and included opportunities for the public to learn and ask questions about these devastating conditions.

"The National Neurotrauma Symposium has always been the world's best forum for clinicians and researchers to get together and share and discuss neurotrauma research and treatment. As hosts this year, we felt it would greatly benefit the local community to also provide a forum for those affected by these devastating injuries and diseases. This discussion provided them the opportunity to hear about the latest advances in the field, and for them to share their experiences and concerns with the people charged with trying to mitigate these devastating conditions in neurotrauma," said M. Ross Bullock, M.D., Ph.D., Professor, Department of Neurological Surgery at the University of Miami Miller School of Medicine and Director, Clinical Neurotrauma, President of the National Neurotrauma Society, and part of the organizing committee.


The National Neurotrauma Society Symposium is the premier scientific event for clinicians and researchers in the field of neurotrauma, and attracts hundreds of researchers and clinicians from around the globe who presented state of the art approaches and ground breaking research findings. In addition, important new scientific developments were presented to those in attendance in plenary and breakout sessions, and through oral and poster presentations.

Traumatic brain injury (TBI) is the number one cause of death in young adults, and together with spinal cord injury (SCI) is a major determinant of disability. Both types of injuries incur high socioeconomic costs totaling in the billions of dollars annually in the acute treatment phase, and in the long term due to care and loss of productive life years.

Commensurate with the major expansion in research in regeneration and repair of the injured nervous system, it now seems more appropriate than ever to bring together not only researchers in the field but also those who provide care for neurotrauma patients in the post acute phase - rehabilitation and post acute care specialists. That is why the host committee felt strongly that there should be a public event to get information and feedback from those affected so researchers and clinicians can better serve and develop treatments for those suffering from neurotrauma injuries and illnesses.

Among those invited to present at the public event on July 12th were, Iraq War Veteran and Author, Derek McGinnis who shared his experiences in a talk titled, *Surviving a Brain Injury*. Dr. Ross Zafonte, from Harvard Medical School, presented, *Successful Rehabilitation for Brain Injury*. Dr. Gillian Hotz, from the University of Miami's Miami Project to Cure Paralysis, presented *Why all the Talk about Concussion*, and Dr. Kim Anderson, also from The Miami Project to Cure Paralysis, discussed *Frontiers in Spinal Cord Injury Therapies*.

Following the presentations there was a poster tour highlighting some of the more clinically relevant presentations from the Symposium. There were also a number of South Florida based people living with SCI and TBI on hand to listen to the experts and share their personal experiences with the public during this unique session.

Members of the local scientific organizing committee from the University of Miami Miller School of Medicine were: W. Dalton Dietrich III, Ph.D., Helen Bramlett, Ph.D., Coleen Atkins, Ph.D., Dan Liebl, Ph.D., John Bethea, Ph.D., Jonathan Jagid, M.D., Gillian Hotz, Ph.D., Barth Green, M.D., Allan D. Levi, M.D., Ph.D., Mary Bunge, Ph.D., Robert Keane, Ph.D. 



The KiDZ Neuroscience Center (KNC) is comprised of a number of programs and research projects that directly impact and assist in improving the quality of care and advancing research for children with acquired and traumatic brain and spinal cord injury. The goals of the KNC include: continuing, expanding, and sustaining the pediatric injury prevention programs; improving the treatment for acute and rehabilitation clinical care and research; and providing education, training, and outreach to the community. The Center brings together the best minds of The Miami Project and the work of the Pediatric Brain & Spinal Cord Injury (PBSCI) Program developed in 2001 to treat children and adolescents who have sustained traumatic brain injury (TBI) and spinal cord injury (SCI). Dr. Gillian Hotz, Associate Research Professor at the University of Miami Miller School of Medicine and neuroscience researcher at The Miami Project, is the Director of KNC and Co-Director of the PBSCI Program. This Center's location in the state-of-the-art facilities at The Miami Project to Cure Paralysis ensure its close collaboration with an international team of over 250 scientists, technicians, and clinicians. The KNC is enriched by its affiliation with the Ryder Trauma Center, Holtz Children's Hospital, and UHealth Sports Medicine at the University of Miami Hospital.



Above: Each year, the WalkSafe™ program's statewide poster contest encourages more than 150,000 participating students to "save lives with crayons" by sharing important pedestrian safety lessons learned through the WalkSafe™ educational curriculum.

Left above: Students at Auburndale Elementary in Miami at the 2010 WalkSafe™ International Walk to School Day event. Bottom row (l-r) Dr. Gillian Hotz encourages a TBI patient during a therapy session; BikeSafe™ volunteer Tom Masterson teaches on-bike safety skills; Dr. Hotz, Dr. Carolina Gutierrez, and Dr. Michelina Witte of the BikeSafe™ program accept a donation from the Everglades Bike Club's Daniella Izquierdo Injured Cyclist Fund; Dr. Hotz and Jamie Caulkins teach helmet safety and injury prevention at The Miami Project's 2011 Brain Fair.

The KiDZ Neuroscience Center (KNC) is comprised of 4 major components:

The KiDZ Injury Prevention & Research


Program focuses specifically on injury prevention in children and adolescents. The program is dedicated to tracking the types, causes, and consequences of childhood injuries by using epidemiological tools to identify risk factors for injury. This program encompasses the WalkSafe™, BikeSafe™, and new SkateSafe programs. The WalkSafe™ Program, directed by Dr. Hotz, is considered one of the best pediatric pedestrian injury prevention programs in the country. Its primary goal is to

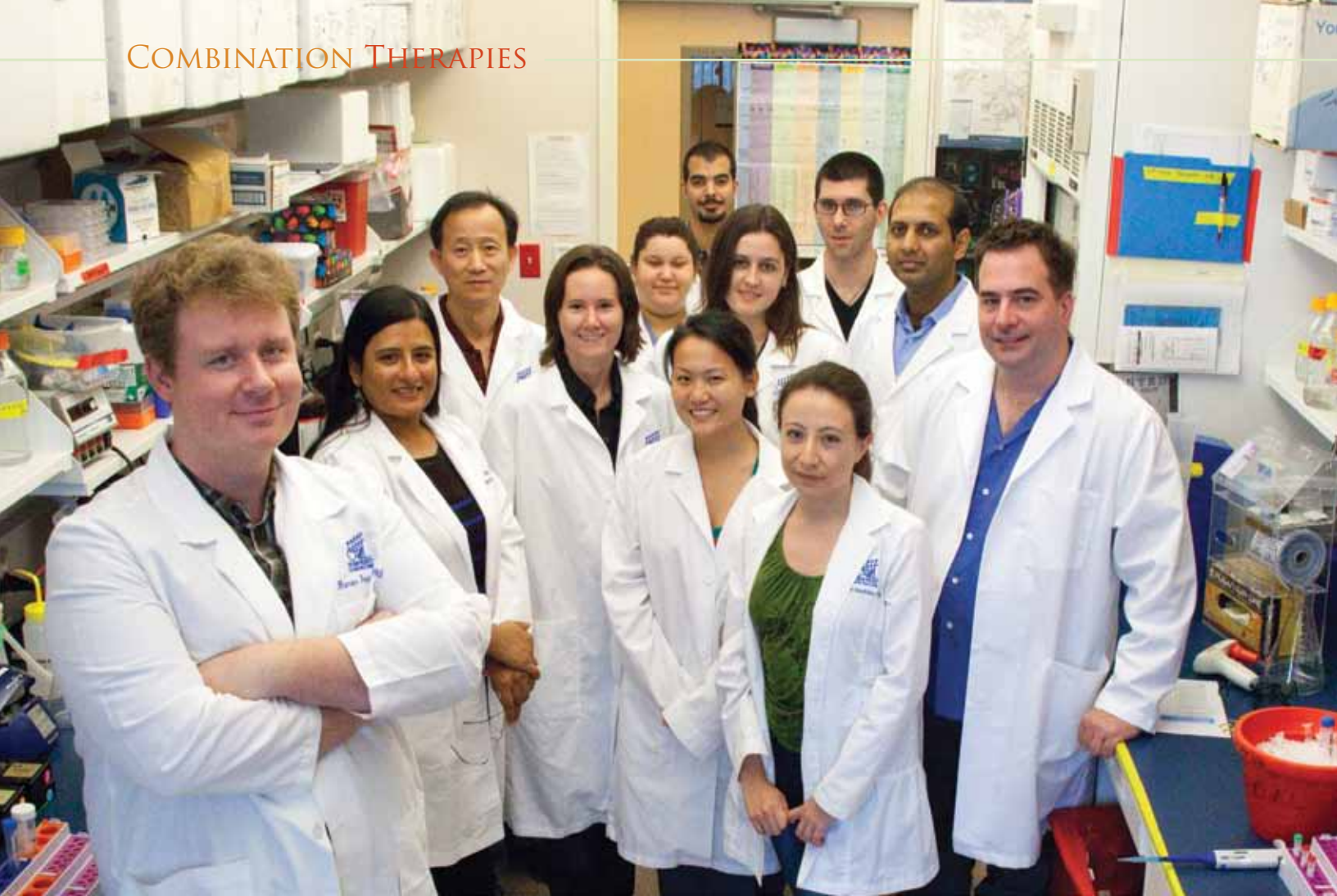
reduce the number of pedestrian injuries and fatalities of children (ages 5-13). The BikeSafe™ program is geared towards middle school age children and offered in the parks and after school programs. Dr. Hotz also directs the Concussion Program which serves the public and private high school and college sports teams (football, soccer, wrestling, etc.) and athletes from the community. This program offers comprehensive evaluations and recommendations for returning to play safely. This year, David Goldstein a high school student at Ransom Everglades spearheaded a fundraising campaign for KNC and the Miami-Dade Public School System. The donation will allow for every high school football player to be baseline tested with ImPACT, a computerized neurocognitive screening test to assist in managing concussions.

