

Curriculum Vitae

PERSONAL AND PROFESSIONAL INFORMATION

Name: *Jessica A. Filosa, Ph.D.*

Augusta University: Associate Professor

Professional Address:

Department of Physiology
Augusta University
1120 15th Street
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August, GA 30912

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EDUCATION

High School

Saint Hilda's College, Buenos Aires, Argentina (1985-1990)

Southwestern College, Winfield, KS. USA

Bachelor of Science in Biology (1991-1995)

Emporia State University, Emporia, KS. USA

Master of Science in Biology (1995-1997)

Wright State University, Dayton, OH. USA

Ph.D. Biomedical Sciences (1997-2002)

Advisor: Dr. Robert W. Putnam

Thesis: Possible mechanisms involved in the chemosensitive response of locus coeruleus neurons: The role of intracellular and extracellular pH and their corresponding ionic channel targets.

RESEARCH AND PROFESSIONAL EXPERIENCE

Postdoctoral Associate (09/2002-11/2004)

University of Vermont, Burlington, VT. USA

Supervisor: Dr. Mark T. Nelson

Project: During my postdoctoral training I changed fields from central control of respiration to vascular physiology. I introduced the line of neurovascular coupling in the laboratory of Dr. Nelson.

Research Assistant Professor (Dec. 2004-May 2007)

Department of Psychiatry

University of Cincinnati, Cincinnati, OH. USA

Assistant Professor (June 2007- April 2008)

Department of Psychiatry

University of Cincinnati, Cincinnati, OH

Assistant Professor-tenure track (May 2008–2014)

Department of Physiology

Georgia Regents University, Augusta, GA

Associate Professor-tenure (July 1st 2014-present)

Department of Physiology

Augusta University (formerly, Georgia Regents University), Augusta, GA

ADMINISTRATIVE RESPONSABILITIES/APPOINTMENTS

Scientific Review Committees (Ad Hoc):

National Institute of Health (Molecular, Cellular and Developmental Neurosciences IRG)

National Institute of Health (Cellular and Molecular Biology of Glia (CMBG))

National Institute of Health (Neural Oxidative Metabolism, Mitochondria and Cell Death (NOMD))

National Institute of Health (Molecular Neuropharmacology and Signaling Study Section (MNPS) and Molecular and Cellular Substrates of Complex Brain Disorders Special Emphasis Panel ZRG1 MDCN-P(57))

American Heart Association-Regional

American Heart Association-National

Natural Sciences and Engineering Research Council of Canada

The French National Research Agency (ANR)

Healthy Brains for Healthy Lives (HBHL), McGill University

Journal Referee:

The Journal of Neuroscience

Trends in Neurosciences

Hypertension

PNAS

Journal of Theoretical Biology

PlosONE

AJP: Heart and Circulation

AJP: Regulatory, Integrative and Comparative Physiology

Journal of Neurochemistry

Nature Neuroscience

Glia

Neuroscience

Journal of Physiology

eLife

Cellular and Molecular Neurobiology

Review Editor

Frontiers in Neuroscience (Frontiers in Neuroenergetics)

Frontiers in Neuroscience (Frontiers in Vascular Biology)

Session Chair:

- *Feature Topic Session: Neuro-glia-vascular communication in the brain. (Experimental Biology meeting, 2007 Washington, DC)*
- *10th European Meeting on Glial Cells in Health and Disease. Symposium 24 – Neuro-glia-vascular signaling pathways in the brain Chairs: Jessica Filosa (USA), Dale Pelligrino (USA) Sep. 13-17, 2011 Prague, CZ.*

Major Institutional Committees

- Institutional Chemical Safety Committee Member (2008-present)
- Departmental Graduate Student Committee (2008-present)
- Search Committee Member for Warren Endowed Chair, Obesity and Diabetes (2012)
- Search Committee Member for Chair Pharmacology & Toxicology (2013)
- Search Committee Member for Assistant Professor in Physiology (2018)
- AU Basic Science Advisory Council committee (2018-present)
- AU Intramural Grants Programs (IGP) (2017-present)
- Search Committee Member for Chair Neuroscience & Regenerative Medicine position (2017-present)
- Search Committee Member for Chair Physiology (2018-present)
- Student Thesis Committees:
 - Brandi Wynne graduate student, PI/mentor: Dr. Clinton Webb, Dept. of Physiology
 - Krishna Naskar graduate student, PI/mentor: Dr. Javier Stern, Dept. of Physiology
 - Maha Coucha graduate student, PI/mentor: Dr. Advije Ergul, Dept. of Physiology
 - Qiu Shuiqing graduate student, PI/mentor: Dr. David Stepp, Dept. of Physiology
 - LaDonya Jackson, PI/mentor: Dr. Advije Ergul, Dept. of Physiology
 - Xing Fang, PI/Mentor: Dr. Xinyun Lu, Dept. of Neuroscience & Regenerative Medicine

Department of Physiology Seminar Coordinator (2014-2017)

National/International Committees

- Participant in the Women in Physiology Committee (APS) (2009-2011)
- Abstract Grading Subcommittee, **International Stroke Conference** (2012-2015)
- International Society for Cerebral Blood Flow & Metabolism abstract reviewer
- International Society for Cerebral Blood Flow & Metabolism Program Committee for Brain 2019
- International Society for Cerebral Blood Flow & Metabolism Early Career Investigator Committee for Brain 2019

STUDENT SUPERVISION/MENTORING:

Students (Previous)

- Brian Murphy. Graduate Ph.D. student, Neuroscience Program, University of Cincinnati
- Amos Doepke. Undergraduate student, Biochemistry Program, University of Cincinnati
- Kim Krawczewski. Graduate Ph.D. student, Neuroscience Program, University of Cincinnati
- Guadalupe Perfume: Graduate Ph.D. student, Neuroscience Program, Universidad de Buenos Aires, Argentina (three month training in fluorescence confocal microscopy)

