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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

2024 -	Charles M. Butter Collegiate Professor Emeritus of Psychology.
2018-2024	Adjunct Research Professor, Department of Neurology, University of Michigan Medical School
2004-2024	Charles M. Butter Collegiate Professor of Psychology; Professor, Neuroscience Program; University of Michigan (Ann Arbor)
2008-2017	Chair, Biopsychology Area, University of Michigan
2003-2004	Distinguished Professor of Social and Behavioral Sciences, Ohio State University
1988-2004	Assistant (1988-1993), Associate (1993-1997), Professor (1997-2004), Department of Psychology and Neuroscience Program, Ohio State University
1984-1988	Head, Laboratory for Geriatric Psychopharmacology, Schering AG, Berlin

Honors

Elected Fellow, American College of Neuropsychopharmacology (ACNP; 2018); James McKeen Cattell Fund 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

Member, External Advisory Board, Center for Translational Research on Interactions of Cocaine and Nicotine (TRICAN), Wake Forest School of Medicine (2021). 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, 2021-2022). 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 (University-wide committee to coordinate and support U-M neuroscience research; 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

1989-1991	The Ohio Department of Aging. Pharmacological attenuation of the effects of basal forebrain lesions (Principal Investigator).
1990-1991	The American Federation for Aging Research (AFAR). Disinhibition of cortical cholinergic activity and attenuation of age-related attentional impairments (Principal Investigator).
1990-1992	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).
1991-1993	National Institute of Mental Health (NIMH). Cognitive effects of benzodiazepines: neuronal substrates (Principal Investigator).
1991-1994	National Institute on Aging (NIA). Aging, attention, and benzodiazepine receptor ligands (Principal Investigator).
1994-1997	National Institute of Neurological Disorders and Stroke (NINDS). GABA-cholinergic interactions and attentional abilities (Principal Investigator).
1994-1999	National Institute of Mental Health (NIMH). Research Scientist Development Award. GABA-Cholinergic Interactions and Cognition (Principal Investigator).
1995-1998	National Heart, Lung, and Blood Institute (NHLBI). Psychophysiology and anxiogenesis (CO-PI with Gary Berntson).
1995-1998	National Institute on Aging (NIA). Aging, attention, and benzodiazepine receptor ligands (Principal Investigator).
1995-2000	National Institute of Mental Health (NIMH). Research Training in Neuropharmacology (Preceptor; Program Director: Norton Neff, Dept. of Pharmacology).
1997-2001	National Institute of Neurological Disorders and Stroke (NINDS). GABA-cholinergic interactions and attentional abilities (Principal Investigator).
1999-2003	National Institute on Aging (NIA). Aging, attention, and benzodiazepine receptor ligands (Principal Investigator).
1998-2002	National Institute of Neurological Disorders and Stroke (NINDS). Attention, cortical ACh release and neuronal activity (Principal Investigator).
1998-2002	National Institute of Mental Health (NIMH). DA-GABA modulation of cortical ACh release (CO-PI with John Bruno).
1999-2003	National Heart, Lung, and Blood Institute (NHLBI). Psychophysiology and anxiogenesis (CO-PI with Gary Berntson).
2002-2003	NARSAD Young Investigator Award. Cortical acetylcholine and attention in a repeated amphetamine model of schizophrenia (Mentor; Awardee: Josh Burk).
2002-2003	American College of Laboratory Animal Medicine (ACLAM). Effects of housing on operant conditioning in rats (CO-PI with Valerie Bergdall).
2002-2006	National Institute of Mental Health (NIMH). DA-GABA modulation of cortical ACh release (CO-PI with John Bruno).

2002-2006	National Institute of Mental Health (NIMH). IBNS Annual Meeting Support (Principal Investigator).
2005-2006	Abbott Laboratories. Nicotinic and histaminergic regulation of cholinergic neurotransmission assessed by amperometric detection of rapid changes in extracellular choline concentrations (Principal Investigator).
2002-2008	National Institute of Mental Health (NIMH). Amphetamine, cortical acetylcholine and cognition (Principal Investigator).
2003-2008	National Institute of Mental Health (NIMH). Research Scientist Development Award. Regulation of cortical ACh and cognition (Principal Investigator).
2003-2008	National Institute of Neurological Disorders and Stroke (NINDS). Attention, cortical ACh release and neuronal activity (Principal Investigator).
2003-2008	National Institute of Mental Health (NIMH). Cholinergic plasticity in auditory input processing. (Principal Investigator).
2006-2007	Pfizer Incorporation. Characterization of the attentional effects of psychostimulants, nicotinic receptor agonists, histamine receptor ligands and other compounds. (Principal Investigator).
2006-2008	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).
2007-2008	Abbott Laboratories. Cholinergic footprints of ABT-089-like and α -7 compounds, and experiments in β 2 and α 7 KO mice. (Principal Investigator).
2007-2010	National Institute of Mental Health (NIMH). Cognitive modulation of circadian rhythms. (CO-PI with Theresa M. Lee).
2007-2010	National Institute of Mental Health (NIMH). In vivo screening of cholinergic cognition enhancers. (Principal Investigator).
2008-2010	National Institute on Aging (NIA). Cholinergic and cognitive decline in response to TrkA knockdown using RNAi. (CO-PI with Vinay Parikh).
2007-2011	National Institute of Mental Health (NIMH). DA-GABA modulation of cortical ACh release (CO-PI with John Bruno).
2007-2011	National Institute of Mental Health (NIMH). Nicotinic regulation of cortical ACh release and behavioral function. (Principal Investigator).
2011-2013	The Michael J. Fox Foundation for Parkinson's Research. Treating early cognitive impairments and associated movement control deficits by stimulating α 4 β 2* nAChRs (Principal Investigator).
2010-2015	National Institute of Mental Health (NIMH). Choline transporter capacity limits motivated behavior in mice, rats, and humans. (Principal Investigator).
2012-2017	National Institute on Drug Abuse (NIDA). Variation in motivational properties of reward cues: implications for addiction. Project 4: Attention capture by drug cues, individual variation, neuronal systems, treatment. (Principal Investigator, Project 4).

