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EMPLOYMENT

2019 – University of Massachusetts, Dept. of Biology faculty appointment (as of 9/1/2019)
2008 – 2019 Georgia State University, Professor, Neuroscience Institute
2006 – 2019 Georgia State University, Professor, Department of Biology, Graduate Program in Neurobiology
2001-2005 Georgia State University, Associate Professor with Tenure, Department of Biology, Graduate Program in Neurobiology & Behavior
1997-2001 Georgia State University, Associate Professor, Department of Biology, Graduate Program in Neurobiology & Behavior
1992–1996 Baylor College of Medicine, Assistant Professor, Div. Neuroscience
1992-1996 Baylor College of Medicine, Assistant Professor, Graduate Program in Developmental Biology
1987–1992 Massachusetts Institute of Technology, Postdoctoral fellow with M. Sur, Department of Brain & Cognitive Sciences

EDUCATION

2002 Smith College, New England BioLabs Molecular Biology Workshop
1987 Cornell University, Ph.D. in Neurobiology with Barbara Finlay. Thesis: "Mechanisms of afferent/target matching and the construction of receptive field properties in the mammalian midbrain"
1981 Marine Biological Laboratory, Woods Hole, MA, Neural Systems and Behavior summer course
1980 Iowa State University, M.S. magna cum laude in Zoology
1977 University of Minnesota, B.S. summa cum laude in Biology

RESEARCH INTERESTS

Developmental Neurobiology of Mammalian Sensory Systems**,** Mechanisms of Recovery from Traumatic Brain Injury**,** Sensory Physiology of the Visual and Auditory Pathways, Synaptic Plasticity, Brain Development and Evolution, Science Policy, Educational Policy, Scientific Workforce Diversity

HONORS, AWARDS

1977 B.S. *summa cum laude*, University of Minnesota
1979–80 Research Grant, Iowa State University
1980 M.S. *magna cum laude*, Iowa State University
1980–83 Traineeship, NIH Training Grant (competitive)
1985–86 Research Grant, Sigma Xi
1986–87 Traineeship, NIH Training Grant (competitive)
1988–89 Postdoctoral Fellowship, McKnight Foundation
1989–92 Postdoctoral Fellowship (NRSA), NIH
1992 Symposium speaker, Keystone Symposium
1993 Symposium speaker, Gordon Conference on Neural Plasticity
1994 Symposium speaker, Intl. Soc. for Devel. Neurosci. Meeting
1994-96 Whitehall Foundation Award
1995 Plenary Lecturer, European Neuroscience Assoc. Meeting
1997 Research Initiation Award, Georgia State University
1999-00 Whitehall Foundation Award

2000 Symposium speaker, Multisensory Research Conference
2001 Outstanding Faculty Achievement Award Nomination, GSU
2002 Symposium Chair, Gordon Conference on Neuroethology
2003 Satellite Symposium speaker, Soc. Neurosciences Meeting
2003 Evolution Education Award Nominee, NABT
2003 Evolution Education Award Recipient, NABT
2004 Advisory Panel, NSF, Integrative Biol. & Neuroscience
2004 Organizer and Chair, Society for Neuroscience Minisymposium
2011 Elected as AAAS Fellow
2012 NSF award to attend pedagogy workshop, C.R.E.A.T.E. Transform Understanding of Science
2013-15 Society for Neuroscience Government and Public Affairs Committee Member
2015- Chair, Academic Science Advisory Committee for Life Sciences, Georgia Board of Education
2016 Finalist, AAAS Science and Technology Policy Fellowship
2017 Finalist, AAAS Science and Technology Policy Fellowship
2017 Anne's List nominee
2017 Study section member, Special Emphasis Panel, NIH
2018 Panel member, NSF

CURRENT GRANT SUPPORT

External Awards

- Research grant #IOS 1656838 "Influences of ecological niche on mechanisms of visual pathway maturation", $1,000,000 total costs. 8/1/2017 – 7/31/2021, NSF-IBN-Neural Systems. P.I.: S.L. Pallas.
- Research Grant "From the Spatio-Temporal Organization of the Brain to Adaptive and Safe Lifelong Learning Machines", $1,946,661 total costs ($337,882 total costs for GSU component). 2/1/2018 – 1/31/2020, DARPA cooperative agreement HR0011-18-2-0019. P.I.: C. Dovrolis. Co-PIs: S.L. Pallas, A. Prinz, Z. Kira

In Revision

- R01 Research grant proposal # 12284741, "Molecular mechanisms of retinocollicular map plasticity", $1,000,000 direct costs, $1,502,022 total costs, NEI/NINDS. P.I.: S.L. Pallas.
- R01 Research grant proposal "Remediation of maladaptive cross-modal plasticity". NIH/NIDCD. P.I.: S.L. Pallas.

