

SNACC Director-at-Large Application

Application Deadline: April 30, 2026, at 11:59 pm ET

Directors-at-Large are voting members of the Board of Directors and are involved in decision making on issues pertaining to governance and strategy of the Society according to its mission and bylaws. Directors-at-Large advise the Executive Committee in the overall functioning of the society. In addition, the Directors may be asked by the Executive Committee to lead specific committees, subcommittees, task forces, councils, or special projects. Attendance at all Board meetings is expected.

Elected members of the SNACC Board of Directors have significant responsibilities, and potential candidates must have time to make this commitment to the Society and the specialty. The responsibilities of Directors-at-large are outlined in detail in [SNACC Bylaws](#).

Minimum Prerequisites

- At least three years of active membership of SNACC in good standing.
- Demonstration of track record of service to SNACC (such as active participation and/or leadership in SNACC committees/councils/task forces, active contributions to the newsletter, the Journal of Neurosurgical Anesthesiology, and participation in the Annual Meeting program).
- Dedication to the values of SNACC and its mission, and commitment to diversity, equity, and inclusion

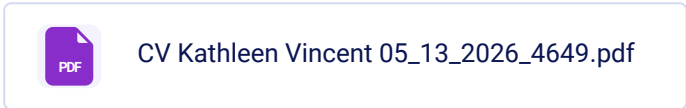
Self-nominations are accepted for this post. Alternatively, active members of the Society can nominate another member by describing the strengths of the nominee and highlights of their CV. The nominating committee will pursue consent from the nominee before considering their candidacy.

Nominee's Name	Kathleen Vincent
Nominee's Email Address	kfvincent@mgh.harvard.edu
Credentials (e.g., MD)	PhD
Current Institution	Mass General Brigham / Harvard Medical School
SNACC Member Since (Year)	2022

Upload Headshot



Upload CV



Services to SNACC (limit to no more than five (5) most significant services)

In addition to giving talks and moderating panels at annual meetings, Dr. Vincent has been actively involved in SNACC by serving in the following roles:

- 1. Member, Research Committee (2022-present)
- 2. Member, Scientific Affairs Committee (2022-present)
- 3. Member, Abstract Review Subcommittee (2023-present)
- 4. Member, Annual Meeting Planning Committee (2024-present)
- 5. Chair, Scientific Affairs Committee (2025-present)

Relevant Leadership Experience (limit to no more than five (5))

Dr. Vincent has served in the following leadership roles for SNACC and ASA:

- 1. Vice Chair, SNACC Scientific Affairs Committee (2024-2025)
- 2. Chair, SNACC Scientific Affairs Committee (2025-present)
- 3. Vice Chair, ASA Abstract Review Subcommittee on Experimental Neurosciences (2024-2025)
- 4. Chair, ASA Abstract Review Subcommittee on Experimental Neurosciences (2025-present)

Your commitment to diversity, equity, and inclusion (limit 50 words)

Dr. Vincent is deeply committed to DEI. She serves on the advisory board of the Science Ambassador Scholarship, which provides scholarships for undergraduate women pursuing STEM degrees. Dr. Vincent also participates in the Mass General Brigham Summer Research Trainee Program, hosting URM students in her laboratory each summer.

How do you envision advancing SNACC as a Director-at-Large? (limit 150 words)

Dr. Vincent is an NIH-funded neuroscientist who is passionate about advancing research in neuroscience and anesthesiology, which is an important core mission of SNACC. Her commitment to the neuroanesthesiology community is evidenced by her active involvement in SNACC and ASA committees that focus on scientific programming for the annual meetings. Dr. Vincent will provide a neuroscientist’s perspective for the SNACC Board of Directors, which is vitally important for our society to attract basic scientists with research interests that align with SNACC’s mission. I envision that Dr. Vincent will continue to contribute actively to the SNACC annual meeting program, develop initiatives to promote research in perioperative neuroscience, and attract PhD neuroscientists to become SNACC members and contribute to our community. Finally, Dr. Vincent has demonstrated a strong commitment to mentoring the next generation of investigators in our field, which is essential for our society to thrive and grow.

Anything else you would like considered in your candidacy (limit 50 words)

Dr. Vincent is an outstanding candidate who will bring a unique and important perspective to the SNACC Board of Directors. I highly recommend her for the position of Director-at-Large.