- 2014-2015 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 (Principal Investigator).
- 2015-2016 National Institute on Drug Abuse (NIDA). 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).
- 2016-2018 H. Lundbeck A/S. Reducing fall propensity in PD: Treatment strategies assessed in an animal model. (Principal Investigator).
- 2018-2019 Takeda Pharmaceutical Co. TAK-071 on sustained attention performance in rats with basal forebrain cholinergic losses. (Principal Investigator).
- 2014-2020 National Institute of Neurological Disorders and Stroke (NINDS). Morris K. Udall Center of Excellence for Parkinson Disease Research: Cholinergic Mechanisms of Gait Dysfunction in Parkinson's Disease. Project I: Attentional deficits and fall propensity in PD: neuronal mechanisms and treatment (Principal Investigator, Project I).
- 2018-2023 Institute on Drug Abuse (NIDA). Addiction liability, poor attentional control, and cholinergic deficiency. (Principal Investigator).
- 2021-2023 National Institute of Neurological Disorders and Stroke (NINDS). Morris K. Udall Center of Excellence for Parkinson Disease Research: Cholinergic mechanisms of attentional-motor integration and gait dysfunction in Parkinson Disease. Project II: Circuit mechanisms of attentional-motor interface dysfunction in PD falls (Principal Investigator, Project II).

Journal articles (in reverse chronological order)

- 254 Donovan, E., & **Sarter, M.** (2024). Cue versus action outcome-oriented cortico-striatal modes sustain attention in goal- versus sign-trackers. In preparation.
- 253 Avila, C., & **Sarter, M.** (2024). Cortico-striatal action control in an animal model of addiction and comorbid movement control vulnerabilities. In preparation.
- 252 Carmon, H., Haley, E.C., Parikh, V., Tronson, N.C., & **Sarter, M.** (2023). Neuro-immune modulation of cholinergic signaling in an addiction vulnerability trait. **eNeuro**, 10.1523/ENEURO.0023-23.2023. PMCID: PMC9997697
- 251 Kucinski, A., Avila, A., & **Sarter, M.** (2022). Basal forebrain chemogenetic inhibition converts the attentional control mode of goal-trackers to that of sign-trackers. **eNeuro**, 10.1523/ENEURO.0418-22.2022. PMCID: PMC9794377
- 250 Donovan, E., Avila, C., Klausner, S., Parikh, V., Fenollar-Ferrer, C., Blakely, R.D. & **Sarter, M.** (2022). Disrupted choline clearance and sustained acetylcholine release in vivo by a common choline transporter coding variant associated with poor attentional control in humans. **Journal of Neuroscience**, 42, 3426-3444. PMID: 35232764 PMCID: PMC9034784
- 249 Albin, R.L., van der Zee, S., van Laar, T., **Sarter, M.**, Lustig, C., Muller, M.L.T.M., & Bohnen, N.I. (2022). Cholinergic systems, attentional-motor integration, and cognitive control in Parkinson's disease. **Progress in Brain Research**, 269, 345-371. PMCID: PMC8957710
- 248 Flagel, S.B., Robinson, T.E., & **Sarter, M.** (2021). Sign-tracking as a predictor of addiction vulnerability. **Psychopharmacology**, 238, 2661-2664. PMID: 34308488. PMCID: PMC9248762
- 247 Yang, Y., **Sarter, M.**, Aton, S.J., Booth, V., & Zochowski, M. (2021). Theta-gamma coupling emerges from spatially heterogeneous cholinergic neuromodulation. **PLOS Computational Biology**, Jul 30;17(7):e1009235. PMCID MC8357148
- 246 Albin, R.L., Muller, M.L.T.M., Bohnen, N.I., Spino, C., **Sarter, M.**, Koeppe, R.A., Szpara, A., Lustig, C., & Dauer, W.T. (2021). $\alpha 4\beta 2^*$ nicotinic agonist varenicline target engagement for gait and balance disorders in Parkinson disease. **Annals of Neurology**, 90, 130-142. PMID: 33977560. PMCID: PMC9013471
- 245 Kucinski, A. & **Sarter, M.** (2021). Reduction of falls in a rat model of PD falls by the M1 PAM TAK-071. **Psychopharmacology**, 238, 1953-1964. PMCID: PMC7969347
- 244 **Sarter, M.**, Avila, C., Kucinski, A., & Donovan, E. (2021). Make a left turn: Cortico-striatal circuitry mediating the attentional control of movements. **Movement Disorders**, 36, 535-546. [Figure 1 of this paper is featured on the cover of this issue of Movement Disorders.] PMCID: PMC8054224
- 243 Avila, C., Kucinski, A., & **Sarter, M.** (2020). Complex movement control in a rat model of Parkinsonian falls: bidirectional control by striatal cholinergic interneurons. **Journal of Neuroscience**, 40, 6049-6067. PMCID: PMC7392507

