

## **SUSAN A. MASINO**

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### **ACADEMIC DEGREES & TRAINING**

**1997-2000:** Postdoctoral training, University of Colorado Medical School, Pharmacology and Neuroscience

**1996-1997:** Postdoctoral training, University of California (Irvine, CA), Neurobiology and Behavior

**1990-1996:** Ph.D., University of California (Irvine, CA) in Biology (focus on Neuroscience)

**1988-1990:** Research Assistant: Boston University School of Medicine (Boston, MA)

**1984-1988:** B.S., Tufts University (Medford, MA) in Biopsychology, *cum laude*

### **PROFESSIONAL POSITIONS SINCE GRADUATING COLLEGE**

**2013-present** Vernon Roosa Professor of Applied Science, Trinity College, Hartford, CT

**2013-present** Professor, Department of Psychology / Neuroscience Program, Trinity College

**2006-present** Adjunct, Neuroscience Department, University of Connecticut Health Center, Farmington, CT

**2006-present** Adjunct, Department of Pharmacology and Toxicology, University of Connecticut, Storrs, CT

**2018-2019** Charles Bullard Fellow in Forest Research, Harvard Forest/Harvard Medical School

**2007-2013** Associate Professor, Department of Psychology / Neuroscience Program, Trinity College

**2009-2011** Charles A. Dana Research Associate Professor of Neuroscience and Psychology

**2009-2010** Director, Neuroscience Program, Trinity College

**2008 (Fall)** Acting Director, Neuroscience Program, Trinity College

**2003-2007** Assistant Professor, Department of Psychology and Neuroscience Program, Trinity College

**2001-2002** Adjunct, Neuroscience and Psychology, Regis University, Denver, CO

**2000-2003** Instructor (Faculty), Dept. of Pharmacology / Neuroscience Program, Univ. Colorado Med. School

**1996-1997:** Instructor (Faculty), Neurobiology and Behavior, University of California, Irvine, CA

### **ACADEMIC PRIZES AND HONORS**

#### ***Grants (selected, since becoming a PI):***

**2010-2023** National Institute of Neurological Disease and Stroke (*PI and Lead institution on multi-PI grant with D. Boison and J. Geiger*) NS 065975 “*The Role of Adenosine in Ketogenic Diet Therapy*” “*Ketogenic Diet and Adenosine: Epigenetics and Antiepileptogenesis*”

**2018-2019** Charles Bullard Fellowship, “*Forests and Brain Health,*” Harvard University

**2015-2025** National Center for Complementary and Integrative Health (*co-I; PI: D. Ruskin*)

AT008742 “*Metabolic Therapy to Relieve Pain: Ketogenic Diet and Adenosine*” “*Metabolic therapy to relieve pain in females: ketogenic diet and the estrous cycle*”

**2015-2018** National Institute of Neurological Disease and Stroke (\$352,000; *PI*)

NS 066392-2 “*Ketogenic diet-induced changes in the cerebrospinal fluid: biomarkers and mechanisms*”

**2016-2017** National Institute of Neurological Disease and Stroke & National Center for Complementary and Integrative Health (\$15,000; *PI*) NS096938 *Fifth Global Symposium On Ketogenic Therapies*

**2013-2014** Mellon Foundation, via Trinity College (\$10,000, *PI*) “*Fresh Food, New Connections*”

**2009-2014** National Science Foundation RUI grant (\$494,000, *PI*) IOS-0843585 “*Physiological Regulation of ATP and Adenosine: Linking Metabolism to Neuronal Excitability*”

**2010-2014** National Institute of Neurological Disease and Stroke (\$230,000, *PI; co-PI: H. Blaise*)

NS 066392 “*Effects of a Ketogenic Diet on Regional Brain Energy and Plasticity*”

**2010-2014** National Institute of Neurological Disease and Stroke (\$225,000, *co-PI; PI: D. Ruskin*)

NS 065446 “*The Effects of Ketogenic Diets on Inflammation and Chronic Pain*”

**2008-2010** Full salary fellowship for Masahito Kawamura, MD/PhD, Jikei University, visiting faculty

**2008-2010** National Institute of Neurological Disease and Stroke grant supplement (\$38,400, *PI*)

**2007-2010** National Institute of Neurological Disease and Stroke (\$222,000, *PI*)

NS 061290 “Modulation of Adenosine by Temperature, Oxygen and Glucose”

