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Curriculum Vitae

Svitlana Nicolai Garbuzova-Davis

Education

1999 Institute of Physiology,
Ukraine National Academy of Sciences, Kiev
Doctor of Science in Biological Science (Physiology of man and animals)
Dissertation "Brain system of positive emotional support and its place in the mechanisms of acquired motivations (an experimental investigation)"

1987 Kharkiv State University, Ukraine
Ph. D. in Biological Science (Physiology of man and animals)
Dissertation "Limbic-neocortex mechanisms in formation of smoking dependency"

1980 Kharkiv State University, Ukraine
M.S. in Biological Science (Physiology of man and animals)
Thesis "Electrophysiological analysis of age peculiarities of alcohol dependency in the rat"

Employment

April 2000 – present (**Primary Appointment**)
Department of Neurosurgery and Brain Repair
Center of Excellence for Aging and Brain Repair
University of South Florida Morsani College of Medicine
- Professor (tenured, August 2016 – present)
- Associate Professor (August, 2012 – August 2016)
- Assistant Professor (September, 2004 – August 2012)
- Instructor (March, 2001 – September, 2004)
- Visiting Assistant Professor (April, 2000- March, 2001)

Joint Appointments at USF
- Department of Molecular Pharmacology and Physiology (2004 – present)
- Department of Pathology and Cell Biology (2004 – present)

Mar 1979 – Nov 1999
Ukrainian Scientific Research Institute of Experimental Neurophysiology and Psychiatry, Kharkiv
- Lead researcher (1993-1999)
- Senior researcher (1988-1993)
- Junior researcher (1983-1988)
- Chief laboratory assistant (1979-1983)

Mar 1976 – Mar 1979
Ukrainian Scientific Research Institute of Children's Health, Kharkiv
- Laboratory assistant of the Department of Age Physiology

Sep 1973 – Feb 1976
Regional T.B. Prophylactic Center, Kharkiv, Ukraine
- Hospital nurse

Awards

- Senior Member of the National Academy of Inventors Award, 2023
- Certificate in recognition of the review contributed to the Journal Stem Cells Translational Medicine, 2021
- Certificate of appreciation for serving as an Editorial Board Member for International Journal of Molecular Science, 2021
- Certificate in recognition of the review contributed to the Journal Neural Regeneration Research, 2021
- Certificate of appreciation for serving as an Editorial Board Member for Scientific Reports, 2018
- Certificate in recognition of the review contributed to the Journal Seminars in Cell and Development Biology, 2018
- Certificate in recognition of the review contributed to the Journal Experimental Neurology, 2018
- Certificate of outstanding contribution in reviewing for the Journal of the Neurological Science, 2018
- USF Excellence in Innovation Award, The 8th Annual Luncheon of the USF Chapter of the National Academy of Inventors, 2016
- Certificate of Excellence for outstanding contributions as Program Director for the Master's in Medical Sciences concentration in Aging & Neuroscience – Morsani College of Medicine, Graduate & Postdoctoral Affairs, 2015
- USF Internal Award, 2014
- Platinum Dean's Recognition Award (USF) for achievements and leadership in education and research/scholarly activity, 2010
- Dean's Bonus Award (USF) for excellence in teaching and research, 2009
- SIPIN Award (USF), 2008
- Award for mentoring exceptional undergraduate students (Honors College, USF), 2008
- Michael Charles Winery Foundation Award, 2007
- USF Internal Award, 2003
- Senior Scientific Researcher Award, High Attestation Committee of Ukraine, 1999 (AC No. 000856)

Scholarly Activity

Research Interests

- Blood-CNS barrier
- Cell transplantation
- Development
- Human umbilical cord blood
- Immune system
- Inflammation
- Neurodegenerative diseases
- Neuroregeneration
- Neurovascular unit
- Spinal cord pathology
- Stem Cells
- Stroke

Research Support

Current

Grant #: 1R21 NS132576-01
Title: "Targeting Blood-CNS-Barrier in ALS via Apolipoprotein A1"

Agency: NIH, 05/15/23 – 01/31/26
Description: The objective of this study is to determine whether Apolipoprotein A1 administration provides therapeutic benefits for restoration of blood-CNS-barrier integrity in ALS mice.
Role: **PI** (**Garbuzova-Davis**/Borlongan, multiple PIs)

Completed

Grant #: 1RO1 NS090962-01
Title: "Re-establishing Vascular Integrity in ALS via Endothelial Cell Transplant"
Agency: NIH, 04/01/15 – 03/31/21
Description: The purpose of this project is to determine the effect of restoration of blood-spinal cord barrier integrity in ALS by transplantation of endothelial progenitor cells from human bone marrow to retard motor degeneration.
Role: **PI** (**Garbuzova-Davis**/Borlongan, multiple PIs)

Grant #: 1R01NS071956-01A1
Title: "Blood-Brain Barrier Repair in Cell Therapy for Stroke"
Agency: NIH, 07/01/11 – 06/30/17
Description: The purpose of this project is to test the hypothesis that endothelial progenitor cells derived from human bone marrow exert therapeutic benefits in *post-acute* stroke via BBB repair.
Role: **PI** (Borlongan/**Garbuzova-Davis**, multiple PIs)

Grant #: N/A
"Repairing Blood-Spinal Cord Barrier in ALS by Endothelial Cell Transplant"
Agency: USF Proposal Enhancement Grant, Internal Awards Program, 05/01/14 – 04/30/15
Description: The purpose of this project was to determine the blood-spinal cord barrier repair by intravenous administration of non-CNS or CNS-derived endothelial cells into symptomatic G93A SOD1 mice, a mouse model of ALS.
Role: **PI**