- Ana Ferreira: Graduate Ph.D. student, Universidad de Sao Paulo, Brazil (Exchange student, September 2008-2009)
- Jennifer Iddings: PhD student (funded by a predoctoral AHA grant) (Mentor)
- Wenting Du: PhD student (Mentor)
- Alexandra Whitthoft: visiting graduate PhD student (Brown University, Dept. of Mathematics) (Co-Mentor)
- Fernanda Marins: Graduate Ph.D. student, Department of Physiology and Biophysics at the Universidade Federal de Minas Gerais in Belo Horizonte, Brazil (2015-2016)
- Tiffany Javadi, Augusta University Medical Scholars Program (Summer 2018)

Postdoctoral Fellows (previous)

- Haruki Higashimori, Ph.D. (2008-2011)
- Dr. Victor Martin Blanco, Ph.D. (2006-2008)
- Helena Morrison (2010-2013)

Postdoctoral Fellows (present)

- Ki Jung Kim (2010-present)
- Juan Ramiro Diaz (2015-present)

FUNDING

Current Funding

Project Title: *Signals and targets underlying mechanisms for neurovascular coupling in the brain*

Current title: *Astrocyte regulation of vascular tone: role in hypertension*

Grant Name and Agency: R01 (PAS04-072) **National Institute of Health**

Role: PI (30% effort)

1st Period: 5/01/2007-04/30/2013 (No cost extension until 4/30/2014)

Renewed: 9/2/2014-6/30/2018 (No cost extension until 6/30/2019)

Project Title: *Clinically unscreened vasculo-glial-neuronal coupling is critical for physiological brain function*

Grant #: 1R01NS082521-01, **NHI**

Role: PI (25%)

Period: 3/1/2017-3/30/2022

Project Title: *Progressive post stroke cognitive impairment: Mechanisms & Intervention*

Grant #: R01NS104573, **NIH**

Role: Collaborator (5%)

Period: 12/1/2018 – 8/31/2020

PENDING

Project Title: *The Pressure Factor in Cognitive Decline*

Application ID: 1R01NS112519-01

Role: PI (30%)

Review date 2/11/2019 (SRG, BINP)

Project Title: *Validation of an organ-on-a-chip device for study of BBB mechanotransduction*

Grant Type: R21 (modular)

Role: Co-I (3%), this grant is in collaboration with Dr. Kim Hanseup, Department of Electrical Engineering & Computer Engineering at University of Utah.

Student/Trainees funding (COMPLETED)

Helena Morrison

NINR 1 F32 NR013611-01 entitled, "Astrocyte-Microglia communication and function in response to ischemic stroke." (3/01/12 – 3/01/14)

Role: Sponsor

Jennifer Iddings

Pre-Doctoral Training Grant in Integrative Cardiovascular Biology, Georgia Health Sciences University T32 Multidisciplinary (2010-2011)

Role: Sponsor

AHA-predocctoral fellowship. Effect of chronic hypertension on vascular-glia communication in the brain. (02/03/2011-06/30/2013)

Role: Sponsor

Completed

Project Title: Dendritic release of neuropeptides: Role in bodily homeostasis

Grant Name and Agency: 1R01 NS094640-01A1 (Stern, J-PI), National Institute of Health

Period: (09/1/2016-08/24/2017)

Role: Collaborator

Project Title: *Central neuronal-glia mechanisms and neurohumoral activation in hypertension*

Grant Name and Agency: 1R01HL112225-01A1 (Stern, J-PI), National Institute of Health

Period: (06/01/2012-05/31/2017)

Role: Collaborator

Title: **NIH/NHLBI** Administrative Supplement

Period: 09/01/2009-08/31/12

Total Direct: \$161,803

Diabetes and obesity discovery institute (DODI from Georgia Health Sciences University)

Period: 1/10/10-12/31/11

The goal of this study was is to address whether obesity impairs neurovascular coupling by altering the vascular response of cortical arterioles to neuronal and glial-derived signals.

Role: Co-I

Diabetes and obesity discovery institute (DODI from Georgia Health Sciences University)

Period: 1/10/09-12/31/10

The goal of this study was is to address whether obesity impairs neurovascular coupling in the brain.

Role: Co-I

Project Title: *Potassium channels as key players in neurovascular coupling*

Grant Name and Agency: Science Development Grant (SDG), **American Heart Association**

Role: PI

Period: 7/01/05-6/30/09 (20% effort)

Total Amount: \$260,000

Impact/Priority score 1.7455, percentile 14.02%

HONORS AND AWARDS

- Hamilton Scholar in Physiology Award (2017)

- Outstanding Young Research Scientist (GHSU) (2012)
- Multidisciplinary approaches for the study of neurogenic hypertension: recent theoretical and experimental advances: *APS Latin-American Initiative*, December, 2011 Buenos Aires, Argentina.
- Functional Hyperemia in the Brain: *APS Latin-American Initiative*, February, 2008 Sao Paulo, Brazil.
- Hot Topics: Last minute breakthroughs and selected presentations from posters. *Brain Energy Metabolism and Blood Flow* (Gordon Meeting). Oxford, UK (2006)
- Young Investigator Award, FASEB Summer Research Conference (Smooth Muscle) *Snowmass, Colorado* (2003)
- Predoctoral Fellowship from the *Biomedical Sciences Program* (1997-2002)
- Travel Award for the XXXIV International Congress of Physiological Sciences, Christchurch, New Zealand. *American Physiological Society* (2001)
- Dean's Scholarship from *Southwestern College* (1991-1995)
- Who's Who Among Students in American Universities and Colleges. Edition 1995 (Southwestern College)
- Dean's Honor Roll. Southwestern College (1991, 1994 & 1995)

PROFESSIONAL SOCIETIES

International Society for Cerebral Blood Flow & Metabolism (2006-present)