The Pediatric Brain & Spinal Cord Injury Program is the clinical and clinical research division of the KNC whose mission is to provide a continuum of care for children and adolescents with TBI, acquired brain injuries (ABI; e.g., brain tumors, stroke, seizures, encephalitis, etc.), and SCI. Using state-of-the-art equipment and interventions with some of the best clinical faculty and staff working together to improve the quality of life for these children.

The KiDZ Education & Training Program hosts the Annual PBSCI Conference in Miami. This conference offers training and education to a multidisciplinary group of professionals and offers the opportunities to interact with leading experts in pediatric brain and spinal cord injury. The KNC serves as a resource for information and expertise on pediatric injury prevention for policymakers, health professionals, media, and the public, and influences regional, national, and international initiatives. The Center also offers fellowships, internships, and volunteer programs for medical, public health, college and high school students. The KiDZ Education & Training Program strives to foster the growth of new investigators in the field of injury prevention and participates in many outreach events throughout Florida to continue to educate children and their families on injury prevention.

The KiDZ Neuroscience Fund has been established as the fundraising arm of these initiatives. The goal of the Fund is to ensure that the Center can sustain research projects and maintain the talented and diverse research team that is critical to continue the ongoing success of the programs.

For more information please contact the KNC Office at 305-243-8115 

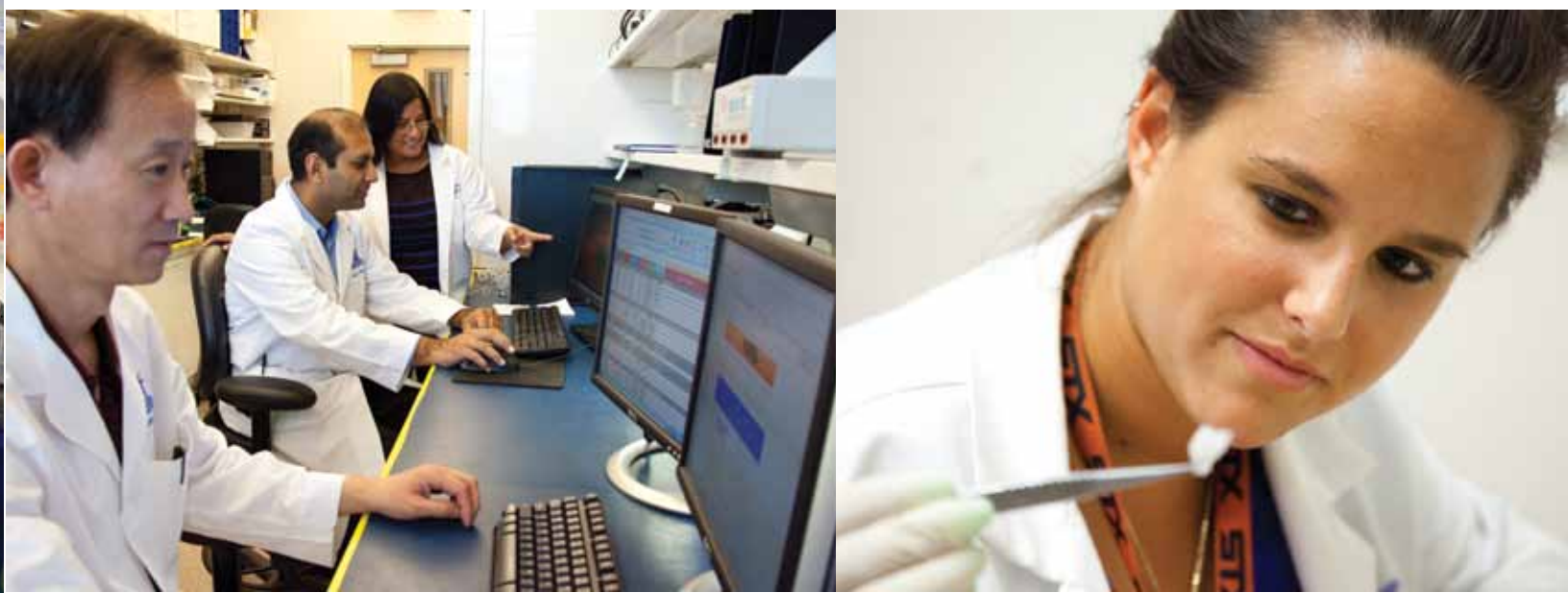


Dr. Damien D. Pearce, far left, and members of his laboratory.

I'll Take a Combo...

Spinal cord injury is a very simple disorder, right? Wrong! Whether you are a person living with SCI or a scientist studying SCI, there is nothing simple about what you are faced with every day.

The spinal cord is a very complex organ, after all it, in combination with the brain, controls every single aspect of our body. Hence, when the spinal cord sustains damage people lose more than just the ability to walk. Aside from the loss of movement and sensation, almost every single SCI results in the loss of bladder and bowel control. Depending on where in the spinal cord the injury occurs, there may be additional impairments in sexual function, loss of the ability to regulate body temperature and blood pressure, reduced breathing and coughing capacity, and inefficient metabolism of food.



Members of the Pearse lab analyzing data, left, and examining spinal cord tissue, right.

Inside the spinal cord, there is a multitude of damage. First, there is primary damage. In regard to traumatic injury, the primary damage is a direct result of the impact of whatever caused the injury (ex. fall, gunshot, car crash, etc.). Second, waves of biological events are triggered by the primary damage that ends up causing secondary damage. The main contributor to the secondary damage is the immune system. The end result is that spinal cord tissue that was not damaged by the primary impact ends up dying. Third, cells die in and around the injury site. These include motor nerve cells (motoneurons), sensory nerve cells (sensory neurons), relay nerve cells (interneurons), and multiple types of support

What does make sense is to develop a combination of treatments, each targeting the repair of different types of damage, which would work synergistically to have a greater impact on recovery.

cells called “glia” (astrocytes, oligodendrocytes). Fourth, individual nerve fibers (axons) running up and down the spinal cord get severed. The cell bodies of these severed axons are located away from the injury site and often remain alive; however, they can no longer communicate. Fifth, inhibitory scar tissue develops around the injured area.

So, it does not make sense then, to expect one intervention to be able to repair all the different types of damage that occur and restore all of the different functions that are impaired.