PROFESSIONAL SOCIETIES

Society for Neuroscience, International Brain Research Organization, Foundation for Biomedical Research, National Association for Biomedical Research, American Association for the Advancement of Science (Fellow) , National Center for Science Education, National Association of Biology Teachers

INVITED TALKS

1990 Dept. of Neuropathology, Harvard University
1990 Dept. of Brain and Cognitive Sci., M.I.T.
1992 Keystone Symposium, Synapse Formation and Function
1992 Dept. of Otolaryngology, University of Washington
1992 Dept. of Ophthalmology, University of British Columbia
1993 Dept. of Zoology, University of Texas at Austin
1993 Gordon Conference on Neural Plasticity, Wolfeboro, NH
1993 Laboratory of Physiology, Oxford University, England
1994 Intl. Soc. for Devel. Neurosci. Meeting, San Diego, CA
1994 Winter Conference on Brain Research Workshop (Chair)

1995 European Neuroscience Assoc. Meeting, Amsterdam
1996 Dept. of Brain & Cognitive Sci., University of Rochester
1996 Dept. of Biology, Georgia State University
1996 Dept. of Anatomy, NE Ohio Universities College of Medicine
1999 Dept. of Biological Sciences, University of Kentucky
2000 Winter Conference on Brain Research Workshop (Chair)
2000 Frontiers in Neuroscience Series, Emory University
2000 Dept. of Psychology Distinguished Speaker Series, Cornell Univ.
2000 2nd Annual Multisensory Research Conference (Session Chair)
2000 Dept. of Neurobiology & Anatomy, Wake Forest University
2001 Dept. of Biomedical Science, Iowa State University
2001 Institute of Neuroscience, University of Oregon
2001 Dept. of Biology, Morehouse College
2001 Dept. of Cell Biology, Medical College of Georgia
2001 Dept. of Physiology & Biophysics, University of Chile
2001 Neuroscience Dept., University of Valparaiso, Valparaiso, Chile
2002 Gordon Conference on Neuroethology (Symposium Chair)
2002 Neurobiology & Anatomy Dept., University of Maryland-Baltimore
2002 Undergraduate Neuroscience Program, Emory University
2003 Biology Dept., Stanford University
2003 Satellite Symposium Speaker, Development and Plasticity in Sensory Thalamus and Cortex, 33rd SfN Meeting
2003 Meeting on Axon Guidance and Neural Plasticity, Cold Spring Harbor, NY
2004 Agnes Scott College, Ctr. Behav. Neurosci. Symp., Atlanta, GA
2005 Dept. of Biology, University of Buenos Aires School of Sciences, Argentina
2005 Faculty of Biology, University of Chile, Santiago, Chile
2005 Faculty of Medicine, Program in Integrative Neurosciences, University of Chile, Santiago
2005 Dept of Physiology, University of Kentucky
2006 Dept. of Physiology, Emory University
2006 Dept. of Physiology, University of Wyoming
2006 Berikashvili Institute of Physiology, Tbilisi, Georgia
2007 Neuroscience Center, University of California Davis
2008 UNAM, Queretaro, Mexico
2009 Dept. of Biology, Emory University
2009 Dept. of Cell Biology, University of Georgia
2009 Atlanta Science Tavern (public outreach)
2009 UNAM, Querétaro, Mexico (series of 4 lectures)
2011 Instituto de Investigaciónes Biológicas, Clemente Estable, Montevideo, Uruguay (series of 4 lectures)
2012 Federation of Latin American Neuroscience Associations, Cancun, Mexico
2013 IOS, National Science Foundation
2013 School of Sciences, Kennesaw State University
2014 Winter Conference on Brain Research Workshop Speaker
2014 Emory-Tibet Science Initiative Lecture: Year 2 Neuroscience Curriculum (2015 Edition). "Primary Visual Cortex." 10 November 2014.
2016 Dept. of Biology, University of Massachusetts-Amherst
2017 Biomedical Engineering Dept., Georgia Tech
2018 Neuroscience Institute, University of Alicante, Spain
2019 Neuroscience Program, University of Washington

BIBLIOGRAPHY (ORCID ID# orcid.org/0000-0002-1760-7437)

PEER-REVIEWED RESEARCH ARTICLES

Mudd, D.B., T.S. Balmer, S.Y. Kim, N. Machhour, **S.L. Pallas** (accepted for publication, J Neurosci) TrkB activation during a critical period mimics the protective effects of early visual experience on the stability of receptive fields in adult superior colliculus. bioRxiv /2018/435784. https://doi.org/10.1101/435784

Cheng, Q., M.D. Graves, **S.L. Pallas** (in press, Devel Neurobiol) Dynamic alterations of retinal EphA5 expression in retinocollicular map plasticity. bioRxiv 2018/433904. https://doi.org/10.1101/433904

Balmer, TS, **SL Pallas** (2015) Visual experience prevents dysregulation of $GABA_B$ receptor-dependent short-term depression in adult superior colliculus. *J. Neurophysiol.* 113: 2049-2061. https://doi.org/10.1152/jn.00882.2014

Balmer, T.S., **S.L. Pallas** (2015; epub 2013) Refinement but not maintenance of receptive fields in both superior colliculus and visual cortex is independent of visual experience. *Cerebral Cortex* 25: 904-917. https://doi.org/10.1093/cercor/bht281

Mao, Y.-T, **S.L. Pallas** (2013) Cross-modal plasticity results in increased inhibition in primary auditory cortical areas. *Neural Plasticity* 2013: article ID 530651, http://dx.doi.org/10.1155/2013/530651

Tadesse, T., Q. Cheng, M. Xu, D.J. Baro, L.J. Young, **S.L. Pallas** (2013) Regulation of ephrin-A expression in compressed retinocollicular maps. *Devel. Neurobiol.* 73: 274-296. https://doi.org/10.1002/dneu.22059