Society for Neuroscience (2000-present)

American Physiological Society (1999-present)

Kansas Academy of Science (1997-present)

Beta Beta Beta Biological, Honor Society (1993-present)

TEACHING

- MEDI 5158 Pulmonary Circulation (Fall, 2010-**present**). AU, Augusta, GA.
- MEDI 5158 Regulation of Respiration (Fall, 2010-**present**). AU, Augusta, GA.
- MEDI 5155 Electrical Properties of Membranes, Ion Channels, and Action Potentials (Fall 2018-**present**). AU, Augusta, GA.
- BIOM8033 Integrated Systems Biology, Course Director (Spring 2018). AU, Augusta, GA.
 - BIOM8033 (Membrane Potential) (Spring 2019-**present**). AU, Augusta, GA
 - BIOM8033 (Pulmonary Physiology) (Spring 2009-**present**). AU, Augusta, GA.
 - BIOM8033 (Vascular Physiology) (Spring 2015-2018). AU, Augusta, GA.
- BIOM 8012 Scientific Communication: Preparing Figures. (Fall 2017-**present**). GRU, Augusta, GA.
- BIOM 8012 Scientific Communication: Effective teaching methods. (Fall 2008-2016). GRU, Augusta, GA.
- INTERNATIONAL ASTROCYTE SCHOOL- (Spring 2012). Bertinoro Italy
- BIOM8080 NEUROSCIENCE I-Brain Energy Metabolism (Spring 2012-present). GRU, Augusta, GA.
- PSIO8350 Current Trends in Physiology–Course Director (FILOSA/STERN) (Fall, 2011). GRU, Augusta, GA.
- Multidisciplinary approaches for the study of neurogenic hypertension: recent theoretical and experimental advances: APS Latin-American Initiative, Dec, 2011 Buenos Aires, Argentina.
- Functional Hyperemia in the Brain: APS Latin-American Initiative, February 25, 2008 Sao Paulo, Brazil.
- Neuroendocrinology of Homeostasis: Neuroendocrine regulation of central and peripheral blood flow. *University of Cincinnati*, Cincinnati, OH (May 2006)
- Ecology and Diversity (BIO115), Teaching Assistant. *Wright State University*, Dayton, OH. (Fall 1998 & Spring 1999).

- Cell Biology and Genetics (BIO112), Teaching Assistant. *Wright State University*, Dayton, OH. (Winter 1998).
- Human Anatomy and Physiology, Teaching Assistant. *Emporia State University*, Emporia, KS. (Spring, Summer & Fall 1996; Spring 1997)
- General Biology, Teaching Assistant. *Emporia State University*, Emporia, KS. (Fall 1995)
- Human Anatomy and Physiology, Teaching Assistant. *Southwestern College*, Winfield, KS. (Fall 1994)
- Zoology, Teaching Assistant. *Southwestern College*, Winfield, KS. (Fall 1993 & 1994)
- Pathology Assistant. *South West Medical Center*, Liberal, KS. (June-August, 1991)

SCIENTIFIC PUBLICATIONS

Peer Review articles

In PREPARATION/submitted

1. Rebecca Ward¹, Weiguo Li^{2,3}, Yasir Abdul^{2,3}, LaDonya Jackson⁴, Guangkuo Dong^{2,3}, Sarah Jamil², **Jessica Filosa**², Susan C. Fagan^{3,4}, Adviy Ergul^{2,3}. NLRP3 Inflammasome Inhibition with MCC950 Improves Diabetes-Mediated Cognitive Impairment and Vasoneuronal Remodeling After Ischemia (*Submitted, Pharmacological Research*)
2. Ramiro-Diaz, JM., Iddings, JA., **Filosa, JA.** Differential gray vs. white matter structural changes in the neurovascular unit of spontaneously hypertensive rats. (currently revising for *Journal of Neurophysiology*)

PUBLISHED

1. Ramiro-Diaz, JM., Kim, K.J. Brands, M and **Filosa, JA.** Angiotensin II-mediated increases in parenchymal arteriole tone and astrocyte Ca²⁺ dynamics in hypertensive mice. (IN PRESS, *Glia*)
2. Ray SC, Baban B, Tucker MA, Seaton AJ, Chang KC, Mannon EC, Sun J, Patel B, Wilson K, Musall JB, Ocasio H, Irsik D, **Filosa JA**, Sullivan JC, Marshall B, Harris RA, O'Connor PM. (2018) Oral NaHCO₃ Activates a Splenic Anti-Inflammatory Pathway: Evidence That Cholinergic Signals Are Transmitted via Mesothelial Cells. *J Immunol.* 200(10):3568-3586. PMID: 29661827.
3. Marins, F.R., Iddings, J.A., Fontes, M.A., **Filosa, J.A.** (2017) Evidence that remodeling of insular cortex neurovascular unit contributes to hypertension-related sympathoexcitation. *Physiological Reports* 5(5). pii: e13156. doi: 10.14814/phy2.13156. PMID:28270592
4. Kim KJ, Ramiro Diaz J, Iddings JA, **Filosa JA.** (2016) Vasculo-Neuronal Coupling: Retrograde Vascular Communication to Brain Neurons. *J Neurosci.* 36(50):12624-12639. PMID: 27821575
5. Morrison HW, **Filosa JA.** (2016) Sex differences in astrocyte and microglia responses immediately following middle cerebral artery occlusion in adult mice. *Neuroscience.* 339:85-99. PMID:27717807
6. Huby AC, Antonova G, Groenendyk J, Gomez-Sanchez CE, Bollag WB, **Filosa JA**, Belin de Chantemèle EJ. (2015) The adipocyte-derived hormone leptin is a direct regulator of aldosterone secretion, which promotes endothelial dysfunction and cardiac fibrosis. *Circulation.* [Epub ahead of print] PMID:26362633
7. Kim, KJ., Iddings, JA., Stern, JE., Blanco, V.M., Kirov, SA., Croom, D., **Filosa, JA.** (2015) Astrocyte contribution to flow/pressure-evoked parenchymal arteriole vasoconstriction. *Journal of Neuroscience* 27;35(21):8245-57. PMID:26019339
8. Du, W., Stern, JE., **Filosa, JA.** (2015) Activity-dependent dendritic release of vasopressin contributes to neurovascular coupling in the hypothalamus. *Journal of Neuroscience.* 35(13):5330-41. PMID:25834057
9. Iddings, J.A., Kim, K-J., Zhou, Y., Higashimori, H., **Filosa, J.A.** (2015) Alterations in parenchymal arteriole function do not contribute to impaired neurovascular coupling mechanisms during hypertension. *Journal of Cerebral Blood Flow and Metabolism.* [Epub ahead of print] PMID:25757753