What does make sense is to develop a combination of treatments, each targeting the repair of different types of damage, which would work synergistically to have a greater impact on recovery.

This is exactly where Dr. Damien D. Pearse is focusing his research. The overall goal of his laboratory is to identify and/or develop effective combinatory strategies that target all of these deficiencies so as to establish an efficacious treatment regimen for clinical implementation in human SCI. Most importantly, he is also aiming to find strategies that are amenable to the acute and/or chronic phases of SCI and that are not associated with adverse effects that would negate the benefits of such therapies clinically (development of pain, tumor formation, etc.).

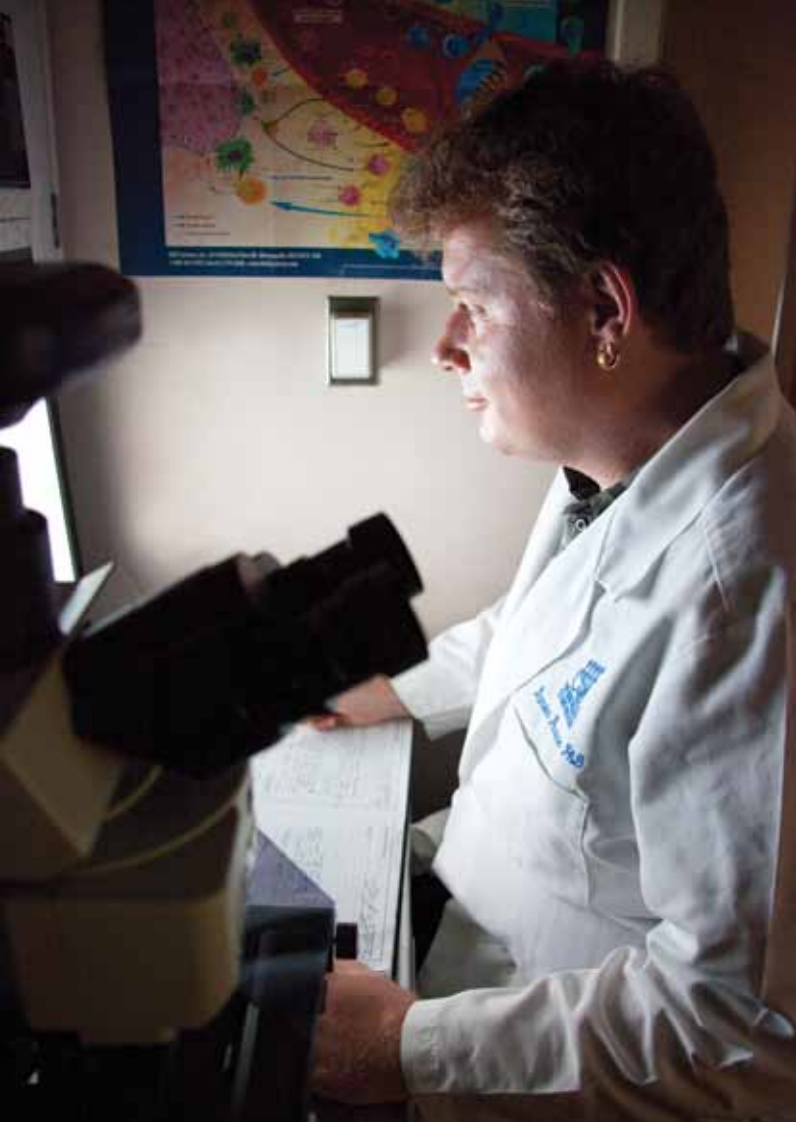
In June 2004, Dr. Pearce, in collaboration with Dr. Mary Bunge, showed that a never before tested triple combination strategy, when given shortly after injury, reduced the amount of secondary damage, induced some severed axons to regenerate, and replaced a type of glia cell that serves as insulation for axons (Pearse et al., 2004, Nat. Med.). The triple combination included 1) **Schwann cells** injected into the injury site 1 week after injury, 2) **cyclic AMP** injected above and below the injury site 1 week after injury, and 3) **Rolipram** given continuously under the skin beginning immediately after injury and continuing for 2 weeks. The triple combination strategy resulted in a greater degree of recovery of walking ability than normally experienced after spinal cord injury. The triple combination strategy prevented some nerve fibers in the spinal cord from dying, which resulted in spared function. In addition, some nerve cells in a specific region of the brain (the brainstem) grew their fibers not only into and across the injured area containing the Schwann cell grafts, but also beyond that and into the part of the spinal cord below the injury. In the triple-treated animals, the total number of Schwann cell myelinated nerve fibers in the graft area increased by 380-480 percent. The nerve growth beyond the injury and increase in myelinated fibers contributed to the additional functional recovery.

Schwann cells insulate (myelinate) individual nerve fibers, which is necessary for sending appropriate electrical signals throughout the nervous system. **Cyclic AMP is a messenger molecule** inside cells that stimulates a cascade of other molecules, including nerve growth promoting molecules in nerve cells. **Rolipram is an anti-inflammatory drug.** It acts by preventing the breakdown of cyclic AMP, which causes an accumulation of cyclic AMP levels within immune cells. Higher levels of cyclic AMP lead to a decrease in the production of molecules that stimulate the immune response (leading to a reduced immune response). Suppression of the immune response after SCI is protective to the nervous system because it reduces the amount of secondary tissue loss, thereby reducing the degree of functional loss.

Also that year, he tested a quadruple treatment strategy (Pearse et al., 2004, J. Neurotrauma). The quadruple combination included 1) **methylprednisolone (MP)** given immediately after injury, 2) **interleukin-10 (IL-10)** given immediately after injury, 3) **Schwann cells** injected into the injury site 1 week after injury, and 4) **olfactory ensheathing glia (OEG)** injected into the injury site 1 week after injury. The results induced by this combination were superior to any of the treatments individually. There was a



reduction in cavitation (holes) at the injury site along with an increase in more normal appearing tissue, and there was an increase in regeneration of severed brainstem axons into and beyond the injury site containing the Schwann cells and OEG cells. The reduction of secondary damage and induction of some regeneration of severed axons were also associated with an improvement in hindlimb movement and stepping.



components of inhibitory scar tissue, delivered just above and below the injury site every other day for 4 weeks post-injury. This triple combination resulted in a greater number of Schwann cell insulated nerve fibers crossing the injury site and a greater number of severed brainstem nerve fibers regenerating into and below the injury site. There was a strong relationship between this regrowth and re-insulation of fibers and improvements in walking function. The use of Chondroitinase ABC could be beneficial in the chronic injury setting because the scar tissue that develops around the injury site is a significant obstacle to regeneration. It would be much safer to dissolve the scar tissue with Chondroitinase ABC rather than cut it away surgically.

More recently, in 2010, Dr. Pearse demonstrated that the fluid in which Schwann cells (SC) are delivered to the injury site is an important component of combination therapies (Patel et al. 2010, J. Neurotrauma). He found that injecting a fluid form of a **SC:laminin:collagen mixture** into the injury site was superior to simply injecting SC mixed with their standard growth fluid or Schwann cells mixed with an artificial matrix called methylcellulose. The delivery of Schwann cells in a matrix of laminin and collagen helped enhance SC survival in the injury site, helped improve blood flow within the cellular graft, and increased the number of severed nerve fibers growing into the implanted area.

As described above, the complexity of repairing the damaged spinal cord necessitates combination treatments. The good news is that we are generating a significant amount of evidence in animal models that demonstrate that various combination therapies are more effective than individual treatments alone. As we enter this era of translating basic science results into clinical trials, we will need to first evaluate different treatments by themselves for **safety**; then we can move forward with clinical trials designed to determine the **efficacy** of different combination therapies for various types of injury and times post-injury. 🇺🇸

Clockwise from top left: Kashif Abad and Johana Bastidas; Damien D. Pearse, Ph.D.; Vladimir Aguirre; Lindsay Connor; Matthew Blacke

Pearse et al., 2004, Nature Medicine 10:610-616.
 Pearse et al., 2004, J. Neurotrauma 21:1223-1239.
 Fouad et al., 2005, J. Neuroscience 25:1169-1178.
 Patel et al., 2010, J. Neurotrauma 27:789-801.