Name of Person Submitting Nomination	Ken Solt
Email Address of Person Submitting Nomination	ksolt@mgh.harvard.edu

**The Faculty of Medicine of Harvard University
Curriculum Vitae**

Date Prepared: May 13, 2026
Name: Kathleen Vincent
Office Address: 149 13th street
Suite 4.015
Charlestown, MA
02129
Home Address: 116 Ash Street
Chelsea, MA
02150
Work Phone: (617) 643-9513
Work Email: kfvincent@mgh.harvard.edu

Education:

09/2007- 04/2011	BSc with honors	Psychology (advisor: Jean-Philippe Thivierge)	University of Ottawa, Ottawa, Ontario, Canada
09/2011- 05/2018	PhD	Psychology (advisor: Terence Coderre)	McGill University, Montreal, Quebec, Canada

Postdoctoral Training:

03/17-04/20	Postdoctoral Fellow	Orthopedic Soft Tissue Research Program (PI: Chitra Dahia)	Hospital for Special Surgery and Weill Cornell Medical College, New York, NY
05/20-06/23	Postdoctoral Fellow	Anesthesiology, Critical Care, and Pain Medicine (PI: Ken Solt)	Massachusetts General Hospital and Harvard Medical School, Boston, MA

Faculty Academic Appointments:

2023-2025	Instructor	Anaesthesia	Harvard Medical School
2025-	Assistant Professor	Anaesthesia	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions:

2023-2025	Non-Clinical Research Staff	Anesthesia, Critical Care and Pain Medicine	Massachusetts General Hospital
2025-	Assistant Professor in Anesthesia	Anesthesiology	Mass General Brigham

Other Professional Positions:

2010-2010	Research Assistant	National Research Council of Canada, Institute for Biological Sciences, Ottawa, Ontario, Canada
2011-2011	Research Assistant	Department of Psychology, University of Ottawa, Ottawa, Ontario, Canada

Committee Service:**National**

2020-	Advisory Board Member	Science Ambassador Scholarship Program
2025	Grants Committee Member	Science Ambassador Scholarship Program
2025	Mentorship Program Member	Science Ambassador Scholarship Program

Professional Societies:

2021-	Society for Neuroscience (SfN)	
2021-		Member
2021-	Society for Neuroscience in Anesthesiology and Critical Care (SNACC)	
2022-		Member, Research Committee
2022-		Member, Scientific Affairs Committee
2023-		Member, Abstract Review Subcommittee
2024-		Member, Annual Meeting Planning Committee
	2024-2025	Vice-Chair, Scientific Affairs Committee
	2025-	Chair, Scientific Affairs Committee
2022-	International Anesthesia Research Society (IARS)	
2022-		Member
2023-	Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART)	
2023-		Member
2024-	American Society of Anesthesiologists (ASA)	

2024-2025	Vice Chair of the Abstract Review Subcommittee on Experimental Neurosciences
2024-	Member
2024-	Abstract Review Subcommittee on Geriatric Anesthesia
2024-	Abstract Review Subcommittee on Experimental Neurosciences
2024-	Abstract Review Subcommittee on Experimental Foundations of Perioperative Medicine
2025-	Committee on Scientific Advisory
2025-	Chair of the Abstract Review Subcommittee on Experimental Neurosciences

Grant Review Activities:

2022-	William L. Young Neuroscience Research Award	Society for Neuroscience in Anesthesiology and Critical Care
2022-		Permanent Member
2024-	John D. Michenfelder New Investigator Award	Society for Neuroscience in Anesthesiology and Critical Care
2024-		Permanent Member
2025-	Biotechnology and Biological Sciences Research Council (BBSRC)	United Kingdom Research and Innovation (UKRI)
2025-		Ad hoc
2026-	International Anesthesia Research Society Mentored Research Awards (IMRA)	International Anesthesia Research Society (IARS)
2026-		Member

Editorial Activities:

Ad hoc Reviewer

Current Biology
PloS ONE
Journal of Neurosurgical Anesthesiology
Nature Neuroscience
Frontiers in Synaptic Neuroscience
Frontiers in Neuroscience
Anesthesia and Analgesia
Journal of Neuropharmacology
Journal of Neurochemical Research

Nature Communications
Anesthesiology
European Journal of Pharmacology
Advanced Science
Brain
British Journal of Anaesthesiology
BMC Neuroscience
Brain Research Bulletin
Zoological Research
Lab Animal
Anesthesiology and Perioperative Science
Communications Biology
Brain Stimulation