- 242 Lu, Y., **Sarter, M.**, Zochowski, M., & Booth V. (2020). Phasic cholinergic signaling promotes emergence of local gamma rhythms in E-I networks. **European Journal of Neuroscience**, 52, 3545-3560. PMCID: PMC8054224.
- 241 Phillips, K.B., & **Sarter, M.** (2020). Addiction vulnerability and the processing of significant cues: sign-, but not goal-, tracker perceptual sensitivity relies on cue salience. **Behavioral Neuroscience**, 134, 133-143. PMCID: PMC7078022
- 240 **Sarter, M.**, Lustig, C. (2020). Forebrain cholinergic signaling: wired and phasic, not tonic, and causing behavior. **Journal of Neuroscience**, 40, 712-719. PMCID: PMC6975286
- 239 Kucinski, A., Phillips, K.B., Koshy Cherian, A., & **Sarter, M.** (2020). Rescuing the attentional performance of rats with cholinergic losses by the M1 positive allosteric modulator TAK-071. **Psychopharmacology**, 237, 137-153. PMID: 31620809. PMCID: n/a
- 238 Campus, P., Covelo, I.R., Kim, Y., Parsegian A., Kuhn, B.N., Lopez S.A., Neumaier, J.F., Ferguson, S.M., Solberg Woods, L.C., **Sarter, M.**, & Flagel, S.B. (2019). The paraventricular thalamus is a critical mediator of top-down control of cue-motivated behavior. **eLife**, pii: e49041. PMCID: PMC6739869
- 237 Kim, K., Müller, M.L.T., Bohnen, N.I., **Sarter, M.**, & Lustig, C. (2019). The cortical cholinergic system contributes to the top-down control of distraction: Evidence from patients with Parkinson's disease. **NeuroImage**, 190, 107-117. PMCID: PMC6008164
- 236 Koshy Cherian, A., Tronson, N.C., Parikh, V., Blakely, R.D., & **Sarter, M.** (2019). Repetitive mild concussion in subjects with a vulnerable cholinergic system: lasting cholinergic-attentional impairments in CHT+/- mice. **Behavioral Neuroscience**, 133, 448-459. PMCID: PMC6625848
- 235 **Sarter, M.**, & Lustig, C. (2019). Cholinergic double duty: Cue detection and attentional control. **Current Opinion in Psychology**, 29, 102-107. PMCID: PMC6609491
- 234 Koshy Cherian, A., Kucinski, A., de Jong, I.E.M., & **Sarter, M.** (2019). Co-treatment with rivastigmine and idalopirdine reduces the propensity for falls in a rat model of falls in Parkinson's disease. **Psychopharmacology**, 236, 1701-1715. PMID: 30607479; PMCID: n/a - not funded by NIH.
- 233 Kucinski, A., Kim, Y., & **Sarter, M.** (2019). Basal forebrain chemogenetic inhibition disrupts the superior complex movement control of goal-tracking rats. **Behavioral Neuroscience**, 133, 121-134. PMID: 30688488; PMCID: PMC6850517.
- 232 Albin, R.L., Surmeier, D.J., Tubert, **Sarter, M.**, C., Muller, M.L.T.M., Bohnen, N.I., Dauer, W.T. (2018). Targeting the pedunculo pontine nucleus in Parkinson's disease: Time to go back to the drawing board. **Movement Disorders**, 33, 1871-1875. PMID: 30398673; PMCID: PMC6448144
- 231 Albin, R.L., Muller, M.I.T., Bohnen, N.I., Dauer, W.T., **Sarter, M.**, Frey, K.A., & Koeppe, R.A. (2018). Regional vesicular acetylcholine transporter distribution in human brain: A [18F]Fluoroethoxybenzovesamicol Positron Emission Tomography study. **Journal of Comparative Neurology**, 526, 2884-2897. PMID: 30255936; PMCID pending.

- 230 Pitchers, K.K., **Sarter, M.**, & Robinson, T.E. (2018). The hot 'n' cold of cue-induced drug relapse. **Neurobiology of Learning and Memory**, 25, 474-480. PMCID: PMC6097766
- 229 Kucinski, A., Kim, Y., Lustig, C., & **Sarter, M.** (2018). Addiction vulnerability trait impacts complex movement control: evidence from sign-trackers. **Behavioural Brain Research**, 350, 139-148. PMID: 29705686; PMCID: PMC6506847
- 228 **Sarter, M.** & Phillips, K.B. (2018). The neuroscience of cognitive-motivational styles: sign- and goal-trackers as animal models. **Behavioral Neuroscience**, 132, 1-12. PMCID: PMC5881169
- 227 Pitchers, K.K., Kane, L., Robinson, T.E., & **Sarter, M.** (2017). "Hot" versus "cold" behavioral-cognitive styles: Motivational-dopaminergic versus cognitive-cholinergic processing of a Pavlovian cocaine cue in sign- and goal-tracking rats. **European Journal of Neuroscience**, 46, 2768-2781. PMCID: PMC6088792.
- 226 Pitchers, K.K., Philips, K.B., Jones, J.L., Robinson, T.E., & **Sarter, M.** (2017) Diverse roads to relapse: A discriminative cue signaling cocaine availability is more effective in renewing cocaine-seeking in goal-trackers than sign-trackers and depends on basal forebrain cholinergic activity. **Journal of Neuroscience**, 37, 7198-7208. PMCID: PMC5546399
- 225 Koshy Cherian, A., Parikh, V., Wu, Q., Mao-Draayer, Y., Wang, Q., Blakely, R.D., & **Sarter, M.** (2017). Hemicholinium-3 sensitive choline transport in human T lymphocytes: Evidence for use as a proxy for brain choline transporter (CHT) capacity. **Neurochemistry International**, 108, 410-416. PMCID: PMC5524217
- 224 Howe, W.M., Gritton, H.J., Lusk, N., Roberts, E.A., Hetrick, V., Berke, J.D., & **Sarter, M.** (2017). Acetylcholine release in prefrontal cortex promotes gamma oscillations and theta-gamma coupling during cue detection. **Journal of Neuroscience**, 37, 3215-3230. PMCID: PMC5373115
- 223 Berry, A.S., **Sarter, M.**, & Lustig, C. (2017). Distinct frontoparietal networks underlying attentional effort and cognitive control. **Journal of Cognitive Neuroscience**, 29, 1212-1225. PMID: 28213446; PMCID: PMC5920788
- 222 Kim, K., Müller, M.L.T., Bohnen, N.I., **Sarter, M.**, & Lustig, C. (2017). Thalamic cholinergic innervation makes a specific bottom-up contribution to signal detection: Evidence from Parkinson's Disease patients with defined cholinergic losses. **NeuroImage**, 149, 295-304. PMID: 28213446; PMCID: PMC5386784.
- 221 Koshy Cherian, A., Kucinski, A., Pitchers, K., Yegla, B., Parikh, V., Kim, Y., Valuskova, P., Gurnani, S., Lindsley, C.W., Blakely, R.D., & **Sarter, M.** (2017). Unresponsive choline transporter as a trait neuromarker and a causal mediator of bottom-up attentional biases. **Journal of Neuroscience**, 37, 2945-2959. PMCID: PMC5354335