Grant #: 4KB01
Title: "HLA Interactions with Human Cord Blood Cells in a Humanized Mouse Model of Stroke"
Agency: James and Esther King Biomedical Research Program, 10/01/13 – 03/31/15
Description: The purpose of this project was to develop a new mouse model in which we could test the effect of HLA matching on the ability of human cord blood cells to treat stroke.
Role: **Co-PI** (Willing, PI)

Grant #: W81XWH-11-1-0634 (Sub-Award 1)
Title: "Battlefield-Related Injury Translational Research, Post Traumatic Disease and Disability-Veterans Reintegration Strategy"
Agency: Department of Defense, 09/20/11 – 03/30/14
Description: The purpose of this project is to develop a better understanding of the underlying pathophysiology of TBI injury so we can better treat and rehabilitate our soldiers and veterans. Studies are investigating different aspects of the recovery and rehabilitation process.
Role: **Co-I** (Borlongan, PI)

Grant #: 1KG01-33966
Title: "Blood-Brain Barrier Repair in Cell Therapy for Stroke"
Agency: James and Esther King Biomedical Research Program, 07/01/10 – 12/31/13
Description: The purpose of this project was to determine possible structural and functional BBB repair in *acute* rat models of stroke by transplantation of endothelial progenitor cells derived from human bone marrow.
Role: **Co-PI** (Borlongan, PI)

Grant #: N/A
Title: "Treating Sanfilippo with Umbilical Cord Blood Stem Cells"

Agency: Children's Medical Research Foundation, 07/01/01 – 06/30/13
Description: The goal of this project was to determine the existence of a stem cell population from umbilical cord blood which can adopt a neural phenotype and the feasibility of treating Sanfilippo (a mental retardation syndrome) with these cells.
Role: **Co-PI** (Sanberg, PI)

Grant #: 92452
Title: "Blood-Brain Barrier Evaluation in ALS Patients"
Agency: MDA, 07/01/08 – 12/31/10
Description: The purpose of this project was to determine possible BBB damage in ALS patients using electron microscope and immunohistochemical analysis of post-mortem brainstem and spinal cord tissue.
Role: **PI**

Grant #: N/A
Title: "Cord Blood Cells to Treat Sanfilippo"
Agency: Lauren's Hope Foundation**,** 06/01/06 – 12/31/10
Description: The goal of this project was to determine the existence of cord blood volume-reduced cells, which can deliver the deficient *Naglu* enzyme and reduce the accumulation of heparan sulfate, after administration into the systemic circulation of a mutant mouse model of Sanfilippo syndrome type B.
Role: **PI**

Grant #: 1 R01 NS052839-01
Title: "Cord Blood Is Neuroprotective in a Rat Model of Stroke"
Agency: NINDS/NIH, 03/15/06-2/28/10
Description: The purpose of this project was to characterize the neuroprotective and anti-inflammatory mechanisms by which human umbilical cord blood cells induce brain repair after a stroke.
Role: **Co-I** (Willing, PI)

Grant #: 1 R41 NS046870-01
Title: "Cord Blood in ALS: Replacement or Protection?"
Agency: NIH/NINDS Phase I STTR Grant; 08/2004 – 07/2006
Description: The major goal of this project was to determine the ability of umbilical cord blood to delay disease progression and increase lifespan in a mouse model of ALS.
Role: **PI**

Grant #: N/A
Title: "Minimally Modified Cord Blood to Treat ALS"
Agency: Florida High Tech Corridor, 03/01/04 – 06/30/05
Description: The goal of this project was to determine the effectiveness of a T-cell depleted fraction from umbilical cord blood in delaying disease symptoms and increasing lifespan in a mouse model of ALS.
Role: **Co-I** (Liu, PI)

Grant #: N/A
Title: "Is the Blood-Brain Barrier Damaged in a Mouse Model of ALS?"
Agency: USF Internal Awards Program, 05/01/03-04/30/04
Description: The goal of this project was to determine BBB condition in the SOD1 mouse model of ALS, upon initial appearance of disease symptoms and in late stage disease.
Role: **PI**

Grant #: N/A
Title: "Umbilical Cord Blood-Derived Stem Cells to Treat ALS"
Agency: Florida High Tech Corridor, 07/01/02 – 06/30/04
Description: The goal of this project was to determine the effectiveness of isolated aldehydedehydrogenase (ALDH+) cells from umbilical cord blood in delaying disease symptoms and increasing lifespan of a mouse model of ALS.
Role: **PI**

Grant #: N/A

Title: "Treating Sanfilippo with Umbilical Cord Blood Stem Cells"
Agency: Children's Medical Research Foundation, 03/01/01 – 06/30/07
Description: The goal of this project was to determine the effectiveness of human umbilical cord blood cells via administration into the systemic circulation of a mutant mouse model of Sanfilippo syndrome type B.
Role: **Co-PI** (Sanberg, PI)