2008-2009 CHDI Research Discovery Award (\$71,000, PI)

2008 Howard Hughes Medical Institute Trinity College Institutional Grant, Faculty Sub-Award (\$4,000)

2006-2007 Connecticut EpSCOR Grant (\$13,000, co-PI w/ C. Swart)

2005 Connecticut EpSCOR Grant (\$10,000, PI), Kellogg Educational Fund (\$5,000, PI)

2001-2007 National Institute of Neurological Disease and Stroke (\$800,000, PI)

NS 29173 “Adenosine and Modulation of Synaptic Transmission”

**Honors, Awards, Service (recent and selected)**

2021-present Faculty Secretary, Trinity College

2019-present President, Connecticut State Grange Foundation; Legislative Liaison, CT State Grange

2019-present International League Against Epilepsy/American Epilepsy Society Omics Task Force

2018-present Open Space Committee, Simsbury, CT

2018-present Board member, Pinchot Institute for Conservation

2017-present Old Growth Forest Network Coordinator, Hartford County

2013-present Program Committee, Global Symposium on Dietary Therapies for Epilepsy & other Neurological Disorders, Liverpool, 2014, Fifth Global Symposium on Ketogenic Therapies Banff, 2016; San Diego, 2023

2012-present Vice President, Simsbury Grange, #197

2005-present Founding member and Spokesperson, Keep the Woods

2005-present Steering Committee, NorthEast Under/graduate Research Organization for Neuroscience (NEURON)

2003-present IACUC, Trinity College; Chair 2012-2014; 2019-2021

2016-2022 Lennox-Gastaut Syndrome Foundation Board

2021 International Neurological Ketogenic Society, Founding member

2020-2021 Co-Chair, Science and Technology Working Group, Governors Council on Climate Change

2020 Presidential Commission, Trinity College

2018-2019 Charles Bullard Fellowship in Forest Research, Harvard Forest, Petersham, MA

2016 -2018 Ombudsman, Trinity College

2010-2015 Founder and Chair - Safe Routes to School – Tootin’ Hills Elementary School

2013 Hometown Hero, Simsbury, CT

2012 Trustee Award for Faculty Excellence, Trinity College

2011 National Society of the Daughters of the American Revolution Conservation Committee Award, (Recognition of Outstanding Achievement for Environmental Awareness)

2011 Invited presentation, CT Conference for Women in Transportation: “Future Transportation” (based on Safe Routes to School Program)

2010 Kavli Fellow, 2010 US Kavli Frontiers of Science Symposium

2009 Mary Simone Erskine Award for Excellence in Mentoring, Research Training and Scholarship

2009 Finalist, Connecticut Woman of Innovation, Community Innovation

2009-2013 Faculty Research Committee, Trinity College

2009-2012 Program Committee, Society for Neuroscience

2012-2014 Co-chair, Ketogenic Diet Special Interest Group, American Epilepsy Society

2013-2014 Presidential Search Committee, Trinity College

2015-2016 Appointment and Promotions Appeal, Trinity College

2009-2011 Outreach Chair, (N.E.U.R.O.N.)

2008 Invited public lecture, Lifelong Learning Series, McLean Care, Simsbury, CT: “Food for Thought”

2008 Annette and Kingsbury Browne Leadership in Conservation Award

2008 Finalist, Connecticut Woman of Innovation, Academic Innovation

**2007-2009** Charles A. Dana Research Professor, Trinity College  
**2007** Finalist, Connecticut Woman of Innovation, Research Innovation  
**2007** Farmington River Watershed Association Volunteer of the Year  
**2007** Farmington Valley Trout Unlimited, Chapter High Honor Society  
**2007** CT State General Assembly Citation “Keep the Woods”  
**2005-2011** Board Member, Biomedical Engineering Alliance and Consortium (BEACON) Foundation  
**2009-2011** NIH Study Section ZRG1-F03A: Neurodevelopment, Synaptic Plasticity, and Neurodegeneration

**Ongoing, Ad hoc or Special Emphasis grant reviewer (selected):** NIH Study Section F01A Fellowships, Wellcome Trust, Canadian Institutes of Health Research, Health Research Board of Ireland, Medical Research Council (UK), National Institute for Aging, National Institute for Drug Abuse, National Institute for Neurological Disorders and Stroke (EUREKA, R35, R13, ANIE, CNNT, ZNS1 SRB-K 01, NSD-A ZRG1), National Science Foundation, Department of Defense, Citizens United for Research in Epilepsy (CURE), Thrasher Research Fund, Volkswagen Foundation, Lennox-Gastaut Syndrome Foundation;