Mao, Y.-T, **S.L. Pallas** (2012) Compromise of auditory cortical tuning and topography after cross-modal invasion by visual inputs. *J. Neurosci.* 32: 10338-10351. https://doi.org/10.1523/JNEUROSCI.6524-11.2012

Mao, Y.-T, T.-M. Hua, **S.L. Pallas** (2011) Competition and convergence between auditory and cross-modal visual inputs to primary auditory cortical areas. *J. Neurophysiol.* 105: 1558-1573. https://doi.org/10.1152/jn.00407.2010

Carrasco, M.M., Y.-T. Mao, T. Balmer, **S.L. Pallas** (2011) Inhibitory plasticity underlies visual deprivation-induced loss of receptive field refinement in adulthood. *Eur. J. Neurosci.* 33: 58-68. https://doi.org/10.1111/j.1460-9568.2010.07478.x

Razak, K.A., **S.L. Pallas** (2007) Inhibitory plasticity facilitates recovery of stimulus velocity tuning in the superior colliculus after chronic NMDA receptor blockade. *J. Neurosci.* 27: 7275-7283. https://doi.org/10.1523/JNEUROSCI.1143-07.2007

Carrasco, M.M., **S.L. Pallas** (2006) Early visual experience prevents but cannot reverse deprivation-induced loss of refinement in adulthood. *Visual Neurosci.* 23(6): 845-852. https://doi.org/10.1017/S0952523806230177

Razak, K. A., **S.L. Pallas** (2006) Dark rearing reveals the mechanism underlying stimulus size tuning of superior colliculus neurons. *Visual Neurosci*. 23: 741-748. https://doi.org/10.1017/S0952523806230062

Carson, J.P., T. Ju, H.-C. Lu, C. Thaller, M. Xu, **S.L. Pallas**, M.C. Crair, J. Warren, W. Chiu, G. Eichele (2005) A digital atlas to characterize the mouse brain transcriptome. *PLOS Computational Biology*, 1(4): e41. https://doi.org/10.1371/journal.pcbi.0010041

Razak, K. A., **S.L. Pallas** (2005) Neural mechanisms of stimulus velocity tuning in the superior colliculus. *J. Neurophysiol.* 94: 3573-3589. https://doi.org/10.1152/jn.00816.2004

Carrasco, M.M., K.A. Razak, **S.L. Pallas** (2005) Visual experience is necessary for maintenance but not development of refined retinotopic maps in superior colliculus. *J. Neurophysiol*. 94: 1962-1970. https://doi.org/10.1152/jn.00166.2005

Lynn-Bullock, C.P., K. Welshans, **S.L. Pallas**, P.S. Katz (2004) The effects of oral 5-HTP administration on 5-HTP and 5-HT immunoreactivity in monoaminergic brain regions of rats. *J. Chem. Neuroanat.* 27: 129-138. https://doi.org/10.1016/j.jchemneu.2004.02.003

Razak, K.A., L. Huang, **S.L. Pallas** (2003) NMDA receptor blockade in the superior colliculus increases receptive field size without altering velocity and size tuning. *J. Neurophysiol.* 90: 110-119. https://doi.org/10.1152/jn.01029.2002

Huang, L., **S.L. Pallas** (2001) NMDA antagonists in the superior colliculus prevent developmental plasticity but not visual transmission or map compression. *J. Neurophysiol.* 86: 1179-1194. https://doi.org/10.1152/jn.2001.86.3.1179

Gao, W.-J., A.B. Wormington, D.E. Newman, **S.L. Pallas** (2000) Development of inhibitory circuitry in visual and auditory cortex of postnatal ferrets: immunocytochemical localization of calbindin and parvalbumin-containing neurons. *J. Comp. Neurol.* 422: 140-157. https://doi.org/10.1002/(SICI)1096-9861(20000619)422:1%3C140::AID-CNE9%3E3.0.CO;2-0

von Melchner, L., **S.L. Pallas**, M. Sur (2000) Visual behavior induced by retinal projections directed to the auditory pathway. *Nature* 404: 871-875. [Reviewed in Nature, Current Biology, NY Times, Faculty of 1000] https://doi.org/10.1038/35009102

Gao, W.-J., **S.L. Pallas** (1999) Cross-modal reorganization of connectivity in auditory cortex without altering thalamocortical projections. *J. Neurosci.* 19: 7940-7950. https://doi.org/10.1523/JNEUROSCI.19-18-07940.1999

Pallas, S.L., T. Littman, D.R. Moore (1999) Cross–modal reorganization of callosal connectivity without altering thalamocortical projections. *Proc. Natl. Acad. Sci. USA* 96: 8751-8756. https://doi.org/10.1073/pnas.96.15.8751

Gao, W.-J., D.E. Newman, A.B. Wormington, **S. L. Pallas** (1999) Development of inhibitory circuitry in visual and auditory cortex of postnatal ferrets: immunocyto-chemical localization of GABAergic neurons. *J. Comp. Neurol.* 409: 261-273. https://doi.org/10.1002/(SICI)1096-9861(19990628)409:2%3C261::AID-CNE7%3E3.0.CO;2-R