Speaking Engagements

1. Tampa Bay Arts & Education Network (TBAE), May 11, 2023. **Invited speaker**.
2. Teleconference "Advanced Therapy for ALS" hosted by Dr. Jay Lombard, February 24th, 2021. *Repair of the Blood-CNS-Barrier in Amyotrophic Lateral Sclerosis*. **Invited speaker.**
3. Research Educational Seminar, Phi Delta Epsilon Medical Fraternity, USF, November 25, 2019. *Stem cell-based therapy for repair of the blood-CNS-barrier in ALS.* **Invited speaker.**
4. Neuroscience Institute, Faculty Seminar, USF, October 31, 2019. *Stem cell-based therapy for repair of the blood-CNS-barrier in ALS.* **Invited speaker.**
5. The 13th Annual European Symposium "Brains for Brain", Frankfurt, Germany, January 24 – January 26, 2019. *Human bone marrow endothelial progenitor cell transplantation into symptomatic ALS mice benefits repair of the blood-spinal cord barrier*. **Invited speaker.**
6. International Neural Transplantation and Repair Society, American Society for Neural Therapy and Repair, Clearwater Beach, FL, April 26, 2018. *Advancing stem cell therapy for repair of blood-spinal cord barrier in symptomatic ALS mice.* Oral presentation.
7. The 12th Annual European Symposium "Brains for Brain", Frankfurt, Germany, March 8 – March 10, 2018. *Stem cell therapy for repair of the blood-spinal cord barrier in ALS*. **Invited speaker.**
8. The 11th Annual European Symposium "Brains for Brain", Frankfurt, Germany, March 29 – April 1, 2017. *Maternal transplantation of human umbilical cord blood cells leads to prenatal treatment of MPS III B*. **Invited speaker.**
9. Society for Neuroscience, San Diego, CA, November 16, 2016. Program No. 666.04. *Human bone marrow stem cell transplantation for repair of the blood-spinal cord barrier in symptomatic ALS mice: optimization of cell dose.* Nanosymposium. Oral presentation.
10. Bay Pines VA Healthcare System, Continuing Medical Education, Bay Pines, Florida, October 28, 2015. *Blood-CNS barrier alterations in ALS.* **Invited speaker.**
11. The 2nd Zing "Barriers of the CNS" Conference, Parador de Oropesa, Spain, September 27-30, 2015. Altered *blood-CNS-barrier in ALS: how to repair?* **Invited plenary speaker.**
12. Tulane Neuroscience Program Seminar, Tulane University School of Medicine, New Orleans, August 26th, 2015. *Repairing the altered blood-CNS barrier in ALS*. **Invited speaker.**
13. American Society for Neural Therapy and Repair, Clearwater Beach, FL, May 2, 2015. *The role of blood-brain barrier alterations in subacute and chronic ischemic stroke rat models.* Oral presentation.
14. The Ninth Annual European Symposium "Brains for Brain", Frankfurt, Germany, February 3-8, 2015. *Human umbilical cord blood cells in treatment of MPS III B*. **Invited speaker.**
15. The Eighth Annual European Symposium "Brains for Brain", Frankfurt, Germany, March 7-9, 2014. *Blood–brain barrier changes in Sanfilippo syndrome (MPS III)*. **Invited speaker.**
16. American Society for Neural Therapy and Repair, Clearwater Beach, FL, April 27, 2013. *Blood-brain/spinal cord barrier impairment in ALS: similarities and differences in humans versus an animal model.* Oral presentation.
17. International Neural Transplantation and Repair Society, American Society for Neural Therapy and Repair, Clearwater Beach, FL, May 5, 2011. *Blood-brain barrier impairment in a mouse model of MPS III B.* Oral presentation.
18. USF Stem Cell Research Event, Friday, April 29, 2011. *ALS is a neurovascular disease: how to repair?* Oral presentation.
19. Sanfilippo Symposium, Arnold Palmer Hospital for Children, Arnold Palmer Medical Center Foundation, Orlando, FL, April 8, 2011. *Blood-brain barrier impairment in a mouse model of MPS III B.* **Invited speaker.**
20. MDA National Scientific Conference, Las Vegas, NV, March 13, 2011. *Blood-brain/spinal cord barrier impairment in ALS: how to repair?* **Invited speaker.**
21. USF Department of Neurosurgery and Brain Repair Grand Rounds, February 5, 2010. *Blood-brain/spinal barrier impairment and potential repair in ALS*. Oral presentation.

22. American Society for Neural Therapy and Repair, Clearwater Beach, FL, May 1, 2009. *Human umbilical cord blood in treatment of Sanfilippo syndrome type B.* Oral presentation.
23. The ALS Association Florida Chapter (support group), USF Shriners Hospital for Children, Tampa, FL, April 21, 2007. *Umbilical cord blood cells in the treatment of ALS.* **Invited speaker.**
24. Society for Neuroscience. Atlanta, GA, October 18, 2006. *Dose-response study of human umbilical cord blood cells in treatment of ALS.* Program No. 708.7. Oral presentation.
25. USF Department of Molecular Pharmacology and Physiology Fall Seminar, September 18, 2006. *Prenatal treatment in Sanfilippo Type B mouse model by transplantation of human umbilical cord blood cells*. Oral presentation.
26. Young Investigators Workshop hosted by The ALS Association, St. Petersburg, FL, January 25-26, 2006. *Treatment of ALS with umbilical cord blood cells.* Oral presentation.
27. USF Department of Physiology and Biophysics Fall Seminar, Tampa, FL, October 31, 2005. *Cell therapy for ALS: advantages and limitations.* Oral presentation.
28. Buck Institute, San Francisco, CA, August 26, 2005. *Cell therapy for ALS.* **Invited speaker.**
29. American Society for Neural Therapy and Repair, Clearwater Beach, FL, April 28, 2005. *Blood-brain barrier is compromised in ALS mice: a new perspective on cell therapy*. Oral presentation.
30. II Neurotoxicity Society meeting, Vina Del Mar, Chile, April 8-10, 2005. *Cord blood cells in treatment of neurodegenerative diseases: advantages, limitations, and potential.* **Invited speaker.**
31. American Society for Neural Therapy and Repair, Clearwater Beach, FL, May 7, 2004. *Human umbilical cord blood cells as a potential cell source for treatment of ALS.* Oral presentation.