**Ongoing** Review Editor: *Frontiers in Neurology/Epilepsy; Pharmacology; Brain Disease Mechanisms*  
Associate Editor: *Frontiers in Molecular Neuroscience - Metabolic Control of Brain Homeostasis*

### **HIGHLY SELECTED: RECENT/SIGNIFICANT BOOKS, ARTICLES, REPORTS**

Full Biomedical Record on Pub Med: <https://pubmed.ncbi.nlm.nih.gov/?term=masino+sa&sort=date>

Bindila, L., Eid, T., Mills, J.D., Hildebrand, M.S., Brennan, G., **Masino, S.A.**, Vicky Whittemore, V., Perucca, P., Reid, C.A., Patel, M., Wang, K.K., van Vliet, V.A. (*in press*) A companion to the preclinical common data elements for proteomics, lipidomics and metabolomics data in rodent epilepsy models: A Report of the TASK3 Omics Working Group of the ILAE/AES Joint Translational Task Force. *Epilepsia Open*.

**Masino, S.A.** (Senior Editor), Boison, D., D’Agostino D., Kossoff, E., Rho, J.M. (Associate Editors) (2022) *Ketogenic Diet and Metabolic Therapies: Expanded Roles in Health and Disease*, 2nd Edition. Oxford University Press, New York, USA.

Boison, D., **Masino, S.A.**, Lubin, F.D., Guo, K., Lusardi, T., Sanchez, R., Ruskin, D.N., Ohm, J., Geiger, J.D., and Hur, J. (2022). The impact of methodology on the reproducibility and rigor of DNA methylation data. *Sci Rep* 12, 380. 10.1038/s41598-021-04346-w.

**Masino, S.A.** (2021) Nature and Our Best Future: A Neuroscientists Perspective. *the Thinking Republic*, <https://www.thethinkingrepublic.com/3-seconds/nature-and-our-best-future-a-neuroscientists-perspective>

**Masino, S.A.**, Ruskin, D.N., Freedgood, N.R., Lindefeldt, M., and Dahlin, M. (2021). Differential ketogenic diet-induced shift in CSF lipid/carbohydrate metabolome of pediatric epilepsy patients with optimal vs. no anticonvulsant response: a pilot study. *Nutr Metab (Lond)* 18, 23. 10.1186/s12986-020-00524-1.

Ruskin, D.N., Sturdevant, I.C., Wyss, L.S. & **Masino, S.A.** (2021) Ketogenic diet effects on inflammatory allodynia and ongoing pain in rodents *Scientific Reports* Jan 12. doi: [10.1038/s41598-020-80727-x](https://doi.org/10.1038/s41598-020-80727-x) PMC7804255

Leverett, R.T., **Masino, S.A.**, Moomaw, W.R. (2021) Older eastern white pine trees and stands sequester carbon for many decades and maximize cumulative carbon. *Frontiers in Forests and Global Change: Special Research Topic: Intact Forests*: <https://www.frontiersin.org/articles/10.3389/ffgc.2021.620450>

**Masino, S.A.**, Ruskin, D.N., Freedgood, N.R., Lindefeldt, M. & Dahlin, M. (2021) Differential ketogenic diet-induced shift in CSF lipid/carbohydrate metabolome of pediatric epilepsy patients with optimal vs. no anticonvulsant response: a pilot study. *Nutrition and Metabolism* doi: 10.1186/s12986-020-00524-1 PMC7923458

Ruskin, D.N., Sturdevant, I.C., Wyss, L.S. & **Masino, S.A.** (2021) Ketogenic diet effects on inflammatory allodynia and ongoing pain in rodents *Scientific Reports* Jan 12. doi: [10.1038/s41598-020-80727-x](https://doi.org/10.1038/s41598-020-80727-x) PMC7804255

Governor's Council On Climate Change, Science And Technology Working Group Phase 1 Report (**Masino, Co-Chair**, 2020) <https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3-Science-and-Technology-Working-Group-Final-Report-11-19-20.pdf>

Ruskin, D.N., Sacchetti, P., **Masino, S.A.** (2020) A unifying mechanism of ketogenic diet action: The multiple roles of nicotinamide adenine dinucleotide. *Epilepsy Research* doi:10.1016/j.eplepsyres.2020.106469

Leverett, R. T., **Masino, S.A.**, Ruskin, D.N. (2020) Direct Measurement of Trunk Volume in Forest Trees: Focus on White Pine and Comparison to a Statistical Method <https://www.biorxiv.org/content/10.1101/2020.03.18.995985v1>

Moomaw, W.R., **Masino, S.A.**, & Faison, E.K. (2019) Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. *Frontiers in Forests and Global Change; Special Research Topic: Intact Forests*. Viewed more than 99% of articles published in *Frontiers* since its inception. <https://doi.org/10.3389/ffgc.2019.00027>

#### Ten other significant works:

1. **Masino, S.A.** (Senior Ed.), Boison, D., D'Agostino D., Kossoff, E., Rho, J.M. (Assoc. Eds) (2017) *Ketogenic Diet and Metabolic Therapies: Expanded Roles in Health and Disease*, Oxford Univ. Press, New York, USA.

2. Cheng, N., Rho, J.M., **Masino, S.A.** (2017). Metabolic dysfunction underlying autism spectrum disorder and potential treatment approaches. *Frontiers in Molecular Neuroscience* 10:34

3. Boison, D. & **Masino, S.A.** (2016) *Homeostatic Control of Brain Function*, Oxford Univ. Press, New York.

4. Boison, D., Sandau, U.S., Ruskin, D.N., Kawamura, M. Jr. & **Masino, S.A.** (2013) Homeostatic control of brain function - new approaches to understand epileptogenesis. *Frontiers in Cellular Neuroscience* 7 (109):

5. **Masino, S.A.** & Boison, D. eds., (2012) *Adenosine: A Key Link Between Metabolism and Neuronal Activity*, Springer-Verlach Press, New York, USA.

6. **Masino S.A.**, Kawamura M. Jr., Plotkin L.M., Svedova J., Dimario F.J. Jr. & Eigsti I.-M. (2011) The relationship between the neuromodulator adenosine and behavioral symptoms of autism. *Neuroscience Letters*, 500(1):1-5. (highlighted as a "Plenary Article")

7. **Masino, S.A.**, Li, T., Theofilas, P., Sandau, U.S., Ruskin D.N., Fredholm, B.B., Geiger, J.D., Aronica, E. & Boison D. (2011) A ketogenic diet suppresses seizures in mice through adenosine A<sub>1</sub> receptors. *Journal of Clinical Investigation*, 121(7): 2679-2683. Featured on the cover and in accompanying commentary: <http://www.jci.org/articles/view/58391>

8. Hoffman A.F., Laaris N., Kawamura M., **Masino S.A.** & Lupica C.R. (2010) Control of cannabinoid CB1 receptor function on glutamate axon terminals by endogenous adenosine acting at A<sub>1</sub> receptors. *Journal of Neuroscience*, 30(2):545-55. ("Hot Paper" March 2010 at National Institute on Drug Abuse)

9. Dulla, C.G., Dobelis, P., Pearson, T., Frenguelli, B.G., Staley, K.J. & **Masino, S.A.** (2005) Adenosine and ATP link P<sub>CO2</sub> to cortical excitability. *Neuron*, 48: 1011-1023. ("Editor's choice," highlighted by *Science*)

10. Dunwiddie T.V. & **Masino S.A.** (2001) The role and regulation of adenosine in the central nervous system. *Annual Reviews of Neuroscience*, 24: 31-55. (cited by over 1600 peer reviewed journal articles)

#### TRAINEES:

In the past five years two honors thesis students received NIH fellowships (Jessica Ross, Jessica Cote) and one received an NSF predoctoral diversity fellowship (Tracey Suter); two honors thesis students were Fulbright

Scholars (Jessica Cote (again!), Alex Suarez) and one was a Fulbright finalist (Julia Duggan). Of these 5 students four are women and three are underrepresented. I currently have four students in my laboratory: three are women and two are underrepresented.

Many of my research students present at a regional student-focused conference (NEURON), and senior thesis students often travel to the Society for Neuroscience Meeting or a similar conference (typically 2-3 students per year). I have served on Master's and PhD committees for women from University of Hartford, Boston College and UCONN and hosted young women from Uppsala Univ. (Stockholm), Wesleyan Univ., Oberlin College and Univ. of Hartford for the summer, as a senior thesis student, or for their Master's thesis.