In 2005, Dr. Pearse collaborated with investigators in Canada and Switzerland on a combination that could potentially be useful in the chronic injury setting (Fouad et al., 2005, J. Neuroscience). They tested the combination of 1) **OEG cells** injected into the spinal cord just above and just below the injured area, 2) a **guidance tube filled with Schwann cells** crossing the length of the lesion, and 3) **Chondroitinase ABC**, a drug that dissolves certain



Approximately three-quarters of the members of the Schwann cell IND preparation team.

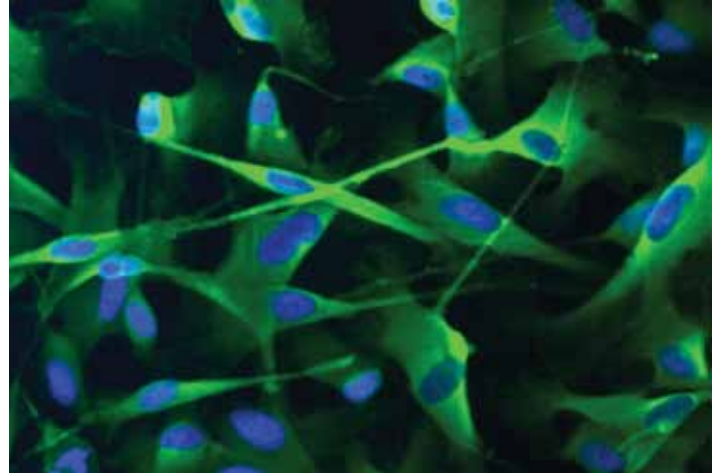
The Second Step

Testing Schwann Cell Transplantation in Humans

The first step, generating all of the pre-clinical safety and efficacy data to justify the testing of Schwann cell transplantation in humans, has been completed. *The Miami Project to Cure Paralysis has submitted its Investigational New Drug (IND) application to the Food and Drug Administration (FDA) requesting permission to begin a Phase I clinical trial to evaluate the safety of autologous human Schwann cell transplantation a few weeks after a spinal cord injury has occurred.* The second step, now, is for the FDA to approve the application so we can start the trial.

That first step was a major undertaking, however. The table on the adjacent page demonstrates how much work was involved in preparing the IND application. It is not as simple as completing a loan application or even a grant application (yes, those are considered simple compared to an IND application): There are four major components of an IND application, 1) the qualifications of the investigators, 2) the clinical protocol(s), 3) the chemistry, manufacturing, and control (CMC) information of the experimental drug or cell in question, and 4) the pharmacology and toxicology information about the drug or cell to be tested.

The qualifications of the investigators, that's the easy part. We have many leaders in the spinal cord injury (SCI) research field right here at The Miami Project. Dr. Mary Bartlett Bunge has been spearheading investigations to evaluate the ability of Schwann cells to repair spinal



Human Schwann cells in the final product generated from the sural nerve of an organ donor. The cells were purified and grown in strict accordance with a manufacturing protocol developed in the laboratories at The Miami Project to Cure Paralysis.

Once the FDA receives the IND application, they have 30 days to respond. Interestingly, if we hear no response, that actually means we are allowed to move forward with the clinical trial.

cord damage in animal models for several decades. Dr. Pat Wood has been leading the CMC studies for human Schwann cell manufacturing. Dr. Damien D. Pearce has taken the lead on conducting the pharmacology and toxicology studies in rodent models, while Dr. James Guest has done the same with our pig model and non-human primate model. Drs. Allan Levi, Diana Cardenas, and James Guest have taken their multi-disciplinary clinical expertise to develop the Phase I clinical trial. Finally, Dr. Dalton Dietrich, our Scientific Director, has assumed responsibility for the entire clinical trial as the Sponsor.

The clinical protocol section describes the entire clinical trial that we have proposed. As we have discussed many times over the last couple years, the first step in the clinical trials process is to conduct a Phase I trial, which is strictly focused on safety outcomes. That is particularly important in our situation because of 2 factors, 1) we are talking about putting cells inside the spinal cord and 2) we are sticking a needle directly into the spinal cord in order to deliver the cells. Those are two pretty risky things. Therefore, we have designed a clinical trial that will minimize risk and maximize evaluation of safety. We have proposed to enroll 8 participants with complete thoracic SCI. A potential subject would have to agree to participate within 5 days after his/her injury, which is considered the acute phase. At


that point, he/she would have a biopsy of a nerve in one leg to obtain his or her own Schwann cells. The Schwann cells then need to grow in a culturing facility for 3 to 5 weeks to multiply in number and undergo purification. By the time the Schwann cells are actually transplanted into the site of spinal cord injury, the participant would actually be 26-40 days post-injury, which is considered the sub-acute phase. All procedures would be conducted in Miami at The Miami Project, the University of Miami Hospital, and at Jackson Memorial Hospital. We will be following participants for 1 year after the transplantation surgery and evaluating their neurologic status, medical status, pain symptoms, and muscle spasticity very closely. We have written a second clinical protocol that will then monitor participants for an additional 4 years on a less frequent interval. We have sought advice on these clinical protocols from members of our External Advisory Board and Data Safety Monitoring Board, who are respected nationally and internationally and are leaders in the SCI research field.

The CMC section describes in very great detail every single thing we will do to the Schwann cells once the leg nerve has been removed from the participant. Because the Schwann cells we obtain from the nerve biopsy are what will eventually be injected into the spinal cord, they have to be handled in accordance to Good Manufacturing Practices

YEAR	ACCOMPLISHMENT
December 2007	Started organizing Schwann Cell (SC) clinical trial team
January 2008	Wrote first draft of SC clinical trial
February 2008	Discussed SC clinical trial draft with External Consultants
Feb – Apr 2008	Obtained additional guidance with FDA consultants
August 2008	Held pre-pre-IND discussion with the FDA
2008-2009	Developed GMP cell processing & manufacturing procedures for human SCs
2008-2009	Obtained supportive data from chronically injured non-human primate studies
2009 – 2010	Conducted toxicology & tumorigenicity experiments in rodent models, xenografts
2009 – 2010	Performed SCI studies in pig model to determine safest cell injection procedure
December 2009	Additional guidance from FDA consultants
July 2010	Held pre-IND discussion with the FDA
2010-2011	Conducted toxicology & tumorigenicity studies in rodents, allografts
2010-2011	Use pig model to determine safest dose/volume for clinical protocol
2010-2011	Initiate autologous SC transplantation studies in pig model
2010-2011	Finalizing CMC qualification & optimization on human SCs
April 2011	External Advisory Board meeting
May 2011	Data Safety Monitoring Board meeting
September 2011	IND application submitted to FDA

(GMP). This is to ensure that the cells and every single thing that touches them are not contaminated with something that could be very dangerous after they are transplanted. This is also to ensure that the cells do not become modified during the culturing process and gain characteristics that could become harmful, such as starting to develop tumors. A very special person has been leading a team of people, under the guidance of Dr. Wood, in performing all of the experiments that contributed to the CMC section and that person is Dr. Gagani Athauda.

The pharmacology and toxicology section contains all of the data we have generated not only in the past four years, but everything we have done prior to that demonstrating the safety and efficacy of Schwann cell transplantation into animal models of SCI. The data we have collected in the past four years, however, specifically addresses toxicity, cell survival, migration of the cells to other body parts (biodistribution), and whether or not they formed tumors (tumorigenicity) in animals. The pig model has also given us crucial information about the safest way to inject cells, the appropriate dose and volume of cells to inject, as well as short-term survival and biodistribution of the cells. The non-human primate model has generated data demonstrating the feasibility of autologous transplantation, long-term safety, and significant functional benefit in a species very similar to humans. These data are all collectively very important for the FDA to be able to properly evaluate the risk:benefit ratio of Schwann cells as a therapeutic measure.