Publications

1. Manora L, Borlongan CV, **Garbuzova-Davis S**. (2024) *Cellular and Noncellular Approaches for Repairing the Damaged Blood–CNS–Barrier in Amyotrophic Lateral Sclerosis*. Review. Cells, Special Issue "Recent Advances of Endothelial Progenitor Cells in Vascular Endothelial Function and Tissue Repair", 13, 435. doi.org/10.3390/cells13050435.
2. **Garbuzova-Davis S.**, Borlongan C. (2023) *Transplanted Human Bone Marrow Endothelial Progenitor Cells Prolong Functional Benefits and Extend Survival of ALS Mice Likely via Blood-Spinal Cord Barrier Repair*. Stem Cell Reviews and Reports, Oct; 19(7): 2284-2291. doi: 10.1007/s12015-023-10579-1.
3. Lockard G., Gordon J., Schimmel S., El Sayed B., Monsour M, **Garbuzova-Davis S.**, Borlongan C. (2023) *Attenuation of Amyotrophic Lateral Sclerosis via Extracellular Vesicle Therapy: An Updated Review*. Neuroprotection. Dec; 1(2): 130-138. doi: 10.1002/nep3.26.
4. Monsour M., **Garbuzova-Davis S.**, Borlongan C.V. (2022) *Patching up the permeability: The role of stem cells to lessen neurovascular damage in Amyotrophic Lateral Sclerosis.* Stem Cells Transl Med,, Dec 30; 11(12): 1196-1209. doi: 10.1093/stcitm/szac072.
5. **Garbuzova-Davis S.**, Willing A.E., Borlongan C.V. (2022) *Apolipoprotein A1 enhances endothelial cell survival in an in vitro model of ALS*. eNeuro; 10.1523/ENEURO.0140-22.2022 epub.
6. **Garbuzova-Davis S.**, Boccio K.J., Llauget A., Shell R., Hailu S., Mustafa H., Ehrhart J., Sanberg P.R., Appel S.H., Borlongan C.V. (2021) *Beneficial effects of transplanted human bone marrow endothelial progenitors on functional and cellular components of blood-spinal cord barrier in ALS mice.* eNeuro, Sep 16; 8(5): ENEURO. 0314-21.2021. doi: 10.1523/ENEURO.0314-21.2021.
7. Sadanandan N., Lee J-Y., **Garbuzova-Davis S.** (2021) *Extracellular vesicle-based therapy for amyotrophic lateral sclerosis*. Brain Circulation, 7(1):23-28, doi: 10.4103/bc.bc_9_21.
8. **Garbuzova-Davis S.**, Boccio K.J., Ehrhart J., Sanberg P.R., Appel S.H., Borlongan C.V. (2021) *Detection of endothelial cell-associated human DNA reveals transplanted human bone marrow stem cell engraftment into CNS capillaries of ALS mice*. Brain Research Bulletin, May; 170:22-28. doi: 10.1016/j.brainresbull.2021.01.020.
9. Park Y.J., Farooq J., Cho J., Sadanandan N., Cozene B., Gonzales-Portillo B., Saft M., Borlongan M.C., Borlongan M.C., Shytle R.D., Willing A.E., **Garbuzova-Davis S.**, Sanberg P.R., Borlongan C.V. (2021) *Fighting the war against COVID-19 via cell-based regenerative medicine: lessons learned from 1918 Spanish flu and other previous pandemics*. Stem Cell Reviews and Reports, August 13:1-24, doi: 10.1007/s12015-020-10026-5.
10. **Garbuzova-Davis S.**, Borlongan C.V. (2021) *Stem cell-derived extracellular vesicles as potential mechanism for repair of microvascular damage within and outside of the central nervous system in*

amyotrophic lateral sclerosis: perspective schema. Neural Regeneration Research, 16(4):680-681, doi: 10.4103/1673-5374.294337.