10. Vinicia Campana Biancardi; Sook Jin Son; Sahra Ahmadi; **Jessica A. Filosa**; Javier E. Stern. (2014). Circulating ANGIOTENSIN II gains access to the hypothalamus and brainstem during hypertension via breakdown of the blood brain barrier. *Hypertension* 63:572-579. PMID:24343120
11. Gao, y., Ottaway, N., Schriever, S.C., Legutko, B., Garcia-Caceres, C., de la Fuente, E., Mergen, C., Thaler, J.P., Seeley, R.J., **Filosa, J.**, Stern, J.E., Perez-Tilve, D., Schwartz, M.W., Tschop, M.H., Yi, C-H. (2014) Hormones and diet, but not body weight, control hypothalamic microglial activity. *Glia* 62:17-25. PMID: 24166765
12. Witthoft, A., **Filosa, J.A.** Karniadakis, G. (2013) Potassium buffering in the neurovascular unit: Models and sensitivity analysis. *Biophysical Journal* 105:2046-2050. PMID: 24209849
13. Lynch, C.M. Kinzenbaw, B.C., Chen, X., Zhan, S., Mezzetti, E., **Filosa, J.A.**, Ergul, A., Faulner, J.L., Faraci, F., and Didion, S.P. (2013) Nox2-derived superoxide contributes to cerebral vascular dysfunction in diet-induced obesity. *Stroke*;44(11):3195-201. PMID:24072007
14. Sook J Son; **Jessica A Filosa**; Vinicia C Biancardi; Evgeniy S Potapenko; Hong Zheng; Kaushik K Patel; Vicky A Tobin; Mike Ludwig; Javier E Stern. (2013) Dendritic peptidergic release mediates inter-population crosstalk between neurosecretory and preautonomic networks. *Neuron*, 78(6):1036-1049. PMID. 23791197
15. Li, W., Prakash, R., Chawla, D., Didion, S., Du, W., **Filosa, J.A.**, Brann, D., Lima, V.V., Tostes, R.C., Ergul, A. (2013) Early effects of high fat diet on neurovascular function and focal ischemic brain injury. *AJP-Regul Integr Comp Physiol*. 304(11):R1001-8. PMID: 23576615
16. Morrison, H and **Filosa, J.A.** (2013) A quantitative spatiotemporal analysis of microglia morphology during ischemic stroke and reperfusion. *Journal of Neuroinflammation*. Jan 11; 10:4, 1742-2094. PMID:23311642
17. Yi, C-X., Gericke, M., Krüger, M., Alkemade, A., Kabra, DG., Hanske, S., **Filosa, J.A.**, Pfluger, P., Bingham, N., Woods, SC., Herman, J., Kalsbeek, A., Baumann, M., Lang, R., Stern, JE., Bechmann, I., Tschöp, MH. (2012) High calorie diet triggers hypothalamic angiopathy *Molecular Metabolism*, Vol 1, 95-100.
18. Ki Jung Kim, and **Jessica A. Filosa**. (2012) Advanced in vitro approach to study neurovascular coupling mechanisms in the brain microcirculation. *Journal of Physiology* Apr 1;590(Pt 7):1757-70. [PMID 22310311].
 - i. A perspective article was writing on this paper by Robert Bryan Jr. *JPHYSIOL*/2012/233718 "No matter - It matters how you slice it"
19. **Filosa JA**, Naskar, K, Perfume G, Iddings JA, Biancardi VC, Vatta MS and Stern, JE. (2012) Endothelin-mediated calcium responses in supraoptic nucleus astrocytes influence magnocellular neurosecretory firing activity. *J Neuroendocrinol*. Feb;24(2):378-92. [PMID 22007724].
20. Higashimori, H., Blanco, V.M, Tuniki, V.R., Falck, J.R. **Filosa, J.A.** (2010) Role of epoxyeicosatrienoic acids as autocrine metabolites in glutamate-mediated K⁺ signaling in perivascular astrocytes. *Am J of Physiol Cell Nov*; 299 (5):C1068-78. [PMID 20844244]
21. Blanco, V. M., Stern, J. E. and **Filosa, J. A.** (2008) Tone-dependent vascular responses to astrocyte-derived signals. *AJP-Heart and Circulatory Physiology* 294 (6):H2855-63.
22. Patrick M. Sonner., **Filosa, J.A.** and Stern, J.E. (2008) Diminished A-type potassium current and altered firing in renovascular hypertensive rats. *J Physiol*. 586.6 1605-1622.
23. **Filosa, J. A.**, Bosc-Gonzalez, L. V., Nelson, M. T. (2007) Activity-dependent NFATc3 nuclear accumulation in pericytes from cortical parenchymal microvessels. *American Journal of Physiology - Cell Physiology* 293(6) C1797-C1805.
24. **Filosa, J. A.**, Bonev, A., Straub, S.V., Andrea L. Meredith., Richard, W. Aldrich and Nelson, M. T. (2006) Local potassium signaling couples neuronal activity to vasodilation in the brain. *Nature Neuroscience* 9 (11), 1397-1403.
25. **Filosa, J. A.**, Bonev, A. and Nelson, M. T. (2004) Calcium dynamics in cortical astrocytes and arterioles during neurovascular coupling. *Circulation Research*, 95, 1042
26. **Filosa, J. A.** & Putnam, R. W. (2003). Multiple targets of chemosensitive signaling in locus coeruleus (LC) neurons: Role of K⁺ and Ca²⁺ channels. *American Journal of Physiology Cell* 284, C145-155.