- 220 Kucinski, A., de Jong, I.E.M., & **Sarter, M.** (2017). Reducing falls in Parkinson's disease: Interactions between donepezil and the 5-HT₆ receptor antagonist idalopirdine on falls in a rat model of impaired cognitive control of complex movements. **European Journal of Neuroscience**, 45, 217-231. PMID: 27469080 (PMCID: N/A; not supported by PHS). [Featured Publication: Commentary by J.A. Burk (2017) Reducing falls in a model of impaired control of complex movement (Commentary on Kucinski et al). *European Journal of Neuroscience*, 45, 215-216.
- 219 Pitchers, K.K., Wood, T.R., Skrzynski, C.J., Robinson, T.E., & **Sarter, M.** (2017). The ability of cocaine and cocaine-associated cues to compete for attention. **Behavioural Brain Research**, 320, 302-315. PMCID: PMC5242234
- 218 **Sarter, M.**, Lustig, C., Blakely, R.D., & Koshy Cherian, A. (2016). Cholinergic genetics of visual attention: human and mouse choline transporter capacity variants influence distractibility. Special Issue: Influence of the cholinergic system on visual processing. **Journal of Physiology**, 110, 10-18. PMCID: PMC5164965
- 217 Lustig, C., & **Sarter, M.** (2016). Attention and the cholinergic system: relevance to schizophrenia. **Current Topics in Behavioral Neuroscience** (Special Issue: Translational Neuropsychopharmacology, edited by T. W. Robbins and B.J. Shahakian), 28, 327-362. PMID: 27418070, PMCID pending
- 216 **Sarter, M.**, Lustig, C., Berry, A.S., Gritton, H., Howe, W.M., & Parikh, V. (2016). What do phasic cholinergic signals do? **Neurobiology of Learning and Memory**, 130, 145-151. PMCID: PMC4818703
- 215 Gritton, H.J., Howe, M.W., Mallory, C.S., Hetrick, V.L., Berke, J.D., & **Sarter, M.** (2016). Cortical cholinergic signaling controls the detection of cues. **Proceedings of the National Academy of Sciences**, 113, E1089-1097. PMID: 26787867. PMCID: PMC4776505
- 214 Kucinski, A., & **Sarter, M.** (2015). Modeling PD falls associated with brainstem cholinergic systems decline. **Behavioral Neuroscience**, 129, 96-104. PMCID: PMC4392884
- 213 **Sarter, M.** (2015). Behavioral-cognitive targets for cholinergic enhancement. **Current Opinion in Behavioral Sciences**, 4, 22-26. PMCID: PMC5466806
- 212 Berry, A.S., Blakely, R.D., **Sarter, M.**, & Lustig, C. (2015). Cholinergic capacity mediates prefrontal engagement during challenges to attention: evidence from imaging genetics. **NeuroImage**, 108, 386-395. PMID: 25536497; NIHMSID: 654981; PMCID: PMC4469545
- 211 **Sarter, M.**, & Kim, Y. (2015). Interpreting chemical neurotransmission in vivo: techniques, time scales and theories. **ACS Chemical Neuroscience**, 6, 8-10. PMCID: PMC4304491
- 210 Kucinski, A., Albin, R.L., Lustig, C., & **Sarter, M.** (2015). Modeling fall propensity in Parkinson's disease: extensive striatal dopamine loss-associated freezing of gait. **Behavioural Brain Research**, 282, 155-164. PMCID: PMC4323874
- 209 Pitchers, K.K., Flagel, S.B., O'Donnell, E.G., Solberg Woods, L.C., **Sarter, M.**, & Robinson, T.E. (2015). Individual variation in the propensity to attribute incentive salience to a food cue: influence of sex. **Behavioural Brain Research**, 278, 462-469. PMCID: PMC4382370

- 208 Berry, A.S., Demeter, E., Sabhapathy, S., English, B., Blakely, R.D., **Sarter, M.**, & Lustig, C. (2014). Disposed to distraction? Genetic variation in the cholinergic system influences distractibility but not time-on-task effects. **Journal of Cognitive Neuroscience**, 25, 1981-1991. PMCID: PMC4445375
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31. Parikh, V., & **Sarter, M.** (2010). Cognitive decline in laboratory animals: models, measures, and validity. In G. Koob, M. LeMoal, & R.F. Thompson (Eds.), *Encyclopedia of Behavioral Neuroscience*, volume 1. Oxford, Academic Press, pp. 294-301.
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35. Howe, M.W., & Sarter M. (2010). Prefrontal glutamatergic-cholinergic interactions for attention: glutamatergic coding of signal salience as a function of performance levels. In B. Westerink, R. Clinckers, I. Smolders, S. Sarre & Y. Michotte (Eds.), *Monitoring Molecules in Neuroscience*. Vrije Universiteit Brussels, Brussels, Belgium, pp. 57-59.

36. St. Peters, M., & **Sarter, M.** (2012). Cognition enhancers versus stimulants. In N.J. Wesensten (Ed), Sleep Deprivation, Stimulant Medications, and Cognition. Cambridge University Press, Cambridge, UK, pp. 136-151.
37. **Sarter, M.**, Berntson, G.G., & Cacioppo, J.T. Brain imaging and cognitive neuroscience: toward strong inference in attributing function to structure. In J.L. Bermudez & B.N. Towl (Eds.), *The Philosophy of Psychology*. Vol. II (Article # 38). Routledge, New York, NY, 2013. [Reprint of article originally published in *American Psychologist*, 1996, 51, 13-21.]
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39. **Sarter, M.**, Howe, W.M., & Gritton, H. (2015). Cortical cholinergic transients for cue detection and attentional mode shifts. In G.S. Wilson and A.C. Michael (Eds.), *Compendium of In Vivo Monitoring in Real-Time Molecular Neuroscience*. World Scientific Publishing Co., Singapore, pp. 27-44.
40. Lustig, C., & **Sarter, M.** (2016). Cross-species translational studies on cholinergic-attentional functions: relevance for schizophrenia. In T.W. Robbins and B.J. Sahakian (Eds), *Translational Neuropsychopharmacology. Current Topics in Behavioral Neuroscience* (vol. 28). Springer Verlag, pp. 327-362.
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.

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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.

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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. 9th 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. 7th 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. 26th 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 17th 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. 10th 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. 11th 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. 13th 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: 14th 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: 14th International Conference. London UK [2012]
153. Control of attention: animal models and cholinergic mechanisms. 22nd Neuropharmacology Conference. New Orleans, LA [2012]