11. **Garbuzova-Davis S.**, Willing A.W., Ehrhart J., Wang L., Sanberg P.R., Borlongan C.V. (2020) *Cell-free extracellular vesicles derived from human bone marrow endothelial progenitor cells as potential therapeutics for microvascular endothelium restoration in ALS*. NeuroMolecular Medicine, August 20, doi: 10.1007/s12017-020-08607-1.
12. Saft M., Gonzales-Portillo B., Park Y.J., Cozene B., Sadanandan N., Cho J., **Garbuzova-Davis S**., Borlongan C. (2020) *Stem cell repair of the microvascular damage in stroke*. Cells, Sep 11: 9(9):E2075, doi: 10.3390/cells9092075.
13. **Garbuzova-Davis S.**, Shell R., Mustafa H., Hailu S., Willing A.W., Sanberg P.R., Borlongan C.V. (2020) *Advancing stem cell therapy for repair of damaged lung microvasculature in Amyotrophic Lateral Sclerosis.* Cell Transplantation, 29:1-9. doi: 10.1177/09636897201913494.
14. **Garbuzova-Davis S.**, Ehrhart J., Mustafa H., Llauget A., Boccio K.J., Sanberg P.R., Appel S.H., Borlongan C.V. (2019) *Phenotypic characteristics of human bone marrow-derived endothelial progenitor cells in vitro support cell effectiveness for repair of the blood-spinal cord barrier in ALS.* Brain Res. 1724:146428. doi: 10.1016/j.brainres. 2019. 146428.
15. **Garbuzova-Davis S.**, Kuren C., Haller E., Eve D.J., Navarro S., Steiner G., Mahendrasah A., Hailu S., Khatib M., Boccio K.J., Borlongan C.V., Van Loveren H.R., Appel S.H., Sanberg P.R. (2019) *Human bone marrow endothelial progenitor cell transplantation into symptomatic ALS mice delays disease progression and increase motor neuron survival by repairing blood-spinal cord barrier.* Sci Rep. 9(1):5280. doi: 10.1038/s41598-019-41747-4.
16. Ehrhart J., Sanberg P.R., **Garbuzova-Davis S**. (2018) *Plasma derived from human umbilical cord blood: potential cell-additive or cell-substitute therapeutic for neurodegenerative diseases.* J Cell Mol Med. 22(12):6157-6166. doi: 10.1111/jcmm.13898.
17. **Garbuzova-Davis S.**, Haller E., Navarro S., Besong T.E., Boccio K.J., Hailu S., Khatib M., Sanberg P.R., Appel S.H., Borlongan C.V. (2018) *Transplantation of human bone marrow stem cells into symptomatic ALS mice enhances structural and functional blood-spinal cord barrier repair.* Exp Neurol. 310:33-47. doi: 10.1016/j.expneurol.2018.08.012.
18. Delic V., Kurien C., Cruz J., Zivkovic S., Barretta J., Thomson A., Hennessey D., Joseph J., Ehrhart J., Willing A.E., Bradshaw P., **Garbuzova-Davis S**. (2018) *Discrete mitochondrial aberrations in the spinal cord of sporadic ALS patients.* J Neurosci Res. 96(8):1353-1366, doi: 10.1002/jnr.24249.
19. Eve D.J., Steiner G., Mahendrasah A., Sanberg P.R., Kurien C., Thomson A., Borlongan C.V., **Garbuzova-Davis S.** (2018) *Reduction of microhemorrhages in the spinal cord of symptomatic ALS mice after intravenous human bone marrow stem cell transplantation accompanies repair of the blood-spinal cord barrier.* Oncotarget. 9(12): 10621-10634, doi: 10.18632/oncotarget.24360.
20. **Garbuzova-Davis S.**, Ehrhart J., Sanberg P.R., Borlongan C.V. (2018) *Potential role of humoral IL-6 cytokine in mediating pro-inflammatory endothelial cell response in amyotrophic lateral sclerosis*. Int J Mol Sci. 19(2):e423, doi: 10.3390/ijms19020423.
21. **Garbuzova-Davis S.,** Ehrhart J., Sanberg P.R. (2017) *Cord blood as a potential therapeutic for Amyotrophic Lateral Sclerosis.* Expert Opin Biol Ther, 17(7): 837-851, doi: 10.1080/14712598.2017.1323862.
22. **Garbuzova-Davis S.,** Kurien C., Thomson A., Falco D., Ahmad S., Staffetti J., Steiner G., Abraham S., James G., Mahendrasah A., Sanberg P.R., Borlongan C.V. (2017) *Endothelial and astrocytic support by human bone marrow stem cell grafts into symptomatic ALS mice towards blood-spinal cord barrier repair*. Scientific Reports, 7(1): 884, doi: 10.1038/s41598-017-00993-0.
23. **Garbuzova-Davis S.,** Haller E., Lin R., Borlongan C.V. (2017) *Intravenously transplanted human bone marrow endothelial progenitor cells engraft within brain capillaries, preserve mitochondrial morphology, and display pinocytic activity towards BBB repair in ischemic stroke rats*. Stem Cells, 35(5): 1246-1258, doi: 10.1002/stem.2578.
24. **Garbuzova-Davis S.**, Thomson A., Kurien C., Shytle R.D., Sanberg P.R. (2016) *Potential new complication in drug therapy development for Amyotrophic Lateral Sclerosis.* Expert Rev Neurother, 16(12):1397-1405, doi: 10.1080/14737175.2016.1207530.
25. **Garbuzova-Davis S.**, Haller E., Tajiri N., Thomson A., Barretta J., Williams S.N., Haim E.D., Hua Qin, Frisina-Deyo A., Abraham J.V., Sanberg P.R., Van Loveren H., Borlongan C.V. (2016) *Blood-spinal cord barrier alterations in subacute and chronic ischemic stroke rat models*. J Neuropathol Exp Neurol, 75(7): 673-688, doi: 10.1093/jnen/nlw040.