27. **Filosa, J. A.**, Dean, J. B. & Putnam, R. W. (2002). Role of intracellular pH and extracellular pH in the chemosensitive response of rat locus coeruleus neurons. *Journal of Physiology* 541, 493-509.
28. Stunden, C. E., **Filosa, J. A.**, Garcia, A. J., Dean, J. B. & Putnam, R. W. (2001). Development of in vivo ventilatory and single chemosensitive neuron responses to hypercapnia in rats. *Respiration Physiology* 127, 135-155.

Reviews and other articles

In PREPARATION/submitted

1. Morrison, HW. and **Filosa, JA**. Stroke and the neurovascular unit: glial cells, sex differences and 1 hypertension. *AJP-Cell Physiology* (Invited Review, *accepted pending revisions*)
2. **Filosa, JA**. Mechanisms of blood flow control by astroglia. To be submitted to *Cell Calcium* (Invited Review)

PUBLISHED

1. **Filosa JA**. Upstream current for a downstream flow. (2017) *Nature Neuroscience-News and Views*. 20, 631–633
2. **Filosa JA**, Morrison HW, Iddings JA, Du W, Kim KJ. (2015) “Beyond neurovascular coupling, role of astrocytes in the regulation of vascular tone” *Neuroscience*. PMID: 25843438. (*Invited Review*)
3. **Filosa, J. A** and Iddings, J.A. (2013) Astrocyte regulation of cerebral vascular tone. *Am J Physiol Heart Circ Physiol*. 305(5):H609-19. PMID:23792684 (*Invited Review*)
4. Barvitenko, NN., Aslam, M., **Filosa, J.A.**, Matteucci, E., Nikinmaa, M., Pantaleo, A., Saldanha, C., Baskurt, O. Tissue oxygen demand in regulation of the behavior of the cells in the vasculature. (2013) *Microcirculation* Feb 26. PMID:23441854.
5. Stern, JE and **Filosa, JA**. (2013) Bidirectional neuro-glia signaling modalities in the hypothalamus: Role in neurohumoral regulation. *Autonomic Neuroscience* Jan 30. PMID:23375650
6. **Filosa, J.A.**, Yao, Xiaoqiang., Rath, Geraldine. (2012) TRPV4 channels and the regulation of vascular tone. *Journal of Cardiovascular Pharmacology* 61(2):113-9. PMID:23107877. (*Invited Review*)
7. **Filosa, J.A.** (2010) Vascular tone and neurovascular coupling: considerations toward an improved *in vitro* model. *Front Neuroenergetics*. 2. pii: 16. [PMID: 20802803]
8. **Filosa, J.A.** & Blanco, Victor M. Blanco (2007) Neurovascular coupling in the brain. *Experimental Physiology* 92.4, 641-646.
9. **Filosa, J.A.** Neural-Glial-Vascular Communication in the mammalian Brain. *Exp. Physiol.* 2007 92.4, 633.
10. Clark, JF., Doepke, A., **Filosa, JA.**, Wardle, RL., Aigang Lu, Timothy J. Meeker, Gail J. Pyne-Geithman. N-acetylaspartate as a reservoir for glutamate. *Medical Hypothesis*. May 67(3) 506-12 (2006).
11. Putnam, R. W., **Filosa, J. A.** and Ritucci, N. A. (2004) Cellular mechanisms involved in CO₂ and acid signaling in chemosensitive neurons. *American Journal of Physiology Cell Physiology* 287 (6): C1493-1526.

Published Lectures

1. “Bi-directional communication at the neurovascular unit: Implications for neuronal function.” **Henry Stewart Talks**.

Book Chapters

Astrocytes: Neurovascular Unit. *Colloquium Series on Neuroglia in Biology and Medicine: From Physiology to Disease* [<http://www.morganclaypool.com/toc/ngl/1/1>].

Abstracts:

1. Diaz, Juan R. Iddings, Kim, K.J. J.A. **Filosa, J.A.** Astrocyte-dependent regulation of vascular tone: role in hypertension. Council on Hypertension, Sep 2016.
2. Fernanda R. Marins, Jennifer A. Iddings, Marco A. P. Fontes, **Jessica A Filosa.** “Evidence that remodeling of insular cortex neurovascular unit contributes to hypertension-related sympathoexcitation” Council on Hypertension, Sep 2016. (*selected for oral presentation*)
3. **Filosa, J.A.** Kim, K.J., Stern, J.E. Vascular-glia-neuronal coupling a neuroprotective pathway in the healthy brain. Interpreting BOLD: a dialogue between cognitive and cellular neuroscience, The Royal Society Jan 28-29, 2016.
4. **Filosa, J.A.,** Du, W., Stern, JE. Activity-dependent dendritic release of neuropeptides regulates neurovascular coupling in the hypothalamic supraoptic nucleus. XII European Meeting on Glial Cells in Health and Disease, GLIA 2015 July 15 – 18, 2015, in Bilbao, Spain
5. Ki Jung Kim¹, Jennifer A. Iddings¹, Javier E. Stern¹, Víctor M Blanco², Deborah Croom¹, Sergei A. Kirov¹, and **Jessica A. Filosa¹**. Role of astrocyte in the regulation of parenchymal arteriole tone. Brain & Pet 2015, Vancouver Canada. June 27th-30th.
6. **Filosa, J.A.,** Kim, K-J., Iddings, J.A. Astrocyte contribution to hemodynamic-induced changes in vascular tone. Cold Spring Harbor Laboratory Meetings & Courses. June, 2014.
7. Alexandra E. Witthoft, **Jessica A. Filosa,** George E. Karniadakis A Computational Model of Astrocyte Potassium Buffering and Bidirectional Signaling in the Neurovascular Unit *Biophysical Journal, Volume 106, Issue 2, Supplement 1, 28 January 2014, Page 596a.*
8. Morrison, H.W. and **Filosa, J.A.** Diverse microglia morphologies induced by ischemic stroke and reperfusion are not accompanied by altered brain inducible nitric oxide synthase expression, *STROKE* 44, issue 2, Suppl. Feb, 2013.
9. Kim, JK and **Filosa, JA.** Physiological implications for bi-directional communication at the neurovascular unit: role of TRPV4 channels. EDHF 2012 Vaux-de-Cernay, France.
10. Wenting Du., Ki Jung Kim, Javier E. Stern and **Jessica A. Filosa.** Monitoring neurovascular coupling in the hypothalamic supraoptic nucleus in an *in vitro* slice preparation. Experimental Biology, April 2012, San Diego, CA.
11. Iddings J, **Filosa JA.** Effect of chronic hypertension on cortical parenchymal arteriole tone and K⁺ mediated vasodilation. Experimental Biology, April 2012, San Diego, CA.
12. Son, Sook Jin; **Filosa, Jessica A.;** Zheng, Hong; et al. Dendritic release of VP mediates crosstalk between neuroendocrine and presympathetic PVN neurons: Role in osmotically-driven homeostatic responses. FASEB JOURNAL Volume: 26 Published: APR 2012
13. Morrison, H.W. & **Filosa, J.A.** Quantitative assessment of microglia morphological changes in models of ischemic stroke. Society for Neuroscience Abstract (2011-S-8764-SFN)
14. Ki Jung Kim, Javier E Stern and **Jessica A Filosa.** Hemodynamic stimulus controls glial and neuronal activity in cortical brain slices. Glial Biology: Functional Interactions among Glia & Neurons (*Gordon Meeting*, Ventura CA March 6-11, 2011)
15. Ki Jung Kim and **Jessica A Filosa.** Hemodynamic changes are encoded into distinct astrocyte and neuronal responses highlighting the importance of bidirectional communication at the neurovascular unit (FASEB Journal, 2011).
16. Ferreira, A. F. B., Britto, L. R. & **Filosa, J. A.** Exercise-induced plasticity in the neurovascular unit of the rat motor cortex. Society for Neuroscience (November, 2010)
17. **Filosa, J. A.** and Higashimori, H. & Blanco, V. M. Astrocytes: the gatekeepers of the brain. 10th International Symposium on Mechanisms of Vasodilation. Japan 2009.
18. **Filosa, J.A.** Higashimori, H. & Blanco, V. M. Bi-directional neurovascular communication in the brain. FASEB Journal, 2009
19. **Filosa, J.A.** Higashimori, H. & Blanco, V.M. Astrocytes are key intermediaries between neurons and the microcirculation. Conference on Glial Biology in Medicine, University of Alabama at Birmingham (Nov 30-Dec 2, 2008)

20. Blanco, Victor Martin; Stem, Javier E.; **Filosa, Jessica A.** (2007) Role of Ca²⁺-activated K⁺ channels in 11,12-epoxyeicosatrienoic acid-induced vasodilation of parenchymal arterioles: possible role of astrocytes. *FASEB Journal* 21(6) A871
21. Sonner, P.M., **Filosa, J.A.** & Stern, J.E. (2007) Intracellular Ca²⁺ dynamics in presympathetic PVN neurons during repetitive firing *FASEB Journal* 21(5) A471
22. **Filosa, J.A.**, Bonev, AD. Straub, SV., Meredith, AL., Aldrich, RW. and Nelson, MT. Local potassium signaling couples neuronal activity to vascular function. Society for Neuroscience 540.3/M13 (2006)
23. Blanco, VM. And **Filosa, J.A.** Variable vascular calcium responses following neuron-glia activation. Society for Neuroscience 540.2/M12 (2006)
24. **Filosa, J.A.**, Bonev, AD. And Nelson, MT. *Local potassium signaling couples astrocytic activity to vascular function. Gordon Research Conference on BRAIN ENERGY METABOLISM & BLOOD FLOW 08/20/2006 - 08/25/2006.*
25. **Filosa, J.A.** Altered neurovascular coupling during hypertension. Society for Neuroscience 972.18 (2005).
26. **Filosa, J. A.**, Bonev, A. and Nelson, M. T. (2005) Potassium ion as the signal in neurovascular coupling. *FASEB Journal*.
27. **Filosa, J. A.**, Bonev, A. and Nelson, M. T. (2004) Neurovascular calcium signaling in cortical brain slices. *FASEB Journal* 18 (4-5) Abstract # 671.13.
28. **Filosa, J. A.**, Gonzalez-Bosc L. V. and Nelson, M.T. (2004). Metabotropic glutamate receptor (mGluR) activation causes NFATc3 (nuclear factor of activated T-cells) nuclear accumulation in both astrocytes and pericytes in rat somatosensory cortex. *FASEB Journal* 18 (4-5) Abstract # 671.12.
29. **Filosa, J. A.** and Nelson, M. T. (2003). Calcium dynamics underlying neurovascular coupling in rat cerebral microvessels. *Society for Neuroscience Abstract* # 378.12.
30. Gonzalez-Bosc L. V., **Filosa, J. A.**, Mawe, G. W. and Nelson, M. T. (2003). Metabotropic glutamate receptor (mGluR) activation causes NFATc3 nuclear translocation in both astrocytes and pericytes in rat somatosensory cortex. *Society for Neuroscience Abstract* # 897.6.
31. Putnam, R. W., **Filosa, J. A.** And Dean, J. B. (2003). The role of intracellular and extracellular pH as signals in CO₂/acid-sensitive cells. *Comparative Biochemistry and Physiology Part A Molecular & Integrative Physiology* 134A (Suppl.1), p.S105.
32. **Filosa, J. A.**, Dean, J. B. & Putnam, R. W. (2002). The use of the whole cell configuration to study the chemosensitive response of locus coeruleus neurons: A role for intracellular Ca²⁺ in chemosensitivity? *FASEB Journal* 16, A812.
33. **Filosa, J. A.**, Dean, J. B. & Putnam, R. W. (2001). Intracellular pH as the proximal signal in the chemosensitive response of locus coeruleus neurons. *FASEB Journal* 15, A151.
34. Stunden, C. E., Alfredo, J. G., **Filosa, J. A.**, Dean, J. B. & Putnam, R. W. (2001). Correlation between the in vivo ventilatory and central chemosensitive neuron responses to hypercapnia in neonatal rats. *FASEB Journal* 162.10.
35. **Filosa, J.**, Dean, J. B. & Putnam, R. W. (2001). pH_i as chemosensitive signal in locus coeruleus neurons. *XXXIV International Congress of Physiological Sciences.*
36. Putnam, R. W., Stunden, C. E., Alfredo, J. G., **Filosa, J. A.** & Dean, J. B. (2001). Developmental changes of ventilation and neuron firing in rats. *XXXIV International Congress of Physiological Sciences.*
37. **Filosa, J. A.**, Dean, J. B. & Putnam, R. W. (2000). Use of the perforated patch configuration for simultaneous measurements of membrane potential and intracellular pH in locus coeruleus neurons during hypercapnia. *Society for Neuroscience Abstracts* 26, 424.
38. Adragna, N. C., Ahmed, H., Ferrel, C. M., **Filosa, J. A.** & Lauf, P. K. (1999). New mechanism of regulation of K⁺-Cl⁻ cotransport. *Biophysical Journal* 76:A393.