154. Deficits in the cognitive control of attention: neuronal mechanisms, models, and rational treatments. Pfizer Inc. Cambridge, MA [2012]
155. Modes and models of forebrain cholinergic mediation of cognition. Department of Pharmacology and Toxicology. University of Zurich, Switzerland [2013]
156. Conceptual and technical milestones toward translational cognitive neuroscience research. British Neuroscience Association: Festival of Neuroscience, London, UK [2013]
157. Cognitive control of attention: neuronal mechanisms, models, and treatments. Vrije Universiteit, Amsterdam [2013]
158. The presynaptic choline transporter imposes limits on sustained cortical acetylcholine release and attention. Satellite Symposium: The brain in flux: Genetic, physiologic and therapeutic perspectives on transporters in the nervous system. International Society for Neurochemistry. Cancun, Mexico [2013]
159. Control of attention: cholinergic mechanisms, animal models, treatments. Dart NeuroScience. San Diego, CA [2013].
160. Modes and models of forebrain cholinergic mediation of cognition. Pavlovian Society. Austin, TX [2013]
161. An animal model of fall propensity in Parkinson's disease. Neurodegenerative Disease Research Seminar. University of Michigan, Department of Neurology. Ann Arbor, MI [2013]
162. Cognitive Function of ACh and Cortical Circuits in Addiction & Parkinson's. SfN Satellite Meeting: Nicotinic Acetylcholine Receptors as Therapeutic Targets: Emerging Frontiers in Basic Research & Clinical Science. San Diego CA [2013]
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. 9th Federation of the European Neurosciences (FENS) Forum of Neuroscience, Milan, Italy [2014]
167. Cholinergic control of attention and rodents and humans. Monitoring Molecules in Neuroscience. 15th International Conference. Los Angeles, CA [2014]
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]
170. Choline transporter regulation and function. Neusentis, Pfizer Inc., Cambridge UK and Pfizer Pharmaceuticals, Cambridge, MA (WeBex Seminar). [2015]
171. Forebrain cholinergic control of attention: multiple modes, multiple cognitive mechanisms. 9th International TRI Tinnitus Conference. Ann Arbor, MI. [2015]
172. Falls in Parkinson's disease: A rat model, neuronal circuitry, and treatment perspectives. 17th 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]

178. Deterministic and neuromodulatory functions of forebrain cholinergic systems: a model for other ascending systems? FENS/SfN Summer School: Chemical Neuromodulation: Neurobiological, Neurocomputational, Behavioural and Clinical Aspects. Bertinoro, Italy [2017]
179. Choline transporter variants, cholinergic neurotransmission, and cognitive styles. Keynote at the ISN Satellite Meeting: Brain in Flux: Genetic, Physiologic, and Therapeutic Perspectives on Transporters in the Nervous System. Maintenon, France [2017]
180. PD falls resulting from disruption of the cognitive-motor interface: from an animal model to systems neuroscience research. 19th 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. 1st 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].
187. Cholinergic signaling and the treatment of cognitive-motor disorders: forward, not reverse, translation. Biennial Workshop of the European Behavioural Pharmacology Society (EBPS). Toronto, Canada [2021]
188. Cross-species cognitive genetics of choline transporter variants. Michigan Neuroscience Institute (MNI) and Biointerfaces Institute (BI) Neuroregeneration and Cognition Challenge. University of Michigan, Ann Arbor, MI [2022].
189. Impact of genetically or post-translationally imposed choline transporter capacity variations on cholinergic function. Karuna Therapeutics, Boston, MA [2023].

Conference proceedings and abstracts

1. Pritzel, M., Huston, J.P., & **Sarter, M.** (1981). Funktionale und neuronale Reorganisation nach unilateralen Gehirnläsionen. 23. Tagung experimentell arbeitender Psychologen, Berlin, FRG.
2. Pritzel, M., Huston, J.P., & **Sarter, M.** (1981). Lesion-induced contralateral projections of the substantia nigra to thalamus and nucleus caudatus. *Neuroscience Letters*, Suppl. 7, S295.
3. Pritzel, M., Huston, J.P., & **Sarter, M.** (1981). Unilateral lesions in the substantia nigra: Morphological correlates of functional recovery. NATO-Advanced Study Meeting: Naturally occurring and Experimentally Induced Rearrangement of Neural Connections. Varenna, Italy.
4. Pritzel, M., Huston, J.P., & **Sarter, M.** (1982). Morphologische Korrelate funktionaler Erholung nach unilateralen Läsionen der Substantia nigra. 24. Tagung experimentell arbeitender Psychologen, Trier, FRG.
5. Pritzel, M., Huston, J.P., & **Sarter, M.** (1982). Change in interhemispheric nigro-caudate projections following recovery from unilateral substantia nigra lesions. *Neuroscience Letters*, Suppl. 10, S394.
6. **Sarter, M.**, Pritzel, M., Morgan, S., & Huston, J.P. (1982). Interhemispheric nigro-caudate projections are of monoaminergic and non-monoaminergic origin, travel via interdienecephalic fiber connections, and are in part due to bifurcating nigro-caudate projections to either hemisphere. *Neuroscience Letters*, Suppl. 10, S430.
7. **Sarter, M.**, Pritzel, M., Morgan, S., & Huston, J.P. (1982). Interhemispheric nigro-caudate projections in the adult rat. 3. Meeting of Belgian, Dutch and German Physiological Psychologists, Düsseldorf, FRG.
8. **Sarter, M.**, & Markowitsch, H.J. (1983). Verringerte Resistenz gegenüber zunehmender Extinktion bei seneszenten im Vergleich zu jung-adulten Ratten: Mögliche Zusammenhänge mit morphologischen Befunden. 25. Tagung experimentell arbeitender Psychologen, Hamburg, FRG.
9. **Sarter, M.**, & Markowitsch, H.J. (1983). Der basolateral limbische Kreis: Anatomische Organisation und Lern- und Gedächtnisfunktionen. 25. Tagung experimentell arbeitender Psychologen, Hamburg, FRG.
10. Irle, E., **Sarter, M.**, & Markowitsch, H.J. (1983). Afferenzen aus limbischen Hirnregionen zu dem ventralen tegmental Nucleus von Gudden bei Katzen und Ratten. 25. Tagung experimentell arbeitender Psychologen, Hamburg, FRG.
11. **Sarter, M.**, & Markowitsch, H.J. (1983). The basolateral limbic circuit: Convergence of mediodorsal thalamic and basolateral amygdaloid projections within different prefrontal areas and their diverging innervation by basolateral amygdaloid neurons. *Neuroscience Letters*, Suppl. 14, S322.
12. **Sarter, M.**, & Markowitsch, H.J. (1983). Reduced resistance to successive extinction in senescent rats: Possible relation to the neuronal loss found selectively within the medial amygdaloid nucleus. *Neuroscience Letters*, Suppl. 14, S324.
13. Irle, E., **Sarter, M.**, & Markowitsch, H.J. (1983). Afferent connections of the ventral tegmental nucleus of Gudden (VTN) in rats and cats. *Neuroscience Letters*, Suppl. 14, S178.
14. **Sarter, M.**, & Markowitsch, H.J. (1983). Cognitive functions of the basolateral limbic circuit: Functional interaction of the basolateral amygdala with prefrontal areas and the mediodorsal thalamic nucleus as studied using different tasks and selective lesions. *Neuroscience Letters*, Suppl. 14, S323.
15. **Sarter, M.**, & Markowitsch, H.J. (1984). Funktionen des basolateralen limbischen Systems. 26. Tagung experimentell arbeitender Psychologen, Nürnberg, FRG.
16. **Sarter, M.**, & Markowitsch, H.J. (1984). Cortical areas containing neurons with inter- and intrahemispheric projections: Lack of collateralization and the interhemispherically projecting entorhinal neurons. *Neuroscience Letters*, Suppl. 18, S26.
17. **Sarter, M.**, & Markowitsch, H.J. (1985). Resistance to a progressively decreasing FR-schedule of reinforcement: Different strategies of senescent and mature-young rats and their possible neuroanatomical basis. *Behavioral Processes/ Behavioral Analysis Letters*, 10, 172-173.
18. **Sarter, M.**, Oettinger, R., Bättig K., & Markowitsch, H.J. (1985). Spatial cognitive concept formation and the central cholinergic system of young and aged rats. *Neuroscience Letters*, Suppl. 22, S540.
19. **Sarter, M.** (1985). The amygdala's role in cognitive information processing. European Brain and Behavior Society Meeting, Oxford, UK.
20. Stephens, D.N., Weidmann, R., Quartermain, D., & **Sarter, M.** (1985). Reversal learning in aged rats. European Brain and Behavior Society Meeting, Oxford, UK.
21. **Sarter, M.** (1985). The status of the senescent rat as an animal model for human brain ageing considering especially the cholinergic system. 14th International Summer School of Brain Research: Aging of the Brain and Senile Dementia, Amsterdam, The Netherlands.

