



DEPARTMENT OF VETERANS AFFAIRS
Veterans Affairs Medical Center
1201 NW 16th Street
Miami, Florida 33125-1693

Re: Cell Therapeutic Conditioned Media, Photobiomodulation, and Rehabilitative Motor Training for Chronic SCI

Dear Scientific Review Board,

I am pleased to be able to guide and mentor Dr. Jeffrey Datto, Ph.D., for his CDA2 award proposed research project. This letter outlines my commitment to Dr. Datto as his primary mentor.

Plan for the candidate's training and research career development: At his current Research Associate III position at the Miami Project to Cure Paralysis, Dr. Datto has learned several technical skills needed to conduct pre-clinical spinal cord injury (SCI) research, and has become very proficient at completing tasks assigned to him autonomously. However, knowing it is his desire to be more than a technician, I have developed the following plan to help him achieve his goal of becoming an independent investigator.

- **Discuss in person his research interests and formulate a mentoring plan.** We have already met and discussed Dr. Datto's interests in pursuing his own research projects as an independent investigator. His desired interests are certainly feasible, but I have also encouraged him to seek out additional expertise as collaborators that he could learn from. I have also encouraged him to seek out funding opportunities that he would qualify for. To my pleasure he has done both. For this proposal, I will help with the design and implementation of the studies described. I have extensive experience with the implementation of the proposed methodologies and can therefore assist Dr. Datto with his study's specific aims.

- **Become well versed in the current literature.** Reading is a never-ending process in being an independent scientific investigator. It is my desire to see Dr. Datto reading new scientific journal articles daily. Additionally, I have initiated a journal club for my lab in which each lab member presents a PowerPoint on a journal article of interest every Wednesday afternoon. This has led to extensive discussion as well as a better understanding of current methodologies, scientific exploration, and new potential directions to explore.

- **Become an active participant in the scientific community.** Dr. Datto will attend, learn from, and eventually present his work at numerous conferences and scientific gatherings, including the North American Association for Photobiomodulation Therapy Conference, Society for Neuroscience Conference, Military Health System Research Symposium, The Miami Project Special Lecture Series, The Miami Project Wednesday Seminar Series, Miami Project - Gail F. Beach Memorial Visiting Lectureship Series, The Department of Neurological Surgery Grand Rounds, and Neurology Grand Rounds. Additionally, he will be continually educated through the Collaborative Institutional Training Initiative program and the VA Competency Development for Leaders (CDL) training program.

- **Publish in high impact journals.** Through the University of Miami, Dr. Datto has been improving his writing skills at the UM writing center and grant writing workshops. He will continue to do so during his mentored training. I expect him to have 1 high impact publication from each year of this study. Additionally, any scientific knowledge and intellectual property arising from this work I expect him to take with him to start his own research program.

- **Learn to mentor.** To become an independent investigator, Dr. Datto will need to learn how to be a mentor himself. ULearn is the University of Miami's Learning Management System (LMS), and includes a catalog of thousands of on-line and live professional development courses, certifications, books and videos. As part of its commitment to continuing development, the

University of Miami has expanded ULearn to include over 2,000 new professional development courses and certifications, as well as over 100,000 books and videos. ULearn expansion benefits also include access to Skillsoft – a library of professional development courses, books, and live events. As part of his training, Dr. Datto will be required to take the professional management and mentoring programs. It is also important for Dr. Datto to be able to learn how to manage a team to become an independent investigator. Therefore, as this career development award progresses, I will allow Dr. Datto to manage University of Miami undergraduate students with my oversight, who will assist him in the behavioral acquisition for this project.

The nature and extent (percent effort) of supervision and mentoring of the candidate, and commitment to the candidate's development that will occur during the award period: I have set aside 10 percent effort for supervision and mentoring. This mentoring encompasses group mentoring for all my lab members at our weekly journal clubs and work update presentations, as well as weekly individual face to face discussions on the progress of the research and to address questions. In addition to these planned weekly interactions, I am always available by email and will quickly respond to any urgent needs no matter the time of day. Also, specifically for this project, I will have Dr. Datto provide monthly updates to all the collaborators about the progress of his work.