Once the FDA receives the IND application, they have 30 days to respond. Interestingly, if we hear no response, that actually means we are allowed to move forward with the clinical trial. What happens more often than not, however, is that the FDA will issue a clinical hold. They have the right to do so if they feel the information presented in the IND is insufficient for them to assess the risks that subjects would be exposed to in the trial. It is important to remember that testing cellular therapies for spinal cord injury in humans is a very new field; there are only a small handful of trials ongoing. Though Schwann cells are less risky than stem cells, there is always the possibility that the FDA will request specific additional safety data from us before they allow the clinical trial to proceed. If that happens to be the case, we will answer their requests and not stop until we obtain approval! 



FACULTY notes

James Guest, M.D., Ph.D.

recently travelled to the University of Alberta and gave the Louis D Hyndman Senior Lecture. This lecture deals with refinement of the use of animals in research. Dr. Guest and colleagues also published *“Technical aspects of spinal cord injections for cell transplantation. Clinical and translational considerations in the Brain Research Bulletin*, 2010.



Mark S. Nash, Ph.D., Professor of Neurological Surgery and Rehabilitation Medicine, published an invited monograph entitled *“Suppression of Proatherogenic Inflammatory Cytokines as a Therapeutic Countermeasure to CVD Risks Accompanying SCI”* in the winter edition of *Topics in Spinal Cord Injury Rehabilitation*. The work was a collaborative effort with co-authors Dr. Diana C. Cardenas, Professor and Chair of Rehabilitation Medicine, and Drs. Kevin Dalal and Jasmine Martinez-Barrizonte, both Clinical Assistant Professors of Rehabilitation Medicine. Dr. Nash also was keynote speaker at the Annual Stepping Forward-Staying Informed Spinal Cord Injury Research Conference in Boston, MA. The conference was sponsored by the New England Regional SCI System. Dr. Nash addressed the topic of *Cardiometabolic disorders after SCI: Causes, Consequences and*



Effective Interventions. He also published a manuscript entitled *“Safety, Tolerance, and Effectiveness of Extended-Release Niacin Monotherapy for Treating Dyslipidemia Risks in Persons with Chronic Tetraplegia: A Randomized Multi-Center Controlled Trial.”* Nash directed the first randomized multi-controlled trial to identify safe and effective intervention for early lipid disorders documented after cervical spinal cord injuries, which was sponsored by the National Institute for Disability and Rehabilitation Research.

Paula V. Monje, Ph.D., Research Assistant Professor, Department of Neurological Surgery was recently an invited speaker at the Interdisciplinary Stem Cell Institute, University of Miami Miller School of Medicine, and at the Department of Neuroscience, University of Connecticut Health Center, Farmington, CT, with a talk titled *Signaling mechanisms controlling*



Schwann cell dedifferentiation. Dr. Monje also presented *Uncoupling between proliferation and dedifferentiation in adult Schwann cells: Role of cAMP and JNK in the maintenance of the differentiated state and Contact with dorsal root ganglion axons increases Schwann cell proliferation through the activation of cAMP-PKA signaling* at the Society for Neuroscience Annual Meeting in San Diego, CA. Dr. Monje also received a Scientists and Engineers Expanding Diversity and Success (SEEDS) / NSF “You Choose” Leadership Award. University of Miami. The award sponsored the workshop “Strategies from a professional problem solving group” by Dr. Ellen Daniell in February 2011. Finally she and colleagues recently published *Schwann cell dedifferentiation is independent of mitogenic signaling and uncoupled to proliferation: role of cAMP and JNK in the maintenance of the differentiated state* in the *Journal of Biological Chemistry*.

Nancy L. Brackett, Ph.D., HCLD, Research Associate Professor, Departments of Urology and Neurological Surgery was named to the Board of Directors of the American Society of Reproductive Medicine and also received their STAR Award in 2010: The Star Award is given to ASRM members, nominated by their peers, who have



continuously contributed 10 or more years of presentations (beginning in 2000) at ASRM's Annual Meeting. Drs. Brackett and Charles Lynn submitted two abstracts to the American Urological Association meeting, both of which were accepted for notable presentations to be held in May 2011 in Washington, DC. The first abstract was accepted as a video presentation titled: *Treatment of anejaculation in men with spinal cord injury (SCI)*. The second abstract was accepted as a podium presentation and is titled: *Pregnancy outcomes by intravaginal insemination (IVI) and intrauterine insemination (IUI) in 79 couples with male factor infertility secondary to spinal cord injury*. Video and podium presentations are reserved for a small percentage of abstracts considered of high importance to the field.

John Bixby, Ph.D., Professor, Departments of Pharmacology and Neurological Surgery Senior Associate Dean for Graduate Studies & Postdoctoral Studies spoke at the January, 2011 meeting on High Content Analysis, in San Francisco "*Insights into Regulation of Neuronal Morphology by Protein Kinases Using Over-Expression and Chemical Inhibitors*"



Vance Lemmon, Ph.D., the Walter G. Ross Distinguished Chair in Developmental Neuroscience Professor, Department of Neurological Surgery was an invited participant in the National Institute of Child Health and Development (NICHD) Vision Theme Workshop on "*Plasticity*", in Bethesda, MD. The workshop was designed to help set a vision for the institute for the next 10 years. The public was encouraged to participate on-line at www.nichd.nih.gov/vision/ so people with children with SCI could offer their input on items that were most important to their circumstances.



Drs. Bixby, Lemmon, and colleagues also published "*Microtubule stabilization reduces scarring and causes axon regeneration after spinal cord injury*" in the February issue of *Science Magazine*.

Edelle C. Field-Fote, Ph.D., P.T., Professor, Departments of Physical Therapy and Neurological Surgery, has been named to the Board of Trustees of the Foundation for Physical Therapy and has been appointed to the Function, Integration and Rehabilitation Sciences Subcommittee of the National Institute of Child Health and Human Development (NICHD) Initial Review Group. This subcommittee serves an advisory role to the Directors of National Institutes of Health (NIH) and NICHD on research related to plasticity, recovery and adaptation, mobility, rehabilitative engineering, societal participation and other aspects of function and disability. Dr. Field-Fote also recently published *Influence of a Locomotor Training Approach on Walking Speed and Distance in People with Chronic Spinal Cord Injury: A Randomized Clinical Trial* in the January, 2011 issue of *Physical Therapy*.



Justin Sanchez, Ph.D., Associate Professor of Biomedical Engineering recently joined The Miami Project to Cure Paralysis faculty. He directs the Neuroprosthetics Research Group and was an invited speaker at the 2011 National Neurotrauma Society annual meeting in the session *Bypassing CNS Damage with Electronics*.



He holds a joint appointment in the departments and conducts neural engineering research that interfaces with clinical care to better understand human-machine interactions in neural prosthetics. He has two Defense Advanced Research Projects Agency (DARPA) grants that, combined, total more than \$3.3 million. Dr. Sanchez's work involves biomedical engineering, neuroscience, and rehabilitation to bring movement to those who might otherwise remain disabled or paralyzed.

"Take the Bionic Man and Woman— science fiction portrayed neural prosthetics in a unique way—getting signals directly from the brain," says Dr. Sanchez. "Today, we are developing technology to transform thoughts into actions."

25th Annual Great Sports Legends Dinner



2010 Great Sports Legends and Honorees

Nick and Marc Buoniconti along with Dinner Chair Mark Dalton and our Buoniconti Fund Board of Directors hosted an impressive crowd of more than 1,400 guests for the 25th Annual Great Sports Legends Dinner on Monday, September 27, 2010. It was truly a night to remember starting with the Event Presenting Sponsor Stewart Rahr most generously donating \$2 million for the event as well as underwriting Marc Buoniconti's new book, *Paralyzed*, set to launch in 2011-2012. The next big highlight came when Former President Bill Clinton surprised everyone by walking on stage to congratulate Nick and Marc and our Legends, Honorees and our supporters in our mission. Yet, there was more good news to come. Christine E. Lynn received the *2010 Outstanding Philanthropist Award* and wowed the audience by donating \$10 million to fund and name the Human Clinical Trials Initiative. We are so thrilled by the incredible outcome of this high profile event benefitting The Buoniconti Fund to Cure Paralysis.




