

Stanford



Joseph Garner

Associate Professor of Comparative Medicine and, by courtesy, of Psychiatry and Behavioral Sciences at the Stanford University Medical Center

Bio

BIO

Joseph Garner, D.Phil., Associate Professor, received his doctoral degree from the Department of Zoology at the University of Oxford, Great Britain, where he studied the developmental neuroethology of stereotypies in captive animals (1995-1999). His postdoctoral research in animal behavior and well-being was undertaken at UC Davis (1999-2004). He served as an Assistant (2004-2010) and an Associate (2010-2011) Professor of animal behavior and well-being in the Department of Animal Sciences at Purdue University, where he also held a courtesy appointment in the Department of Speech, Language and Hearing Sciences (2009-2011). Dr. Garner joined the Department of Comparative Medicine at Stanford in 2011. Here he runs Stanford's Technique Refinement and Innovation Lab, which provides a wide range of support services to assist researchers on campus maximize the efficiency of their work and the well-being of the animals involved.

Dr. Garner's research interests include the development of refined methods in behavioral research; abnormal behaviors in animals (including barbering and ulcerative dermatitis) and their relationships with abnormal behaviors in humans; mouse well-being and enrichment; and the scientific impact of well-being problems in lab animals. The goal of this work is to understand why most drugs (and other basic science findings) fail to translate into human outcomes, and how changes in animal research can help resolve this problem.

Recognition of Dr. Garner's work includes awards from the National Center for the 3Rs (UK), the American Association for Laboratory Animal Science, the Swiss Laboratory Animal Science Association, and the Universities Federation for Animal Welfare.

Dr. Garner serves, or has served, as a council member for the International Society for Applied Ethology, an Editor for Applied Animal Behavior Science, a Special Topics section editor for the Journal of Animal Science, on the AAALAC Board of Trustees, on the SCAW Board of Trustees, on the Scientific Advisory Board of the Trichotillomania Learning Center, the Tourette Association of America, and the Beautiful You MRKH Foundation.

ACADEMIC APPOINTMENTS

- Associate Professor - Med Center Line, Comparative Medicine
- Associate Professor - Med Center Line (By courtesy), Psychiatry and Behavioral Sciences
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Faculty Fellow, Stanford ChEM-H
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Henry Spira Memorial Lecture, In Recognition of Innovation and Achievement in the 3Rs, PRIM&R (2016)
- Year of Learning, Great Teaching Showcase, Stanford University (2015)
- 3Rs Prize (Highly Commended), NC3Rs and GlaxoSmithKline (2014)
- Prize for exceptional science: for exceptional achievements in laboratory animal science, Swiss Society for Laboratory Animal Science (2013)
- Pravin N. Bhatt Young Investigator Award, American Association for Laboratory Animal Science (2012)
- Outstanding Faculty Mentor, Louis Stokes Alliance for Minority Participation - Indiana (2011)
- Early Achievement Award (Research), Poultry Science Association (2009)
- Entrepreneurial Leadership Academy Scholar, Purdue University (2009)
- Professor William Russell Fellowship, Universities Federation for Animal Welfare (2008-2011)
- Entrepreneurial Leadership Academy, Purdue University (2008)
- Professors For The Future Fellow, UC Davis (2001)
- Honorary Senior Scholar, New College, Oxford University (1995-1999)
- Gibbs Prize for Zoology, proxime accessit, Oxford University (1995)
- Southern Field Prize, Biological Sciences, Oxford University (1995)

COMMUNITY AND INTERNATIONAL WORK

- Beautiful You MRKH Foundation
- Scientific Advisory Board, Tourette Syndrome Association
- Scientific Advisory Board, Trichotillomania Learning Center
- Member of editorial board, Applied Animal Behaviour Science
- Editorial Board, Journal of Animal Science
- Governing Council, International Society for Applied Ethology
- ISAE representative on the AAALAC Board of Trustees

LINKS

- Full publication list from Google Scholar: <http://scholar.google.com/citations?user=JThS8LMAAAAJ>
- Mouse ethogram and video library: <http://www.mousebehavior.org>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am fundamentally interested in the positive and negative impacts of translation in human and animal well-being – including both “forward translation” from animal work to human outcomes, but also “reverse translation” from human measures and interventions to animals. For example, roughly 90% of drugs fail in translation, and the majority of these failures are due to a lack of efficacy. The financial, societal, and ethical costs of these failures are staggering. Accordingly, the overarching theme of my research is understanding why most drugs (and other basic science findings) fail to translate into human outcomes, the role that animal models and animal methodology play in in these failures, and in developing new approaches to improve the translation of animal research while also improving well-being. I am particularly interested in biomarker-based personalized medicine as a general solution, and much of my research program focuses on developing methodologies for biomarker-based animal models (e.g. biostatistics; individual differences in risk and response; animal housing, behavior and well-being; reverse-translated assays and automated instrumentation).

On the animal well-being side of my research, my work on the role of biostatistics and experimental design in improving both animal well-being and scientific outcomes includes a series of papers in Nature Methods, as well as papers in the MRC (UK) and the National Academies' policy journals (NC3Rs Journal, and ILAR journal). We recently completed a long arc of work on the implementation and benefits (to science, well-being, and breeding) of nesting material for mice. Early papers in this program are referenced in new federal policy for mouse housing, and the body of work as a whole has won three major international awards. We are currently working on other major health and well-being issues in mice (particularly aggression and ulcerative dermatitis), including the first report of an effective treatment for ulcerative dermatitis. Our current NIH funding in this area is for the reverse-translation and validation of human measures of pain for use in mice, as a solution to the issues that current mouse measures of pain present for translational research.

I also work extensively in human health, both as a researcher and an advocate. My current human health research is focused on autism, trichotillomania and skin-picking. The question driving all of this work is "Why does one sibling become ill and another does not?", and the goal is to identify biomarkers leading to screening, prevention and personalized treatment options. My early work in autism reverse-translated neuropsychological biomarkers of frontal executive function for use in mice and other animals, and established spontaneous stereotypies as a model of stereotypies (identical repetitive movements) in autism. My current work in autism (in collaboration with colleagues at Stanford, UCSF and UC Davis) is focused on biomarkers, genetic risk factors, and associated potential therapeutics targeting oxytocin and vasopressin and the relationship to social deficits in autistic patients and primate models. Trichotillomania and Skin Picking Disorder are extremely prevalent (trichotillomania affects approximately 3.5% of women), underserved, and hidden disorders, with severe impacts on life functioning and potentially life-threatening medical complications. My lab is the only lab working on animal models for either disorder. In mice we have identified underlying disease processes, biomarkers predictive of later onset, preventative interventions, and most recently, a novel and highly effective treatment (intranasal glutathione).

Teaching

COURSES

2019-20

- Animal behavior: sex, death, and sometimes food!: COMPMED 80N (Aut, Spr)
- Biostatistics for the Life Sciences: COMPMED 211 (Aut)
- Life in the Zoo: Behavior, Welfare and Enrichment: COMPMED 11SC (Sum)

2018-19

- Animal behavior: sex, death, and sometimes food!: COMPMED 80N (Aut, Spr)
- Biostatistics for the Life Sciences: COMPMED 211 (Aut)
- Life in the Zoo: Behavior, Welfare and Enrichment: COMPMED 11SC (Sum)

2017-18

- Animal behavior: sex, death, and sometimes food!: COMPMED 80N (Aut, Spr)
- Biostatistics for the Life Sciences: COMPMED 211 (Aut)
- Life in the Zoo: Behavior, Welfare and Enrichment: COMPMED 11SC (Sum)

2016-17

- Animal behavior: sex, death, and sometimes food!: COMPMED 80N (Aut, Spr)
- Biostatistics for the Life Sciences: Best practices for reproducibility and translation: COMPMED 211 (Aut)
- Life in the Zoo: Behavior, Welfare and Enrichment: COMPMED 11SC (Sum)

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **A randomized placebo-controlled pilot trial shows that intranasal vasopressin improves social deficits in children with autism.** *Science translational medicine*
Parker, K. J., Oztan, O., Libove, R. A., Mohsin, N., Karhson, D. S., Sumiyoshi, R. D., Summers, J. E., Hinman, K. E., Motonaga, K. S., Phillips, J. M., Carson, D. S., Fung, L. K., Garner, et al
2019
- **Arginine vasopressin in cerebrospinal fluid is a marker of sociality in nonhuman primates** *SCIENCE TRANSLATIONAL MEDICINE*
Parker, K. J., Garner, J. P., Oztan, O., Tarara, E. R., Li, J., Sclafani, V., Del Rosso, L. A., Chun, K., Berquist, S. W., Chez, M. G., Partap, S., Hardan, A. Y., Sherr, et al
2018; 10 (439)
- **Preventing, treating, and predicting barbering: A fundamental role for biomarkers of oxidative stress in a mouse model of Trichotillomania** *PLOS ONE*
Vieira, G. d., Lossie, A. C., Lay, D. C., Radcliffe, J. S., Garner, J. P.
2017; 12 (4)
- **Introducing Therioepistemology: the study of how knowledge is gained from animal research** *LAB ANIMAL*
Garner, J. P., Gaskill, B. N., Webers, E. M., Ahloy-Dallaire, J., Pritchett-Corning, K. R.
2017; 46 (4): 103-113
- **A "Pedi" Cures All: Toenail Trimming and the Treatment of Ulcerative Dermatitis in Mice.** *PloS one*
Adams, S. C., Garner, J. P., Felt, S. A., Geronimo, J. T., Chu, D. K.
2016; 11 (1): e0144871
- **Plasma oxytocin concentrations and OXTR polymorphisms predict social impairments in children with and without autism spectrum disorder** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Parker, K. J., Garner, J. P., Libove, R. A., Hyde, S. A., Hornbeak, K. B., Carson, D. S., Liao, C., Phillips, J. M., Hallmayer, J. F., Hardan, A. Y.
2014; 111 (33): 12258-12263
- **Systematic variation improves reproducibility of animal experiments** *NATURE METHODS*
Richter, S. H., Garner, J. P., Auer, C., Kunert, J., Wuerbel, H.
2010; 7 (3): 167-168
- **Blood oxytocin concentration positively predicts contagious yawning behavior in children with autism spectrum disorder.** *Autism research : official journal of the International Society for Autism Research*
Mariscal, M. G., Oztan, O., Rose, S. M., Libove, R. A., Jackson, L. P., Sumiyoshi, R. D., Trujillo, T. H., Carson, D. S., Phillips, J. M., Garner, J. P., Hardan, A. Y., Parker, K. J.
2019
- **A randomized placebo-controlled pilot trial shows that intranasal vasopressin improves social deficits in children with autism** *SCIENCE TRANSLATIONAL MEDICINE*
Parker, K. J., Oztan, O., Libove, R. A., Mohsin, N., Karhson, D. S., Sumiyoshi, R. D., Summers, J. E., Hinman, K. E., Motonaga, K. S., Phillips, J. M., Carson, D. S., Fung, L. K., Garner, et al
2019; 11 (491)
- **The effect of early life experience, environment, and genetic factors on spontaneous home-cage aggression-related wounding in male C57BL/6 mice (vol 46, pg 176, 2017)** *LAB ANIMAL*
Gaskill, B. N., Stottler, A. M., Garner, J. P., Winnicker, C. W., Mulder, G. B., Pritchett-Corning, K. R.
2019; 48 (5): 147-48
- **Addendum: The effect of early life experience, environment, and genetic factors on spontaneous home-cage aggression-related wounding in male C57BL/6 mice.** *Lab animal*
Gaskill, B. N., Stottler, A. M., Garner, J. P., Winnicker, C. W., Mulder, G. B., Pritchett-Corning, K. R.
2019
- **Automated monitoring of mouse feeding and body weight for continuous health assessment.** *Laboratory animals*
Ahloy-Dallaire, J., Klein, J. D., Davis, J. K., Garner, J. P.

2018: 23677218797974

- **Cerebrospinal fluid vasopressin and symptom severity in children with autism.** *Annals of neurology*
Oztan, O., Garner, J. P., Partap, S., Sherr, E. H., Hardan, A. Y., Farmer, C., Thurm, A., Swedo, S. E., Parker, K. J.
2018
- **Extensive Somatosensory and Motor Corticospinal Sprouting Occurs Following a Central Dorsal Column Lesion in Monkeys.** *The Journal of comparative neurology*
Fisher, K. M., Lilak, A., Garner, J., Darian-Smith, C.
2018
- **Adaptive developmental plasticity in rhesus macaques: the serotonin transporter gene interacts with maternal care to affect juvenile social behaviour.** *Proceedings. Biological sciences*
Madrid, J. E., Mandalaywala, T. M., Coyne, S. P., Ahloy-Dallaire, J., Garner, J. P., Barr, C. S., Maestriperieri, D., Parker, K. J.
2018; 285 (1881)
- **Plasma anandamide concentrations are lower in children with autism spectrum disorder** *MOLECULAR AUTISM*
Karhson, D. S., Krasinska, K. M., Dallaire, J., Libove, R. A., Phillips, J. M., Chien, A. S., Garner, J. P., Hardan, A. Y., Parker, K. J.
2018; 9: 18
- **Breaking up is hard to do: does splitting cages of mice reduce aggression?** *Applied Animal Behaviour Science*
Blankenberger, W. B., Weber, E. M., Chu, D. K., Geronimo, J. T., Theil, J., Gaskill, B. N., Pritchett-Corning, K., Albertelli, M. A., Garner, J. P., Ahloy-Dallaire, J.
2018; 206: 94-101
- **Biomarker Discovery for Social Impairments: Translation From a Novel Monkey Model to Patients With Autism**
Parker, K., Garner, J., Oztan, O., Tarara, E., Li, J., Sclafani, V., Del Rosso, L., Chun, K., Berquist, S., Chez, M., Partap, S., Hardan, A., Sherr, et al
NATURE PUBLISHING GROUP.2017: S501–S502
- **Stressed out: providing laboratory animals with behavioral control to reduce the physiological effects of stress** *LAB ANIMAL*
Gaskill, B. N., Garner, J. P.
2017; 46 (4): 142-145
- **Aggression in group-housed laboratory mice: why can't we solve the problem?** *LAB ANIMAL*
Webers, E. M., Dallaire, J. A., Gaskill, B. N., Pritchett-Corning, K. R., Garner, J. P.
2017; 46 (4): 157-161
- **The effect of early life experience, environment, and genetic factors on spontaneous home-cage aggression-related wounding in male C57BL/6 mice** *LAB ANIMAL*
Gaskill, B. N., Stotter, A. M., Garner, J. P., Winnicker, C. W., Mulders, G. B., Pritchett-Corning, K. R.
2017; 46 (4): 176-184
- **The effect of early life experience, environment, and genetic factors on spontaneous home-cage aggression-related wounding in male C57BL/6 mice.** *Lab animal*
Gaskill, B. N., Stotter, A. M., Garner, J. P., Winnicker, C. W., Mulder, G. B., Pritchett-Corning, K. R.
2017; 46 (4): 176-184
- **Aggression in group-housed laboratory mice: why can't we solve the problem?** *Lab animal*
Weber, E. M., Dallaire, J. A., Gaskill, B. N., Pritchett-Corning, K. R., Garner, J. P.
2017; 46 (4): 157-161
- **Preference for novel faces in male infant monkeys predicts cerebrospinal fluid oxytocin concentrations later in life.** *Scientific Reports*
Madrid, J. E., Oztan, O., Sclafani, V., Del Rosso, L. A., Calonder, L. A., Chun, K., Capitanio, J. P., Garner, J. P., Parker, K. J.
2017: 12935
- **Preference for novel faces in male infant monkeys predicts cerebrospinal fluid oxytocin concentrations later in life.** *Scientific reports*
Madrid, J. E., Oztan, O., Sclafani, V., Del Rosso, L. A., Calonder, L. A., Chun, K., Capitanio, J. P., Garner, J. P., Parker, K. J.
2017; 7 (1): 12935
- **Intranasal oxytocin treatment for social deficits and biomarkers of response in children with autism.** *Proceedings of the National Academy of Sciences of the United States of America*

- Parker, K. J., Oztan, O., Libove, R. A., Sumiyoshi, R. D., Jackson, L. P., Karhson, D. S., Summers, J. E., Hinman, K. E., Motonaga, K. S., Phillips, J. M., Carson, D. S., Garner, J. P., Hardan, et al
2017; 114 (30): 8119–24
- **Intranasal oxytocin treatment for social deficits and biomarkers of response in children with autism.** *Proceedings of the National Academy of Sciences*
Parker, K. J., Oztan, O., Libove, R. A., Sumiyoshi, R. D., Jackson, L. P., Karhson, D. S., Summers, J. E., Hinman, K. E., Motonaga, K. S., Phillips, J. M., Carson, D. S., Garner, J. P., Hardan, et al
2017; 114 (30): 8119-8124
 - **Biomarker discovery for disease status and symptom severity in children with autism.** *Psychoneuroendocrinology*
Oztan, O., Jackson, L. P., Libove, R. A., Sumiyoshi, R. D., Phillips, J. M., Garner, J. P., Hardan, A. Y., Parker, K. J.
2017; 89: 39–45
 - **He's getting under my skin! Comparing the sensitivity and specificity of dermal vs subcuticular lesions as a measure of aggression in mice** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
Gaskill, B. N., Stotter, A., Pritchett-Corning, K. R., Wong, L. K., Geronimo, J., Garner, J. P.
2016; 183: 77-85
 - **Two of a Kind or a Full House? Reproductive Suppression and Alloparenting in Laboratory Mice** *PLOS ONE*
Garner, J. P., Gaskill, B. N., Pritchett-Corning, K. R.
2016; 11 (5)
 - **A "Pedi" Cures All: Toenail Trimming and the Treatment of Ulcerative Dermatitis in Mice** *PLOS ONE*
Adams, S. C., Garner, J. P., Felt, S. A., Geronimo, J. T., Chu, D. K.
2016; 11 (1)
 - **Early Predictors of Impaired Social Functioning in Male Rhesus Macaques (*Macaca mulatta*).** *PloS one*
Sclafani, V., Del Rosso, L. A., Seil, S. K., Calonder, L. A., Madrid, J. E., Bone, K. J., Sherr, E. H., Garner, J. P., Capitanio, J. P., Parker, K. J.
2016; 11 (10)
 - **Cerebrospinal fluid and plasma oxytocin concentrations are positively correlated and negatively predict anxiety in children** *MOLECULAR PSYCHIATRY*
Carson, D. S., Berquist, S. W., Trujillo, T. H., Garner, J. P., Hannah, S. L., Hyde, S. A., Sumiyoshi, R. D., Jackson, L. P., MOSS, J. K., Strehlow, M. C., Cheshier, S. H., Partap, S., Hardan, et al
2015; 20 (9): 1085-1090
 - **Arginine Vasopressin Is a Blood-Based Biomarker of Social Functioning in Children with Autism** *PLOS ONE*
Carson, D. S., Garner, J. P., Hyde, S. A., Libove, R. A., Berquist, S. W., Hornbeak, K. B., Jackson, L. P., Sumiyoshi, R. D., Howerton, C. L., Hannah, S. L., Partap, S., Phillips, J. M., Hardan, et al
2015; 10 (7)
 - **Antioxidant Therapies for Ulcerative Dermatitis: A Potential Model for Skin Picking Disorder** *PLOS ONE*
George, N. M., Whitaker, J., Vieira, G., Geronimo, J. T., Bellinger, D. A., Fletcher, C. A., Garner, J. P.
2015; 10 (7)
 - **An initial investigation into the effects of isolation and enrichment on the welfare of laboratory pigs housed in the PigTurn (R) system, assessed using tear staining, behaviour, physiology and haematology** *ANIMAL WELFARE*
DeBoer, S. P., Garner, J. P., McCain, R. R., Lay, D. C., Eicher, S. D., Marchant-Forde, J. N.
2015; 24 (1): 15-27
 - **Plasma vasopressin concentrations positively predict cerebrospinal fluid vasopressin concentrations in human neonates.** *Peptides*
Carson, D. S., Howerton, C. L., Garner, J. P., Hyde, S. A., Clark, C. L., Hardan, A. Y., Penn, A. A., Parker, K. J.
2014; 61: 12-16
 - **Plasma vasopressin concentrations positively predict cerebrospinal fluid vasopressin concentrations in human neonates** *PEPTIDES*
Carson, D. S., Howerton, C. L., Garner, J. P., Hyde, S. A., Clark, C. L., Hardan, A. Y., Penn, A. A., Parker, K. J.
2014; 61: 12-16
 - **The effect of perch availability during pullet rearing and egg laying on the behavior of caged White Leghorn hens** *POULTRY SCIENCE*
Hester, P. Y., Garner, J. P., Enneking, S. A., Cheng, H. W., Einstein, M. E.
2014; 93 (10): 2423-2431

- **Corticospinal Sprouting Differs According to Spinal Injury Location and Cortical Origin in Macaque Monkeys** *JOURNAL OF NEUROSCIENCE*
Darian-Smith, C., Lilak, A., Garner, J., Irvine, K.
2014; 34 (37): 12267-12279
- **Corticospinal sprouting differs according to spinal injury location and cortical origin in macaque monkeys.** *journal of neuroscience*
Darian-Smith, C., Lilak, A., Garner, J., Irvine, K.
2014; 34 (37): 12267-12279
- **Letter-to-the-editor on "Not so hot: Optimal housing temperatures for mice to mimic the thermal environment of humans".** *Molecular metabolism*
Gaskill, B. N., Garner, J. P.
2014; 3 (4): 335-336
- **Plasma oxytocin concentrations are lower in depressed vs. healthy control women and are independent of cortisol.** *Journal of psychiatric research*
Yuen, K. W., Garner, J. P., Carson, D. S., Keller, J., Lembke, A., Hyde, S. A., Kenna, H. A., Tennakoon, L., Schatzberg, A. F., Parker, K. J.
2014; 51: 30-36
- **An automated maze task for assessing hippocampus-sensitive memory in mice** *BEHAVIOURAL BRAIN RESEARCH*
Pioli, E. Y., Gaskill, B. N., Gilmour, G., Tricklebank, M. D., Dix, S. L., Bannerman, D., Garner, J. P.
2014; 261: 249-257
- **The Significance of Meaning: Why Do Over 90% of Behavioral Neuroscience Results Fail to Translate to Humans, and What Can We Do to Fix It?** *ILAR JOURNAL*
Garner, J. P.
2014; 55 (3): 438-456
- **Cerebrospinal fluid and plasma oxytocin concentrations are positively correlated and negatively predict anxiety in children.** *Molecular psychiatry*
Carson, D. S., Berquist, S. W., Trujillo, T. H., Garner, J. P., Hannah, S. L., Hyde, S. A., Sumiyoshi, R. D., Jackson, L. P., Moss, J. K., Strehlow, M. C., Cheshier, S. H., Partap, S., Hardan, et al
2014
- **Nest Building as an Indicator of Health and Welfare in Laboratory Mice** *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*
Gaskill, B. N., Karas, A. Z., Garner, J. P., Pritchett-Corning, K. R.
2013
- **Can seeds help mice with the daily grind?** *LABORATORY ANIMALS*
Pritchett-Corning, K. R., Keefe, R., Garner, J. P., Gaskill, B. N.
2013; 47 (4): 312-315
- **The World is a Natural Laboratory, and Social Media is the New Petri Dish** *ETHOLOGY*
Rault, J., Elmore, M. R., Biehl, D. J., Russell, M. A., Garner, J. P.
2013; 119 (10): 803-806
- **Prenatal stress puzzle, the oxytocin piece: Prenatal stress alters the behaviour and autonomic regulation in piglets, insights from oxytocin** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
Rault, J., Mack, L. A., Carter, C. S., Garner, J. P., Marchant-Forde, J. N., Richert, B. T., Lay, D. C.
2013; 148 (1-2): 99-107
- **Winning the Genetic Lottery: Biasing Birth Sex Ratio Results in More Grandchildren** *PLOS ONE*
Thogerson, C. M., Brady, C. M., Howard, R. D., Mason, G. J., Pajor, E. A., Vicino, G. A., Garner, J. P.
2013; 8 (7)
- **Reply to: "Reanalysis of Richter et al. (2010) on reproducibility".** *Nature methods*
Würbel, H., Richter, S. H., Garner, J. P.
2013; 10 (5): 374-?
- **Repeated intranasal oxytocin administration in early life dysregulates the HPA axis and alters social behavior.** *Physiology & behavior*
Rault, J., Carter, C. S., Garner, J. P., Marchant-Forde, J. N., Richert, B. T., Lay, D. C.
2013; 112-113: 40-48
- **Repeated intranasal oxytocin administration in early life dysregulates the HPA axis and alters social behavior** *PHYSIOLOGY & BEHAVIOR*

- Rault, J., Carter, C. S., Garner, J. P., Marchant-Forde, J. N., Richert, B. T., Lay, D. C.
2013; 112: 40-48
- **Impact of nesting material on mouse body temperature and physiology.** *Physiology & behavior*
Gaskill, B. N., Gordon, C. J., Pajor, E. A., Lucas, J. R., Davis, J. K., Garner, J. P.
2013; 110-111: 87-95
 - **Impact of nesting material on mouse body temperature and physiology** *PHYSIOLOGY & BEHAVIOR*
Gaskill, B. N., Gordon, C. J., Pajor, E. A., Lucas, J. R., Davis, J. K., Garner, J. P.
2013; 110: 87-95
 - **Does the presence of a human affect the preference of enrichment items in young, isolated pigs?** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
DeBoer, S. P., Garner, J. P., Lay, D. C., Eicher, S. D., Lucas, J. R., Marchant-Forde, J. N.
2013; 143 (2-4): 96-103
 - **Biology, behavior, and environmental enrichment for the captive African clawed frog (*Xenopus spp*)** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
Chum, H., Felt, S., Garner, J., Green, S.
2013; 143 (2-4): 150-156
 - **Nest building as an indicator of health and welfare in laboratory mice.** *Journal of visualized experiments : JoVE*
Gaskill, B. N., Karas, A. Z., Garner, J. P., Pritchett-Corning, K. R.
2013: 51012-?
 - **Energy Reallocation to Breeding Performance through Improved Nest Building in Laboratory Mice.** *PloS one*
Gaskill, B. N., Pritchett-Corning, K. R., Gordon, C. J., Pajor, E. A., Lucas, J. R., Davis, J. K., Garner, J. P.
2013; 8 (9)
 - **The naked truth: Breeding performance in nude mice with and without nesting material** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
Gaskill, B. N., Winnicker, C., Garner, J. P., Pritchett-Corning, K. R.
2013; 143 (2-4): 110-116
 - **ENU mutagenesis reveals that Notchless homolog 1 (*Drosophila*) affects Cdkn1a and several members of the Wnt pathway during murine pre-implantation development** *BMC GENETICS*
Lossie, A. C., Lo, C., Baumgarner, K. M., Cramer, M. J., Garner, J. P., Justice, M. J.
2012; 13
 - **Differing results for motivation tests and measures of resource use: The value of environmental enrichment to gestating sows housed in stalls** *APPLIED ANIMAL BEHAVIOUR SCIENCE*
Elmore, M. R., Garner, J. P., Johnson, A. K., Kirkden, R. D., Patterson-Kane, E. G., Richert, B. T., Pajor, E. A.
2012; 141 (1-2): 9-19
 - **A standardized cage measurement system: A versatile tool for calculating usable cage space** *JOURNAL OF APPLIED POULTRY RESEARCH*
Kiess, A. S., Hester, P. Y., Mench, J. A., Newberry, R. C., Garner, J. P.
2012; 21 (3): 657-668
 - **A system utilizing radio frequency identification (RFID) technology to monitor individual rodent behavior in complex social settings** *JOURNAL OF NEUROSCIENCE METHODS*
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