SCIENTIFIC PRESENTATIONS

Conferences

1. Sociedad Argentina de Investigación Clínica, Mar del Plata, Argentina (14-17th November, 2018)(*Invited Speaker*)
2. The ability of astrocytes to work under pressure: a TRPV4-mediated event. 11th World Congress for Microcirculation 9-13th 2018, Vancouver, Canada.
3. Increased vascular reactivity evoked changes on resting neuronal function: vasculo-glia-neuronal coupling, FASEB, Smooth Muscle, Portugal July 19th 2016. (*Invited Speaker*).
4. Role of astrocyte in bi-directional regulation of vascular tone. FEPS, Paris July 1st, 2016. (*Invited Speaker*)
5. Role of astrocyte in cerebral autoregulation in the symposium entitled Signaling mechanisms in local control of cerebral blood flow at the *XXVIIth International Symposium on Cerebral Blood Flow, Metabolism and Function & XIIth International Conference on Quantification of Brain Function with PET* (BRAIN 2015) Vancouver, Canada, June 27 - 30, 2015. (*Invited Speaker*)
6. *Astrocyte contribution to hemodynamic-induced vascular responses in the symposium entitled Glial Vascular Interactions*. Gordon Research Conference Glial Biology: Functional Interactions Among Glia & Neurons. Dates: 03/01/2015 - 03/06/2015. (*Invited Speaker*)
7. Astrocyte contribution to hemodynamic-induced changes in vascular tone. Cold Spring Harbor Meeting: Glia in Health & Disease. July 20th, 2014. (*Invited Speaker*)
8. The American Society of Hypertension: Vascular Wall Signaling: How are cells coupled? San Francisco CA (May 2013) (*Invited Speaker*)
9. Role of TRPV4 channels in vasculo-glia-neuronal coupling–Gordon research Conference: Glial Biology, Ventura CA (*Invited Speaker*) (March 2013)
10. “Bi-directional communication at the neurovascular unit: implications for neuronal function” Mini-symposium entitled “Physiology and pathophysiology of astroglia”, Department of Neurobiology Program Series at Birmingham Alabama (<http://neurobiology-uab.infomedia.com/seminars.asp>) October 11, 2012 (*Invited Speaker*)
11. Bi-directional communication in the neurovascular unit in health and disease. Physiology 2012 Edinburgh, UK, June, 2012. (*Invited Speaker*)
12. *Physiological implications for bi-directional communication at the neurovascular unit: role of TRPV4 channels*. EDHF 2012 Vaux-de-Cernay, France (June, 2012) (selected abstract)
13. Invitation to attend the Princeton Stroke Conference (March 2012)
14. *10th European Meeting on Glial Cells in Health and Disease*. Symposium 24 – Neuro-glia-vascular signaling pathways in the brain. Jessica Filosa (USA) - Perivascular astrocytes as sensors and modulators of hemodynamics and neuronal activity in the brain, Prague (*Sep 2011*)
15. *Astrocytes and vascular control*. Danish Cardiovascular Research Academy. 2010 Summer Meeting at the Sandbjerg Estate (June 2010) (*Invited Speaker*).
16. *Dissecting the functional significance of the neurovascular unit in the brain*. IV Thematic Symposium "Frontiers in Physiology Science". University of Sao Paulo, Brazil July 29th, 2009 (*Invited Speaker*)
17. Astrocytes: the gatekeepers of the brain. *10th International Symposium on Mechanisms of Vasodilation*. Japan June, 2009 (*Invited Speaker*)
18. *Interpreting the Communication between Cerebral Microvessels and Astrocytes in the Brain* Dissecting the Vasculature: Function, Molecular Mechanisms and Malfunction. Keystone Symposia Feb 24- Mar 1st, Vancouver 2009 (*Invited Speaker*)
19. Astrocytes are key intermediaries between neurons and the microcirculation. Conference on Glial Biology in Medicine, University of Alabama at Birmingham Nov 30-Dec 2, 2008 (*Invited Speaker*)
20. Potassium signaling in arterioles during neuronal activation. Brain Energy Metabolism & Blood Flow. Gordon Research Conference August 20th, 2008 (*Invited Speaker*)
21. Potassium channels as sensors and transducers of neuronal activity. Feature Topic Session *Experimental Biology meeting*, Washington DC., April 29, 2007.
22. New mechanisms of neurovascular coupling. International Stroke Conference, San Francisco, CA. Feb. 8, 2007. (*Invited Speaker*)