Other Editorial Roles

2021-	Review Editor	Frontiers in Neuroscience: Sleep and Circadian Rhythms
-------	---------------	--

Honors and Prizes:

2007-2011	Admission Scholarship	University of Ottawa	Academic Achievement
2011	Admission Scholarship	McGill University	Academic Achievement
2011	Best Honours Thesis Award	University of Ottawa	Research Excellence
2011	CPA Certificate of Academic Excellence	Canadian Psychology Association	Research and Scholarship
2011-2011	Undergraduate Student Research Award	Natural Sciences and Engineering Research Council	Training Grant
2011-2012	McGill University Health Centre Studentship	McGill University Health Centre	Training Grant
2011-2013	Bourse D'étude Hydro-Québec	Hydro-Québec	Training Grant
2011-2013	Canada Graduate Scholarships – Master's program	Natural Sciences and Engineering Research Council	Training Grant
2012	Best Poster Award	Alan Edwards Centre for Research on Pain	Poster Award
2013	Bromage Day Best in Science	Department of Anesthesia, McGill University	Research Talk Award

2013-2016	Canada Graduate Scholarships – Doctoral program	Natural Sciences and Engineering Research Council	Training Grant
2015	Kresimir Krnjevic Award for Outstanding Trainee Research	Department of Anesthesia, McGill University	Research Excellence
2019	Adele Boskey Prize for Innovative Research	Hospital for Special Surgery	Research Excellence
2021, 2022, 2023	Best of Basic Science Award	Society for Neuroscience in Anesthesiology and Critical Care	Research Excellence
2022	Kosaka Best Abstract Award Top Finalist - Scholars	International Anesthesiology Research Society	Research Excellence

Report of Funded and Unfunded Projects

Past

2022-2022 Award terminated early due to the receipt of the competing K99 award	Dopaminergic Circuits in Age-Related Postoperative Delirium Canadian Institutes of Health Research; BPF-180179 Banting Postdoctoral Fellowship PI (\$140,000) To investigate the role of midbrain dopamine neural circuits in restoring cognitive function following general anesthesia in physiologically aged rodent models.
2022-2025 12/2024- 08/2025	Neural circuits underlying postoperative delirium in early Alzheimer's Disease NIH (NIA); 1K99AG076877-01A1 PI (\$252,500) Identify the role of the ventral tegmental area and locus coeruleus in attentional deficits and postoperative delirium in a rat model of Alzheimer's Disease.

Current

2025-2028	Neural circuits underlying postoperative delirium in early Alzheimer's Disease NIH (NIA); R00AG076877 PI (\$452,000) Identify the role of the ventral tegmental area and locus coeruleus in attentional deficits and postoperative delirium in a rat model of Alzheimer's Disease.
-----------	---

Report of Local Teaching and Training

Research Supervisory and Training Responsibilities:

2023-	Training in laboratory protocols, experimental design, research methods, manuscript writing, and statistics postdoctoral fellows	Massachusetts General Hospital 10 hours / year 1:1 supervision and training of new postdoctoral fellows at the start of their fellowships
2023-	Training in laboratory protocols, manuscript writing, and statistics Undergraduate student trainees	Massachusetts General Hospital 3 hours / week 1:1 supervision of undergraduate trainees for 3 hours a week for 12 weeks per trainee

Other Mentored Trainees and Faculty:

2019-2019	Chethana Gallage Dona / Medical Student, Touro College of Osteopathic Medicine Career Stage: Undergraduate student. Mentoring role: supervising and research training. Duration: 3 hours/week for 12 weeks Accomplishments: Co-author on two publications [8,11].
2020-2021	Olivia Mallari, MD / Anesthesia Resident, Columbia University Career Stage: Medical Student. Mentoring role: supervising and research training. Duration: 2 hours/month Accomplishments: Co-author on three publications [9, 12, 14].
2021-2021	Victoria Stewart / Medical Student at University of California, Irvine, School of Medicine Career Stage: Undergraduate student. Mentoring role: supervising and research training. Duration: 3 hours/week for 12 weeks Accomplishments: Co-author on two publications [12, 13], and one poster [15].
2021-2022	Emmaline Dillon / Researcher, Brigham Young University Career Stage: Undergraduate student. Mentoring role: supervising and research training. Duration: 3 hours/week for 12 weeks Accomplishments: Co-author on three publications [12, 13, 15] and five abstracts [12-16].
2021-2023	Angel Cho, MS, MD / Family Medicine Resident, California Career Stage: Medical Student. Mentoring role: supervising and research training. Duration: 2 hours per month, 12 months per year Accomplishments: Co-author on four publications [10, 12-14] and 11 abstracts [3-6, 10, 14-15, 19-22]
2022-2022	Brendan Stapley / Undergraduate student, Brigham Young University Career Stage: Undergraduate student. Mentoring role: supervising and research training. Duration: 3 hours/week for 12 weeks Accomplishments: Co-author on one publication [15], and five abstracts [11-15]
2022-	Gwi Hyun Park, B.A. / Research Technician, Massachusetts General Hospital Career stage: Post-baccalaureate, Mentoring role: supervising and research training. Duration: 2 hours per month, 12 months per year Accomplishments: Co-author on one publication [15], 11 abstracts [11-13, 15-22], and presenting author on one poster at a national conference [17].