Clockwise from top left: Stewart Rahr, Tom Brokaw and Bob Costas, President Bill Clinton, Michael Irvin and Harry Carson, Nick Buoniconti with Willie Mays and Bill Russell, Terry and Marc Buoniconti with Christine Lynn, Donna Summer

The 2010 Great Sports Legends Willie Mays, Bill Russell, Michael Irvin, Ignacio “Nacho” Figueras, Annika Sorenstam, Brian Leetch, Laird Hamilton and Calvin Borel each were introduced by spectacular career highlight reels produced by HBO Sports before they accepted their Tiffany & Co. awards on stage by sports broadcaster and the evening’s Master of Ceremonies, Bob Costas. Costas welcomed devoted benefactors Barbara and Jack Nicklaus to the stage to receive our *2010 Inspiration Award*, NFL Hall of Famer Dan Marino to receive the *2010 Buoniconti Fund Award*, and longtime Buoniconti Fund supporter Tom Brokaw who received our *2010 American Icon Award*.

“To be surrounded by this much compassion and support for a cause that is so meaningful to me and my family, is truly overwhelming. For twenty five years, our researchers have made discoveries and strides, and now, we are happy to move that work into humans with our upcoming clinical trials. Our researchers are changing the way the medical profession looks at and treats paralysis,” said Nick Buoniconti, Founder of The Buoniconti Fund.

Notables in attendance included Gloria and Emilio Estefan, Donald Trump, Olympian Skater Dorothy Hamill, NFL NY Giants Hall of Famer Harry Carson, CBS Sportscaster Lesley Visser, Apollo 11 Astronaut Buzz Aldrin, 10 time Olympic Medalist in Swimming Gary Hall, Jr, 1968 Olympic Long Jump Medalist Bob Beamon, MLB Great Scott Erickson, Former Miami Dolphin Earl Morrall, Def Jam cofounder and longtime Buoniconti Fund supporter Russell Simmons, actress and model Christie Brinkley, Former Miami Dolphin Nat Moore, Past Super Bowl MVP with the Redskins Mark Rypien, Former MLB Player with the Mets and Yankees Phil Linz, Former Miami Dolphin Super Bowl Champion Dick Anderson, NBA Hall of Famer Rick Barry, Jockey legend Jerry Bailey, 10 time Olympic Gold Medalist Carl Lewis, Olympic Bobsledding Gold Medalist Steve Holcomb, famous pop artist Romero Britto, and *Friday Night Lights* star Brad Leland...and so many others.

The VIP reception was sponsored by Carnival Corporation & plc. and the Vehicle Production Group, responsible for the MV-1, the first vehicle designed specifically for wheelchair accessibility. Major sponsors for the evening included Continental Airlines, Tiffany & Co., and Philip Knight of Nike. 



President Bill Clinton with Marc Buoniconti



Romero Brito and Buzz Aldrin



Christine Lynn and Ignacio "Nacho" Figueras



Stephen Ross and Donald Trump



Lois Pope and Dorothy Hamill



Jack and Barbara Nicklaus, Bob Costas and Tom Brokaw



Mary Frank



Dan Marino, Carl Lewis and Bob Beamon



Nick Buoniconti, Christine Lynn and John Gallo



Jack Schneider, Ignacio "Nacho" Figueras, Mark Dalton and Brian Leetch



Willie Mays, Marc Buoniconti and Calvin Borel



Jack Welch and Tom Brokaw



Christie Brinkley, Stewart Rahr and Russell Simmons



Marc Buoniconti, Annika Sorenstam and Dr. Barth Green



Thomas Leblanc, Marc Buoniconti and Pascal Goldschmidt, M.D.



The Pointer Sisters



Gary Hall, Jr., Rick Barry and Brian Leetch



Michael Irvin and Marc Buoniconti



Donald Trump and Stewart Rahr



Gloria and Emilio Estefan with Marc Buoniconti and Mr. and Mrs. Fred Drasner



Marc Buoniconti and Bill Russell



Laird Hamilton



Christine Lynn and Brian Leetch



Nat Moore and Dan Marino




Annika Sorenstam and Nick Buoniconti

9th Annual Buoniconti Fund Celebrity Golf Invitational presented by Tudor Group

Golf Legend Jack Nicklaus, along with Nick and Marc Buoniconti, hosted the 9th Annual Buoniconti Fund Celebrity Golf Invitational, presented by Tudor Group in May, 2011. The event was again held at Nicklaus' private course, The Bear's Club, and in nine years has raised more than \$5 million for The Miami Project's paralysis research programs. Our presenting sponsor had the opportunity to play with Jack Nicklaus who was recently awarded The Buoniconti Fund Inspiration Award along with his wife Barbara. The Nicklaus' have been truly amazing in their staunch commitment to our goal of curing paralysis.

The two-day celebrity event featured sports legends including **KC Jones, Bob Griese, John Vanbiesbrouck, Rick Barry, Mike Eruzione, Scott Erickson, Dick Anderson, Harry Carson, Gerry Cooney, Brian Kelley, Nat Moore, Jimmy Key and Rusty Staub** who all showed their support and helped raise the much needed funds for paralysis research.

The weekend included an auction featuring a Dwyane Wade Autographed Basketball, a Muhammad Ali Signature Collage and a Taylor Swift Autographed CD Collage, followed by the Celebrity Dinner in Nicklaus' private clubhouse. Celebrities and golfers teed off with a chance to win prizes including airline tickets courtesy of United Airlines for the longest drive and closest to the pin. The spectacular weekend concluded with a fabulous lunch and award presentation at The Bear's Club. A special thank you to our hotel sponsor, PGA National Hotel Resort & Spa. 



Nick Buoniconti, Jack Nicklaus, Marc Buoniconti, Barbara Nicklaus and Mark Dalton



Mark Dalton and Jack Nicklaus



KC Jones



Harry Carson, Nat Moore, John Vanbiesbrouck and Brian Kelley



Nick Buoniconti, Dr. Barth A. Green and John Lebaron from United Airlines

Destination Fashion is Back!

Saturday, March 3, 2012
at Bal Harbour Shops

This is the only time in Bal Harbour Shops' history that they close their doors to host this truly one-of-a-kind, high-profile, private celebrity-styled affair to benefit The Buoniconti Fund to Cure Paralysis! Join us as partygoers from the worlds of fashion, entertainment, sports and philanthropy gather for an unprecedented event. In years past, notables marveled as American iconic designers Ralph Lauren and Michael Kors produced spectacular fashion shows on custom-built runways and supporters enjoyed over-the-top performances by multi-platinum recording artist SEAL, Kool and The Gang, Donna Summer and The Pointer Sisters. Singing star and Buoniconti Fund Board member Gloria Estefan, past event Honorary Chairs Academy Award winner Tommy Lee Jones and Dawn Jones and Celebrity Presenters Jerry Rice, Scottie Pippen, Pat Riley, Don Shula, *Super 8* film star Kyle Chandler, Emilio Estefan, Ed Reed, Carl Lewis and *Friday Night Lights* television star Brad Leland joined in the festivities to help salute the Women of Substance & Style Honorees.

You won't believe what we have in store for you this time!!!

Make your reservations now! For more information, or for tickets and sponsorship opportunities, call Stephanie Sayfie Aagaard at 305-243-4656 or email saagaard@miami.edu



Seal



Don Shula and
Marc Buoniconti



Donna Summer



Gil de Ferran and Helio
Castroneves



Julio Iglesias with
Gloria and Emilio
Estefan

Jerry Rice, Scottie Pippen and Carl Lewis



Dick Anderson, Emerson Fittipaldi and
Nick Buoniconti



Dwayne Johnson



Jack Nicklaus with Tommy Lee Jones, Gloria Estefan
and Michael Kors



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 Volunteer Chapters launched the “**Chapters Challenge**” in June 2011. This campaign encourages our volunteers and supporters that are participating in local, regional, national and international races (i.e. marathon, triathlon, community walk, bike race) to utilize this new web-based program to raise funds and awareness of The Buoniconti Fund and The Miami Project to Cure Paralysis.