Nature of resources that will be committed to this CDA: I have an extensive list of facilities and resources available to me at The Miami VAMC and the University of Miami LPLC (The Miami Project to Cure Paralysis Lois Pope Life Center) that will be committed to this Career development award. I have provided the list already to Dr. Datto to include in his CDA award, but I also list them here.

- **Laboratory:** The laboratory space of the PI at LPLC is composed of four rooms (1,200 sf.) fully equipped for immunohistochemistry, biochemistry and molecular biology. An adjoining enclosed room (129 sf.) contains three ultramicrotomes, where plastic sectioning is done for light and electron microscopic examination of tissue. A tissue culture suite managed by the PI (550 sf.) holds three BSL2 hoods and four incubators for work with human cells, rat cells, and viral vectors as well as a tissue culture microscope with fluorescence microscopy and photography, refrigerated centrifuge, cell storage unit, very low & low temp freezers and related equipment; the facility is located across the hall from the PI's biochemistry laboratories. The PI will have access to all resources, including tissue preparation equipment (cryostat, homogenizer) and items necessary for immunochemistry, western blotting and specimen imaging (see equipment section). These facilities are approximately a 10 minute walk from the Miami VAMC.

The PI's laboratory at the VAMC for basic biochemistry, molecular, and most histological procedures occupies about 500 sq. ft. in a lab facility (Rm2B-103) in the VAMC Research area, near the PI's Tissue Culture lab (Rm2B-123). The PI's lab contains all necessary histology equipment (Rm2A-103) and will be used to examine and stain the cryosectioned spinal cord. This laboratory space is for the exclusive use of the PI and will be dedicated to this and related projects. There is adequate work space for 6 investigators, while only 3 investigators (Me, one of my Co-Investigators and 1 technician) occupy the space currently.

The PI has a dedicated Transplantation Tissue Culture Facility (Rm2B-123) for all cell culture and preparation related to the cell lines used for transplantation. This contains two CO2 incubators, two Class IIA hoods, a tissue culture microscope with fluorescence microscopy and photography, a refrigerated centrifuge, a cell storage unit, very low & low temp freezers and related equipment; the facility is located across the hall from the PI's main laboratory.

- **Animal:** At LPLC, behavioral testing and surgery is performed on the 6th floor of the building. The surgery room is fully equipped with 7 surgical microscopes, gas anesthesia, harvard heating apparatus, instrument bead sterilizers, and post-operative incubators. The behavioral testing room contains a narrow beam device, an irregular-horizontal ladder, a swimming tank, an automated CatWalk apparatus, a Vincon-Peak 3D kinematics system and a BBB open-field locomotor pool. We also have electrophysiology equipment including Axoprobe-1A amplifiers, Grass Amplifiers, WPI stimulators, Micromanipulators, Tektronix Oscilloscopes as well other monitoring equipment

and equipment for animal perfusion and tissue preparation. The LPLC also has animal facilities and veterinarian staff on the 6th floor for the holding and care of naive and post-operative animals. The animal care facility for all experimental animals is separated from the other laboratory spaces, with access available by elevators. The surgical area and behavioral areas are in close proximity on the same hallway.

Miami VAMC maintains a separate animal care facility for all experimental animals in the same building, with access available by elevators. The surgical area and behavioral areas are in close proximity on the same hallway in the VAMC Animal Facility. The Behavioral Testing facility contains 6 major dedicated devices for measure of allodynia and hyperalgesia, including a newly-acquired automated tactile allodynia device for PI's exclusive use; it is located adjacent to the surgical space. Facilities for Behavioral Testing are currently located in two 8 x 10 ft rooms located near the small animal surgery. These rooms and all related equipment are dedicated for sensory testing after peripheral nerve and central cord injuries and are under the direct supervision of the PI.

- **Computer:** The LPLC laboratory contains 8 desktop computers, including 4 high-grade computers with 3.8GHz quad processors and 8 Gb RAM for image analysis. The Miami Project has a fully integrated wireless internet system and shared resource space that is remotely backed up for emergency in excess of 4 Tb. Each full-time member has access to their own personal computer. Additionally, 3 laboratory laptop computers are available to lab staff who conduct work outside of the laboratory (i.e., at a conference or symposia). The Miami VA is also well-equipped with computers, both office computers and systems within the laboratories devoted to behavioral imaging and analysis as well as electrophysiology data acquisition.