- 2023-2023 Cynthia Paterson / Undergraduate student, Brigham Young University
Career Stage: Undergraduate student. Mentoring role: supervising and research training.
Duration: 3 hours/week for 12 weeks
Accomplishments: Contributed to work in preparation for publication
- 2023-2023 Kate Strong / Undergraduate student, Brigham Young University
Career Stage: Undergraduate student. Mentoring role: supervising and research training.
Duration: 3 hours/week for 12 weeks
Accomplishments: Contributed to work in preparation for publication
- 2023-2024 David Obert, MD / Anesthesiologist, Technical University of Munich
Career Stage: Postdoctoral fellow. Mentoring role: research technique training, manuscript writing, and statistical training. Duration: 10 hours total
Accomplishments: First author on a publication [16], co-author on a publication [14], and co-author on 7 poster abstracts [17-23]
- 2024-2024 Ethan Coulter / Undergraduate student, Brigham Young University
Career Stage: Undergraduate student. Mentoring role: supervising and research training.
Duration: 3 hours/week for 12 weeks
Accomplishments: Contributed to work in preparation for publication
- 2024-2024 Jessica Jin / Undergraduate student, Tufts University
Career Stage: Undergraduate student. Mentoring role: supervising and research training.
Duration: 1 hour/week for 10 weeks
Accomplishments: Contributed to work in preparation for publication
- 2024-2024 Eric Smith, BA / Medical Student, Brown University
Career Stage: Medical Student on a FAER grant. Mentoring role: supervising and research training. Duration: 1 hour/week for 8 weeks
Accomplishments: Co-author on a publication [17]
- 2024- Jinyoung Choi, PhD / Postdoctoral fellow, Massachusetts General Hospital and Harvard Medical School
Career Stage: Postdoctoral fellow. Mentoring role: training on research techniques, experimental design, and statistical analysis. Duration: 10 hours total
Accomplishments: Contributing to work in preparation for publication
- 2025- Negar Nikbakht, PhD / Postdoctoral fellow, Massachusetts General Hospital and Harvard Medical School
Career Stage: Postdoctoral fellow. Mentoring role: Primary mentor, Duration: 2 hour/week
Accomplishments: Contributing to work in preparation for publication
- 2025- Jack Wolf, BS / Medical Student,
Career Stage: Medical student. Mentoring role: primary mentor, duration: 10 hours total
Accomplishments: Contributing to work in preparation for publication

Local Invited Presentations:

☒ No presentations below were sponsored by 3rd parties/outside entities

- 2013 Antinociceptive effects of spinal glutamate transporter inhibitors and membrane permeable metabotropic glutamate antagonists in rats with persistent pain / Selected Oral Abstract
Department of Anesthesia, McGill University
Montreal, Quebec, Canada
- 2013 Role of nuclear mGluRs in neuropathic pain / Selected Oral Abstract
Integrated Program in Neuroscience, McGill University
Montreal, Quebec, Canada
- 2014 Role of glutamate transporter inhibitors in the spinal cord dorsal horn in persistent pain / Selected Oral Abstract
Department of Anesthesia, McGill University
Montreal, Quebec, Canada
- 2020 Modeling age-related changes in low back pain in murine models / Adele Boskey Prize Talk
Orthopedic Soft Tissue Research Program, Hospital for Special Surgery
New York, NY

Report of Regional, National and International Invited Teaching and Presentations