Individuals or teams that are participating in existing races can utilize our web-based program at <http://chapterschallenge.thebuonicontifund.com> to promote their involvement and raise funds for The Buoniconti Fund. The campaign offers the popular Friends Asking Friends tools and technology. Race participants can establish their own page, establish fundraising goals, contact friends and family, track their success, and make donations directly to The Buoniconti Fund. The overall campaign goal is to raise more than \$25,000 with the **Chapters Challenge** this year. Our goal is to have our volunteers and supporters walk, run, swim, bike and wheel their way across the finish line!

On January 15, the Miami Chapter hosted the “3rd Annual Coral Gables Block Party” presented by Hillstone Restaurant Group and Stephen & Lu Coxhead. Other sponsors included Kaufman Rossin & Co, Miami Physical Therapy Associates, TD Bank, David & Sunny LaValle, School House Medicine, Ritchey Family Foundation, Dolphin Medical, Sunset Mobility, Snapper Creek Trading Center, Damian & Valori LLP, Sushi Maki, Coca Cola, Smart Water, Pisco 100, Gordon Biersch Miami, Holy Mackerel, Fresh Beer, Blue Point, Shipyard Brewing, Mattebella Vineyards, House Jam by Wine Wave, Epicure and Publix markets.

The event brought a record number of attendees out for a great night under the stars with delicious food, cool microbrews and wine, live music by People You Know, dancing, and a fabulous drawing. Raising more than \$19,000, the committee is already planning the fourth annual event.



Marc Buoniconti and People You Know

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

October 16 ~ Southeast Michigan’s “Run for a Reason in the Detroit Marathon”

November 11 ~ Philadelphia Chapter’s “8th Annual Raise A Glass” at Simeone Automotive Museum

November 12 ~ Tampa Chapter’s “4th Annual Golf Classic hosted by Rick Hart” at Westchase Golf Club

November 19 ~ Cleveland Chapter’s “19th Annual Evening to benefit The Buoniconti Fund”

December 1 ~ Chicago Chapter’s “13th Annual Indulgence Night” at Gibson’s Steakhouse

September is National Spinal Cord Injury Awareness Month

Will you Stand Up For Those Who Can't?

Recognizing the devastating effects of sustaining a spinal cord injury, the United States Senate has declared September as National Spinal Cord Injury Awareness Month. This Resolution, sponsored by Senators Marco Rubio (R-FL) and Bill Nelson (D-FL), sends a strong message across the country that new therapies and resources need to be advanced to find a cure for paralysis.



Katie, Lisa and Darrell Gwynn with
Dr. Dietrich and Marc

In addition, the resolution honors the individuals and family members who have sustained a spinal cord injury and the dedication of local, regional, and national organizations, as well as researchers, doctors and volunteers across the country who are working to improve the lives of individuals living with paralysis every day.

“Over the years, improved research and public awareness efforts have helped us come a long way in treating and preventing spinal cord injuries. The inspiring work of The Miami Project to Cure Paralysis has touched the lives of millions of young athletes, accident victims and troops in harm’s way, and I commend them for it. By designating September as National Spinal Cord Injury Awareness Month, I hope we can further educate the public about how crippling accidents can be prevented while promoting the important work being done to help victims walk again,” said Senator Rubio.


In recognition of this special month, The Miami Project, The Buoniconti Fund, and the Darrell Gwynn Foundation are launching a united campaign to begin a global conversation asking people to “Stand Up For Those Who Can’t” and take action to help us find a cure for spinal cord injury.

Our intent is to create a national conversation about what it means to be paralyzed among private citizens, corporate and international partners, public policy advocates, celebrities and the media and to bring paralysis “out of the closet” and into the national spotlight.

“Every 48 minutes, another person in the United States will become paralyzed. That is simply unacceptable. Each of us must promise to do something,” said Nick Buoniconti. “But in order for this campaign to work, we need everyone who is reading this article to talk to every person they know about how paralysis has changed your life or why finding a cure is so important to you.”

We are asking people to do one or more of the following during the month of September:

- To go to our Facebook page (type in cure paralysis) and become a fan of our page.
- Change your Facebook profile picture to our logo (you can download the picture on our page).
- Email, Facebook and twitter your friends and family talking about why finding a cure for paralysis is important to you and ask your friends to become our Facebook fans.
- Post our video on your wall (you can share it from our page).
- Make a special donation in honor of a loved one, caregiver, scientist or organization who is working to improve the life of those injured.

Please help us spread the message that September is National Spinal Cord Injury Awareness month and make a donation today by honoring a special person in your life. 

Rick Hansen, Iconic Canadian Paralympian and World-Renowned Accessibility Advocate, Visits The Miami Project To Cure Paralysis

As part of his 25th Anniversary Tour, **Rick Hansen** and members of his Foundation and Institute traveled to Miami to sign a memorandum of understanding regarding cooperative research in the field of spinal cord injury (SCI) research, and to honor **Marc Buoniconti** and **Edelle Field-Fote, Ph.D.**, for their fundraising, advocacy and research work relating to SCI.

The Miami visit was the concluding stop of the international program for the Rick Hansen Foundation, which is celebrating the 25th Anniversary of Rick Hansen's Man In Motion World Tour, whereby Hansen wheeled through 34 countries across 25,000 miles from 1985-87 to raise awareness of the potential of people with disabilities. The \$26 million raised from the Tour has since been leveraged into \$245 million via the Rick Hansen Foundation over the past quarter century. The previous stops for the international program included visits to Jordan, Israel, Australia and China between November 2010 and March 2011.

"Partnering with world-class research facilities in order to develop collaboration around clinical trials, research, and implementation of best practices is a tangible step in accelerating progress towards a cure for paralysis from spinal cord injuries," said Rick Hansen, President and CEO of the Rick Hansen Foundation. "The American innovation we have seen today is a testament to the incredible progress being made in SCI research, and we are excited for what the future possibilities that continued U.S.-Canadian collaboration will bring."

Prior to the signing of the agreement, Hansen was given a tour of The Miami Project's research facilities on the campus of the University of Miami Miller School of Medicine. 



Dr. W. Dalton Dietrich and Dr. Kim Anderson welcome Rick and his delegation



Bill Barrable from the RHI with Rick, Marc Buoniconti and Dr. Dietrich



Rick takes a tour of The Miami Project labs



Bill Barrable with Marc, Rick, and Drs. Dietrich and Field-Fote

Strategic Partnership



Marc Buoniconti with Dr. Robert S. Langer

Expanding our horizons and developing new paths for treatment has led to our recently announced strategic partnership with InVivo Therapeutics Corporation.

The collaboration, which will evaluate InVivo's biopolymer devices in conjunction with our Schwann cell technologies, will combine biomaterial and cell-based approaches to develop a novel treatment for acute and chronic spinal cord injuries.

InVivo's technology, a scaffold implant intended to protect the spinal cord by mitigating the bleeding, inflammation, and further cell death resulting from the body's immune response after an initial spinal injury, and promotion of axonal regeneration was

developed at MIT's Langer Lab. Dr. Robert S. Langer is the most cited bioengineer in history and the Langer Lab has given birth to over 50 FDA-approved products in the fields of tissue engineering and drug delivery. InVivo's initial non-human primate work for acute SCI, published in the Journal of Neuroscience Methods, recently received the 2011 Apple Award from the American Spinal Injury Association, an honor that goes to the top SCI research publication.

Drs. Mary Bartlett Bunge and James Guest from The Miami Project and Dr. Langer of InVivo will co-lead the projects joined by MIT chemical engineer Tim O'Shea and InVivo cell biologist Roosevelt Marcel.