26. Eve D.J., Ehrhart J., Zesiewicz T.A., Jahan I., Kuzmin-Nichols N., Sanberg C.D., Gooch C.L., Sanberg P.R., **Garbuzova-Davis S.** (2016) *Plasma derived from human umbilical cord blood modulates mitogen-induced proliferation of mononuclear cells isolated from the peripheral blood of ALS patient.* Cell Transplant, 25(5): 963-971, doi: 10.3727/096368915X688579.
27. Thomson A., **Garbuzova-Davis S.** (2016) *Vascular endothelial cells as biomarkers of microvascular endothelium damage and repair in cardiovascular and neurodegenerative disease*. J Cardiovascular Disorders, 3 (2): id1026. ISSN 2379-7991.
28. Fang C., **Garbuzova-Davis S.**, Tan J., Obregon D. (2015) *C1q as a Regulator of Brain Development: Implications for Autism Spectrum Disorders*. Brain Disord Ther, 4: 1, doi: 10.4172/2168-975X.1000152, e-pub.
29. Eve D.J., Ehrhart J., Zesiewicz T.A., Jahan I., Kuzmin-Nichols N., Sanberg C.D., Gooch C.L., Sanberg P.R., **Garbuzova-Davis S.** (2015) *Plasma derived from human umbilical cord blood modulates mitogen-induced proliferation of mononuclear cells isolated from the peripheral blood of ALS patient.* Cell Transplant, doi: 10.3727/096368915X688579, e-pub.
30. Ehrhart J., Smith A.J., Kuzmin-Nichols N., Zesiewicz T.A., Jahan I., Shytle R.D., Kim S-H., Sanberg C.D., Vu T.H., Gooch C.L., Sanberg P.R., **Garbuzova-Davis S.** (2015) *Humoral factors In ALS patients during disease progression.* J Neuroinflammation, 12: 127. doi: 10.1186/s12974-015-0350-4.
31. Haim E.D., Williams S.N., Sanberg P.R., **Garbuzova-Davis S.N.** (2015) *Recent patents in cell therapy for amyotrophic lateral sclerosis.* Recent Patents on Regenerative Medicine, 5 (1): 10-15. doi: 2210-2973/15S100.00.
32. **Garbuzova-Davis S.**, Haller E., Williams S.N., Haim E.D., Tajiri N., Hernandez-Ontiveros D.G., Frisina-Deyo A., Boffeli S.M., Sanberg P.R., Borlongan C.V. (2014) *Compromised blood-brain barrier competence in remote brain areas in ischemic stroke rats at chronic stage.* J Comp Neurol, 522: 3120-3137. doi: 10.1002/cne.23582.
33. Willing A. E., **Garbuzova-Davis S. N.**, Zayko O., Derasari H. M., Rawls A. E., James C. R., Mervis R.F., Sanberg C. D., Kuzmin-Nichols N., Sanberg P. R. (2014) *Repeated administrations of human umbilical cord blood cells improve disease outcomes in a mouse model of Sanfilippo syndrome type III B*. Cell Transplant, 23(12): 1613-1630. doi: 10.3727/096368913X676916.
34. **Garbuzova-Davis S.**, Sanberg P.R. (2014) *Blood-CNS barrier impairment in ALS patients versus an animal model*. Front Cell Neurosci, Special issue "Cellular and molecular mechanisms of motor neuron death in amyotrophic lateral sclerosis", 8:21. Review. doi: 10.3389/fncel.2014.00021.
35. Rodrigues M.C.O., Sanberg P.R., Cruz L.E., **Garbuzova-Davis S.** (2014) *The innate and adaptive immunological aspects in neurodegenerative disease*. J Neuroimmunol, 269(1-2):1-8. Review. doi: 10.1016/j.jneuroim.2013.09.020.
36. **Garbuzova-Davis S.**, Mitryl S., Sallot S.A., Hernandez-Ontiveros D., Haller E., Sanberg P.R. (2013) *Blood-brain impairment in MPS III patients.* BMC Neurol, 13(1): e174. doi: 10.1186/1471-2377-13-174.
37. Valdes E.G., **Garbuzova-Davis S.** (2013) *Brain and spinal cord trauma as a risk factor for amyotrophic lateral sclerosis: a mini review.* The Open Journal of Neuroscience, 3-4. Review.
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Patents

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4. **Garbuzova-Davis S.**, Nelson P., Borlongan C.V., Van Loveren H.R., Nelson P. *Non-invasive method for direct delivery of therapeutics to the spinal cord in the treatment of spinal cord pathology*. USA Patent No. US 10,285,935 B2. Issued May 14, 2019.
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Scientific Conference Presentations (abstracts/posters)

Abstracts (135 total; listing since 2018)

1. Llauget A., Shell R., Hailu S., Mustafa H., Jaffe S., Sanberg P.R., Borlongan C.V., **Garbuzova-Davis S.** (2021) *Human bone marrow-derived stem cell transplantation into symptomatic ALS mice*

attenuates blood-spinal cord barrier damage by re-establishing pericyte coverage and endothelium cytoskeleton. The 28th Annual Conference for American Society for Neural Therapy and Repair, August 19 – August 22, 2021, Clearwater Beach, FL. Cell Transplantation V.XX: 12-13.

2. Llauget A., Shell R., Hailu S., Mustafa H., Jaffe S., Sanberg P.R., Borlongan C.V., **Garbuzova-Davis S.** (2020) *Human bone marrow-derived stem cell transplantation into symptomatic ALS mice attenuates blood-spinal cord barrier damage by re-establishing pericyte coverage and endothelium cytoskeleton.* The 30th annual USF Health Research Day, February 21, 2020. (Alex Llauget is the winner of outstanding undergraduate student research and poster presentation in Basic Science).
3. Mustafa H., Llauget A., Ehrhart J., Boccio K.J., Sanberg P.R., Borlongan C.V., **Garbuzova-Davis S.** (2019) *Phenotypic characteristics of the human bone marrow derived endothelial progenitor cells in vitro as a potential cell type for repair of the blood-spinal cord barrier in ALS*. The 26th Annual Conference for American Society for Neural Therapy and Repair, April 25 – April 27, 2019, Clearwater Beach, FL.
4. Mustafa H., Llauget A., Ehrhart J., Boccio K.J., Sanberg P.R., Borlongan C.V., **Garbuzova-Davis S.** (2019) *Phenotypic characteristics of the human bone marrow derived endothelial progenitor cells in vitro as a potential cell type for repair of the blood-spinal cord barrier in ALS.* USF Undergraduate Research Conference, URCONF-2019, April 4, 2019.
5. **Garbuzova-Davis S.** (2019) *Human bone marrow endothelial progenitor cell transplantation into symptomatic ALS mice benefits repair of the blood-spinal cord barrier*. The 13th Annual European Symposium "Brains for Brain", Frankfurt, Germany, January 24 – 26, p.33.
6. **Garbuzova-Davis S.**, Eve D.J., Steiner G., Mahendrasah A., Navarro S., Besong T., Cruz J., Hailu S., Inbornone S., Harrington K., Sanberg P.R., Borlongan C.V. (2018) *Advancing stem cell therapy for repair of blood-spinal cord barrier in symptomatic ALS mice.* The 25th International Neural Transplantation and Repair Society, American Society for Neural Therapy and Repair, Clearwater Beach, FL. Cell Transplantation 27(4): 692.
7. **Garbuzova-Davis S.** Sanberg P.R., Borlongan C.V. (2018) *Stem cell therapy for repair of the blood-spinal cord barrier in ALS*. The 12th Annual Symposium European "Brains for Brain", Frankfurt, Germany, March 8 – 10, p.33, 2018.
8. Khatib M., Hailu S., Eve D.J., Cruz J., Navarro S., Boccio K.J., Ford R., Sanberg P.R., Borlongan C.V., **Garbuzova-Davis S.** (2018) *Intravenous human bone marrow derived endothelial progenitor cell transplantation into symptomatic ALS mice potentially repairs blood-spinal cord barrier.* The 28th annual USF Health Research Day, February 23, 2018. (Mohammed Khatib is the winner of outstanding undergraduate poster presentation in Neuroscience Research).