☒ *No presentations below were sponsored by 3rd parties/outside entities*

Regional

- 2019 Molecular correlates of pain with disc degeneration in aging mice / Selected Oral Abstract
Philadelphia Spine Research Society
Skytop, PA

National

- 2021 Using the 5-choice serial reaction time task to measure cognitive recovery in rats following anesthetic emergence / Selected Oral Abstract
Association of University Anesthesiologists Annual Meeting
(Virtual Conference due to COVID 19)
- 2021 Using touchscreen-based operant conditioning tasks to assess cognitive recovery following anesthetic emergence in rats / Selected Oral Abstract
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
(Virtual Conference due to COVID 19)
Best of Basic Science Award
- 2022 Chemogenetic activation of dopaminergic midbrain neurons accelerates cognitive recovery following dexmedetomidine- but not ketamine-induced loss of consciousness in rats / Selected Oral Abstract
Association of University Anesthesiologists Annual Meeting
(Virtual Conference due to COVID 19)

- 2022 Chemogenetic activation of dopaminergic midbrain neurons accelerates cognitive recovery following dexmedetomidine- but not ketamine-induced loss of consciousness in rats / Selected Oral Abstract
International Anesthesia Research Society Annual Meeting
(Virtual Conference due to COVID 19)
Kosaka Award Finalist
- 2022 Estrous cycle affects emergence latency from dexmedetomidine but not propofol, isoflurane, nor sevoflurane anesthesia in rats / Selected Oral Abstract
Association of University Anesthesiologists Annual Meeting
(Virtual Conference due to COVID 19)
- 2022 Chemogenetic activation of dopaminergic midbrain neurons accelerates cognitive recovery following dexmedetomidine- but not ketamine-induced loss of consciousness in rats / Selected Oral Abstract
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Seattle, WA
Best of Basic Science Award
- 2023 The role of midbrain dopaminergic neurons in conscious and cognitive recovery following general anesthesia / Invited Lecture
Consciousness and Unconsciousness in People and Animals (Panel)
Winter Conference on Brain Research
Salt Lake City, UT
- 2023 Role of dopaminergic circuits in conscious and cognitive recovery / Invited Lecture
Department of Anesthesiology and Critical Care, Perelman School of Medicine at the University of Pennsylvania
Philadelphia, PA
- 2023 Basic Science Oral Abstract Session
Role: moderator / Oral Abstract Session
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Alexandria, DC
- 2023 Education and Medically Challenging Cases Oral Abstract Session
Role: moderator / Oral Abstract Session
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Alexandria, DC
- 2023 Methylphenidate and D-amphetamine produce distinct arousal states after high-dose dexmedetomidine in rats / Selected Oral Abstract
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Alexandria, DC
Best of Basic Science Award
- 2023 Science Symposium: Nitrous oxide as treatment for depression
Role: moderator / Symposium
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Alexandria, DC

- 2023 Measuring correlates of consciousness and cognition in rodent models / Invited Lecture
Mechanisms of Anesthesia and Sleep Symposium (Panel)
American Society of Anesthesiologists Annual Meeting
San Francisco, CA
- 2023 The role of midbrain and brainstem nuclei in conscious and cognitive recovery following general anesthesia in rodent models / Invited Lecture
Recovery of Consciousness after Anesthesia and Brain Injury (Panel)
American Society of Anesthesiologists Annual Meeting
San Francisco, CA
- 2024 Assessing post-anesthetic cognitive recovery in rodents / Invited Lecture
Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities and Networks (ACTTION), Consortium on Anesthetic Agents and Modulators (CAAM) Conference
Chicago, IL
- 2024 Dopaminergic circuits of conscious and cognitive recovery / Invited Lecture
Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities and Networks (ACTTION), Consortium on Anesthetic Agents and Modulators (CAAM) Conference
Chicago, IL
- 2024 Leveraging subcortical arousal circuits to reverse drug-induced unconscious states and restore cognitive function / Invited Lecture
Neurophysiology of Loss and Recovery of Consciousness (Panel)
The Science of Consciousness Conference
Tucson, Arizona
- 2024 The role of midbrain and brainstem nuclei in conscious and cognitive recovery following general anesthesia in rodent models / Grand Rounds
Department of Anesthesiology, University of Michigan Medical School
- 2024 Leveraging dopaminergic arousal pathways to reverse mechanistically diverse anesthetic and sedative agents / Invited Lecture
Subspecialty Panels entitled SNACC: Trends and Innovations in Perioperative Neuroscience (Panel)
American Society of Anesthesiologists Annual Meeting
Philadelphia, PA
- 2024 The impact of attention deficits in early-stage Alzheimer's disease on post-anesthetic cognitive recovery in a rat model / Invited Lecture
Dementia and the Vulnerable Brain in the perioperative Period (Panel)
American Society of Anesthesiologists Annual Meeting
Philadelphia, PA
- 2025 Dopaminergic neural circuits of conscious and cognitive recovery following general anesthesia in rodents / Invited Lecture
Facilitating Anesthetic Emergence and Recovery: Update on Mechanisms and Clinical Applications (Panel)

- International Anesthesia Research Society Annual Meeting
Honolulu, HI
- 2025 Cognitive recovery following general anesthesia: Dopamine and Norepinephrine pathways / Invited Lecture
Mechanisms in Anesthesia Conference
Honolulu, HI
- 2025 Best of Meeting Awards
Role: Moderator / Symposium
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Atlanta, Georgia
- 2025 Medically Challenging Cases - Oral presentations
Role: Moderator / Symposium
Society for Neuroscience in Anesthesiology and Critical Care Annual Meeting
Atlanta, Georgia
- 2025 Circuits of cognitive recovery / Symposium
FAER Panel: The Neuroscience of Anesthesia and Consciousness(Panel)
American Society of Anesthesiologists Annual Meeting
San Antonio, Texas
- 2025 Experimental Neurosciences - Oral Presentations
Role: Moderator / Selected Oral Abstract
American Society of Anesthesiologists Annual Meeting
San Antonio, Texas
- 2025 Geriatric Anesthesia - Oral presentations
Role: Moderator / Selected Oral Abstract
American Society of Anesthesiologists Annual Meeting
San Antonio, Texas

International

- 2022 Chemogenetic activation of dopaminergic midbrain neurons accelerates cognitive recovery following dexmedetomidine- but not ketamine-induced loss of consciousness in rats /
Invited Lecture
11th International Symposium on Memory and Awareness in Anesthesia
Prato, Italy
- 2025 Dopaminergic involvement in conscious and cognitive recovery / Invited Lecture
Gordon Research Conference
Lucca (Barga), Lucca, Italy
- 2025 Cognitive recovery following general anesthesia / Invited Lecture
Mechanisms in Anesthesia Conference
Honolulu, HI, USA

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. **Vincent K**, Tauskela JS, Thivierge JP. Extracting functionally feedforward networks from a population of spiking neurons. *Front Comput Neurosci*. 2012 Oct 19;6:86. doi: 10.3389/fncom.2012.00086. PMID: 23091458; PMCID: PMC3476068.
2. **Vincent K**, Tauskela JS, Mealing GA, Thivierge JP. Altered network communication following a neuroprotective drug treatment. *PLoS One*. 2013;8(1):e54478. doi: 10.1371/journal.pone.0054478. Epub 2013 Jan 22. PMID: 23349901; PMCID: PMC3551770.
3. **Vincent K***, Cornea V*, Jong Y, Laferrière A, Kumar N, Mickeviciute A, Fung J, Bandegi P, Ribeiro-da-Silva A, O'Malley K, Coderre T. Intracellular mGluR5 plays a critical role in neuropathic pain. *Nature Communications*. 2016; 7(1). DOI: 10.1038/ncomms10604. PMCID: PMC4742982
4. **Vincent K**, Wang SF, Laferriere A, Kumar N, Coderre TJ. Spinal intracellular metabotropic glutamate receptor 5 (mGluR5) contributes to pain and c-fos expression in a rat model of inflammatory pain. *Pain*. 2017;158(4):705-16.
Comment. Kolber BJ. It's what's on the inside that counts: evidence for intracellular G-protein-coupled receptor signaling in inflammatory pain. *Pain*. 2017 Apr;158(4):541-542. doi: 10.1097/j.pain.0000000000000843. PMID: 28141636.
5. Pitcher MH, Gonzalez-Cano R, **Vincent K**, Lehmann M, Cobos EJ, Coderre TJ, Baeyens JM, Cervero F. Mild Social Stress in Mice Produces Opioid-Mediated Analgesia in Visceral but Not Somatic Pain States. *J Pain*. 2017 Jun;18(6):716-725. doi: 10.1016/j.jpain.2017.02.422. Epub 2017 Feb 20. PMID: 28219667.
6. Bonavita R, **Vincent K**, Pinelli R, Dahia CL. Formation of the sacrum requires down-regulation of sonic hedgehog signaling in the sacral intervertebral discs. *Biol Open*. 2018 Jul 24;7(7):bio035592. doi: 10.1242/bio.035592. PMID: 29784673; PMCID: PMC6078355.
7. **Vincent K**, Mohanty S, Pinelli R, Bonavita R, Pricop P, Albert TJ, Dahia CL. Aging of mouse intervertebral disc and association with back pain. *Bone*. 2019 Jun;123:246-259. doi: 10.1016/j.bone.2019.03.037. Epub 2019 Mar 29. PMID: 30936040; PMCID: PMC6549718.
8. **Vincent K**, Dona CPG, Albert TJ, Dahia CL. Age-related molecular changes in the lumbar dorsal root ganglia of mice: Signs of sensitization, and inflammatory response. *JOR Spine*. 2020 Sep 13;3(4):e1124. doi: 10.1002/jsp2.1124. PMID: 33392459; PMCID: PMC7770202.
9. Kato R, Zhang ER, Mallari OG, Moody OA, **Vincent KF**, Melonakos ED, Siegmann MJ, Nehs CJ, Houle TT, Akeju O, Solt K. D-Amphetamine Rapidly Reverses Dexmedetomidine-Induced Unconsciousness in Rats. *Front Pharmacol*. 2021 May 18;12:668285. doi: 10.3389/fphar.2021.668285. PMID: 34084141; PMCID: PMC8167047.
10. **Vincent KF**, Zhang ER, Kato R, Cho A, Moody OA, Solt K. Return of the Righting Reflex Does Not Portend Recovery of Cognitive Function in Anesthetized Rats. *Front Syst Neurosci*. 2021 Nov 18;15:762096. doi: 10.3389/fnsys.2021.762096. PMID: 34867222; PMCID: PMC8637163.

11. **Vincent KF**, Bundock J, Dona CPG, Chenna SS, Mohanty S, Saini C, Hong J, Albert TJ, Dahia CL. Loss of lumbar disc height with age and its impact on pain and sensitivity associated behaviors in mice. *Eur Spine J*. 2023 Mar;32(3):848-858. doi: 10.1007/s00586-023-07545-3. Epub 2023 Jan 31. PMID: 36719517; PMCID: PMC9998347.
12. **Vincent KF**, Mallari OG, Dillon EJ, Stewart VG, Cho AJ, Dong Y, Edlow AG, Ichinose F, Xie Z, Solt K. Oestrous cycle affects emergence from anaesthesia with dexmedetomidine, but not propofol, isoflurane, or sevoflurane, in female rats. *Br J Anaesth*. 2023 Jul;131(1):67-78. doi: 10.1016/j.bja.2023.03.025. Epub 2023 May 2. PMID: 37142466; PMCID: PMC10308440.
13. Fettiplace MR, **Vincent KF**, Cho A, Dillon E, Stapley BM, Stewart V, Solt K. Dopaminergic psychostimulants cause arousal from isoflurane-induced sedation without reversing memory impairment in rats. *Br J Anaesth*. 2024 Oct;133(4):793-803. doi: 10.1016/j.bja.2024.05.026. Epub 2024 Jul 3. PMID: 38965013; PMCID: PMC11443133.
14. **Vincent KF***, Zhang ER*, Cho AJ, Kato-Miyabe R, Mallari OG, Moody OA, Obert DP, Park GH, Solt K. Electrical stimulation of the ventral tegmental area restores consciousness from sevoflurane-, dexmedetomidine-, and fentanyl-induced unconsciousness in rats. *Brain Stimul*, 17(3), 687-697. doi:10.1016/j.brs.2024.05.012
15. **Vincent KF**, Park GH, Stapley BM, Dillon EJ, Solt K. Methylphenidate Reversal of Dexmedetomidine-Induced Versus Ketamine-Induced Sedation in Rats. *Anesth Analg*. 2024 Aug 7. doi: 10.1213/ANE.0000000000007085. Epub ahead of print. PMID: 39110627.
16. Obert, DP, Park GH, Strong K, Schreier D, Korn E, Troyas C, **Vincent KF**, Solt K. Repeated, High-dose Fentanyl Administration in Rats Reveals Minimal Tolerance to Unconsciousness, Bradycardia, Muscle Rigidity and Respiratory Depression. *Anesthesiology*. 2024 Dec 19. doi: 10.1097/ALN.0000000000005324. Epub ahead of print. PMID: 39705671.
17. Park GH, Smith EM, Obert DP, **Vincent KF**, Solt K. Pharmacologic Reversal of Xylazine-Induced Unconsciousness in Rats. *Anesthesia and analgesia*, 10.1213/ANE.0000000000007589. 12 Jun. 2025, doi:10.1213/ANE.0000000000007589
18. Obert DP, Park GH, **Vincent KF**, Solt K. Drug-specific recovery of long-term memory and visual discrimination after anaesthetic-induced unconsciousness in rats. *British journal of anaesthesia*, S0007-0912(25)00446-5. 20 Aug. 2025, doi:10.1016/j.bja.2025.05.058