- **Office:** The PI has office space (146 sq ft) at the LPLC, which is located immediately adjacent to the main laboratory. This office contains a number of bookshelves, an individual desk and a meeting table for laboratory discussions with 1-2 laboratory staff members. The close proximity of the PI's office space to the laboratory ensures that he can maintain a high degree of supervision and is always easily available for advice to his staff.

The PI will also maintain a dedicated office space on the 2nd floor of the Miami VAMC building. This room contains a desk, chairs, outside windows, a Pentium 4 computer with Windows XP, a variety of software programs for photographic and statistical analysis of data, and a color laser printer, DeskJet 970Cse.

- **Other:** The Miami VAMC research offices are on the 2nd floor of the facility and contain the office of the AO for Miami VAMC. These offices are maintained by a complete support staff for all research projects.

At LPLC the PI will have the support (technical expertise and assistance as well as services) of several core facilities of The Miami Project that are available to all faculty members: The Viral Vector Core (for making and propagating lenti- and adeno-associated-viral vector constructs generated in the PI's laboratory), Imaging Core (containing three fluorescent microscopes for stereological quantification and two confocal microscopes for imaging), Histology Core (for the embedding and sectioning of tissue specimens), and Animal Core (for animal surgeries, behavior and care). The availability of these resources to the PI and collaborators will ensure the feasibility of all technical aspects of the experimental plan by ensuring that sufficient space is available to all research staff and that important equipment pieces and adequate expertise is available to perform the envisioned studies: animal surgery and care, behavioral testing, viral vector construction and gene delivery, histological processing of tissue samples and image analyses. The Miami Project to Cure Paralysis is a center of excellence in spinal cord and brain injury with more than 25 years of experience in these injury models and a wide diversity of therapeutic approaches to restore function following trauma. The proposed study will benefit from the tremendous expertise and resources that are uniquely available at this specialized institute for the research focus of the proposed investigation, which will greatly contribute to the probability of success for this study.

Plan for transitioning candidate from the mentored stage to independent investigator stage by the end of the project award: I know through my interactions with Dr. Datto that he is very happy for this opportunity to be part of the VA. Thus, it is my plan to help ensure that the facilities,

resources, and mentoring are in place for Dr. Datto to be able to successfully complete this project and be competitive in the future for merit awards. This will allow Dr. Datto to be able to establish himself as an independent investigator at any VAMC that wishes to strengthen their SCI research efforts.

For the past 15 years, I have mentored 26 graduate and postgraduate trainees and several additional highly talented undergraduate students. A complete list of those I have mentored is as follows:

Thesis and Dissertation Advising:

Graduate Thesis Advisor

2005-2008	Sandra M. Schaal	Neuroscience Program, Graduate
-----------	------------------	--------------------------------

Masters, Honors and Undergraduate Thesis Advisor

2013-2014	Anja Kamphuizen	Utrecht University, Netherlands, Master's Thesis
2013-2014	Claudia Saborit	HHMI Program
2012-2014	Yahya Mohammed	UM Medical Degree, <i>Research Distinction</i>
2011-2012	Jennifer Carrasco	HHMI Program
2010-2011	Michelle LeBlanc	Barry University, Master's Thesis
2010-2011	Angelica Matta	HHMI Program
2009-2012	Navid Ajabshir	UM Honors Program, <i>Summa Cum Laude</i>
2009-2012	William Park	UM Honors Program, <i>Summa Cum Magna</i>
2009-2012	Tamzid Rahman	UM Honors Program, <i>Summa Cum Magna</i>
2009-2010	Daniela Garcia	Barry University, Master's Thesis
2009-2011	Angela Astorini	HHMI Program
2007-2010	Julian Iorgulescu	UM Honors Program, <i>Summa Cum Laude</i>
2007-2009	Gigo Alex	UM Medical Degree, <i>Research Distinction</i>
2007-2009	Johanna Said	HHMI Program
2006-2009	Taylor Wilson	UM Honors Program, <i>Summa Cum Laude</i>
2006-2012	Dominic Maggio	UM Medical Degree, <i>Research Distinction</i>
2006-2007	Isaac Markus	HHMI Program
2006-2007	Valerie Dias	HHMI Program
2006-2007	Barbara Kierst	HHMI Program
2006-2007	Shantanu Neravetla	UM Honors Program, <i>Summa Cum Magna</i>
2005-2006	Neil Masters	UM Honors Program, <i>Summa Cum Laude</i>
2005-2008	Lina Ramirez	HHMI/IMSDS Programs
2004-2011	Vivek Patel	UM Medical Degree, <i>Research Distinction</i>
2004-2006	Genevieve Vazquez	UM HHMI Program, <i>Summa Cum Magna</i>
2004-2006	Jack Louro	UM Honors Program, <i>Summa Cum Laude</i>