Upcoming Events

September 16, 2011

Third Annual Race for the Pennant Baseball Outing
Benefits the Philadelphia Chapter of The Buoniconti Fund
Citizens Bank Park
Philadelphia, Pennsylvania

September 26, 2011

Twenty-Sixth Annual Great Sports Legends Dinner
Benefits The Buoniconti Fund
Waldorf=Astoria
New York, New York

October 16, 2011

Run for a Reason - Detroit Free Press Marathon
Benefits the SE Michigan Chapter of The Buoniconti Fund
Detroit, Michigan

November 11, 2011

Eighth Annual Raise a Glass For A Cure
Benefits the Philadelphia Chapter of The Buoniconti Fund
Simeone Foundation Museum
Philadelphia, Pennsylvania

November 12, 2011

Fourth Annual Golf Tournament
Benefits the Tampa Chapter of The Buoniconti Fund
Westchase Golf Club
Tampa, Florida

March 3, 2012

Destination Fashion
Benefits The Buoniconti Fund
Bal Harbour Shops
Bal Harbour, Florida

Spring, 2012

Tenth Annual Buoniconti Fund Golf Invitational
Benefits the The Buoniconti Fund
The Bear's Club
Jupiter, Florida

September 24, 2012

Twenty-Seventh Annual Great Sports Legends Dinner
Benefits The Buoniconti Fund
Waldorf=Astoria
New York, New York

For a complete list of events please visit www.thebuonicontifund.com

The 6th Annual Poker4Life™



Ethan Ruby with the Poker4Life team


The 6th Annual Poker4Life™ Charity Poker Tournament was again a tremendous success thanks to all the generous sponsors and players. This year there were a total of 281 players along with our best sponsor list to date, all sharing the Positive Power of Poker at the Manhattan Automobile Company. The event raised more than \$150,000 for The Buoniconti Fund.

Congratulations to this year's winner, David Ostrow, and all of our final table finishers, especially NYC's own Goumba Johnny (4th place).

We appreciate all of our supporters and sponsors including MGM Grand, ARIA, ZYR Vodka, NY Knicks, NY Rangers, Wizard Studios, Charity Sports Auctions, Poker Players Alliance, and many more. A special thank you to Charles Smith, Ron Dugay, David Lee, Sabina Gadecki, Billy Gazes and Rick Bordian.

Please save the date of April 26, 2012 and continue to help us spread The Positive Power of Poker. As an added incentive, **starting next year, Poker4Life's Main Event will offer TWO seats to the WSOP Main Event, doubling your chances to win.**

Poker4Life also had its best representation to date at the 2011 World Series of Poker main event in Las Vegas. Although none of the 30+ Poker4Life patched players made it through 4 of the 8 grueling days, all were in good spirits and enjoyed this amazing event. Special thanks to Aria Hotel and Casino and Matt Sacca for hosting most of our players.

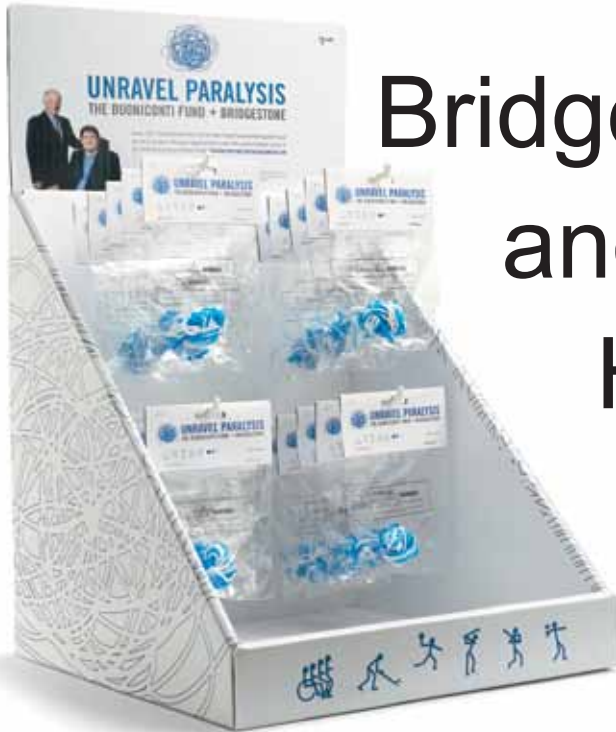
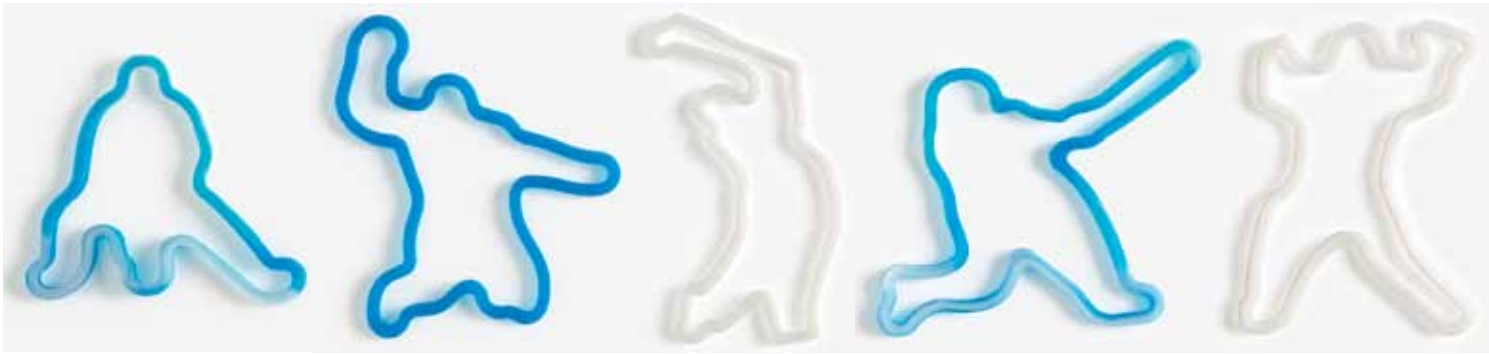
Remember, anytime you play poker you can pledge 1% to The Buoniconti Fund. Make that pledge and P4L will send you some patches to let others know you have The Positive Power of Poker on your side. Poker4Life allows poker players everywhere to be heroes to the charities they believe in. *Who Do You Play For* should be a part of every player's bio because there is an important advantage to playing for something greater than ourselves. 



David Lee and Sabina Gadecki



Poker4Life Founders Ethan Ruby and Jeremy Schwartz




Bridgestone Americas and Unravel Bandz Help Find a Cure for Paralysis

Bridgestone Americas, the U.S. subsidiary of the world's largest tire and rubber company, has joined our mission to cure paralysis. Beginning this fall, Bridgestone Americas Tire Operations (BATO) will launch a cause marketing program to benefit The Buoniconti Fund by selling specially created, sports-themed Unravel Bandz at select retailers nationwide.

The Unravel Bandz feature five different sports figures and are designed to “unravel” to symbolize The Miami Project’s 26-year fight to unravel paralysis. Executives at BATO were inspired to help find a cure for paralysis when they learned that we are on the cusp of achieving the goal that Nick Buoniconti declared more than two decades ago when his son Marc was paralyzed. BATO is underwriting 100 percent of the cost of the Bandz, which will sell for \$3 per set at retail stores, on our Marketplace website (thebuonicontifund.com), through local chapters, and at many of our events, including the 26th Annual Great Sports Legends Dinner on Monday, September 26th in New York.

The five varieties of Unravel Bandz celebrate the sports of hockey, football, baseball, basketball and golf – and each figure comes in three different colors. Bridgestone brand is the official tire of the NFL, NHL and PGA TOUR, so they are passionate about sports and the life lessons that sports can teach players, coaches and fans alike. The fact that The Buoniconti Fund is rooted in sports makes the partnership a natural one.

“At Bridgestone Americas, we are cheering on the stellar work of the scientists at The Miami Project who are devoted to helping people who suffer from paralysis walk again,” said Larry Magee, President, Bridgestone Americas Tire Operations, Consumer Group. “We are proud to play one small part in such a worthy and exciting journey.” 

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A photograph of a person in a wheelchair moving through a brightly lit hallway. The hallway has wooden walls and floors, and the perspective is looking down the length of the corridor. The wheelchair is in the foreground, and the person is partially visible. The background is slightly blurred, emphasizing the movement and the person's journey.

**September Is
National Spinal Cord
Injury Awareness Month**

**Will you Stand Up For
Those Who Can't?**



UHealth
UNIVERSITY OF MIAMI HEALTH SYSTEM

UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE