

## Martin F. Sarter

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## Education

Ph.D., University of Konstanz. Psychology/Neurobiology (1984)

M.S., University of Düsseldorf. Major: Biological Psychology; 2nd major: Pharmacology (1982)

## Academic Appointments

Research Professor, Department of Neurology, University of Michigan Medical School (2018-present)

Charles M. Butter Collegiate Professor of Psychology; Professor, Neuroscience Program; University of Michigan (Ann Arbor; 2004-present)

Chair, Biopsychology Area, University of Michigan (2008-2017)

Distinguished Professor of Social and Behavioral Sciences, Ohio State University (2003-2004)

Assistant (1988-1993), Associate (1993-1997), Professor (1997-2004), Department of Psychology and Neuroscience Program, Ohio State University

Head, Laboratory for Geriatric Psychopharmacology, Schering AG, Berlin (1984-1988)

## Honors

Elected Fellow, American College of Neuropsychopharmacology (ACNP; 2018); James McKeen Cattell Fellowship (Association for Psychological Science, APS; 2012); Elected Member, American College of Neuropsychopharmacology (ACNP; 2010); Elected Fellow, Association for Psychological Science (APS; 2009); Mentor to 2009 Recipient, Vicente Martinez, of the James McKeen Cattell Dissertation Award, New York Academy of Sciences (2009); Appointed as the Charles M. Butter Collegiate Professor of Psychology (University of Michigan; 2004); Elected Fellow, American Psychological Association (APA; 2004); Independent Scientist Award, National Institute of Mental Health (NIMH; 2003-2008); Appointed as Distinguished Professor of Social and Behavioral Sciences, The Ohio State University (OSU; 2003); Finalist, Outstanding Teaching Award, Arts and Sciences Student Council, OSU; 2002); Fred Brown Research Award, Department of Psychology (OSU; 2001); The Ohio State University Distinguished Scholar Award (1999); Elected Fellow, International Behavioral Neuroscience Society (IBNS; 1998); Independent Scientist Award, National Institute of Mental Health (NIMH; 1994-1999); Elected Fellow, American Association for the Advancement of Science (AAAS; 1993); Distinguished Scientific Award for an Early Career Contribution to Psychology, American Psychological Association (APA; 1992); New Investigator Award of the American Geriatrics Society (AGS; 1991).

## Editorial Boards

Co-Editor in Chief, *European Journal of Neuroscience* (EJN; 2008-2014); Editor-in-Chief for the Americas, *Journal of Psychopharmacology* (1993-2003); Receiving Editor, *European Journal of Neuroscience* (EJN; 2000-2008); Editorial Board Member, *Behavioral Neuroscience* (1995-present); Editorial Advisory Board Member, *ACS Chemical Neuroscience* (2016-present). Editorial Board, Member, *Brain and Neuroscience Advances* (2016-present).

## Grant Review Committees

Member, MZRG1 F16-L Special Emphasis Panel (2017); Member, NIMH ZMH1 ERB-C Special Emphasis Panel (2016); Member, NIH ZRG1 IFCN-T Special Emphasis Panel (2015); Member, NIDA ZDA1 SXC Special Emphasis Panel (CEBRA Program; 2013); Member, NIH ZRG1 IFCN-T Special Emphasis Panel (2011); Member, NIMH ZMH1 ERB-C Special Emphasis Panel (2011); Member, NIH ZRG1 BDCN-T Special Emphasis Panel (2009); Member, NIMH ZMH1 ERB-L Special Emphasis Panel (2009); Member, NIMH ZMH1 ERB-Z Special Emphasis Panel (2007); Member, NIMH ZMH1 ERB-Q Special Emphasis Panel (2006); Member, NIH IFCN-C (03) Special Emphasis Panel (2005); Temporary Member, NIH Integrative, Functional and Cognitive Neuroscience (IFCN-8) Review Committee (2003); Reviewer, Health Research Board of Ireland (2002); Temporary Member, NIH Integrative, Functional and Cognitive Neuroscience (IFCN-1) Review Committee (2001); Reviewer, Biotechnology and Biological Sciences Research Council, UK (2001); Member, NIH IFCN-4 Special Emphasis Panel (2001); Review Board, Alzheimer's Association (2000-2007); Ad hoc reviewer, NSF, Neuronal and Glial Mechanisms Program (1999-2000); Member, NIH ZRG1 IFCN-3 Special Emphasis Panel (1999); Member, National Institute on Aging - Site Visit Committee (1998-1999); Reviewer, Medical Research Council (MRC; UK; 1996); Member, NIH Psychobiology, Behavior & Neuroscience Review Committee (1993-1998)

## Visiting Positions, Scientific Advisory and Scientific Society Committees

Scientific Co-Chair, FENS/SfN Summer School 2017: Chemical Neuromodulation: Neurobiological, Neurocomputational, Behavioural and Clinical Aspects. Bertinoro, Italy; Elected Member, Scientific Advisory Board, International Society for Monitoring Molecules in Neuroscience (2013-2016); Public Information Committee, American College of Neuropsychopharmacology (ACNP; 2013-2016); Visiting Scholar, University of Strasbourg Institute of Advanced Study (USIAS), Strasbourg, France (2014); Invited Participant, 5th CNTRICS Meeting: Animal Models of Cognition and Emotion in Schizophrenia (2010); Invited Participant, 3rd CNTRICS Meeting (Cognitive Neuroscience Approaches to the Measurement of Treatment Effects on Impaired Cognition in Schizophrenia; 2008); Member, National Scientific Advisory Committee, American Federation for Aging Research (2002-2012); Member, Education and Training Committee, International Behavioral Neuroscience Society (2003-2007); Member, External Review Team, Dept. of Psychology and Program in Cognitive Science, Queens University, Kingston, Canada (2002); Member (1999), Co-Chair (2000/2001), Chair (2001/2002), Program Committee, International Behavioral Neuroscience Society (IBNS); Member, External Review Team, Dept. of Psychology, Univ. of Connecticut (2001); Judge, Early Career Awards of the American Psychological Association (2000); Member, "Rat Model Priority Meeting". NIH, Bethesda, MD (1999); Invited Participant: New Animal Models of Drug Abuse. National Institute on Drug Abuse Workshop. Washington, D.C. (1998); Member, Scientific Advisory Committee: Neurodegenerative Disorders: Common Molecular Mechanisms. Ocho Rios, Jamaica (1995-1997); Member, Advisory Committee: "Neurochemical and Psychopharmacological Approaches to Cognition Enhancers". International Society for Neurochemistry, Kyoto, Japan (1994-1995)

## Professional Affiliations

American Association for the Advancement of Science (AAAS; Elected Fellow); American College of Neuropsychopharmacology (ACNP; Elected Fellow); American Psychological Association (APA; Elected Fellow); Association for Psychological Science (APS; Elected Fellow); International Behavioral Neuroscience Society (IBNS; Elected Fellow); Society for Neuroscience (SfN, Member)

## Patents Granted

Use of an Acetylcholinesterase Inhibitor and Idalopirdine for Reducing Falls in Parkinson's Disease Patients (Assignee: Lundbeck; Patent number: 10383849 (8/20/2019)).

## Selected departmental and university service (since 2004)

### *Department of Psychology:*

Member, Cognitive Neuroscience Search Committee (2004-2005; 2005-2006); Chair, Genes, Environment & Behavior Search Committee, (2010-2012); Member, Biopsychology Search Committee (2011-2012); Chair, Systems Neuroscience Search Committee (2014-2016); Member, Systems Neuroscience Search Committee (2016-2017); Chair, Preliminary Tenure Review Panels and Promotion Review Panels (2005-2006, 2010-2011, 2018-2019, 2019-2020). Member, Augmented Executive Committee (2005-2006; 2007-2008; 2009-2010; 2013-2014; 2018-2019; 2019-2020). Biopsychology Admissions Committee (2005-2006; 2007-2008; 2010-2011; 2018-2019). Chair, Biopsychology Area (2008-2017). Departmental Representative, NextProf Science Workshop (2018-2019). Annual Review Committee (2020-2021).

### *University of Michigan:*

Interdisciplinary Junior Faculty Initiative: Genes, Environment and Behavior (Co-PI, with H.L. Paulson, Neurology; obtained funding for five new faculty positions; 2009-2010); Subject Matter Expert (SME) for the Mentored Research Academy of the University of Michigan Medical School (2013-2014); Neuroscience Graduate Program (NGP) Recruitment & Admissions Committee (2013-2015); NextProf/Future Faculty Workshop: LSA Planning Committee (2014-2015); Member, University Committee on the Use and Care of Animals (UCUCA; 2006-2009); Member, eResearch Animal Steering Committee (eRAM; 2010-2011); Member, Institutional Animal Care and Use Committee (2016 - 2018). Member, ULAM Director and Attending Veterinarian Search Committee (2017). Member, Executive Committee, Neuroscience Graduate Program (2017-2019). Departmental Representative, NextProf Steering Committee (2018-2019). Member, Joint Neuroscience Committee (2018-present). Member, Neuroscience Director Selection Committee (2019). Member, Michigan Concussion Center Faculty Search Committee (2019-2020). Member, University of Michigan Controlled Substances in Research Review Committee (CSRRC; 2021-2023).

## Instructional Activities (since 2004):

Psychology 230: Introduction to Biopsychology; Psychology 311: Laboratories in Biopsychology; Psychology 422: Faculty Directed Advanced Research for Psychology as a Natural Science; Psychology 431: Neurobiology of Attention and Attentional Disorders; Psychology 619: Supervised Research; Psychology 831: Seminar in Physiological Psychology; Organized the International Speaker Series *Neurons, Brains and Models*. (2007-2008)

## Research Funding (1988-present)

1. The Ohio Department of Aging. Pharmacological attenuation of the effects of basal forebrain lesions (Principal Investigator) 1989-1991
2. The American Federation for Aging Research. Disinhibition of cortical cholinergic activity and attenuation of age-related attentional impairments (Principal Investigator). 1990-1991
3. Sandoz Foundation for Gerontological Research. A novel psychopharmacological approach for the treatment of age-related impairments of cognitive abilities: benzodiazepine receptor antagonists/partial inverse agonists (Principal Investigator). 1990-1992.
4. National Institute of Mental Health. Cognitive effects of benzodiazepines: neuronal substrates (Principal Investigator). 1991-1993
5. National Institute on Aging. Aging, attention, and benzodiazepine receptor ligands (Principal Investigator). 1991-1994
6. National Institute of Neurological Disorders and Stroke. GABA-cholinergic interactions and attentional abilities (Principal Investigator). 1994-1997
7. National Institute of Mental Health (Research Scientist Development Award). GABA-Cholinergic Interactions and Cognition (Principal Investigator). 1994-1999
8. National Heart, Lung, and Blood Institute. Psychophysiology and Anxiogenesis (CO-PI with Gary Berntson). 1995-1998
9. National Institute on Aging (competitive renewal). Aging, attention, and benzodiazepine receptor ligands (Principal Investigator). 1995-1998
10. National Institute of Mental Health. Research Training in Neuropharmacology (Preceptor; Program Director: Norton Neff, Dept. of Pharmacology). 1995-2000
11. National Institute of Neurological Disorders and Stroke (competitive renewal). GABA-cholinergic interactions and attentional abilities (Principal Investigator). 1997-2001
12. National Institute on Aging (competitive renewal). Aging, attention, and benzodiazepine receptor ligands (Principal Investigator). 1999-2003
13. National Institute of Neurological Disorders and Stroke. Attention, cortical ACh release and neuronal activity (Principal Investigator). 1998-2002
14. National Institute of Mental Health. DA-GABA modulation of cortical ACh release (CO-PI with John Bruno). 1998-2002.
15. National Heart, Lung, and Blood Institute (competitive renewal). Psychophysiology and anxiogenesis (CO-PI with Gary Berntson). 1999-2003
16. NARSAD Young Investigator Award. Cortical acetylcholine and attention in a repeated amphetamine model of schizophrenia (Mentor; Awardee: Josh Burk). 2002-2003
17. American College of Laboratory Animal Medicine. Effects of housing on operant conditioning in rats (CO-PI with Valerie Bergdall). 2002-2003
18. National Institute of Mental Health (competitive renewal). DA-GABA modulation of cortical ACh release (CO-PI with John Bruno). 2002-2006.
19. National Institute of Mental Health IBNS Annual Meeting Support (Principal Investigator). 2002-2006
20. Abbott Laboratories. Nicotinic and histaminergic regulation of cholinergic neurotransmission assessed by amperometric detection of rapid changes in extracellular choline concentrations. 2005-2006
21. National Institute of Mental Health. Amphetamine, cortical acetylcholine and cognition (Principal Investigator). 2002-2008
22. National Institute of Mental Health (Research Scientist Development Award). Regulation of cortical ACh and cognition (Principal Investigator). 2003-2008
23. National Institute of Neurological Disorders and Stroke (competitive renewal). Attention, cortical ACh release and neuronal activity (Principal Investigator). 2003-2008

24. National Institute of Mental Health. Cholinergic plasticity in auditory input processing. (Principal Investigator). 2003-2008
25. Pfizer Incorporation. Characterization of the attentional effects of psychostimulants, nicotinic receptor agonists, histamine receptor ligands and other compounds. (Principal Investigator). 2006-2007
26. Abbott Laboratories. Glutamatergic and dopaminergic mechanisms mediating ABT 089-induced increase in prefrontal acetylcholine release and nicotinic receptor ligand-induced modulation of attention-induced cholinergic signals in task-performing animals. (Principal Investigator). 2006-2008
27. Abbott Laboratories Cholinergic footprints of ABT-089-like and  $\alpha$ -7 compounds, and experiments in  $\beta$ 2 and  $\alpha$ 7 KO mice. (Principal Investigator). 2007-2008
28. National Institute of Mental Health. Cognitive modulation of circadian rhythms. (CO-PI with Theresa M. Lee). 2007-2010
29. National Institute of Mental Health. In vivo screening of cholinergic cognition enhancers. (Principal Investigator). 2007-2010
30. National Institute on Aging. Cholinergic and cognitive decline in response to TrkA knockdown using RNAi. (CO-PI with Vinay Parikh). 2008-2010
31. National Institute of Mental Health. DA-GABA modulation of cortical ACh release (CO-PI with John Bruno). 2007-2011
32. National Institute of Mental Health. Nicotinic regulation of cortical ACh release and behavioral function. (Principal Investigator). 2007-2011
33. The Michael J. Fox Foundation for Parkinson's Research. Treating early cognitive impairments and associated movement control deficits by stimulating alpha4beta2\* nAChRs (Principal Investigator). 2011-2013
34. National Institute of Mental Health. Choline transporter capacity limits motivated behavior in mice, rats, and humans. (Principle Investigator). 2010-2015
35. National Institute on Drug Abuse. Variation in motivational properties of reward cues: implications for addiction. Project 4: Attention capture by drug cues, individual variation, neuronal systems, treatment. (Principle Investigator, Project 4). 2012-2017
36. H. Lundbeck A/S. Improving the attentional control of complex movements and reducing fall propensity in PD: Interactions between the effects of donepezil and the 5-HT6 antagonist LU AE58054 (Principle Investigator). 2014-2015
37. National Institute on Drug Abuse. Integrated GWAS of complex behavioral and gene expression traits in outbred rats. Pilot Project: CHT Regression as a neuromarker of sign-tracking (Principal Investigator, Pilot Project). 2015-2016
38. H. Lundbeck A/S. Reducing fall propensity in PD: Treatment strategies assessed in an animal model. (Principle Investigator). 2016-2018
39. Takeda Pharmaceutical Co. TAK-071 on sustained attention performance in rats with basal forebrain cholinergic losses. (Principle Investigator). 2018-2019
40. National Institute of Neurological Disorders and Stroke (Morris K. Udall Center of Excellence for Parkinson Disease Research). Cholinergic Mechanisms of Gait Dysfunction in Parkinson's Disease. Project 1: Attentional deficits and fall propensity in PD: neuronal mechanisms and treatment. (Principle Investigator, Project 1). 2014-2020
41. National Institute on Drug Abuse. Addiction liability, poor attentional control, and cholinergic deficiency. (Principle Investigator). 2018-2023

Pending:

National Institute of Neurological Disorders and Stroke. Cholinergic mechanisms of attentional-motor integration and gait dysfunction in Parkinson Disease. (Principle Investigator, Project II: Circuit Mechanisms of Attentional-Motor Interface Dysfunction in PD Falls). 2021-2026

## Journal articles

1. Pritzel, M., Huston, J.P., & Sarter, M. (1983). Behavioral and neuronal reorganization after unilateral substantia nigra lesions: Evidence for increased interhemispheric nigrostriatal projections. *Neuroscience*, 9, 879-888.
2. Pritzel, M., Sarter, M., Morgan, S., & Huston, J.P. (1983). Interhemispheric nigrostriatal projections in the rat: Bifurcating nigral projections and loci of crossing in the diencephalon. *Brain Research Bulletin*, 10, 385-390.
3. Sarter, M., & Markowitsch, H.J. (1983). Convergence of basolateral amygdaloid and mediodorsal thalamic projections to different areas of the frontal cortex in the rat. *Brain Research Bulletin*, 10, 607-622.
4. Sarter, M., & Markowitsch, H.J. (1983). Reduced resistance to progressive extinction in senescent rats: A neuroanatomical and behavioral study. *Neurobiology of Aging*, 4, 203-215.
5. Sarter, M., & Markowitsch, H.J. (1984). Collateral innervation of the medial and lateral prefrontal cortex by amygdaloid, thalamic and brain-stem neurons. *Journal of Comparative Neurology*, 224, 445-460.
6. Irle, E., Sarter, M., Guldin, W.O., & Markowitsch, H.J. (1984). Afferents to the ventral tegmental nucleus of Gudden in mouse, rat, and cat. *Journal of Comparative Neurology*, 228, 509-541.
7. Sarter, M., & Markowitsch, H.J. (1985). Convergence of intra- and interhemispheric cortical afferents: Lack of collateralization and evidence for a posterior subrhinal cell group projecting heterotopically. *Journal of Comparative Neurology*, 236, 283-296.
8. Sarter, M., & Markowitsch, H.J. (1985). Involvement of the amygdala in learning and memory: A critical review with emphasis on anatomical relations. *Behavioral Neuroscience*, 99, 342-380.
9. Sarter, M., & Markowitsch, H.J. (1985). The amygdala's role in human mnemonic processing. *Cortex*, 21, 7-24.
10. Sarter, M., & Markowitsch, H.J. (1985). Collateralization in the mammalian central nervous system. *International Journal of Neuroscience*, 28, 215-234.
11. Stephens, D.N., Weidmann, R., Quartermain, D., & Sarter, M. (1985). Reversal learning in senescent rats. *Behavioural Brain Research*, 17, 193-202.
12. Sarter, M. (1986). Denervation-induced collateral sprouting: No case for tracing methods. *International Journal of Neuroscience*, 29, 65-72.
13. Sarter, M. (1986). Some considerations of different modes of action of nootropic drugs. *Neuropsychobiology*, 15, 192-200.
14. Sarter, M., & van der Linde, A. (1987). Vitamin E deprivation in rats: Some behavioral and histochemical observations. *Neurobiology of Aging*, 8, 297-307.
15. Jensen, L.H., Stephens, D.N., Sarter, M., & Petersen, E.N. (1987). Bidirectional effects of  $\beta$ -carbolines and benzodiazepines on cognitive processes. *Brain Research Bulletin*, 19, 359-364.
16. Sarter, M. (1987). Animal models of brain ageing and dementia. *Comprehensive Gerontology*, 1, 4-15.
17. Sarter, M. (1987). Measurement of cognitive abilities in senescent animals. *International Journal of Neuroscience*, 32, 765-774.
18. Sarter, M., Schneider, H.H., & Stephens, D.N. (1988). Treatment strategies for senile dementia: Antagonist  $\beta$ -carbolines. *Trends in Neurosciences*, 11, 13-17.
19. Stephens, D.N., Sarter, M., Duka, T., Dorow, R., & Schneider, H.H. (1988). Beta-carboline als Ansatzpunkt in der Gedächtnisforschung. *Fortschritte der Medizin*, 106, 675-677.
20. Sarter, M., Bodewitz, G., & Stephens, D.N. (1988). Attenuation of scopolamine-induced impairment of spontaneous alternation behaviour by antagonist but not inverse agonist and agonist  $\beta$ -carbolines. *Psychopharmacology*, 94, 491-495.
21. Sarter, M., & Schneider, H.H. (1988). High density of benzodiazepine binding sites in the substantia innominata of the rat. *Pharmacology, Biochemistry, & Behavior*, 30, 679-682.

22. Sarter, M., & Steckler, T. (1989). Spontaneous exploration of a 6-arm radial tunnel maze by basal forebrain lesioned rats: Effects of the benzodiazepine receptor antagonist  $\beta$ -carboline ZK 93 426. *Psychopharmacology*, 98, 193-202.
23. Sarter, M., & Stephens, D.N. (1989). Disinhibitory properties of  $\beta$ -carboline antagonists of benzodiazepine receptors: a possible therapeutic approach for senile dementia? *Biochemical Society Transactions*, 17, 81-83.
24. Sarter, M., Bodewitz, G., & Steckler, T. (1989). 2-[ $^3\text{H}$ ]Deoxyglucose uptake patterns in rats exploring a six-arm radial tunnel maze: Differences between experienced and non-experienced rats. *Behavioral Neuroscience*, 103, 1217-1225.
25. Kaulen, P., Brüning, G., Schneider, H.H., Sarter, M., & Baumgarten, H.G. (1989). Autoradiographic mapping of a selective cyclic adenosine monophosphate phosphodiesterase in rat brain with the antidepressant [ $^3\text{H}$ ]rolipram. *Brain Research*, 503, 229-245.
26. Sarter, M. (1990). Elevations of local cerebral glucose utilization by the  $\beta$ -carboline ZK 93 426. *European Journal of Pharmacology*, 177, 155-162.
27. Sarter, M., Bruno, J.P., & Dudchenko, P. (1990). Activating the damaged basal forebrain cholinergic system: Tonic stimulation versus signal amplification. *Psychopharmacology*, 101, 1-17.
28. Sarter, M. (1990). Retrieval of well-learned propositional rules: insensitive to changes in activity of individual neurotransmitter systems? *Psychobiology*, 18, 451-459.
29. Sarter, M. (1991). Dopamine-GABA-cholinergic interactions and negative schizophrenic symptomatology. *Behavioral and Brain Sciences*, 14, 46-47.
30. Sarter, M., Bruno, J.P., & Dudchenko, P. (1991). Cholinergic controversies. *Trends in Neurosciences*, 14, 484.
31. Dudchenko, P., & Sarter, M. (1991). GABAergic control of basal forebrain cholinergic neurons and memory. *Behavioural Brain Research*, 42, 33-41.
32. Sarter, M. (1991). Taking stock of cognition enhancers. *Trends in Pharmacological Sciences*, 12, 456-461.
33. Sarter, M., & Dudchenko, P. (1991). Dissociative effects of ibotenic acid and quisqualic acid-induced basal forebrain lesions on cortical acetylcholinesterase-positive fiber density and cytochrome oxidase activity. *Neuroscience*, 41, 729-738.
34. Sarter, M., Hagan, J., & Dudchenko P. (1992). Behavioral screening for cognition enhancers: from indiscriminate to valid testing. Part I. *Psychopharmacology*, 107, 144-159.
35. Sarter, M., Hagan, J., & Dudchenko P. (1992). Behavioral screening for cognition enhancers: from indiscriminate to valid testing. Part II. *Psychopharmacology*, 107, 461-473.
36. Dudchenko, P., & Sarter, M. (1992). Failure of chlordiazepoxide to reproduce the behavioral effects of muscimol administered into the basal forebrain. *Behavioural Brain Research*, 47, 202-205.
37. Dudchenko, P., & Sarter, M. (1992). Behavioral microanalysis of spatial delayed alternation performance: Rehearsal through overt behavior, and effects of scopolamine and chlordiazepoxide. *Psychopharmacology*, 107, 263-270.
38. Moore, H., Dudchenko, P., Comer, K.S., Bruno, J.P., & Sarter, M. (1992). Central versus peripheral effects of muscarinic antagonists: the limitations of quaternary ammonium derivatives. *Psychopharmacology*, 108, 241-243.
39. Dudchenko, P., Paul, B., & Sarter, M. (1992). Dissociation between the effects of benzodiazepine receptor agonists on behavioral vigilance and responsivity. *Psychopharmacology*, 109, 203-211.
40. Holley, L.A., Dudchenko, P., & Sarter, M. (1992). Attenuation of muscarinic receptor blockade-induced impairment of spatial delayed alternation performance by the triazole MDL 26,479. *Psychopharmacology*, 109, 223-230.
41. Moore, H., Sarter, M., & Bruno, J.P. (1992). Age-dependent modulation of in vivo cortical acetylcholine release by benzodiazepine receptor ligands. *Brain Research*, 596, 17-29.
42. Moore, H., Dudchenko, P., Bruno, J.P., & Sarter, M. (1992). Toward modeling age-related changes of attentional abilities in rats: simple and choice reaction time tasks and vigilance. *Neurobiology of Aging*, 13, 759-772.

43. Holley, L. A., Miller, J.A., Chmielewski, P., Dudchenko, P., & Sarter, M. (1993). Interactions between the effects of basal forebrain lesions and chronic treatment with MDL 26,479 on learning and markers of cholinergic transmission. *Brain Research*, 610, 181-193.
44. Moore, H., Sarter, M., Bruno, J.P. (1993). Bidirectional modulation of stimulated cortical acetylcholine release by benzodiazepine receptor ligands. *Brain Research*, 627, 267-274.
45. Bruno, J.P., Moore, H., Stuckman, S., Johnson, B., & Sarter, M. (1994). Repeated microdialysis sampling as a valid technique to study cortical and striatal acetylcholine efflux. *Current Separations*, 13, 25-29.
46. Sarter, M., & Bruno, J.P. (1994). Cognitive functions of cortical ACh [acetylcholine]: lessons from studies on the trans-synaptic modulation of activated efflux. *Trends in Neurosciences*, 17, 217-221.
47. Sarter, M. (1994). Neuronal mechanisms of the attentional dysfunctions in senile dementia and schizophrenia: two sides of the same coin? *Psychopharmacology*, 114, 539-550.
48. Dudchenko, P., Gordon, B.M., & Sarter, M. (1994). Effects of benzodiazepine receptor ligands on simultaneous visual discriminations of variable difficulty. *Journal of Psychopharmacology*, 8, 141-147.
49. Quigley, K.S., Sarter, M.F., Hart, S.L., & Berntson, G.G. (1994). Cardiovascular effects of the benzodiazepine receptor partial inverse agonist FG 7142 in rats. *Behavioural Brain Research*, 62, 11-20.
50. McGaughy, J., Turchi, J., & Sarter, M. (1994). Crossmodal divided attention in rats: effects of chlordiazepoxide and scopolamine. *Psychopharmacology*, 115, 213-220.
51. Holley, L.A., Wiley, R.G., Lappi, D.A. & Sarter, M. (1994). Cortical cholinergic deafferentation following the intracortical infusion of 192 IgG-saporin: a quantitative histochemical study. *Brain Research*, 663, 277-286.
52. McGaughy, J., & Sarter, M. (1995). Effects of chlordiazepoxide and scopolamine, but not aging, on the detection and identification of conditional visual stimuli. *Journal of Gerontology: Biological Sciences*, 50A, B90-B96.
53. McGaughy, J., & Sarter, M. (1995). Behavioral vigilance in rats: Task validation and effects of age, amphetamine, and benzodiazepine receptor ligands. *Psychopharmacology*, 117, 340-357.
54. Moore, H., Sarter, M., & Bruno, J.P. (1995). Bidirectional modulation of cortical acetylcholine efflux by infusion of benzodiazepine receptor ligands into the basal forebrain. *Neuroscience Letters*, 189, 31-34.
55. Turchi, J., Holley, L.A., & Sarter, M. (1995). Effects of nicotinic acetylcholine receptor ligands on behavioral vigilance in rats. *Psychopharmacology*, 118, 195-205.
56. Sarter, M., & Bushnell, P.J. (1995). Testing vigilance: Validity, reliability and sensitivity in methods development. (Commentary on Fine, B.J., Kobrick, J.L., Lieberman, H.R., Marlowe, B., Riley, R.H., & Tharion, W.J., Effects of caffeine and diphenhydramine on visual vigilance.) *Psychopharmacology*, 118, 219-220.
57. Holley, L.A., Turchi, J., Apple, C., & Sarter, M. (1995). Dissociation between the attentional effects of infusions of a benzodiazepine receptor agonist and an inverse agonist into the basal forebrain. *Psychopharmacology*, 120, 99-108.
58. Moore, H., Stuckman, S., Sarter, M., & Bruno, J.P. (1995). Stimulation of cortical acetylcholine efflux by FG 7142 measured with repeated microdialysis sampling. *Synapse*, 21, 324-331.
59. Sarter, M., Berntson, G.G., & Cacioppo, J.T. (1996). Brain imaging and cognitive neuroscience: toward strong inference in attributing function to structure. *American Psychologist*, 51, 13-21. [Reprinted in: J.L. Bermudez & B.N. Towl (Eds.), *The Philosophy of Psychology*. Vol. II (Article # 38). Routledge, New York, NY, 2013].
60. Berntson, G.G., & Sarter, M. (1996). What is a psychology journal? What is a psychology paper? *APS Observer*, 9, 14-15.
61. Berntson, G.G., Hart, S., Ruland, S., & Sarter, M. (1996). A central cholinergic link in the cardiovascular effects of the benzodiazepine receptor partial inverse agonist FG 7142. *Behavioural Brain Research*, 74, 91-103.
62. Turchi, J., Holley, L.A., & Sarter, M. (1996). Effects of benzodiazepine receptor inverse agonists and nicotine on behavioral vigilance in senescent rats. *Journal of Gerontology: Biological Sciences*, 51A, B225-B231.
63. McGaughy, J., Kaiser, T., & Sarter, M. (1996). Behavioral vigilance following infusions of 192 IgG-saporin into the basal forebrain: selectivity of the behavioral impairment and relation to cortical AChE-positive fiber density. *Behavioral Neuroscience*, 110, 247-265.



64. Sarter, M., Bruno, J.P., Givens, B., Moore, H., McGaughy, J., & McMahon, K. (1996). Neuronal mechanisms mediating drug-induced cognition enhancement: cognitive activity as a necessary intervening variable. *Cognitive Brain Research*, 3, 329-343.
65. Moore, H., Stuckman, S., Sarter, M., & Bruno, J.P. (1996). Potassium, but not atropine-stimulated cortical acetylcholine efflux, is reduced in aged rats. *Neurobiology of Aging*, 17, 565-571.
66. Sarter, M., Berntson, G.G., Bruno, J.P., & Givens, B.S. (1996). Agonizing over antagonizing: what do benzodiazepine receptor antagonists demonstrate? *Psychopharmacology*, 126, 182-184.
67. Berntson, G., Sarter, M., Ruland, S., Hart, S., & Ronis, V. (1996). Benzodiazepine receptor agonists and inverse agonists yield concordant rather than opposing effects on startle responses. *Journal of Psychopharmacology*, 10, 309-312.
68. Fadel, J., Moore, H., Sarter, M., & Bruno, J.P. (1996). Trans-synaptic stimulation of cortical acetylcholine release following partial 192 IgG-saporin-induced loss of cortical cholinergic afferents. *Journal of Neuroscience*, 16, 6592-6600.
69. Sandstrom, M.I., Sarter, M., & Bruno, J.P. (1996). Interactions between D1 and muscarinic receptors in the induction of striatal *c-FOS* in rats depleted of dopamine as neonates. *Developmental Brain Research*, 96, 148-158.
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41. Kucinski, A., & Sarter, M. (2016). Cortico-striatal - cognitive-motor interactions underlying complex movement control deficits. In J.J. Soghomonian (Ed.), *The Basal Ganglia - Novel Perspectives on Motor and Cognitive Functions*. Springer International Publishing, pp. 117-134.
42. Demeter, E., & Sarter, M. (2017). Ascending systems - top down control: noradrenergic and cholinergic control of attention and learning. In H. Eichenbaum (Ed), *Memory Systems* (Vol. 3 of: J. H. Byrne (Ed), *Learning and Memory: A Comprehensive Reference* 2E, 4 vols). Elsevier, Oxford, pp.463-473.

## Online-Only Publications

- Sarter, M. (2010). The neuroscience of etiquette hell: why the glass should be on the left. Commentary on Caminiti, R., Chafee, M.V., Battaglia-Mayer, A., Averbeck, B.B., Crowe, D.A., Georgopoulos, A.P. (2010). Understanding the parietal lobe syndrome from a neurophysiological and evolutionary perspective. *European Journal of Neuroscience*, 31, 2320-2340. 7th FENS Forum Blog (<http://ejnblog.wordpress.com/>).
- Pershing, M, Bortz, D., Sarter, M., Schwarcz, R., & Bruno J.P. (2012). Glutamate-sensitive microelectrode reveals deficits in prefrontal glutamate release that accompany cognitive inflexibility in two animal models of schizophrenia. *Monitoring Molecules in Neuroscience*. Imperial College, London, UK. <http://mmn.fontismedia.com/online/meeting/>
- Sarter, M., Paolone, G., Mabrouk, O.S., & Kennedy, R.T. (2012). Sampling from injured tissue as a blessing in disguise: tonic changes in cholinergic neurotransmission using microdialysis. *Monitoring Molecules in Neuroscience*. Imperial College, London, UK. <http://mmn.fontismedia.com/online/meeting/>
- Sarter, M., Howe, M.W., & Gritton, H.J. (2012). Biosensing glutamatergic-cholinergic transient interactions, cortical oscillations, and cognitive operations. *Monitoring Molecules in Neuroscience*. Imperial College, London, UK. <http://mmn.fontismedia.com/online/meeting/>

## Letters to the Editor

- Bohnen, N., Sarter, M., Muller, M., Dauer, W., & Albin, R. (2014). PD patients need to think to walk. *Neurology*, 82, 1568-1569.

## Editorials

- Fritschy, J.M., & Sarter, M. (2008). What is in store for EJN? *European Journal of Neuroscience*, 28, 1047.
- Fritschy, J.M., & Sarter, M. (2011). Why would you pay to get published? *European Journal of Neuroscience*, 34, 1-2.
- Fritschy, J.M., & Sarter, M. (2012). Early brain repair and protection. *European Journal of Neuroscience*, 35, 1810.
- Fritschy, J.M., Sarter, M., & Joels, M. (2014). Ferdinando Rossi (1960-2014). *European Journal of Neuroscience*, 37, 704.
- Fritschy, J.M., & Sarter, M. (2017). The *European Journal of Neuroscience* from 2008 to 2014. *European Journal of Neuroscience*, 45, 875-878. PMID: 28140484

## Book Reviews

- Sarter, M. (1993). Veritas est in puteo. Review of Boulton, A.A., Baker, G.B., & Martin-Iverson, M.T. (eds), *Animal models in psychiatry*, Vol. I and II. The Humana Press, Clifton, NJ, 1991. *Journal of Psychopharmacology*, 7, 394-395.
- Sarter, M., & Smith, D.A. (1995). The cognitive neuropsychology of schizophrenia: opening black boxes and creating new ones. Review of David, A.S., & Cutting, J.C., *The neuropsychology of schizophrenia*. Lawrence Erlbaum, Hove, UK, 1994, and Frith, C.D. *The cognitive neuropsychology of schizophrenia*. Lawrence Erlbaum, Hove, UK, 1993. *Journal of Psychopharmacology*, 9, 290-291.
- Sarter, M. (1999). Extrastriate cortex. Review of *Cerebral Cortex*, Vol. 12, edited by Rockland K., Kaas, J.H., Peters, A. *Quarterly Review of Biology*, 74, 248-249.

## Plenary lectures, invited keynotes, colloquia, seminars, and symposia

1. The basolateral limbic circuit: Neuroanatomical organization and involvement in learning and memory-related functions. XXIII. International Congress of Psychology. Acapulco, Mexico. [1984]
2. Facts and hypotheses on the involvement of limbic and paralimbic areas in nootropic drug actions. 3rd Sendai Forum on Clinical Neurology: Limbic System: Mind, Emotion, and Innate Behavior. Sendai, Japan. [1986]
3. Beta-carbolines as tools in memory research: Animal data and speculations. International College of Neuropsychopharmacology. Workshop: Benzodiazepine receptor ligands, memory, and information processing. San Juan, Puerto Rico. [1986]
4. Does the increase of cortical acetylcholine turnover mediate the nootropic effects of the antagonist beta-carboline ZK 93426? International Symposium on Brain Acetylcholine: From Preclinical to Clinical Investigations. Taormina, Italy. [1987]
5. High density of benzodiazepine receptors in the substantia innominata of the rat and the nootropic effects of the antagonist beta-carboline ZK 93 426. ESN-IBRO-Satellite Symposium: Structural-Functional Properties of the Basal Forebrain Cholinergic System. Leipzig, GDR. [1987]
6. Different potencies of antagonistic and partial inverse agonist beta-carbolines in displacing the high density of benzodiazepine binding sites in the basal nucleus of Meynert: Locus of nootropic action of beta-carbolines? New Trends in Aging Research. Sirmione, Italy. [1987]
7. Disinhibitory properties of beta-carboline antagonists of benzodiazepine receptors: a possible therapeutic approach for senile dementia? The Biochemical Society: Neurochemical Group and Pharmacological Biochemistry Group Joint Colloquium. Nottingham, UK. [1988]
8. Modulation of afferent activity of basal forebrain cholinergic neurons: a novel approach for the pharmacological treatment of cognitive symptoms in senile dementia First Annual All-Ohio Alzheimer's Disease Symposium. Dublin, USA. [1990]
9. Modulation of cognitive functions by drugs acting at the GABA-benzodiazepine receptor complex: mediated via basal forebrain GABA-cholinergic interactions? Merrell Dow Research Institute. Cincinnati, USA. [1990]
10. Preclinical methods for the screening and characterization of cognitive enhancers. Merrell Dow Research Institute. Cincinnati, USA. [1990]
11. Modulation of cognitive functions by drugs acting at the GABA-benzodiazepine receptor complex: Mediated via basal forebrain GABA-cholinergic interactions. American College of Neuropsychopharmacology Annual Meeting. Panel: Cognition Enhancers: New Developments. San Juan, Puerto Rico. [1990]
12. Attenuation of age-related attentional impairments and disinhibition of cortical cholinergic activity. New Investigator Award Address. Chicago, IL. Journal for the American Geriatrics Society, 39, A8. [1991]
13. Modulation of cognitive functions by drugs acting at the GABA-benzodiazepine receptor complex: Mediated via basal forebrain GABA-cholinergic interactions. Winter Conference of Neural Plasticity. Symposium: Novel Approaches to Treating Age and Ischemia-induced Cognitive Impairments. Martinique. [1991]
14. Disinhibition of cortical cholinergic activity and attenuation of age-related attentional impairments. American Federation for Aging Research Grantee Conference, New York, NY. [1991]
15. Cognition enhancement based on GABA-cholinergic interactions. Satellite Symposium: Neurotransmitter Interactions and Cognitive Function. Society For Neuroscience Meeting. New Orleans, LA. [1991]
16. Benzodiazepine receptor-mediated bidirectional modulation of the GABAergic control of cortical acetylcholine release and of cognitive function. Department of Medicinal and Biological Chemistry, College of Pharmacy, University of Toledo. Toledo, OH. [1992]



17. Benzodiazepine receptor-mediated modulation of cortical acetylcholine. Max-Planck-Institute of Experimental Medicine. Göttingen, FRG. [1992]
18. GABA-cholinergic interactions. Joint Meeting: British Association for Psychopharmacology and European Behavioural Pharmacology Society. Cambridge, U.K. [1992]
19. Cognition enhancers: Overview, current approaches, strategies, current compounds. Behavioral Pharmacology Society Meeting. Jekyll Island, GA. [1992]
20. GABA-cholinergic interactions and cognition. Departments of Psychiatry and Pharmacology, University of Pennsylvania. Philadelphia, PA. [1993]
21. Behavioral pharmacology of benzodiazepine receptor inverse agonists. College of Pharmacy, Division of Pharmacology, The Ohio State University. Columbus, OH. [1993]
22. Neurotransmitters in concert: transsynaptic modulation of cortical acetylcholine and cognition. Distinguished Scientific Award for an Early Career Contribution to Psychology Address. Annual American Psychological Association (APA) Convention. Toronto, Ontario. [1993]
23. Basal forebrain GABAergic modulation of cortical acetylcholine release and of attentional abilities. British Association for Psychopharmacology Summer Meeting. Cambridge, U.K. [1993]
24. Preclinical evaluation of potential anti-dementia treatments acting via cholinergic mechanisms: toward more valid animal models. Symposium: The future role of cholinergic development strategy in treatment of Alzheimer's disease. 6th Congress of the European College of Neuropsychopharmacology (ECNP). Budapest, Hungary. [1993]
25. Bidirectional modulation of cortical acetylcholine and attentional abilities by benzodiazepine receptor ligands. David Mahoney Institute of Neurological Sciences, University of Pennsylvania. Philadelphia, PA. [1993]
26. Cognition enhancement mediated via transsynaptic, behavior-dependent stimulation of cortical acetylcholine. Symposium: Mechanisms of action and clinical efficacy of cognition enhancing drugs. XIX. C.I.N.P. Congress. Washington, D.C. [1994]
27. Behavioral screening for cognition enhancers: from indiscriminate to valid testing. Symposium: Drug enhancement of cognitive processes: animal models and research strategies. XIX. C.I.N.P. Congress. Washington, D.C. [1994]
28. Preclinical development of pharmacological treatments for the cognitive dysfunctions in senile dementia: Components of deductive research strategies. Symposium: Pharmacological treatment strategies for Alzheimer's disease. XIX. C.I.N.P. Congress. Washington, D.C. [1994]
29. Transsynaptic stimulation of cortical acetylcholine and cognition enhancement. Fisons Pharmaceuticals. Rochester, NY. [1994]
30. Attempts to reveal the specific behavioral mechanisms mediated by cortical acetylcholine: from many pitfalls to a hypotheses-driven approach. Duke University. Durham, NC. [1994]
31. Transsynaptic stimulation of cortical acetylcholine and attention: a rationale approach for the development of cognition enhancers. Symposium: Neurochemical and psychopharmacological approach to cognitive enhancers. International Society for Neurochemistry. Kyoto, Japan. [1995]
32. Experimental analysis of the attentional functions mediated via cortical acetylcholine. Midwestern Psychological Association. Chicago, IL. [1995]
33. Trans-synaptic modulation of cortical acetylcholine release: a new approach to restore cholinergic function. Neurodegenerative Disorders: Common Molecular Mechanisms. Ochos Rios, Jamaica. [1995]
34. Neuronal mechanisms of cognitive disorders: cognition is a crucial experimental variable. Neurodegenerative Disorders: Common Molecular Mechanisms. Ochos Rios, Jamaica. [1995]
35. Transsynaptic stimulation of cortical acetylcholine and attention: a rationale approach for the development of cognition enhancers. Mitsubishi Chemical Corporation. Yokohama, Japan. [1995]

36. Transsynaptic stimulation of cortical acetylcholine and attention: a rationale approach for the development of cognition enhancers. Abbott Laboratories. Abbott Park, IL. [1995]
37. Biopsychological analyses of the functions of cortical acetylcholine. Guest Speaker, Muskingham College Psi Chi Chapter. New Concord, OH. [1995]
38. Cortical ACh efflux and attention. Symposium: Measurement of neurotransmitter release in performing animals: experimental and conceptual challenges. 6th European Behavioral Pharmacology Society Meeting. Cagliari, Italy. [1996]
39. Assessment of attentional functions in rats, and basal forebrain GABA-cholinergic interactions and attention. Eli Lilly Research Laboratories. Greenfield, IN. [1996]
40. Cortical acetylcholine and attention. University of Otago. Dunedin, New Zealand. [1996]
41. New approaches to determine the neuronal mechanisms of age-related impairments in attentional functions. Symposium: Memory and Aging. XXVI International Congress of Psychology. Montreal, Canada. [1996]
42. Functions of cortical acetylcholine. Department of Physiology, The Ohio State University. Columbus, OH.
43. DA-GABA modulation of cortical acetylcholine and attention. Queen's University Neuroscience Seminar Series. Kingston, Ontario. [1997]
44. Basal forebrain GABA-cholinergic interactions and cognition. University of Illinois. Urbana Champaign, IL. [1997]
45. Schizophrenic cognition: beyond mesolimbic dopamine. Neurodegenerative Disorders: Common Molecular Mechanisms. Ochos Rios, Jamaica. [1997]
46. Aging-related deficits in cortical acetylcholine release following basal forebrain cholinergic lesions. International Behavioral Neuroscience Society. San Diego, CA. [1997]
47. Basal forebrain GABA-cholinergic interactions and attentional functions of cortical ACh. International Behavioral Neuroscience Society. San Diego, CA. [1997]
48. Cognitive aspects of addictive drug craving mediated via mesolimbic dopamine-stimulated cortical acetylcholine. New Animal Models of Drug Abuse. National Institute on Drug Abuse. Bethesda, MD. [1998]
49. Afferent regulation of cortical acetylcholine release and attentional functions. Center for Molecular and Behavioral Neuroscience. Rutgers University. Newark, NJ. [1998]
50. Basal forebrain NMDA-induced increases in cortical acetylcholine release – interactions with behavioral activation. International Behavioral Neuroscience Society. Richmond, VA. [1998]
51. Afferent regulation of cortical acetylcholine and cognitive function. British Association of Psychopharmacology. Cambridge, UK. [1998]
52. Afferent regulation of cortical acetylcholine release and cognitive functions: implications for the development of cognition enhancers. Institut de Recherches Servier. Suresnes, France. [1998]
53. Basal forebrain afferent projections modulating cortical acetylcholine, attention, and implications for neuropsychiatric disorders. Advancing from the ventral striatum to the extended amygdala: implications for neuropsychiatry and drug abuse. Conference sponsored by the New York Academy of Sciences. Charlottesville, VA. [1998]
54. Cortical afferents originating in the basal forebrain: Mediation of specific aspects of attentional processing versus general assumptions about cortical activation and behavioral state. The role of basal forebrain neurons in cortical activation and behavioural state regulation. Invited Symposium. Internet World Congress on Biomedical Sciences '98. [1998]
55. Afferent regulation of cortical acetylcholine release and cognitive functions: implications for the development of cognition enhancers. Parke-Davis Research Center. Ann Arbor, MI. [1998]
56. Role of cortical cholinergic afferents in the biased attentional processing of incentive salience in compulsive addictive drug use. Symposium: Attention as a target of intoxication: insights and methods from studies of drugs of abuse. Annual Meeting of the Behavioral Toxicology Society. Triangle Park, NC. [1999]

57. Cortical cholinergic transmission and attentional dysfunctions in models of neuropsychiatric disorders. Tenth Annual Spring Brain Conference. Sedona, AZ. [1999]
58. Age-related changes in cortical information processing: aging may not be deleterious, unless it interacts with pre-existing pathology. Symposium: Interactions with Aging: Neural Consequences of Stress and Pathology. American Psychological Society. Denver, CO. [1999]
59. Dopaminergic and cholinergic mechanisms of attention; relevance to dementia, schizophrenia and addiction. British Association of Psychopharmacology. Cambridge, UK. [1999]
60. Neuropharmacological and behavioral constraints of drug-induced cognition enhancement and the reasons for the poor predictive validity of preclinical data. International Behavioral Neuroscience Society. Nancy, France. [1999]
61. Afferent regulation of basal forebrain cholinergic neurons: the use of multiple microdialysis probes and repeated perfusions in the same animal. 8th International Conference on In Vivo Methods: "Monitoring Molecules in Neuroscience". Stony Brook, NY. [1999]
62. Differential interactions between telencephalic and brainstem afferents of basal forebrain cholinergic corticopetal projections mediating arousal, attentional processing, and dreaming. Symposium: The basal forebrain: how critical is it for cortical arousal and behavioral state control? Third International Congress. World Federation of Sleep Research Societies. Dresden, Germany. [1999]
63. Afferent regulation of cortical acetylcholine and attentional functions: implications for neuropsychiatric disorders. University of Michigan. Ann Arbor, MI. [1999]
64. Cortical cholinergic inputs mediating arousal, attentional processing, and dreaming: differential afferent regulation of the basal forebrain by telencephalic and brainstem afferents. Panel: From Arousal To Cognition - The Role Of Basal Forebrain Corticopetal Systems. 33rd Winter Conference on Brain Research. Breckenridge, CO. [2000]
65. Neuropsychiatric disorders and the excitability of basal forebrain cholinergic systems. Sixth Annual Neurodegenerative Disorders: Common Molecular Mechanisms". Trinidad and Tobago, West Indies. [2000]
66. Nicotine, cortical cholinergic transmission, and attentional processes. Sixth Annual Neurodegenerative Disorders: Common Molecular Mechanisms". Trinidad and Tobago, West Indies. [2000]
67. Frontal cortical acetylcholine following repeated administration of psychostimulants: mediating the cognitive components of addiction? NIDA Workshop: Frontal cortical function and drug abuse. Society for Biological Psychiatry. 55th Annual Convention. Chicago, IL. [2000]
68. Antisense oligonucleotides in cognitive neuroscience. Symposium: Antisense oligonucleotides (AONs) in behavioral neuroscience. International Behavioral Neuroscience Society. Cancun, Mexico. [2001]
69. Multiple probe microdialysis studies to investigate the neuronal circuits mediating attentional functions. Monitoring Molecules in Neuroscience. 9<sup>th</sup> International Conference on In Vivo Methods. Dublin, Ireland. [2001]
70. Neurobiology of attentional functions: key to understanding the neuronal foundations of cognitive disorders. Symposium: Dementia Disorders. Parkinson-Klinik Wolfach, Wolfach, Germany. [2001]
71. Neurobiology of attention: key to understanding the age-related decline in cognitive abilities. Evelyn F. and William L. McKnight Brain Institute of the University of Florida, Gainesville, FL. [2002]
72. Normal and abnormal regulation of cortical cholinergic inputs. University of Tennessee Health Science Center, Memphis, TN. [2002]
73. Cortical cholinergic transmission: function, afferent regulation, and role in neuropsychiatric disorders. Vanderbilt University Medical Center, Nashville, TN. [2002]
74. Cortical cholinergic transmission: function, afferent regulation, and role in neuropsychiatric disorders. University of Virginia, Charlottesville, VA. [2002]

75. The basal forebrain cortical cholinergic system, attentional dysfunctions, and neuropsychiatric disorders. 7<sup>th</sup> Neurodegenerative Disorders: Common Molecular Mechanisms. Montego Bay, Jamaica. [2002]
76. Aging of the basal forebrain cholinergic system: interactions between the effects of age and prior loss of cortical cholinergic inputs on cortical ACh efflux and attentional performance. International Behavioral Neuroscience Society. Capri, Italy. [2002]
77. Abnormal regulation of cortical cholinergic inputs: key to understanding the neuronal foundations of cognitive disorders. Hunt-Curtis Symposium on Translational Neuroscience. Columbus, OH. [2002]
78. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. Abbott Laboratories. Abbott Park, IL. [2002]
79. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. 26<sup>th</sup> Annual Winter Conference on the Neurobiology of Learning and Memory. Park City, UT. [2003]
80. Afferent regulation of cortical cholinergic transmission and mediation of normal and abnormal cognitive function. Neurobiotechnology Center, The Ohio State University. Columbus, OH. [2003]
81. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. Department of Psychology, Wright State University. Dayton, OH [2003]
82. Rodent cognition: defining the issues. International Behavioral Neuroscience Society. San Juan, Puerto Rico. [2003]
83. Function and regulation of the basal forebrain corticopetal cholinergic/GABA systems in different behavioral states. Associated Professional Sleep Societies 17<sup>th</sup> Annual Meeting. Chicago, IL. [2003]
84. The cortical cholinergic input system: regulation, function, and role in cognitive disorders. Department of Psychology, University of Michigan. Ann Arbor, MI. [2003]
85. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. Department of Psychiatry and Neuroscience Program, McLean Hospital, Harvard Medical School, Boston, MA. [2003]
86. Multi-probe microdialysis and a choline selective biosensor reveal a role for dysfunctional cortical cholinergic transmission in animal models of schizophrenia and drug abuse. Monitoring Molecules in Neuroscience. 10<sup>th</sup> International Conference on In Vivo Methods. Stockholm, Sweden. [2003]
87. Dopaminergic regulation of cortical cholinergic transmission, attentional processes and schizophrenia. Gordon Research Conference: Catecholamines. Oxford, UK. [2003]
88. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. Aventis Pharmaceuticals Inc. Bridgewater, NJ. [2003]
89. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities and cognitive disorders. Mathematical Biosciences Institute. The Ohio State University. [2003]
90. Bottom-up and top-down: attentional functions of cortical cholinergic inputs. NE and ACh Workshop. Gatsby Computational Neuroscience Unit, University College London. London UK. [2004]
91. Regulation and function of forebrain cholinergic systems: New insights based on amperometric measures of choline concentrations, and implications for drug development research. Abbott Laboratories. Abbott Park, IL. [2004]
92. Prefrontal control of the basal forebrain cholinergic system (Focus Group). Regulation and Development of the Prefrontal Cortex: Basic and Clinical Perspectives. Motivational Network Conference 2005. Clearwater, FL. [2005]
93. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities, cognitive disorders, and pharmacological treatment strategies. Memory Pharmaceuticals. Montvale, NJ. [2005]

94. Normal and abnormal regulation of cortical cholinergic inputs, attentional capacities, cognitive disorders, and pharmacological treatment strategies. Michigan Chapter Society for Neuroscience. Annual Meeting, Ypsilanti, MI. [2005]
95. Cholinergic neurotransmission, choline transporters, and cognition. Department of Cell and Molecular Biology, Tulane University, New Orleans, LA [2005; cancelled because of Katrina]
96. Rats paying attention: forebrain systems mediating attention and increases in attentional effort. Workshop: Animal Models in Cognitive Neuroscience, University of Leiden. Leiden, Netherlands [2005]
97. Regulation and function of the cortical cholinergic input system. Swiss Federal Institute of Technology, Brain Mind Institute. Lausanne, Switzerland. [2005]
98. More attention must be paid: the neurobiology of attentional effort DSRC Workshop: Neural Basis of Adaptive Behavior in Challenging Situations. Arlington, VI. [2005]
99. New insights into the cellular regulation and cognitive functions of forebrain cholinergic neurotransmission. Chair, Mini-Symposium; Society for Neuroscience Annual Meeting. Washington, DC. [2005]
100. New insights into the regulation and function of the cholinergic system based on experiments employing choline-sensitive microelectrodes. Abbott Laboratories. Abbott Park, IL. [2006]
101. New insights into the functions of cortical cholinergic inputs based on studies using microdialysis or enzyme-selective microelectrodes. Monitoring Molecules in Neuroscience. 11<sup>th</sup> International Conference on In Vivo Methods. Sardinia, Italy. [2006]
102. Graduate training and careers in psychology and neuroscience. Seventh Annual Science Career Workshop. School of Computer, Mathematical and Natural Sciences, Morgan State University. Baltimore, MD. [2006]
103. New insights into the regulation and function of the cortical cholinergic input system based on experiments involving choline-sensitive microelectrodes. Annual UM Neuroscience Program Retreat. Ann Arbor, MI. [2006]
104. New insights into the regulation and function of forebrain cholinergic systems based on experiments employing choline-sensitive microelectrodes. Universidade Federal do Paraná. Curitiba, Brazil. [2006; cancelled because of irresolvable travel problems].
105. Regulation and function of the cortical cholinergic input system, effects of repeated psychostimulant exposure, and implications for the cognitive symptoms of addiction. University of Michigan Substance Abuse Research Center. Ann Arbor, MI. [2007].
106. Treating cognitive disorders with pro-cholinergic drugs: lessons from recent research on the cortical cholinergic input system. Pfizer Global Research & Development. Ann Arbor, MI. [2007]
107. Phasic and tonic modes of cholinergic neurotransmission and function. Research Discussion Series. Department of Anesthesiology. University of Michigan. Ann Arbor, MI. [2007]
108. New insights into the functions of the forebrain cholinergic system based on real-time monitoring of acetylcholine release: implications for the modeling of cognitive disorders and treatment approaches. Brain Awareness Week Symposium. Saint Louis University School of Medicine. Saint Louis, MO. [2007]
109. The cholinergic system and methods of improving attention. Human Performance Modification Conference. The Mitre Corporation. McLean, VA. [2007].
110. New insights into the functions of cortical cholinergic inputs based on studies using microdialysis or enzyme-selective microelectrodes. Vanderbilt University School of Medicine. Center for Molecular Neuroscience. Nashville, TN. [2007]
111. New insights into the functions of cortical cholinergic inputs based on studies using microdialysis or enzyme-selective microelectrodes. Symposium: Cholinergic mechanisms of attentional dysfunction in neuropsychiatric disorders. Society of Biological Psychiatry 62nd Annual Scientific Convention. [Biological Psychiatry, 2007, 61:201S]. San Diego, CA [2007]

112. Regulation and cognitive functions of the cortical cholinergic input system: relevance for aging research and the development of cognition enhancers. 13<sup>th</sup> Annual Conference on Canine Cognition, Aging and Neuropathology. Toronto, Canada. [2007]
113. Cognitive functions mediated via the cortical cholinergic input system. Symposium: New insights into the role of the basal forebrain in cortical plasticity and attention. 7th IBRO World Congress of Neuroscience. Melbourne, Australia. [2007]
114. Phasic and tonic components of cholinergic neurotransmission: implications for the development of cognition enhancers. Pfizer Global Research and Development. Groton, CT [2007]
115. New insights into the functions of the cortical cholinergic input system based on real-time monitoring of acetylcholine release using choline-sensitive microelectrodes. University of Texas at Dallas, School for Behavioral and Brain Sciences. Dallas, TX [2007]
116. Regulation and function of cortical cholinergic inputs: relevance for aging and cognitive enhancers. Symposium: The Cholinergic Hypothesis of Age and Dementia-Related Cognitive Dysfunction Revisited Again: Recent Advances and Implications for Prevention and Treatment. American Association for Geriatric Psychiatry (AAGP) 2008 Annual Meeting. Orlando, FL [2008]
117. Cognitive neurochemistry on the scale of seconds: Cholinergic transients, cue detection and translational implications. Department of Neuroscience, Rosalind Franklin University of Medicine and Science. Chicago, IL [2008]
118. Finding and developing cognition enhancers for schizophrenia: is there a needle in the haystack? Symposium: Animal Modeling of Cognition: Relevance to Schizophrenia. International Behavioral Neuroscience Society. St. Thomas, US Virgin Islands [2008]
119. Cholinergic transients mediating signal detection and processing mode shifts. 12th International Conference on In Vivo Methods: Monitoring Molecules in Neuroscience. Vancouver, B.C. [2008]
120. Finding and developing cognition enhancers for schizophrenia: is there a needle in the haystack? Abbott Laboratories. Abbott Park, IL. [2008]
121. Cholinergic regulation of attention. Program in Neuroscience and Cognitive Science. University of Maryland. College Park, MD [2008]
122. Cholinergic mechanisms mediating the cognition enhancing properties of nAChR agonists. University of Vermont College of Medicine. Burlington, VT [2008]
123. How could I miss that? Neuronal mechanisms that limit our attentional capacities. Vermont Chapter for the Society for Neuroscience. Burlington, VT [2008]
124. Cholinergic regulation of attention. Laboratory of Neuropsychology. National Institute of Mental Health. Bethesda, MD. [2009]
125. Phasic does your cholinergic tonic. Symposium: Phasic release of neurotransmitters: What does phasic do to your tonic? Winter Conference on Brain Research. Copper Mountain, CO. [2009]
126. How could I miss that? Neuronal control and enhancement of attentional capacities. Charles M. Butter Collegiate Professorship Inaugural Lecture. University of Michigan, Ann Arbor, MI [2009]
127. Getting the attention of cortical networks. COSYNE Workshop: Modulation of Cortical Responses By Behavior and Brain State. Snowbird Utah [2009]
128. Neuronal mechanisms mediating and constraining attentional capacities. Max Planck Institute for Experimental Medicine. Goettingen, Germany [2009]
129. Attention, cholinergic activity and cognition enhancers. European Behavioural Pharmacology Society Meeting. Rome, Italy [2009]
130. Neuro-cognitive mechanisms of nAChR agonist-induced cognition enhancement. Nicotinic Acetylcholine Receptors as Therapeutic Targets: Emerging Frontiers in Basic Research and Clinical Science. Satellite Symposium to the Society for Neuroscience Annual Meeting. Chicago, IL [2009]
131. Cholinergic regulation of attention. Department of Psychology, Boston University. Boston, MA [2009]

132. Choline transporter dysfunction: insight into attention deficits in mice and men. Symposium: Paying attention to synapses; mouse models of childhood neuropsychiatric disorders. 48th American College of Neuropsychopharmacology [ACNP] Meeting. Hollywood, FL [2009]
133. Developing cognition enhancers: finally, a scientific approach. Eli Lilly UK. Windlesham, Surrey, UK. [2010]
134. Acetylcholine, attention, and choline transporters. Department of Psychology and the Center of Neuroscience. University of Colorado. Boulder, CA. [2010]
135. The use of choline- and glutamate-sensitive microelectrodes in research on the neuronal mechanisms underlying basic cognitive operations. Workshop: Novel Methods for Assessing Transmitter Release and Effects During Behavior. 7th FENS Forum of European Neuroscience. Amsterdam, Netherlands. [2010]
136. Multiple time scales and variable spaces: synaptic neurotransmission in vivo. Plenary Lecture at the 13th International Conference on In Vivo Methods: Monitoring Molecules in Neuroscience. Brussels, Belgium. [2010]
137. Cue detection, cholinergic transients, and neuromodulator interactions. Workshop: Role of dopamine in LTP and Learning. Brandeis University, Waltham, MA [2010]
138. How neuromodulators work. Forum of the Cognition and Cognitive Neuroscience Area. Department of Psychology. University of Michigan. [2010]
139. Modes and models of forebrain cholinergic neuromodulation of cognition. Friedman Brain Institute Translational Neuroscience Series. Mount Sinai School of Medicine, New York, NY [2010].
140. Cognition-mediating cortical cholinergic activity as a zeitgeber. Invited Plenary Presentation, Sleep and Circadian Biology DATA Blitz. San Diego, CA [2010]
141. Cholinergic modulation of cognition: new models, new treatment opportunities. Neuropsychopharmacology Reviews Plenary Session. 48th American College of Neuropsychopharmacology [ACNP] Meeting. Miami Beach, FL [2010]
142. Enhancing and restoring tonic and phasic cholinergic neurotransmission for treating the cognitive symptoms of schizophrenia. Symposium: New ways of detecting drug effects relevant to the treatment of schizophrenia. British Neuroscience Association Biennial Meeting, Harrogate, UK [2011]
143. Cholinergic modulation of cognition: new models, new treatment opportunities. St. Mary's College of Maryland. St. Mary's City, MD [2011]
144. Control of attention. CNTRICS II: Translational animal model paradigms. Washington, DC. [2011].
145. Real-time bio-sensing of glutamatergic and cholinergic neurotransmission in vivo: implications for psychopharmacology. British Association for Psychopharmacology, Harrogate, UK. [2011].
146. nAChRs for the treatment of attentional control deficits. Biopsychology Colloquium Series. University of Michigan. Ann Arbor, MI. [2011]
147. nAChRs and the treatment of attentional control deficits. Nicotinic Acetylcholine Receptor-Based Therapeutics: Emerging Frontiers in Basic Research & Clinical Science. Satellite Symposium to the Society for Neuroscience Annual Meeting. Washington, DC [2011]
148. Cholinergic double duty: top-down control of cortical glutamatergic-cholinergic transients to optimize cue detection. COSYNE Workshop. Snowbird Utah [2012]
149. Nicotinic acetylcholine receptors as targets for cognition enhancement. American Society for Pharmacology and Experimental Therapeutics (ASPET). San Diego, CA [2012]
150. Attentional impairments and their impact for gait control and fall propensity. Animal models of cognitive impairment workshop. Michael J. Fox Foundation for Parkinson's Research. New York, NY [2012]
151. Biosensing glutamatergic-cholinergic transient interactions, cortical oscillations, and cognitive operations. Monitoring Molecules 2012: 14<sup>th</sup> International Conference. London UK [2012]
152. Sampling from injured tissue as a blessing in disguise: tonic changes in cholinergic neurotransmission using microdialysis. Monitoring Molecules 2012: 14<sup>th</sup> International Conference. London UK [2012]
153. Control of attention: animal models and cholinergic mechanisms. 22nd Neuropharmacology Conference. New Orleans, LA [2012]

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155. Modes and models of forebrain cholinergic mediation of cognition. Department of Pharmacology and Toxicology. University of Zurich, Switzerland [2013]
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163. Cholinergic control of attention in rodents and humans. The Ohio State University, Columbus, OH [2014]
164. Deterministic versus neuromodulatory, phasic versus tonic functions of forebrain cholinergic systems. NEUREX Workshop, Strasbourg, France [2014]
165. Cholinergic control of attention: translational research approaches. Institut des Neurosciences Cellulaires et Intégratives (INCI). University of Strasbourg. Strasbourg, France [2014]
166. Effective description of statistical methods and results. Workshop: How to successfully publish your research. 9<sup>th</sup> Federation of the European Neurosciences (FENS) Forum of Neuroscience, Milan, Italy [2014]
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168. Cholinergic control of attention and rodents and humans. University of Michigan Neuroscience Program Annual Faculty/Student Retreat. Almont, MI [2014]
169. A rat model of falls in Parkinson's disease. Morris K. Udall Center of Excellence for Parkinson Disease Research. University of Michigan, Ann Arbor, MI. [2015]
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171. Forebrain cholinergic control of attention: multiple modes, multiple cognitive mechanisms. 9<sup>th</sup> International TRI Tinnitus Conference. Ann Arbor, MI. [2015]
172. Falls in Parkinson's disease: A rat model, neuronal circuitry, and treatment perspectives. 17<sup>th</sup> Annual NINDS UDALL Centers Meeting. Bethesda, MD. [2015]
173. Detecting cues while maintaining top-down control: translational neuroscience approaches. Air Force Research Laboratory. Dayton, OH. [2016]
174. Regulation and functions of brain cholinergic systems: translational research approaches. University of Michigan, Department of Psychiatry Grand Rounds. Ann Arbor, MI [2016]
175. Regulation and functions of brain cholinergic systems: translational research approaches. Brain Institute, Florida Atlantic University. Jupiter, FL [2016]
176. Regulation and functions of brain cholinergic systems: translational research approaches. Center for Molecular & Behavioral Neuroscience, Rutgers University. Newark, NJ [2016]
177. Cholinergic functions, attentional biases, animal models, treatments. Pfizer Inc. Cambridge, MA [2017]



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180. PD falls resulting from disruption of the cognitive-motor interface: from an animal model to systems neuroscience research. 19<sup>th</sup> Annual NINDS UDALL Centers Meeting. Bethesda, MD [2017]
181. Regulation and function of cholinergic signaling. University of Michigan Neuroscience Student Association. Ann Arbor, MI [2017]
182. Regulation and function of cholinergic signaling: Translational research approaches. Vanderbilt University. Nashville, TN [2017]
183. Deterministic and neuromodulatory actions of forebrain cholinergic systems. University of California Riverside. Riverside, CA [2018]
184. Cholinergic signaling: from attention to addiction and movement disorders. 1<sup>st</sup> Annual Michigan Neuroscience Conference. Ann Arbor, MI [2019]
185. Cholinergic-cognitive traits bestowing addiction vulnerability. National Institute on Drug Abuse. Baltimore, MD [2019]
186. Watch your step, make a left turn, don't fall: The cortico-striatal cognitive-motor interface. Neurology Grand Rounds. University of Michigan, Ann Arbor, MI [2020].
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## Conference proceedings and abstracts

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224. Paolone, G., Ji, J., Williams, S., Howe, W.M., Ward, J., Parikh, V., Decker, M.W., & Sarter, M. (2009). Effects of the selective alpha 7 nAChR agonist ABT-107 on prefrontal glutamatergic and cholinergic activity and attentional performance. Society for Neuroscience Annual Meeting. Chicago, IL.
225. Ji, J., Parikh, V., Decker, M.W., & Sarter, M. (2009). Beta2- and alpha7-subunit containing nAChRs differentially control prefrontal cholinergic and glutamatergic signaling. Society for Neuroscience Annual Meeting. Chicago, IL.
226. St. Peters, M., Bruno, J.P., & Sarter, M. (2009). Accumbens NMDA receptor stimulation enhances attentional performance as a function of demands on top-down control. Society for Neuroscience Annual Meeting. Chicago, IL.
227. Young, D., St. Peters, M., Bruno, J.P., & Sarter, M. (2009). Modulators in concert: prefrontal dopamine receptors modulate cholinergic activity as a function of cholinergic activity level. Society for Neuroscience Annual Meeting. Chicago, IL.
228. Howe, M.W., Parikh, V., Decker, M.W., & Sarter, M. (2009). Cognition enhancement by nAChR agonists: facilitation of cue detection based on augmented cholinergic transients in prefrontal cortex. Society for Neuroscience Annual Meeting. Chicago, IL.
229. Brooks, J.M., Alexander, K., Sarter, M., & Bruno, J.P. (2009). Transient inactivation of the developing hippocampus reproduces the neurochemical and behavioral characteristics of the neonatal hippocampal lesion model of schizophrenia. Society for Neuroscience Annual Meeting. Chicago, IL.
230. Demeter, E.M., Engelmann, R., Guthrie, S.K., Taylor, S.F., Sarter, M., & Lustig, C. (2009). Control of attention in schizophrenia: validation of the distractor condition Sustained Attention Task (dSAT) and demonstration of impaired attentional control in patients. Society for Neuroscience Annual Meeting. Chicago, IL.
231. Sarter, M., Cheema, A., Young, D., St. Peters, M., Blakely, R.D., & Parikh, V. (2009). Molecular limits on cholinergic and cognitive capacities: exhausting intracellular choline transporter reserves. Society for Neuroscience Annual Meeting. Chicago, IL.
232. Parikh, V., Welchko, R., Cheema, A., Turner, D.L., & Sarter, M. (2009). Silencing of TrkA receptor expression using vector based RNAi: a novel tool to study trophic regulation of the developing and aging forebrain cholinergic system. Society for Neuroscience Annual Meeting. Chicago, IL.
233. Gritton, H., Lee, T., Opp, M., & Sarter, M. (2009). Cortical cholinergic neurotransmission during REM sleep: combined electrochemical recordings of cholinergic transients and field potentials challenge an old dogma. Society for Neuroscience Annual Meeting. Chicago, IL.
234. Lee, T.M., Paolone, G., & Sarter, M. (2009). Prior daily practice of a sustained attention task during the light phase evokes a diurnal behavioral activity pattern and a task time-synchronized increase in prefrontal cholinergic neurotransmission. Society for Neuroscience Annual Meeting. Chicago, IL.
235. Wescott, S., Gritton, H., Parikh, V., Bruno, J.P., & Sarter, M. (2009). Nicotine-evoked recruitment of prefrontal, signal detection-mediating mechanisms, are abolished in the neonatal ventral hippocampal lesion model of schizophrenia. Society for Neuroscience Annual Meeting. Chicago, IL.
236. Paolone, G., Sarter, M., & Lee, T.M. (2009). Prior daily practice of a sustained attention task during the light phase evokes a diurnal behavioral activity pattern and a task-synchronized increase in prefrontal cholinergic neurotransmission. 13th European Behavioral Pharmacology Society Meeting. Rome, Italy.
237. Askren, M.K., Demeter, E., Winters, M., Taylor, S., Sarter, M., & Lustig, C. (2010). Acetylcholine modulates frontoparietal response to demands for cognitive control. 17th Annual Meeting of the Cognitive Neuroscience Society. Montreal, Canada.
238. Lee, T.M., Gritton, H., Paolone, G., Yan, J., Hoogerwerf, S., & Sarter, M. (2010). Timed, sustained attention-demanding performance reorganizes or dampens multiple circadian rhythms. Society for Research on Biological Rhythms. 12th Biennial Meeting. Destin, FL.
239. Demeter, E., Sabhapathy, S., Blakely, R.D., Sarter, M., & Lustig, C. (2010). Reduced attentional control in humans expressing the gene for a sub-capacity version of the choline transporter. 17th Annual Meeting of the Cognitive Neuroscience Society. Montreal, Canada.
240. Berry, A.S., Gritton, H., DePolo, L., & Sarter, M. (2010). GABAergic modulation of nicotine-evoked cholinergic transients in prefrontal cortex. Society for Neuroscience Annual Meeting. San Diego, CA.

241. Parikh, V., Howe, M.W., Welchko, R., D'Amore, D., Turner, D.L., & Sarter, M. (2010). Basal forebrain TrkA receptor knockdown produced attenuated cortical cholinergic transmission and enduring impairments in attentional performance. Society for Neuroscience Annual Meeting. San Diego, CA.
242. Demeter, E.M., St. Peters, M., Lustig, C., & Sarter, M. (2010). The distractor condition sustained attention task: a translational tool for attentional control in mice, rats, healthy humans and schizophrenic patients. Society for Neuroscience Annual Meeting. San Diego, CA.
243. Kozak, R., Young, D., Strick, C.A., Campbell, B., Schmidt, C.J., & Sarter, M. (2010). A novel and systemically available KAT II inhibitor protects the  $\alpha 7$  nicotinic acetylcholine receptor against blockade by kynurenic acid. Society for Neuroscience Annual Meeting. San Diego, CA.
244. Gietzen, J., Howe, W.M., Decker, M., & Sarter, M. (2010). Modulation of cholinergic transients mediating cue detection and attentional performance. Society for Neuroscience Annual Meeting. San Diego, CA.
245. Paolone, G., Howe, W.M., Gopolarishnan, M., Decker, M.W., & Sarter, M. (2010). Multiple modes of cholinergic neurotransmission - multiple functions. Society for Neuroscience Annual Meeting. San Diego, CA.
246. Brooks, J.M., Thomsen, M.S., Mikkelsen, J.D., Sarter, M., & Bruno, J.P. (2010). Attentional set-shifting deficits in a neurodevelopmental animal model of schizophrenia - reversal with an  $\alpha 7$  nAChR agonist. Society for Neuroscience Annual Meeting. San Diego, CA.
247. St. Peters, M.M., Bruno, J.P., & Sarter, M. (2010). Mesolimbic-basal forebrain circuitry mediating the motivational activation of attention. Society for Neuroscience Annual Meeting. San Diego, CA.
248. Sarter, M., Gritton, H., Howe, M.W., Hetrick, V.L., & Berke, J.D. (2010). Prefrontal gamma oscillations coincide with transient increases in cholinergic neurotransmission during attentional performance. Society for Neuroscience Annual Meeting. San Diego, CA.
249. Gritton, H., Howe, M.W., Hetrick, V.L., Berke, J.D., & Sarter, M. (2010). Optogenetically-evoked cortical cholinergic transients in mice expressing channelrhodopsin-2 (ChR2) in cholinergic neurons. Society for Neuroscience Annual Meeting. San Diego, CA.
250. Howe, M.W., & Sarter, M. (2010). Prefrontal glutamatergic-cholinergic interactions in attentional performance: glutamatergic transients code cue salience during good but not poor performance. Society for Neuroscience Annual Meeting. San Diego, CA.
251. Yan, J., Paolone, G., Bostwick, J., Hoogerwerf, W.A., Sarter, M., & Lee, T.M. (2010). Daily performance of a sustained attention task during the light phase desynchronizes circadian oscillators in nocturnal rats. Society for Neuroscience Annual Meeting. San Diego, CA.
252. Lee, T.M., Paolone, G., Howe, M.W., & Sarter, M. (2010). Staying cognitively engaged during the wrong time of the day: cognitive-cholinergic induction and maintenance of diurnality in rats. Society for Neuroscience Annual Meeting. San Diego, CA.
253. Lee, T., Paolone, G., Gritton, H., Yan, J., Hoogerwerf, W., & Sarter, M. (2010). Timed, sustained, attention-demanding performance reorganizes or dampens multiple circadian rhythms. Society for Research in Biological Rhythm. Destin, FL.
254. Berry, A.S., Demeter, E., Askren, M.K., Sarter, M., & Lustig, C. (2011). Distraction versus detection: Evidence for differentially-lateralized frontoparietal control processes from the distractor condition sustained attention task. Cognitive Neuroscience Society Annual Meeting. San Francisco, CA.
255. Demeter, E., Guthrie, S., Taylor, S., Sarter, M., Lustig, C. (2011). Dissociating forms of attentional control using the distractor condition sustained attention task: patients with schizophrenia versus children. Cognitive Neuroscience Society Annual Meeting. San Francisco, CA.
256. Paolone, G., Angelakos, C.C., Meyer, P.J., Robinson, T.E., & Sarter, M. (2011). Poor and unstable sustained attentional performance in sign-trackers: an animal model of poor top-down cognitive control of attention. ACNP 50th Annual Meeting. Waikoloa, HI.
257. Parikh, V., Howe, M.W., Welchko, R., Naughton, S.X., Han, D., D'Amore, D.A., Turner, D.L., & Sarter, M. (2011). Recombinant adeno-associated viral vectors expressing TrkA shRNA reveal functional vulnerability of the aging cholinergic system. Society for Neuroscience Annual Meeting. Washington, D.C.
258. St. Peters, M.M., Taylor, K., Parikh, V., Blakely, R., & Sarter, M. (2011). Choline transporter hemizygosity as a model of limited cholinergic and attentional capacities. Society for Neuroscience Annual Meeting. Washington, D.C.

259. Howe, M.W., Gritton, H., Berke, J., & Sarter, M. (2011). Attention demanding cues evoke prefrontal gamma oscillations and are differentially modulated by prefrontal muscarinic and nicotinic receptors. Society for Neuroscience Annual Meeting, Washington, D.C.
260. Angelakos, C.C., Paolone, G., Meyer, P., DePolo, L., Robinson, T., & Sarter, M. (2011). Sign- versus goal trackers, top-down control of attention, and underlying cholinergic mechanisms. Society for Neuroscience Annual Meeting, Washington, D.C.
261. Spuz, C.A., Paolone, G., Briscoe, S., Bradshaw, M., Albin, R.L., & Sarter, M. (2011). Deficits in attentional control of balance, mobility, and complex movements in a rat model of early state, multisystem Parkinson disease. Society for Neuroscience Annual Meeting, Washington, D.C.
262. Berry, A.S., St. Peters, M.M., Uremek, N., Gritton, H., Grupe, M., Mirza, N.R., & Sarter, M. (2011). Selective GABA inverse agonist RO4938581 modulates nicotine-evoked transients in prefrontal cortex. Society for Neuroscience Annual Meeting, Washington, D.C.
263. Bortz, D.M., Brooks, J.M., Sarter, M., & Bruno, J.P. (2011). Transient inactivation of the developing ventral hippocampus impairs the mesolimbic regulation of prefrontal glutamate release and set-shifting performance in adults. Society for Neuroscience Annual Meeting, Washington, D.C.
264. Koshy Cherian, A., Gritton, H., Strick, C., Campbell, B., Kozak, R., & Sarter, M. (2011). A novel systemically-available kynurenine aminotransferase II (KATII) inhibitor normalizes prefrontal glutamatergic activity in an animal model of schizophrenia. Society for Neuroscience Annual Meeting, Washington, D.C.
265. Paolone, G., Lamy, D., Sarter, M., & Lee, T. (2011). Cognitive performance-associated increases in cholinergic neurotransmission also serve as a circadian signal to sustain performance-induced diurnal activity patterns. Society for Neuroscience Annual Meeting, Washington, D.C.
266. Lustig, C.A., Berry, S., Howe, M.W., & Sarter, M. (2011). Attention processing-mode switches: Cross-species research linking cholinergic transients and BOLD activations in the switch from endogenous to exogenous attention. Society for Neuroscience Annual Meeting, Washington, D.C.
267. Taylor, K.M., Sarter, M., & Parikh, V. (2011). Viability of  $\alpha 4\beta 2^*$  nAChRs as a target for treating the cognitive symptoms of schizophrenia in the presence of chronic nicotine and risperidone. Society for Neuroscience Annual Meeting, Washington, D.C.
268. Berry, A., Torres, J., Seals, U., Carrasco, M., Sarter, M., Gehring, W., & Lustig, C. (2012). Shifts from endogenous to exogenous attention are associated with modulation of the P300 component. Cognitive Neuroscience Society Annual Meeting, Chicago, IL.
269. Grupe, M., Jensen, A.A., Grunnet, M., Nielsen, K.S., Christensen, J.K., & Sarter, M. (2012). Potentiation of in vivo glutamate release in rat prefrontal cortex following systemic administration of a positive allosteric modulator of  $\alpha 4\beta 2$  nicotinic acetylcholine receptors. Scandinavian College of Neuropsychopharmacology Annual Meeting, Copenhagen, Denmark.
270. Gritton, H., Stasiak, A., Lusk, N., Sarter, M., & Lee, T. (2012). Cognition-induced circadian entrainment requires multiple oscillators signaled by basal forebrain cholinergic mechanisms. Society for Research on Biological Rhythms, Destin, FL.
271. Holmstrand, E.C., Lund, D., Iwamoto, H., Ennis, E.A., Wright, J., Whitaker, S.M., Saborido, T.B., Koshy Cherian, A., Stanwood, G.D., Sarter, M., & Blakely, R.D. (2012). Transgenic overexpression of the presynaptic high affinity choline transporter augments CNS acetylcholine release and enhances motor endurance. Society for Neuroscience Annual Meeting, New Orleans, LA.
272. Gritton, H., Mallory, C.S., Hetrick, V.L., Berke, J.D., & Sarter, M. (2012). Bidirectional optogenetic control of cortical acetylcholine signaling demonstrates vital contributions to attentional performance. Society for Neuroscience Annual Meeting, New Orleans, LA.
273. Kucinski, A.J., Paolone, G., Peterson, C., Ronani, E., Albin, R.L., & Sarter, M. (2012). Deficits in the attentional control of posture and complex movements in a rat model of early state, multisystem Parkinson's disease. Society for Neuroscience Annual Meeting, New Orleans, LA.
274. Howe, M.W., Gritton, H., Lusk, N., Berke, J.D., & Sarter, M. (2012). Distinct behavioral and neurophysiological correlates of prefrontal acetylcholine and glutamate transients during attentional task performance. Society for Neuroscience Annual Meeting, New Orleans, LA.

275. Koshy Cherian, A., Parikh, V., Blakely, R.D., & Sarter M. (2012). Does overexpression of the presynaptic choline transporter lead to enhanced cortical cholinergic neurotransmission and elevated attentional performance? Society for Neuroscience Annual Meeting. New Orleans, LA.
276. Paolone, G., Mabrouk, O.S., Kennedy, R. T., & Sarter M. (2012). High temporal resolution microdialysis reveals cholinergic spikes preceding upshifts in attentional performance. Society for Neuroscience Annual Meeting. New Orleans, LA.
277. Berry, A.S., Howe, W.M., Francois, J., Loomis, S., Gilmour, G., Lustig, C., & Sarter, M. (2012). Not all cues are equal: Neurochemical and functional imaging measures reveal neuronal mechanisms connecting cues to internal representations. Society for Neuroscience Annual Meeting. New Orleans, LA.
278. Mallory, C.S., Paolone, G., Koshy Cherian, A., Blakely, R.D., & Sarter, M. (2012). Paying attention with a compromised cholinergic system: attenuated activation of cholinergic neurotransmission in attentional task-performing CHT+/- mice. Society for Neuroscience Annual Meeting. New Orleans, LA.
279. Grupe, M., Paolone, G., Jensen, A.A., Nielsen, K.S., Christensen, J.K., Grunnet, M., & Sarter, M. (2012). Positive allosteric modulation of  $\alpha 4\beta 2^*$  nicotinic acetylcholine receptors augments the amplitudes of prefrontal nicotine-evoked glutamatergic transients. Society for Neuroscience Annual Meeting. New Orleans, LA.
280. Yan, J., Sarter, M., & Lee, T.M. (2012). The diurnal rodent, octodon degus, entrains differentially than the nocturnal rat to daily performance of a sustained cognitive task. Society for Neuroscience Annual Meeting. New Orleans, LA.
281. Bortz, D., Thomsen, M.S., Mikkelsen, J.D., Sarter, M., & Bruno, J.P. (2012). Transient inactivation of the neonatal hippocampus disrupts mesolimbic regulation of prefrontal glutamate release. Society for Neuroscience Annual Meeting. New Orleans, LA.
282. Pershing, M., Bortz, D., Sarter, M., Schwarcz, R., & Bruno, J.P. (2012). Impaired mesolimbic regulation of prefrontal glutamate and acetylcholine release accompany cognitive inflexibility in two animal models of schizophrenia. ACNP 51th Annual Meeting. Hollywood, FL.
283. Berry, A.S., Isaacs, Y., Demeter, E., Blakely, R.D., Sarter, M., & Lustig, C. (2013). Selective vulnerability to distraction associated with choline transporter gene. Cognitive Neuroscience Society Annual Meeting. San Francisco, CA.
284. Sarter, M., & Kucinski, A. (2013). Modeling fall propensity in Parkinson's disease: Deficits in the attentional control of complex movements in rats with cortical-cholinergic and striatal-dopaminergic deafferentation. ACNP Annual Meeting. Hollywood, FL.
285. Kim, K., Muller, M., Bohnen, N., Sarter, M. & Lustig, C. (2013). Cholinergic influence on vulnerability to distraction in patients with Parkinson's disease. Cognitive Neuroscience Society Annual Meeting. San Francisco, CA. Boston, MA.
286. Grunnet, M., Bastlund, M., Sarter, M., Jensen, M., & Grupe, M. (2013). Positive allosteric modulation of  $(\alpha 4\beta 2)$ 2 nicotinic acetylcholine receptors by NS9283 in vitro and in vivo. Society for Neuroscience Annual Meeting. San Diego, CA.
287. Kim, K., Wu, T., Syed, N., Muller, M., Bohnen, N., Sarter, M., & Lustig, C. (2013). Spared and impaired aspects of attention in Parkinson's disease: distractor vulnerability correlates with lower cholinergic innervation. Society for Neuroscience Annual Meeting. San Diego, CA.
288. Lustig, C., Kim, K., Wu, T., Syed, N., Muller, M., Sarter, M., & Bohnen, N. (2014). Cholinergic control of attention and resistance to distractors: evidence from Parkinson's disease patients with reduced cortical cholinergic innervation. Society for Neuroscience Annual Meeting. San Diego, CA.
289. Kim, K., Muller, L.M., Bohnen, N.I., Sarter, M. & Lustig, C. (2014). Vulnerability to distraction in Parkinson's disease is linked to low cortical cholinergic function. Cognitive Neuroscience Society Annual Meeting. Boston, MA.
290. Howe, M.W., Gritton, H., Lusk, N., & Sarter, M. (2014). Attention demanding cues evoke synchronized prefrontal acetylcholine release and gamma oscillations that are differentially modulated by muscarinic and nicotinic receptors. Neurex Meeting: Cholinergic tone; where from, what for? Strasbourg, France.
291. Kucinski, A., Hilden, M., Robinson, T.E., & Sarter, M. (2014). Susceptibility to distraction and falls while performing complex movements in rats with relatively poor cholinergic-attentional control as a trait. Society for Neuroscience Annual Meeting. Washington, DC.
292. Pitchers, K.K., Skrzyński, C.J., Robinson, T.E., & Sarter, M. (2014). Taking cocaine versus staying on task: Drug cue-evoked competition for attention and individual differences in vulnerability to cue-evoked task shifts. Society for Neuroscience Annual Meeting. Washington, DC.

293. Sarter, M., Berry, A.S., Blakely, R.D., & Lustig, C. (2014). Humans expressing a subcapacity choline transporter variant: attenuated right prefrontal activation during challenges to attention. Society for Neuroscience Annual Meeting. Washington, DC.
294. Kim, K., Muller, L.M., Bohnen, N.I., Sarter, M., & Lustig, C. (2014). Regionally-specific correlations between the integrity of the cortical cholinergic input system and vulnerability to attentional distraction in Parkinson's disease. Society for Neuroscience Annual Meeting. Washington, DC.
295. Koshy Cherian, A., Parikh, V., Blakely, R.D., & Sarter, M. (2014). Repetitive mild traumatic brain injury in mice with a vulnerable cholinergic system: severe and lasting cholinergic-attentional impairments CHT+/- mice. Society for Neuroscience Annual Meeting. Washington, DC.
296. Phillips, K., Kucinski, A., Albin, R.L., & Sarter, M. (2014). Impairments in gait, posture and complex movement control in rats modeling the multi-system, cholinergic-dopaminergic losses in PD. Society for Neuroscience Annual Meeting. Washington, DC.
297. Berry, A.S., Sarter, M., Hanna, G.L., Gehring, W.J., & Lustig, C. (2014). Breaking away from perceptual attention: Electrophysiological signatures of shifts from monitoring to signal-associated response in typically developing children and those with obsessive-compulsive disorder. Society for Neuroscience Annual Meeting. Washington, DC.
298. Valuskova, P., Koshy Cherian, A., Pitchers, K., Kim, Y., Lindsley, C.W., Ennis, E.A., Blakely, R.D., & Sarter, M. (2015). Negative modulation of choline transporter (CHT) function reveals superior cholinergic capacity of CHT-overexpressors. Society for Neuroscience Annual Meeting. Chicago, IL.
299. Jones, J.L., Pitchers, K.K., Robinson, T.E., & Sarter, M. (2015). Basal forebrain cholinergic lesions attenuate the reinstatement of cocaine-seeking produced by a discriminative stimulus in goal-trackers but not sign-trackers. Society for Neuroscience Annual Meeting. Chicago, IL.
300. Pitchers, K., Wood, T.R., Skrzynski, C.J., Robinson, T.E., & Sarter, M. (2015). Falling for drug cues versus staying on task. Society for Neuroscience Annual Meeting. Chicago, IL.
301. Isaacs, Y., Lin, Z., Deldin, P.J., Blakely, R.D., Sarter, M., & Lustig, C. (2015). The "good" choline transporter gene variant? Resilience against distractibility and depression. Society for Neuroscience Annual Meeting. Chicago, IL.
302. Kim, Y., Mabrouk, O.S., & Sarter, M. (2015). Cortico-striatal interactions mediating sustained attention performance: Simultaneous high-temporal resolution/multi-analyte microdialysis in prefrontal cortex and striatum. Society for Neuroscience Annual Meeting. Chicago, IL.
303. Kucinski, A.J., Koshy Cherian, A., Valuskova, P., Yegla, B., Parikh, V., Robinson T.E., & Sarter, M. (2015). Prone to addiction as well as to falls: Poor attention in sign-tracking rats extends to complex movement control and is associated with regression of choline transporter capacity. Society for Neuroscience Annual Meeting. Chicago, IL.
304. Koshy Cherian, A., Tronson, N.C., Parikh, V., Blakely, R.D., & Sarter, M. (2015). Elevated brain cytokine levels associated with cognitive vulnerability of CHT+/- mice following repeated mild traumatic brain injury. Society for Neuroscience Annual Meeting. Chicago, IL.
305. Kim, K., Williams, H., Gehring, W.J., Sarter, M., & Lustig, C. (2015). Gamma-band synchrony measures indicate differential prefrontal and parietal contributions to signal detection and top-down control. Society for Neuroscience Annual Meeting. Chicago, IL.
306. Sarter, M., Lustig, C., Blakely, R.D., Koshy Cherian, A., Valuskova, P., Parikh, V., Kim, Y., Tronson, N., & Ennis, E.A. (2015). Super-cholinergic mice and humans: cholinergic-cognitive-affective resiliencies. ACNP Annual Meeting. Hollywood, FL.
307. Caple, A., Lin, Z., Berry, A.S., Sarter, M., Blakely, R.D., & Lustig, C. (2016). When the going gets tough, the low cholinergic stop going: Cholinergic genetic variation and right prefrontal activation. Cognitive Neuroscience Society Annual Meeting. New York, NY.
308. Pitchers, K.K., Jones, J.L., Robinson, T.E., Sarter, M. (2016). Individual variations in the effects of basal forebrain cholinergic lesions to attenuate reinstatement of cocaine-seeking behavior. Canadian Neuroscience Meeting. Toronto, Ont.
309. Caple, A., Lin, Z., Berry, A.S., Blakely, R.D., Sarter, M., & Lustig, C. (2016). When the going gets tough, the low cholinergic stop going: Cholinergic genetic variation and right prefrontal activation, signal detection, and real-world distraction. Society for Neuroscience Annual Meeting. San Diego, CA.
310. Campus, P., Kim, Y., Parsegian, A., Rivero-Covelo, I., Ferguson, S.M., Sarter, M., & Flagel, S.B. (2016). Effects of chemogenetic manipulations of prelimbic inputs to the paraventricular nucleus of the thalamus on dopamine release in



- the nucleus accumbens of sign-trackers and goal-trackers. Society for Neuroscience Annual Meeting. San Diego, CA.
311. Kucinski, A., de Jong, I.E.M. & Sarter, M. (2016). Preventing falls in PD in a rat model of impaired cognitive control of complex movements by a pro-cholinergic combination treatment. Society for Neuroscience Annual Meeting. San Diego, CA.
  312. Phillips, K., & Sarter, M. (2016). Cholinergic-dependent shifts to cue-directed behavior. Society for Neuroscience Annual Meeting. San Diego, CA.
  313. Sarter, M., Kucinski, A., Koshy Cherian, A., Parikh, V., Valuskova, P., Yegla, B. (2016). Sign tracking as an index of poor cholinergic-attentional control extends to complex movement control and is associated with attenuated choline transporter function. Society for Neuroscience Annual Meeting. San Diego, CA.
  314. Kim, Y., Rivet, C., Lustig, C., & Sarter, M. (2016). Poor attentional control as a trait in sign-tracking rats: Cortical cholinergic-GABAergic mechanisms. Society for Neuroscience Annual Meeting. San Diego, CA.
  315. Koshy Cherian, A., Parikh, V., Wu, Q., Mao-Draayer, Y., Blakely, R.D., & Sarter, M. (2016). Choline transport in peripheral lymphocytes as a proxy for brain cholinergic capacity. Society for Neuroscience Annual Meeting. San Diego, CA.
  316. Campus, P., Kim, Y., Parsegian, A., Rivero-Covelo, I., Ferguson S.M., Sarter, M., & Flagel, S.B. (2017). Elucidating the role of cortico-thalamic circuitry in cue-reward learning. European Behavioural Pharmacology Society Biennial Meeting. Heraklion, Crete, Greece.
  317. Kane, L.F., Pitchers, K.K., Kim, Y., Robinson, T.E., & Sarter, M. (2017). Motivational-dopaminergic versus cognitive-cholinergic processing of a Pavlovian cocaine cue in sign- versus goal-tracking rats. Society for Neuroscience Annual Meeting. Washington, D.C.
  318. Kucinski, A., Balouz, D., Kim, Y., & Sarter, M. (2017). Striatal cholinergic interneurons integrate the attentional control of complex movements. Society for Neuroscience Annual Meeting. Washington, D.C.
  319. Pitchers, K.K., Philips, K.B., Jones, J.L., Robinson, T.E.A., & Sarter, M. (2017). Relapse depends on the type of cue and the type of brain: a cue that signals cocaine availability reinstates drug-seeking more readily in goal-trackers than sign-trackers, and depends on basal forebrain cholinergic activity. Society for Neuroscience Annual Meeting. Washington, D.C.
  320. Philips, K.B. & Sarter, M. (2017). Distinguishing between the contributions of depletion of processing resources and increases in opportunity costs to decline in attentional performance. Society for Neuroscience Annual Meeting. Washington, D.C.
  321. Avila, C., Kucinski, A., & Sarter, M. (2017). Disruption of the ability of cues to direct movements following silencing of striatal cholinergic interneurons. Society for Neuroscience Annual Meeting. Washington, D.C.
  322. Albin, R.L., Muller, M.L.T., Bohnen, N.I., Dauer W.T., Sarter, M., Frey, K., & Koeppe, R.A. (2018). Regional vesicular acetylcholine transporter distribution in human brain: A [18F]FE0BV study. NRM 2018: Mapping NeuroReceptors at work. London, U.K.
  323. Koshy Cherian, A., Kucinski, A., Wu, R., de Jong I.E.M., & Sarter, M. (2018). Co-treatment with rivastigmine and idalopirdine reduces the propensity for falls in a rat model of falls in Parkinson's disease. Society for Neuroscience Annual Meeting. San Diego, CA.
  324. Kucinski, A., & Sarter, M. (2018). Enhancing striatal cholinergic interneuronal function rescues performance of rats modeling falls in Parkinson's disease. Society for Neuroscience Annual Meeting. San Diego, CA.
  325. Avila, C., Kucinski, A., & Sarter, M. (2018). Disruption and rescuing cued-turning in rats by silencing and activating, respectively, striatal cholinergic interneurons. Society for Neuroscience Annual Meeting. San Diego, CA.
  326. Phillips, K.B., Rysztak, L.G., & Sarter, M. (2018). Resource depletion versus increased opportunity costs: a test of competing theories in rats performing a sustained attention task. Society for Neuroscience Annual Meeting. San Diego, CA.
  327. Lustig, C., Kucinski, A., & Sarter, M. (2018). An addiction vulnerability trait impacts complex movement control: Evidence from sign-trackers and chemogenetically reversed goal-trackers. Society for Neuroscience Annual Meeting. San Diego, CA.
  328. Sarter, M., Koshy Cherian, A., Tronson, N.C., Parikh, V. (2018). Lasting cholinergic-attentional impairments and brain cytokine expression following mild repeated concussion in mice with a vulnerable cholinergic system. Society for Neuroscience Annual Meeting. San Diego, CA.
  329. Paolo, C., Kim, Y., Kuhn, B.N., Covelo, I.R., Lopez, S.A., Ferguson, S.M., Sarter, M., & Flagel, S.B. (2018). Elucidating the role of cortico-thalamic-striatal circuitry in cue-reward learning. Society for Neuroscience Annual Meeting. San Diego, CA.

330. Sarter, M., Pitchers, K., Koshy Cherian, A., Phillips, K., & Robinson, TE. (2018). Relapse depends on the type of cue and the type of brain: Pavlovian cues versus occasion setters, sign- versus goal trackers, dopamine versus acetylcholine. ACNP Annual Meeting. Hollywood, FL
331. Avila, C., Kucinski, A., & Sarter, M. (2019). Silencing of striatal cholinergic interneurons disrupts attentional-motor interactions. Society for Neuroscience Annual Meeting. Chicago, IL.
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