Teaching

University of South Florida

- **Director,** Aging and Neuroscience Concentration (Master's Degree and Graduate Certificate) (2009 - 2015)
- Facilitator, BMS 6837, "Evidence-based Clinical Reasoning II (EBCR/CPS 2)", second year medical students (2016 - 2017), 2 credit hours
- Facilitator, BMS 6641.712M15, "Medical Science 2: Neurological System" second-year medical students (Fall 2015 - present), 2 credit hours
- **Director**, GMS 7930, "Introduction to Research in Biomedical Sciences" (2014), 3 credit hours
- **Director**, GMS 6908, "Medical Science Independent Study" (2011 - 2015)
- Instructor/Mentor, GMS 6908, "Medical Science Independent Study" (2015 - present), 1-3 credit hours
- **Director**, GMS 6771, formerly GMS 7930, "Aging and Neuroscience" (2009 - 2015), 3 credit hours
- **Director**, GMS 6604, "Human Structure and Function", formerly GMS 6772, "The Spinal Cord: Development, Pathology and Therapy" (2020 - present), 12 credit hours
- **Director**, GMS 6772, formerly GMS 7930, "The Spinal Cord: Development, Pathology and Therapy" (2007, 2010 - 2019), 12 credit hours
- **Director**, GMS 7910, "Directed Research" (2009 – 2015), 5-6 credit hours
- Instructor/Mentor, GMS 7910, "Directed Research" (2015 - present), 5-6 credit hours

- Facilitator, BMS 6832, “Clinical Problem Solving” (2008 - 2011), 2 credit hours, worked with more than twenty second-year medical students
- Instructor, GMS 6708, formerly GMS 7930, “Neuroimmunology” (2008 - present), 3 credit hours
- Instructor, GMS 6771, “Aging and Neuroscience” (2016 - present), 3 credit hours
- Instructor, GMS 7930, “Aging and Neuroscience” (2006-2008), 3 credit hours
- Co-Director, GMS 7930, "Stem cells and Brain Repair" (2004, 2006, 2008), 3 credit hours
- Instructor, GMS 6773, "Stem cells and Brain Repair" (2009 - present), 6 credit hours
- Instructor of medical classes “Normal Physiology” and “Pathological Physiology” at Kharkiv Medical Institute (Ukraine), 1997-1999

Mentoring at USF

- Research of 83 undergraduates, including honor students
- Director of Honors Theses for 9 undergraduate students
- Directed Research of 19 graduate students
- Summer Research of 2 high school students
- Summer Research of undergraduate from a different university
  - Natasha Kurji, Emory University (2011, 2012)
- Summer Research of medical students:
  - Artyom Vlasenko, Ross University School of Medicine, 4th year (2015)
  - Andrew Wagner, Florida Atlantic University College of Medicine, 1st year (2012)
  - Richard David Heekin, USF, 1st year (2009)
  - Bryan Allen, USF, 1st year (2007)
  - Jalidsa Pellicier, USF, 1st year (2007)
  - Irina Kolomey, Touro University, College of Osteopathic Medicine, 3rd year (2006)
- Research of 13 employees
- Lab rotations of Ph.D. students
- Christina Drenberg, GMS 7930, “Introduction to MBS research” (Fall 2006)
- Mibel Pabon, GMS 7930, “Introduction to MBS research” (Fall 2006)
- Research of Ph.D. student, Diana Hernandez-Ontiveros (2010 – 2012)
- Research of Ph.D. student, Vedad Delic (2014-2015)
- Research of Jared Ehrhart, Ph.D. (2016-2018)
- Committee member for post-doctoral CDA-2 grant of Ricci Haines, Ph.D. (2015)
- Committee member of graduate student Samantha Portis (2016 - 2018)
- Research of International M.D.’s:
  - Islam Awad Saleh (2007 – 2008)
  - Vinil Kumar Bardi (2007 – 2008)
  - Zaman Shadaduzzaman (Summer – Fall 2007)
- Research supervision of International Post-Doctoral Fellows:

Antonio Sánchez Herranz, Ph.D.	Maria Carolina de Rodrigues, M.D., Ph.D.
Senior Researcher	Rheumatologist
Hospital Ramón y Cajal	University of Sao Paulo
Madrid, Spain	Sao Paulo, Brazil
(June - September, 2009)	(June, 2010 – August, 2011)