22. Stephens, D.N., Kehr, W., & Sarter M. (1985). Anxiolytic and anxiogenic beta-carbolines: Tools for the study of anxiety mechanisms. 4th Capo Boi Conference on Neuroscience, Capo Boi, Italy.
23. **Sarter, M.** (1986). Pharmaka mit agonistischen, antagonistischen and invers agonistischen Wirkungen am Benzodiazepin-Rezeptor als Werkzeuge in der Gedächtnisforschung. 28. Tagung experimentell arbeitender Psychologen, Saarbrücken, FRG.
24. Jensen, L., Petersen, E., Stephens, D., **Sarter, M.**, & Kehr, W. (1986). Bidirectional effects of chronic treatment with agonists and inverse agonists at the benzodiazepine receptor. European Winter Conference on Brain Research, Avoriaz, France.
25. **Sarter, M.** (1986). Dietary vitamin E-deprivation as an animal model in nootropic drug research. *Psychopharmacology*, 89, S31.
26. Steckler, T., & **Sarter, M.** (1987). Working-memory related deficits of hippocampal lesioned rats during latent learning of an automated radial tunnel maze and comparison with lesions of cholinergic cell groups: Relation to in-vitro autoradiographical hemicholinium binding. *Neuroscience*, 22, S186.
27. Steckler, T., & **Sarter, M.** (1987). Latent learning, reversal learning, and re-learning of an automated tunnel maze by basal forebrain lesioned rats. ESN-IBRO-Satellite Symposium: Structural-Functional Properties of the Basal Forebrain Cholinergic System, Leipzig, GDR.
28. **Sarter, M.**, & Stephens, D.N. (1987). Nootrope Effekte des β -carbolines ZK 93 426: Vermittelt über cholinerge Mechanismen? 29. Tagung experimentell arbeitender Psychologen, Aachen, FRG.
29. **Sarter, M.**, Steckler, T., Andrews, A., & Stephens, D.N. (1988). Nootropic properties of the antagonist beta-carboline ZK 93 426. *Psychopharmacology*, 96, S258.
30. Sarter M., & Steckler, T. (1988). Learning of an automated tunnel maze following different brain lesions and treatment with the antagonist beta-carboline ZK 93 426. *Psychopharmacology*, 96, S194.
31. **Sarter, M.**, Duka, T., & Stephens, D.N. (1988). Nootropic properties of antagonist beta-carbolines: A symptomatological treatment for early senile dementia? *Psychopharmacology*, 96, S241.
32. Steckler, T., & **Sarter, M.** (1988). Triple dissociation between the behavioral effects of neocortical, hippocampal, and basal forebrain lesions in rats tested in a spatial latent learning paradigm. *Psychopharmacology*, 96, S210.
33. Stephens, D.N., **Sarter, M.**, & Duka, T. (1988). Cognitive enhancing effects of beta-carbolines acting as antagonists of central benzodiazepine receptors. Symposium on Agents for the Treatment of Senile Dementia. American Society for Medicinal Chemistry, Los Angeles, USA.
34. **Sarter, M.**, Duka, T., & Stephens, D.N. (1988). Preclinical profile and phase-I results of the antagonist beta-carboline ZK 93 426: A possible treatment for some cognitive symptoms in senile dementia. International Symposium on Alzheimer's disease, Kuopio, Finland.
35. **Sarter, M.** (1988). Opposite effects of learning and re-learning of a maze on 2-deoxyglucose uptake: Limitations of the relative optical measurement measure. *Society for Neuroscience Abstracts*, 14, 494.20.
36. Steckler, T., Andrews, J.S., & **Sarter, M.** (1989). Scopolamine impairs cue- but not praxis-strategies of rats exploring a 6-arm radial tunnel maze. *European Journal of Neuroscience*, 2 (Suppl.), 27.
37. Steckler, T., & **Sarter, M.** (1989). Dissociation between the behavioral effects of hippocampal- and caudate-lesioned rats tested in a 6-arm radial tunnel maze. *Society for Neuroscience Abstracts*, 15, 244.2.
38. **Sarter, M.**, & Dudchenko, P. (1989). Dissociative effects of different types of basal forebrain lesions on cortical AChE-positive fiber stain and cytochrome oxidase activity. *Society for Neuroscience Abstracts*, 15, 295.11.
39. **Sarter, M.**, & Dudchenko, P. (1990). GABAergic control of basal forebrain cholinergic neurons and memory. Basal Forebrain Conference, Chicago, USA.
40. **Sarter, M.**, & Dudchenko, P. (1990). GABAergic control of basal forebrain cholinergic neurons and memory. *Society for Neuroscience Abstracts*, 16, 58.4.
41. Moore, H., Gottlieb, A., Dudchenko, P., **Sarter, M.**, & Bruno, J.P. (1991). Attenuation of age-related attentional impairments and disinhibition of cortical cholinergic activity. Second Suncoast Workshop on the Neurobiology of Aging. Gainesville.
42. Moore, H., **Sarter, M.**, & Bruno, J.P. (1991). GABAergic mediation of frontal cortical acetylcholine release in awake rats. 1991 Symposium Microdialysis and Allied Analytical Techniques, Indianapolis.
43. Quigley, K., Moore, H., Dudchenko, P., Bruno, J.P., & **Sarter, M.** (1991). Age-related changes in attentional abilities in Fischer-334 rats: Effects of benzodiazepine receptor ligands and amphetamine. *Society for Neuroscience Abstracts*, 17, 116.15.
44. **Sarter, M.**, Holley, L.A., & Dudchenko, P. (1991). Cognition enhancing properties of the benzodiazepine receptor selective inverse agonist MDL 26,479. *Society for Neuroscience Abstracts*, 17, 632.11.

45. Dudchenko, P., **Sarter, M.** (1991). Behavioral microanalysis of spatial delayed alternation performance: Rehearsal through overt behavior, and effects of scopolamine and chlordiazepoxide. *Society for Neuroscience Abstracts*, 17, 488.4.
46. Moore, H., Berntson, G., **Sarter, M.**, & Bruno, J.P. (1991). Age-dependent modulation of cortical acetylcholine release by benzodiazepine receptor ligands. *Society for Neuroscience Abstracts*, 17, 632.8.
47. Steckler, T., Tillmann, R., & **Sarter, M.** (1992). MAM-induced microencephaly: Effects on spatial learning and performance. *European Journal of Neuroscience*, 5 (Suppl.), 155.
48. Dudchenko, P., Paul, B., & **Sarter, M.** (1992). Dissociation between the effects of benzodiazepine receptor agonists on behavioral vigilance and responsivity. *Society for Neuroscience Abstracts*, 18, 654.7.
49. Moore, H., **Sarter, M.**, & Bruno, J.P. (1992). Interactions between the effects of environmental manipulations and benzodiazepine receptor ligands on cortical acetylcholine release. *Society for Neuroscience Abstracts*, 18, 47.2.
50. McGaughy, J., & **Sarter, M.** (1992). Interactions between the effects of age and of benzodiazepine receptor ligands on attention: Taxing processing capacity. *Society for Neuroscience Abstracts*, 18, 376.12.
51. Quigley, K., Faber, S., **Sarter, M.**, & Berntson, G.G. (1992). Autonomic origins of cardiovascular responses to nonsignal stimuli in rats treated with FG 7142. *Society for Neuroscience Abstracts*, 18, 364.8.
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54. Moore, H., **Sarter, M.**, & Bruno, J.P. (1993). Benzodiazepine receptor mediation of cortical acetylcholine efflux: the determining roles of environmental/behavioral manipulations. *Current Separations*, 12, 67.
55. Moore, H., Stuckman S., **Sarter, M.**, & Bruno, J.P. (1993). Modulation of cortical ACh efflux by GABA/benzodiazepine receptor ligands: effects of repeated testing and interactions with dopamine receptors. *Current Separations*, 12, 44.
56. **Sarter, M.**, Holley, L.A., Wiley, R.G., & Lappi, D.A. (1993). Selective cholinergic deafferentation following intracortical infusions of the immunotoxin 192 IgG-saporin. *Society for Neuroscience Abstracts*, 19, 377.12.
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59. Dudchenko, P., Apple, C., Conti, T., & **Sarter, M.** (1993). Basal forebrain-lesion induced blockade of the effects of benzodiazepine receptor ligands on vigilance. *Society for Neuroscience Abstracts*, 19, 412.10.
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209. **Sarter, M.**, Parikh, V., Man, K., & Decker, M.W. (2007). Glutamatergic mediation of the "cholinergic footprints" evoked by nicotine and the cognition enhancer ABT-089, an $\alpha 4\beta 2^*$ nAChR-selective partial agonist. Satellite Symposium to the 2007 Society for Neuroscience Annual Meeting: Nicotinic Acetylcholine Receptors as Therapeutic Targets: Emerging Frontiers in Basic Research & Clinical Science. San Diego, CA.
210. Brooks, J.M., **Sarter, M.**, & Bruno, J.P. (2008). Semi-chronic clozapine treatment normalizes top-down regulation of cortical acetylcholine release in an animal model of schizophrenia. Society for Neuroscience Annual Meeting, Washington, DC.
211. Giuliano, C., Michel, J., Howe, W.M., Kozak, R., & **Sarter, M.** (2008). The distractor condition sustained attention task (dSAT) for the preclinical characterization of cognition enhancers. Society for Neuroscience Annual Meeting, Washington, DC.
212. Ji, J., Parikh, V., Decker, M.W., & **Sarter, M.** (2008). nAChR agonist-evoked glutamatergic and cholinergic transients in the prefrontal cortex of mice lacking the beta2- or alpha7-nAChR receptor subunit. Society for Neuroscience Annual Meeting, Washington, DC.
213. Parikh, V., Young, D., Cheema, A., Blakely, R.D., & **Sarter, M.** (2008). Molecular constraints on attentional capacities: failure to sustain cortical acetylcholine release and attentional performance by CHT+/- mice. Society for Neuroscience Annual Meeting, Washington, DC.
214. **Sarter, M.**, Young, D., Howe, M.W., & Bruno, J.P. (2008). Prefrontal cholinergic mechanisms underlie the attentional impairments and the beneficial effects of clozapine in an amphetamine-model of schizophrenia. Society for Neuroscience Annual Meeting, Washington, DC.
215. Askren, M.K., Demeter, E., Taylor, S.F., **Sarter, M.**, & Lustig, C. (2008). Acetylcholine, cortex, and cognitive control: evidence from a task-switching procedure. Society for Neuroscience Annual Meeting, Washington, DC.
216. Demeter, E., Hernandez-Garcia, L., **Sarter, M.**, & Lustig, C. (2008). Cognitive control of attention: neural correlates of performing the distractor condition Sustained Attention Task (dSAT) and implications for translational cognitive neuroscience research on schizophrenia. Society for Neuroscience Annual Meeting, Washington, DC.
217. Young, D., Bruno, J.P., & **Sarter, M.** (2008). Neuromodulator interactions in the prefrontal cortex as a function of activity state: differential dopaminergic modulation of basal vs. activated cholinergic activity. Society for Neuroscience Annual Meeting, Washington, DC.
218. Howe, M.W., Parikh, V., Gritton, H., Giuliano, C., Ward, J., & **Sarter, M.** (2008). Prefrontal cholinergic transients indicating cue detection as a target for cognition enhancers. Society for Neuroscience Annual Meeting, Washington, DC.
219. Gritton, H., **Sarter, M.**, & Lee, T. (2008). Circadian effect on acquisition, performance and cognitive control of attention. Society for Neuroscience Annual Meeting, Washington, DC.
220. Parikh, V., Young, D., Cheema, A., Blakely, R.D., & **Sarter, M.** (2009). A model of cognitive dysfunction: constrained capacity for cholinergic activity and attentional performance in CHT+/- mice. *Journal of Neurochemistry* (2009), 108, (Suppl. 1) 71-72. American Society for Neurochemistry Annual Meeting, Charleston, SC.
221. Demeter, E., Hernandez-Garcia, L., Guthrie, S., Engelmann, R., Taylor, S.F., **Sarter, M.**, & Lustig, C. (2009). Cognitive control of attention: Neuroimaging evidence supporting the use of the distractor condition sustained attention task in translational research. 16th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA,
222. Askren, M., Demeter, E., Taylor, S., **Sarter, M.**, & Lustig, C. (2009). Acetylcholine and cognitive control: donepezil modulates prefrontal and default-mode regions in a task-switching procedure. 16th Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA,