Pallas, S.L., M. Sur (1994) Morphology of retinal axon arbors induced to arborize in a novel target– the medial geniculate nucleus. II. Comparison with axons from the inferior colliculus. *J. Comp. Neurol.* 349: 363-376. https://doi.org/10.1002/cne.903490304

Pallas, S.L., J. Hahm, M. Sur (1994) Morphology of retinal axon arbors induced to arborize in a novel target– the medial geniculate nucleus. I. Comparison with other retinal ganglion cells. *J. Comp. Neurol.* 349: 343-362. https://doi.org/10.1002/cne.903490303

Xiong, M.-J., **S.L. Pallas**, S. Lim, B.L. Finlay (1994) Regulation of retinal ganglion cell axon arbor size by target availability: Mechanisms for compression and expansion of the retinotectal projection. *J. Comp. Neurol.* 344: 581-597. https://doi.org/10.1002/cne.903440407

Pallas, S.L., M. Sur (1993) Visual projections induced into the auditory pathway of ferrets. II. Corticocortical connections of primary auditory cortex (AI). *J. Comp. Neurol.* 337: 317-333. https://doi.org/10.1002/cne.903370212

Roe, A.W., **S.L. Pallas**, Y. Kwon, M. Sur (1992) Visual projections routed to the auditory pathway in ferrets: Receptive fields of visual neurons in primary auditory cortex. *J. Neurosci.* 12: 3651-3664. https://doi.org/10.1523/JNEUROSCI.12-09-03651.1992

Pallas, S.L., B.L. Finlay (1991) Compensation for population size mismatches in the hamster retinotectal system: Alterations in the organization of retinal projections. *Visual Neuroscience* 6: 271-281. https://doi.org/10.1017/S0952523800006271

Roe, A.W., **S.L. Pallas**, J. Hahm, M. Sur (1990) A map of visual space induced in primary auditory cortex. *Science* 250: 818-820. https://doi.org/10.1126/science.2237432

Pallas, S.L., A.W. Roe, M. Sur (1990) Visual projections induced into the auditory pathway of ferrets. I. Novel inputs to primary auditory cortex (AI) from the LP/Pulvinar complex and the topography of the MGN-AI projection. *J. Comp. Neurol*. 298: 50-68. https://doi.org/10.1002/cne.902980105

Pallas, S.L., B.L. Finlay (1989) Conservation of receptive field properties of superior collicular cells after developmental rearrangements of retinal input. *Visual Neurosci.*2: 121-135. https://doi.org/10.1017/S0952523800011986

Pallas, S.L., S.M. Gilmour, B.L. Finlay (1988) Control of cell number in the developing neocortex: I. Effects of early tectal ablation. *Devel. Brain Res.* 43: 1-11. https://doi.org/10.1016/0165-3806(88)90148-4

Pallas, S.L., R.R. Hoy (1986) Regeneration of normal afferent input does not eliminate aberrant synaptic connections of an identified auditory interneuron in the cricket Teleogryllus oceanicus. *J. Comp. Neurol.* 248: 348-359. https://doi.org/10.1002/cne.902480305

Pallas, S.L., C.D. Drewes (1981) The rapid tail flattening component of MGF-mediated escape behavior in the earthworm, *Lumbricus terrestris*. *Comp. Biochem. Physiol. A* 70: 57-64. https://doi.org/10.1016/0300-9629(81)90394-7

Drewes, C.D., J.L. McFall, E.P. Vining, **S.L. Pallas** (1980) Longitudinal variations in MGF-mediated giant motor neuron activity and rapid escape shortening in intact earthworms. *Comp. Biochem. Physiol. A* 67: 659-665. https://doi.org/10.1016/0300-9629(80)90256-X

PUBLISHED PREPRINTS

Mudd, D.B., T.S. Balmer, S.Y. Kim, N. Machhour, **S.L. Pallas** (under review, J Neurosci) TrkB activation during a critical period mimics the protective effects of early visual experience on the stability of receptive fields in adult superior colliculus. bioRxiv /2018/435784. https://doi.org/10.1101/435784

Cheng, Q., M.D. Graves, **S.L. Pallas** (under review, Devel Neurobiol) Dynamic alterations of retinal EphA5 expression in retinocollicular map plasticity. bioRxiv 2018/433904. https://doi.org/10.1101/433904

BOOKS

Pallas, S.L. (editor) Developmental Plasticity of Inhibitory Circuitry. ISBN 978-1-4419-1243-5, Springer-Verlag, New York, 2010. http://www.springer.com/fr/book/9781441912428

INVITED REVIEWS

Pallas, S.L. (2017) The impact of ecological niche on adaptive flexibility of sensory circuitry. In "From ecology to brain development: Bridging separate evolutionary paradigms" Eds: Francisco Aboitiz, Miguel Concha, Christian Gonzalez-Billault, Jorge Mpodozis. *Frontiers in Neuroscience* 11:344. https://dx.doi.org/10.3389/fnins.2017.00344

Pallas, S.L., Y.-T. Mao (2012) The evolution of multisensory neocortex. In: Barry E. Stein (editor) *New Handbook of Multisensory Processes*. pp. 627-642. MIT Press, Cambridge, MA. ISBN-13: 9780262017121

Kral, A. and **S.L. Pallas** (2011) Development of the auditory cortex. In: J.A. Winer and C.E. Schreiner (eds.) *The Auditory Cortex*. Springer, New York. http://link.springer.com/chapter/10.1007/978-1-4419-0074-6_21#page-1

Pallas, S.L. (2009) Introduction. In: Pallas, S.L. (editor) *Developmental Plasticity of Inhibitory Circuitry*, pp. 3-12. Springer-Verlag, New York.

Razak, K. A., Z.M. Fuzessery, **S.L. Pallas** (2009) Developmental plasticity of inhibitory receptive field properties in the auditory and visual systems. In: Pallas, S.L. (editor) *Developmental Plasticity of Inhibitory Circuitry*, pp. 71-89. Springer-Verlag, New York.

Pallas, S.L. (2007) Compensatory innervation in development and evolution. In: J. Kaas (ed.), *Evolution of Nervous Systems*, Vol. 1, G.F. Striedter and J.L.R. Rubenstein (eds.): *Theories, Development, and Invertebrates*, pp 153-168. Elsevier Academic Press, Amsterdam. http://www2.gsu.edu/~bioslp/pdfs/Evo_Devo_Review.pdf

Pallas, S.L., P. Wenner, C. Gonzalez-Islas, M. Fagiolini, K. Razak, G. Kim, D. Sanes, and B. Roerig (2006) Developmental plasticity of inhibitory circuitry. *J. Neurosci.* 26: 10358-10361. http://www.jneurosci.org/content/26/41/10358.long

Pallas, S.L., M. Xu, and K.A. Razak (2006) Influence of thalamocortical activity on sensory cortical development and plasticity. In: R. Erzurumlu, W. Guido, Z. Molnar, (eds.) *Development and Plasticity in Sensory Thalamus and Cortex*, pp 120-137. Kluwer Academic/ Plenum Publishers, New York. http://link.springer.com/chapter/10.1007/978-0-387-38607-2_8#page-1

Pallas, S.L. (2005) Pre- and postnatal sensory experience shapes functional architecture in the brain. Chapter 1 in: B. Hopkins & S.P. Johnson (Eds.): Prenatal Development of Postnatal Functions. *Advances in Infancy Research* Volume 14. Praeger, Westport, CT, pp. 1-30. http://books.google.com/books?hl=en&lr=&id=YIp7a8ZJxe4C&oi=fnd&pg=PA1&dq=pallas,+sl&ots=ROoIvEi-Ag&sig=Tv54vQvrtk1O3X-yeeja9Js8xys#v=onepage&q=pallas%2C%20sl&f=false

Pallas, S.L. (2002) Cross-modal plasticity as a tool for understanding ontogeny and phylogeny of cerebral cortex. Chapter 12 in: A. Shüz and R. Miller (eds.) Cortical Areas: Unity and Diversity. *Conceptual Advances in Brain Research* 5: 245-272. Taylor and Francis, London. http://books.google.com/books?hl=en&lr=&id=PibbUUpipH8C&oi=fnd&pg=PA245&dq=pallas,+sl&ots=VI5BG0dX1M&sig=uwU4GH6WMydSXtv-tJZhq2dYufk#v=onepage&q=pallas%2C%20sl&f=false

Pallas, S.L. (2001) Cortical specification makes sense. Invited peer commentary on Thomas A. Stoffregen and Benoit G. Bardy, On specification and the senses, *Behavioral and Brain Sciences* 24: 213-261.

Pallas, S.L. (2001) Intrinsic and extrinsic factors that shape neocortical specification. *Trends in Neurosciences* 24: 417-423. http://www.ncbi.nlm.nih.gov/pubmed/11410273

Pallas, S.L. (2001) Specification of mammalian neocortex: The power of the evo-devo approach in resolving the Nature-Nurture dichotomy. Invited peer commentary on M.A. Kingsbury and B.L. Finlay, The cortex in multidimensional space: where do cortical areas come from? *Developmental Science* 4: 148-150.

Pallas, S.L., L.A. Carman and M. Sur (1993) Visual inputs and information processing in sensory cortex: An *in vivo* developmental study. In: *Neural Systems*: *Analysis and Modeling*, F. Eeckman, ed., Kluwer Acad. Publ., Norwell, MA, pp. 167-178.

Sur, M., **S.L. Pallas**, A.W. Roe (1990) Cross-modal plasticity in cortical development: Differentiation and specification of sensory neocortex. *Trends Neurosci.* 13: 227-233. http://web.mit.edu/msur/www/publications/1990_SurPallasRoe.pdf

Pallas, S.L. (1991) Cross-modal plasticity in sensory cortex: Visual responses in primary auditory cortex in ferrets with induced retinal projections to the medial geniculate nucleus. In: *The Neocortex: Ontogeny and Phylogeny*, B.L. Finlay, G. Innocenti, and H. Scheich, eds., NATO ASI Series Vol. 200, Plenum, NY pp. 205-218. http://link.springer.com/chapter/10.1007/978-1-4899-0652-6_19#page-1

Finlay, B.L., **S.L. Pallas** (1989) Control of cell number in the developing visual system. *Progress in Neurobiology* 32: 207-234. http://www.sciencedirect.com/science/article/pii/0301008289900178

BOOK REVIEWS

Pallas, S.L. (1994) Review of "The Merging of the Senses" by B. Stein and M.A. Meredith, MIT Press, 1993, in *Trends in Neurosciences* 17:42-43.

ABSTRACTS

Shree, N., D.B. Mudd, P. Juvale, **S.L. Pallas** (2019) The effect of early visual experience on inhibitory synapses in the visual pathway. Proceedings of the National Conference on Undergraduate Research, in press. Kennesaw State University, Kennesaw, GA.

Pallas, **S.L.**, D.B. Mudd, S. Kim (2018) Early TrkB signaling maintains visual receptive field refinement in adult superior colliculus by stabilizing GABAergic synapses. Abstracts of 12th Federation of European Neuroscience Societies Forum, Berlin, Germany.

Balmer, T.S., D.B. Mudd, Y.T. Mao, Q. Cheng, D.J. Willshaw, and **S.L. Pallas** (2017) Critical role for ephrinA in retinocollicular map compression demonstrated by gene knockout. *2017 Neuroscience Meeting Planner*. Washington, DC: Society for Neuroscience. Online.

Mudd, D.B., T.S. Balmer, and **S.L. Pallas** (2017) Early TrkB signaling maintains visual receptive field refinement in adult superior colliculus by preventing a loss of inhibition. *2017 Neuroscience Meeting Planner*. Washington, DC: Society for Neuroscience. Online.

Mudd, D.B., T.S. Balmer, and **S.L. Pallas** (2016) Early TrkB signaling can rescue the adult retinotectal pathway from the negative effects of chronic sensory deprivation. Abstracts of 10th Federation of European Neuroscience Societies Forum, Copenhagen, Denmark.

Mudd, D.B., T.S. Balmer, and **S.L. Pallas** (2015) Early BDNF signaling can substitute for visual experience in maintenance of receptive field refinement in dark-reared adults. *2015 Neuroscience Meeting Planner*. Chicago, IL: Society for Neuroscience. Online.

Balmer, T.S. and **S.L. Pallas** (2013) Visual midbrain circuitry is protected against maladaptive adult plasticity by light-induced alterations in GABA mediated synaptic transmission. *2013 Neuroscience Meeting Planner*. San Diego, CA: Society for Neuroscience. Online.

Mao, Y.-T., Q. Cheng and **S.L. Pallas** (2011) Deletion of ephrin-A interferes with retinocollicular map compression after neonatal target damage. Program No. 861.02. *2011 Neuroscience Meeting Planner*. Washington, DC: Society for Neuroscience. Online.

Balmer, T.S. and **S.L. Pallas** (2011) Limited early visual experience is necessary for maintenance but not refinement of receptive fields in visual cortex. Program No. 133.15. *2011 Neuroscience Meeting Planner*. Washington, DC: Society for Neuroscience. Online.

Mao, Y.-T., **S.L. Pallas** (2011) Inhibition is increased in auditory cortex after invasion by ectopic visual inputs. Program No. 912.01. *2011 Neuroscience Meeting Planner.* Washington, DC: Society for Neuroscience. Online.

Mao, Y.-T., **S.L. Pallas** (2010) Invasion of ectopic visual inputs compromises auditory function in primary auditory cortex. Southeast Nerve Net conference proceedings, *Frontiers in Neurosci.* doi: 10.3389/conf.fnins.2010.04.00013. http://www.frontiersin.org/10.3389/conf.fnins.2010.04.00013/event_abstract

Cheng, Q., M. Graves, **S.L. Pallas** (2010) Role of the tyrosine kinase receptor EphA5 in recovery from perinatal brain injury. Southeast Nerve Net conference proceedings, *Frontiers in Neurosci.* doi: 10.3389/conf.fnins.2010.04.00045.

Cheng, Q., M. Graves, **S.L. Pallas** (2009) Retinal EphA5 expression is altered during recovery from traumatic brain injury to the superior colliculus. *2009 Neuroscience Meeting Planner*. Chicago, IL: Society for Neuroscience. Online Program No. 224.14.

Mao, Y.-T., **S.L. Pallas** (2009) Compensation and compromise of cortical function after neonatal midbrain damage. *2009 Neuroscience Meeting Planner*. Chicago, IL: Society for Neuroscience. Online Program No. 810.2.

Cheng, Q., M. Graves, **S.L. Pallas** (2009) Retinal EphA5 expression is altered by traumatic brain injury in the visual pathway. GA/SC Neuroscience Consortium, UGA, Athens, GA.

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Li, J., **S.L. Pallas** (2003) Characteristics of inhibitory interneurons in auditory cortex of cross-modal ferrets. *Southeast Nerve Net.*

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Welshans, K., C. Lynn-Bullock , A. Reedy, S.F. Belinga, **S.L. Pallas,** P.S. Katz (2001) Oral 5-HTP administration causes a transient appearance of 5-HTP and 5-HT immunoreactivity in the rat substantia nigra. *Southeast Nerve Net.*

Moerschel, D.J., **S. L. Pallas** (2001) Development of modular intrinsic connections in the primary auditory cortex of ferrets. *Southeast Nerve Net*.

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Drewes, C.D., **S.L. Pallas** (1980) Segmental variations in MGF-mediated escape behavior in intact earthworms. *Soc. Neurosci. Abstr.* 6: 74.

PREVIOUS GRANT SUPPORT

Previous Awards

External

- Competitive renewal, Research grant IBN-0451018, "Role of early sensory experience in parcellation of sensory cortex", $512,463 total costs, direct costs $355,426, indirect costs $157,037, National Science Foundation, 3/1/05 – 2/28/11. P.I.: S.L. Pallas.
- Research Experience for Undergraduate (REU) Supplement IOS-0736036 to IOS-0451018, to sponsor Lori Eidson. $5997 total costs, $4150 direct costs, $1847 indirect costs, National Science Foundation, 6/1/07 – 8/31/07. P.I.: S.L. Pallas.
- Research grant, "Role of early sensory experience in parcellation of sensory cortex", $269,995 total costs, $194,862 direct costs, $75,133 indirect costs, IBN-007811, National Science Foundation, 9/15/00- 8/31/05. P.I.: S.L. Pallas.
- R01 Research grant , "Developmental plasticity of visual response properties", $668,625 total costs, $475,000 direct costs, $193,625 indirect costs, EY/MH12696, National Institutes of Health/National Eye Institute, 05/01/00 - 4/30/05. P.I.: S.L. Pallas.
- Research support grant, "Cross-modal plasticity in the auditory cortex of deaf ferrets". $10,000 total costs, $6873 direct, $3127 indirect costs, # GSU: DLN29. National Organization for Hearing Research Foundation, 1/03– 1/04. P.I. Khaleel A. Razak.
- Research grant, competitive renewal, "Effects of early ectopic visual inputs on extrinsic and intrinsic circuitry of auditory cortex", $147,000, 1999-05-34-REN, Whitehall Foundation, 5/1/99-4/30/01.
- Supplemental grant, "Role of early sensory experience in parcellation of sensory cortex", $20,000, 2/1/99 - 8/31/00, amendment to IBN-9796072, National Science Foundation. P.I.: S.L. Pallas.
- Research Experience for Undergraduates Grant, $7500, National Science Foundation, 7/1/98- 6/30/99. P.I. S. L. Pallas, to sponsor Karen Page and Astou Coly.
- Research Experience for Undergraduates Grant, $3750, National Science Foundation, 6/1/97- 8/31/97. P.I. S. L. Pallas, to sponsor Shaun Daugherty.

- Research Experience for Undergraduates Grant, $4063, National Science Foundation, 6/1/96- 8/31/96. P.I. S. L. Pallas, to sponsor Jennifer Power.
- Research grant, "Role of early sensory experience in parcellation of sensory cortex", $281,986, IBN-9511430, National Science Foundation, 9/1/95- 8/31/99. P.I.: S.L. Pallas.
- Research grant, "Effects of ectopic visual inputs on extrinsic and intrinsic circuitry of auditory cortex", $120,000, F93-28, Whitehall Foundation, 1/1/94-8/31/99. P.I.: S.L. Pallas.
- Fight for Sight Grant-in-Aid, "Substitution of auditory cortex for perinatally damaged visual cortex", $11,000, National Society to Prevent Blindness, 7/1/93-6/30/94. P.I.: S.L. Pallas.
- National Research Service Award (NRSA), 1989 -1992, NIH, under direction of M. Sur at M.I.T.

Internal

- Brains and Behavior Seed Grant, **"**The EphA/ephrinA signaling pathway as a barrier to regeneration after traumatic brain injury**",** $28,499.70 total costs. 7/1/2016 – 6/30/2017. P.I.: S.L. Pallas.
- Brains and Behavior Seed Grant, **"**Comparative analysis of mechanisms underlying critical period closure**", $**29,947 total costs. 7/1/2013 – 6/30/2014. P.I.: S.L. Pallas.
- Center for Neuromics Graduate Research Award, $1500 total costs. 4/20/2011 – 6/1/2011. Awardee: Timothy S. Balmer, Supervisor: S.L. Pallas.
- Center for Teaching and Learning Award, $1000 total costs. 9/2010 – 8/2011. P.I.: S.L. Pallas.
- Brains and Behavior Summer Undergraduate Research Fellowship, $2500 total costs, for Shan Xue. 5/17/11 - 8/20/11. P.I.: S.L. Pallas.
- Molecular Biology of Disease Summer Undergraduate Research Fellowship, $2000 total costs, for Laura Tseng. 5/17/11 - 8/20/11. P.I.: S.L. Pallas.
- Venture Grant, "Plasticity of auditory communication pathways leading to recovery from hearing loss", $18,718 total costs. Center for Behavioral Neuroscience P.I.: S.L. Pallas, Co-P.I. Robert Liu. (7/1/08 – 10/31-09).
- Molecular Biology of Disease Summer Undergraduate Research Support, $5000. 6/07-8/07. P.I.: S.L. Pallas.
- Research Supplement Award, "Circuit- and cellular-level mechanisms underlying recovery from sensory deprivation and early brain trauma", total and direct costs $20,910. Dept. of Biology, GSU, 5/15/07.
- Center for Behavioral Neuroscience Equipment grant, $9417.00. February 2007. P.I.: S.L. Pallas.
- Brains and Behavior Program seed grant "Modeling circuits for stimulus velocity tuning in the superior colliculus", total and direct costs $26,343, Provost's Office, GSU, 10/7/05-10/6/06. Co-PIs: Pallas, Prasad, Shilnikov, Belykh.
- Research Supplement Award, "Circuit- and cellular-level mechanisms underlying recovery from sensory deprivation and early brain trauma", total and direct costs $37,462, Dept. of Biology, GSU, 5/15/05.
- Research Initiation Grant, $10,000, Georgia State University, 7/1/97-6/30/98.