23. Calcium dynamics underlying neurovascular coupling in rat cerebral microvessels. FASEB Summer Research Conference (Smooth Muscle). *Snowmass, Colorado, 2003*

Institutional Seminars

1. “*Effects of intravascular pressure on vessel-to-astrocyte communication*”, Vascular Biology Center, Augusta University, May 9th, 2018
2. “*Arterial pressure-evoked vascular-to-neuronal signaling: role of microdomain astrocyte Ca²⁺ activity*”, Department of Molecular Physiology and Biophysics, University of Iowa May 1st, 2018
3. “*Vasculo-Neuronal Coupling in Cardiovascular Disease*”, Killam Lecture, McGill University, Montreal, April 17, 2018
4. “*What is vasculo-neuronal coupling and what role does it play in cardiovascular disease*”, University of California, Davis, January 29th, 2018
5. “*Can vessel diameter drive changes in neuronal activity?*”, Department of Neuroscience and Regenerative Medicine, Augusta University, December 11th, 2018.
6. “*Astrocyte work under pressure*”, University of New Mexico, September 29th, 2017.
7. “*La habilidad del astrocity: trabajo bajo presion*”, Universidad de Buenos Aires, Buenos Aires Argentina, August 30th, 2017.
8. “*Revisiting flow of information at the neurovascular unit: unlocking the path to a healthier brain*”, Medical University of South Carolina, March 3rd, 2017.
9. “*Revisiting flow of information at the neurovascular unit in the absence of neuronal stimulation*”, University of Vermont, Oct 13th, 2016.
10. “*Vasculo-neuronal coupling in the resting brain*”, Penn State University, Sept 14, 2016.
11. “*Vascular –glial-neuronal coupling: when vascular reactivity alters neuronal function*”, University of Iowa, Carver College of Medicine, August 20th, 2015.
12. Beyond neurovascular coupling, role of astrocytes in the regulation of vascular tone. *Legacy Research Institute. Portland, Oregon (June 5th, 2014)*
13. Role of astrocytes in the control of cerebral vascular tone *University of Minnesota. Nov. 14th, 2013*
14. Vasculo-glia-neuronal coupling: a novel form of communication in the brain. *Emory University School of Medicine. Nov 21, 2013*
15. *Physiological implications for bidirectional communication at the neurovascular unit. University of New Mexico, USA (Feb 2012)*
16. *New Insights into neurovascular coupling mechanisms in the brain. Brown University, USA (Nov 2011)*
17. *Astrocytes: more than just bridges in the brain. Institut de Cardiologie de Montréal Centre de Recherche, 5000 Bélanger, Montréal, Canada April 2009.*
18. *What would be the physiological significance of cerebral vessels talking to neighboring astrocytes? Département de pharmacologie, Faculté de médecine, Université de Montréal, Montréal Canada, April 2009. Montreal*
19. Cellular mechanisms underlying neurovascular coupling of brain parenchymal arterioles. The University of Vermont August 15th, 2008
20. Neurovascular coupling in the brain: is vascular tone the ultimate determinant? University of Tennessee, Memphis May 7th, 2008
21. The influence of vascular tone in neurovascular coupling in the brain. Universidade Federal Fluminense, Rio de Janeiro, Brazil March 3rd, 2008
22. The influence of vascular tone in neurovascular coupling in the brain. Facultad de Medicina de Ribeirao Preto da Universidade de Sao Paulo. Ribeirao Preto, Brazil February 27, 2008
23. Tone-dependent vascular responses of parenchymal arterioles to astrocyte-derived signals. Dartmouth Medical School Lebanon, NH January 15, 2008
24. Unraveling the key factors controlling neurovascular coupling in the brain, *Department of Physiology, Medical College of Georgia, Augusta, GA. June 26, 2007.*

25. Potential Mechanisms Underlying Neurovascular Coupling in the Brain, *Department of Physiology, University of Texas Health Science Center at San Antonio*, San Antonio, TX. Feb. 20, 2007.
26. Neuro-Glia-Vascular Communication in Brain. Department of Neuroscience, Cell Biology & Physiology, Wright State University, Dayton, OH. Feb. 16, 2007. (Invited Speaker)
27. Neurovascular coupling in health and disease. University of Otago, Dunedin, New Zealand, 2005.
28. Potassium ions as primary signals in neurovascular coupling. *Pharmacology Retreat, University of Vermont*, Nov. 2004.
29. Possible Targets in the chemosensitive response of locus coeruleus neurons. Biomedical Science Seminar, *Wright State University*, 2002.
30. Intracellular pH as the primary signal in the chemosensitive response of locus coeruleus neurons. Biomedical Science Seminar, *Wright State University*, 2002.
31. Effects of endothelin-1 in the development of pulmonary hypertension. Biomedical Science Seminar, *Wright State University*, 2002.
32. What is Hemorheology? *Emporia State University*, Summer 1997.
33. Learning about the circulatory system (REL "Gifted Kids"). *Emporia State University*, 1997.
34. Graduate Student Symposium: The effects of aspirin on blood viscosity in healthy rats, *Rattus norvegicus*. *Emporia State University*, 1997.
35. Expanding your Horizons: Eyes on the world: How we see. *Emporia State University*, 1997.

LANGUAGE PROFICIENCY

- Fluency in Spanish
- Fluency in English