Other Mentoring

- Mentoring Institute for Neuroscience Diversity Scholars (MINDS) – mentoring Candice Brown, Assistant Professor, West Virginia University School of Medicine (November 2015)

Continuing Education

- Effective Employee Coaching (PRC 103, 2013)
- Running Productive Meetings (PRC 100, 2013)
- Dialogue at Work (TAL 100, 2013)
- Understanding Workstyles (TAL 101, 2013)
- Schemas and Stereotypes (2012)

Service

Reviewing manuscripts

- Brain Research
- Brain Research Bulletin
- Cell Transplantation
- Clinical Medicine
- Clinical Neurology and Neurosurgery
- CNS & Neurological Disorders – Drug Targets
- Cytotherapy
- Experimental Neurology
- Expert Opinion on Biological Therapy
- Expert Opinion on Drug Discovery
- FASEB
- Journal of Neurochemistry
- Journal of Neuroinflammation
- Journal of Neuropathology and Experimental Neurology
- Journal of Neuropsychiatric Disease and Treatment
- Journal of Neuroscience
- Journal of Neuroscience Methods
- Lancet
- Molecular Neurodegeneration
- Neurobiology of Disease
- Neurological Science
- Neuropathology and Applied Neurobiology
- Neuroscience Letters
- Neurotoxicity Research
- PNAS
- PLoS ONE
- Scientific Reports
- Stem Cells
- Stem Cells & Development
- Tohoku Journal of Experimental Medicine
- Vascular Research

Editorial Board Memberships

- ISRN Stem Cells (2012 – 2015)
- Recent Patents in Regenerative Medicine (2010 – 2015)
- Current Regenerative Medicine, formerly Recent Patents in Regenerative Medicine (2016 – 2022)
- Scientific Reports (2018 – 2021)
- International Journal of Molecular Science (2018 – 2021)

Participation On Research Peer-Review Panels

- **NIH** *ad hoc* reviewer
  - ZNS1 SRB-I (20) Study Section (October 2024)
  - ZRG1 FO1A-F (20) Study Section (November 2021)
  - ZHL1 CSR-C (M2) Study Section (March, 2021)
  - ZRG1 BDCN-L (02) Study Section (April, 2020)
  - ZRG1 CBA55R Study Section (November, 2016)
  - ZRG1 CBJ55R Study Section (May, 2016)
  - ZRG1 CBJ55R Study Section (October, 2015)
  - ZRG1 CBJ55R Study Section (March, 2015)
  - ZHL1 CSR-D (S2) Study Section (October, 2014)
  - ZRG1 BDCN-L (02)M (November, 2012)
  - CMAD Study Section (June, 2005)
- French ALS Association (March 2022)
- University of Missouri Research Board (2015)
- Israel Science Foundation (2015)
- Telethon Foundation, Italy (2015, 2016, 2019)
- Foundation for Polish Science (2011, 2018)
- Czech Science Foundation (2011)
- CIMIT – Center for Integration of Medicine and Innovative Technology, USA (2010)
- **DOD** (USMRAA) Study Panel (2008)
  - CDMRP (ALS Research Program, TI-3) (September, 2020)
- The National Medical Research Council of Singapore (2007 - present)
- The State of Pennsylvania Department of Health (2006 - present)
- FARA **-** The Friedreich's Ataxia Research Alliance (2006)
- USF internal award proposals (Fall 2003, Spring 2004)

Service to USF College of Medicine

- CQE chair for Ph.D. candidate Taylor Martinez, USF Morsani College of Medicine, Department of Molecular Medicine (February 20th 2020)
- Committee member of graduate student Samantha Portis (2016- 2018)
- Mock interviews of medical residency candidates, USF Morsani College of Medicine (Fall 2015)
- Committee member of post-doctoral CDA-2 grant application (Haines R., Ph.D.) (2015)
- Chairperson of Examining Committee (Doctoral Dissertation Defense, Vedad Delic) (June 16th 2015)
- Mock interviews of medical residency candidates, USF Morsani College of Medicine (Fall 2013)
- Interviews of medical student candidates, USF College of Medicine (Fall 2006)
- Interviews of residency candidates, USF Department of Neurosurgery (Fall 2005, Spring 2006, Fall 2015)

Professional Committees

- CDP Advisory Committee, Continuing Professional Development, USF Health (2012 -- 2014)
- Council Committee, American Society for Neural Therapy and Repair (2011 – 2014, 2018 - 2021)
- Graduate Coordinators Committee, USF Morsani College of Medicine (2009 -- 2015)
- Organizing Committee, American Society for Neural Therapy and Repair (2007 -- 2014)
- Research Committee, USF Morsani College of Medicine (2006 -- 2010, 2011 -- 2013)
- Women's Status Committee, initiated award "Women in Women's Health

Science Research" for USF's Research Day (USF, 2005 -- 2007)
- ❖ Publication Council Committee (USF, 2005 -- 2007)

Professional Societies

- ❖ National Academy of Inventors. USF Charter Member Institution (2015 - present)
- ❖ American Heart Association (2013 – 2018)
- ❖ International Brain Barrier Society (2012 – present)
- ❖ International Behavioral Society (2002 -- 2005)
- ❖ Society for Neuroscience (2002 – present)
- ❖ American Society for Neural Therapy and Repair (2001 -- present)

Consultancies

- ❖ Mead Johnson Nutrition, LLC (2012 -- 2015)
- ❖ Saneron CCEL Therapeutics, Inc. (2001 – 2018)