TEACHING EXPERIENCE

Developmental Neurobiology**,** Introduction to Neuroscience, Mechanisms of Neural Plasticity, Topics in Neural Plasticity, Animal Biology, Integrative Neurobiology (Ph.D. level)**,** Graduate Seminar in Biology**,** Foundations of Biology II, Teaching Evolution to High School Students (online course), Scientific Methods in Neuroscience

ADMINISTRATIVE EXPERIENCE

Departmental

Graduate Program Committee, Neuroscience Institute
Neurobiology faculty meetings chair

Neurobiology representative for M.S. Program admissions
Pre-Med Advisory Committee, Neuroscience Institute
Website Development Supervisor
Pre-tenure review committee
Search Committee, Center for Behavioral Neuroscience
Search Committee, Center for Obesity Research
Search Committee, Center for Diagnostics and Therapeutics
Search Committee, Biology Department
Chair, Awards committee
Undergraduate Council
Liaison to Pullen Library
Confocal facility development committee

College of Arts and Sciences
Faculty Awards Committee
Promotion and Tenure Committee
Curriculum Committee, Biology representative
Improvement of Instruction Committee
Advisory Committee to Center for Brain Sciences and Health
Executive Committee for Neuroscience Institute proposal

Institutional
Faculty Fellow, Community Connections Mentoring Initiative, Multicultural Center 2017-
Equity subcommittee of the Faculty Affairs Committee 2016-2017
Student Evaluation Instrument subcommittee of the Faculty Affairs Committee 2015-2016
Chair, Cultural Diversity Committee of University Senate 2014-2016
Ad hoc committee to evaluate the Associate Provost for Intl Initiatives 2015
University Senate member 2013-2017
Cultural Diversity Committee of University Senate 2013-2017
Faculty Affairs Committee of University Senate 2013-2017
Improvement of Instruction Committee of the University Senate 2013-2016
Provost's *ad hoc* Committee on Advancement of Women, 2010-
Academic Advisory Committee (University System of Georgia) 2003
Institutional Animal Care and Use Committee
Chair, General Education SACS Assessment Team on Critical Thinking

Professional
Outside reviewer for Promotion and Tenure committees (multiple Universities in U.S.)
Panel member, Graduate Research Fellowship Program, NSF 2018
Study section member, Special Emphasis Panel, NIH 2017
Society for Neuroscience Government and Public Affairs Committee 2013-2016
IBRO Animals in Research Committee 2005-2013
Reviewing Editor, Frontiers in Neuroanatomy
Reviewing Editor, Frontiers in Neural Circuits
Reviewing Editor, Neural Plasticity (Hindawi)
Panel member, NIH AUD Study Section, 2017
Panel member, CRCNS, *NSF*, 2017
Panel member, Animal Sensation and Movement, IBN, NSF 2007
Ad hoc grant reviewer *(National Science Foundation, Human Frontiers in Science Program, Wellcome Trust, US-Israeli Binational Science Foundation, Singapore Medical Research Council)*

Peer Reviewer *(Nature, Nature Communications, Nature Neuroscience, Science, PNAS, Current Biol, eLife, Neuron, J Neurosci, Eur J Neurosci, Cerebral Cortex, J Neurophysiol, J Comp Neurol, Neural Devel, PloS One, Brain Structure & Function, Visual Neurosci, J Chem Neuroanat, Intl J Devel Biol, FEBS Letters, Exptl Neurol, Learning and Memory, Devel Neurobiol, FEBS Letters, Molec Cell Neurosci)*

Community

Guest Speaker, STEM Education night, Henderson Mills Elementary School, Feb 2019
Neuroscience Faculty Member, Emory-Tibet Science Initiative, Emory University, 2014
Guest Speaker, Southern Polytechnic University, 2010
Guest Speaker, Atlanta Science Tavern, 2009, 2015
Council member, Atlanta Chapter, Society for Neuroscience
Coordinator for Jensen Learning Corporation event
Fernbank Elementary School, science education committee

State

Chair, Academic Science Advisory Committee for Life Sciences, State of Georgia Board of Education, 2015-
Witness, Georgia House of Representatives, teaching evolution H.B. 179, 2005
Coordinator for preparation of *amicus curiae* brief presented by 12 pro-science education citizen groups from 11 states to the 11th circuit court in the matter of Selman v. Cobb County Board of Education, 2005
Newspaper, radio, TV interviews for evolution education issues in Georgia, 2002-05
Founding member, Georgia Parents for Responsible Health Education, 2004
Consultant, committee to develop Georgia Science Performance Standards for K-12, State of Georgia Board of Education, 2004
Georgia representative, National Center for Science Education Activist Summit, 2003
Founding member, former Co-President, Board of Directors member, and Advisory Board member of Georgia Citizens for Excellence in Science Education, 2002-
Georgia Listmanager, American Institute of Biological Sciences Evolution Education, 2000-

National

Advisor, Society for Neuroscience Brain Awareness Video Competition, 2014

References available upon request.