223. Williams, S., Howe, W.M., Ji, J., & **Sarter, M.** (2009). Enhancement of attentional performance and cholinergic activity evoked by S38232, a selective $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor agonist. Society for Neuroscience Annual Meeting. Chicago, IL.
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 $(\alpha 4)\beta 2$ 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, T.E. (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.
332. Kucinski, A., Phillips, K.B., & **Sarter, M.** (2019). Optogenetic silencing of cholinergic neurons of the basal forebrain evokes falls and impairs cued turning in rats with striatal dopamine loss. Society for Neuroscience Annual Meeting. Chicago, IL.
333. Donovan, E., Avila, C., Parikh, V., Antcliff, A., Blakely, R.D., & **Sarter, M.** (2019). Reduced choline clearance in vivo in mice expressing a choline transporter subcapacity variant associated with low attentional control in humans. Society for Neuroscience Annual Meeting. Chicago, IL.
334. Phillips, K.B., Avila, C., & **Sarter, M.** (2019). Sign-trackers deploy perceptual, but not cholinergic-attentional, mechanisms to respond to salient cues. Society for Neuroscience Annual Meeting. Chicago, IL.
335. **Sarter, M.**, & Avila, C. (2019). Striatal glutamatergic signaling elicited by turn cues, but not stop cues. Society for Neuroscience Annual Meeting. Chicago, IL.
336. Carmon, H., Parikh, V., Haley, E., Tronson, N. & **Sarter, M.** (2021). Vulnerable for addiction-like behavior: Disrupted cholinergic signaling and exaggerated (neuro)immune response in sign-tracking rats. Society for Neuroscience Annual Meeting. Chicago, IL.
337. Donovan, E., Avila, C., Parikh, V., Blakely, R.D. & **Sarter, M.** (2021). Disrupted choline clearance and sustained acetylcholine release in vivo by a common choline transporter coding variant associated with poor attentional control in humans. Annual Meeting of the Pavlovian Society. Ann Arbor, MI.
338. Avila, C. & **Sarter, M.** (2021). Cognitive-motivational traits indexed by sign- vs. goal-tracking extend to cortico-striatal glutamatergic signaling and complex movement control. Society for Neuroscience Annual Meeting. Chicago, IL.
339. Yang, Y., **Sarter, M.**, Aton, S.J., Booth, V., & Zochowski, M. (2021). Spatially heterogeneous cholinergic release generates theta-gamma coupling. Society for Neuroscience Annual Meeting. Chicago, IL.
340. Donovan, E., Avila, C., Parikh, V., Blakely, R.D. & **Sarter, M.** (2021). Disrupted choline clearance and sustained acetylcholine release in vivo by a common choline transporter coding variant associated with poor attentional control in humans. Society for Neuroscience Annual Meeting. Chicago, IL.
341. Donovan, E., & **Sarter, M.** (2022). Striatal processing of attention-demanding signals in rats with opposing attentional control styles. Society for Neuroscience Annual Meeting. San Diego, CA.
342. Carmon, H., Parikh, V., Haley, E., Tronson, N. & **Sarter, M.** (2022). Vulnerable for addiction-like behavior: Disrupted cholinergic signaling and exaggerated (neuro)immune response in sign-tracking rats. Society for Neuroscience Annual Meeting. San Diego, CA.
343. Avila, C., & **Sarter, M.** (2022). Cortico-striatal transfer of movement commands in rats with opposed attentional biases. Society for Neuroscience Annual Meeting. San Diego, CA.
344. Klausner, S., Donovan, E., Avila, C., Parikh, V., Blakely, R.D. & **Sarter, M.** (2022). Disrupted choline clearance and sustained acetylcholine release in vivo by a common choline transporter coding variant associated with poor attentional control in humans. Society for Neuroscience Annual Meeting. San Diego, CA.
345. Donovan, E., & **Sarter, M.** (2023). Striatal processing of attention-demanding signals in rats with opposing attentional control styles. International Behavioral Neuroscience Society. Niagara Falls, Canada.
346. Carmon, H., Haley, E., Parikh, V., Tronson, N.C., & **Sarter, M.** (2023). Vulnerable for addiction-like behavior: Disrupted cholinergic signaling and exaggerated (neuro)immune response in sign-tracking rats. International Behavioral Neuroscience Society. Niagara Falls, Canada.
347. Carmon, H., Parikh, V., Haley, E., Tronson, N.C., & **Sarter, M.** (2023). Neuroimmune activity contributes to cholinergic dysfunction in sign-tracking rats. Society for Neuroscience Annual Meeting. Washington, DC.