Graduate Student Laboratory Rotation Training:

2014	Fiorella Magnani	PIBS University of Miami
2013	Yun Ji Choi	PIBS University of Miami
2012	Amber Hackett	PIBS University of Miami
2012	Terrell Morton	PIBS University of Miami
2009	Nicole Carlson	Neuroscience University of Miami
2007	Randall Breneman	Neuroscience University of Miami
2007	Brandon Kitay	Neuroscience University of Miami
2006	Jin He Lee	PIBS University of Miami

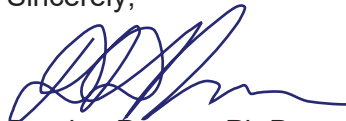
Qualification Examination Committee:

2008	Randall Breneman	Neuroscience University of Miami
2007	Paul Morton	Neuroscience University of Miami

Training of Postdoctoral Fellows:

2012 – 2017	Sudaheendra Rao M.D. Ph.D.	
2012 – 2015	Jiaqiong Wang M.D. Ph.D.	Resident researcher, VAMC
2012 – 2015	Hady Felfly Ph.D.	Linguistics, Department of Defense
2012 - 2012	Bo Zhou M.D. Ph.D.	Neurosurgeon, China
2012 – 2015	Mazen Assi M.D.	Non-scientific career
2011 – 2014	Weijun An M.D.	Scientist, UMSM
2009 – 2016	Johana Bastidas M.D.	
2011 – 2012	Joung-Woul Kim Ph.D.	Postdoc. Assoc., Georgia Tech U.
2011 – 2012	Kashif Abad M.D.	Medical practice
2010 – 2011	Betsy Jullienne Ph.D.	Non-scientific career
2010 – 2011	Clara Penas Ph.D.	Postdoc. Assoc. John P. Hussman Institute
2009 – 2010	Cheng-Chih Liao M.D.	Assist.Prof./Neurosurgeon, Chang-Gung U.
2008 – 2010	Sung-Hoon Kim, M.D. Ph.D	Prof. Rehab. Med. Yonsei U., S Korea
2008 – 2009	Fengshan Yu, M.D.	Scientist, NIH NIMH
2008 – 2009	Anjana Jain, Ph.D.	Assistant Prof, Worcester Polytechnic Inst.
2007 – 2009	Roozbeh Golshani, Ph.D.	Research Scientist, Illumina Inc.
2007 – 2014	Mousumi Ghosh, Ph.D.	Research Assistant Professor, U. Miami.
2005 – 2008	Amanpreet Singh, Ph.D.	Research Scientist, PsychoGenics
2005 – 2006	Gravil Joseph, M.D.	Medical Doctor, Port au Prince, Haiti
2005 – 2006	Govinder Flora, Ph.D.	Prin Scientist, Emergent Biosolutions Inc.
2004 – 2007	Maneesh Garg, J.D. M.D	Medical Practice
2004 – 2006	Yerko Berrocal, M.D.	Associate Prof, U. of Illinois at Chicago

Sincerely,



Damien Pearse, Ph.D.
Research Health Scientist
Miami VA Medical Center

Bennington CBOC
186 North Street
Bennington, VT 05201
(802) 447-6913

Brattleboro CBOC
71 GSP Drive
Brattleboro, VT 05301
(802) 251-2200

Colchester CBOC
162 Hegeman Avenue
Colchester, VT 05446
(802) 655-1356

Littleton CBOC
685 Meadow Street, Suite 4
Littleton, NH 03561
(603) 444-1323

Rutland CBOC
215 Stratton Rd.
Rutland, VT 05702
(802) 770-6713

A MEMBER OF THE VA NEW ENGLAND HEALTHCARE SYSTEM

Visit us at our web site <http://www.visn1.med.va.gov/wrj/>