Non-peer reviewed scholarship in print or other media:

Reviews, chapters, and editorials

1. Moody OA, Zhang ER, **Vincent KF**, Kato R, Melonakos ED, Nehs CJ, et al. The Neural Circuits Underlying General Anesthesia and Sleep. *Anesth Analg*. 2021;132(5):1254-64.
2. Moody OA, **Vincent KF**, Solt K. Sex, drugs, and anaesthesia research. *Br J Anaesth*. 2021.
3. **Vincent KF**. Emerging Circuits in Anesthesia: Following the Mesolimbic Pathway. *Anesthesia & Analgesia*. 2023.
4. **Vincent KF**, Solt K. Modulating anesthetic emergence with pathway-selective dopamine signaling. *Curr Opin Anaesthesiol*. 2023.

5. **Vincent KF.**, Pal D., Xie Z., Fox AP, White ER., Kelz MB, Garcia PS., Calderon DP., Plourdes G., Vlisides PE., Solt K. “Current and Developing Approaches for Facilitating Emergence from General Anesthesia.” *Anesthesiology* vol. 143,4 (2025): 1049-1089. doi:10.1097/ALN.0000000000005600

Thesis:

1. **Vincent K.** Role of nuclear metabotropic glutamate receptor 5 in rat models of persistent pain. McGill University. Department of Psychology, Faculty of Science. 2018.
Supervisor: Terence Coderre
<https://escholarship.mcgill.ca/concern/theses/jw827d94d>

Abstracts, Poster Presentations, and Exhibits Presented at Professional Meetings:

1. **Vincent K**, Zhang, E.R., Kato, R., Cho, A., Moody, O., Solt, K. Using the 5-choice serial reaction time task to measure cognitive recovery in rats following anesthetic emergence. In: Weingarten TN, Chung F, Hilman DR, editors. Abstract presented at the International Anesthesia Research Society & Society of Critical Care Anesthesiologists 2021 Annual Meetings; May 2021. *Anesthesia & Analgesia*. p. 524-5.
Virtual due to COVID 19
Finalist for the Kosaka Scholar's Award
2. **Vincent, K.F.**, Zhang, E.R., Kato, R., Cho, A.J., Moody, O., Solt, K. (2021) Using the 5-choice serial reaction time task to measure cognitive recovery in rats following anesthetic emergence. Abstract presented in the Annual Meeting of the Society for Neuroscience in *Anesthesiology and Critical Care* Vol. 33 382-383 (Wolters Kluwer Health, Inc.)
Virtual due to COVID 19
Best of Basic Science Award
3. **Vincent K.F.**, Mallari, O., Dillon E., Stewart, V., Cho, A., Dong, Y., Moody, O., Zhang, ER., Kato, R., Xie, Z., Solt, K. Estrous cycle affects emergence latency from dexmedetomidine but not propofol, isoflurane, nor sevoflurane anesthesia in rats. *in Association of University Anesthesiologists Annual Meeting*. (2022)
Virtual due to COVID 19
Selected Oral Abstract
4. **Vincent KF**, Cho, A., Solt K. Chemogenetic activation of dopaminergic midbrain neurons in rats accelerates cognitive recovery following dexmedetomidine- but not ketamine-induced loss of consciousness. Abstract presented at the annual Society for Neuroscience in *Anesthesiology and Critical Care* conference; September 2022. *J Neurosurg Anesthesiol.*, e13. doi:10.1097/ANA.0000000000000863.
Seattle, WA
Best of Basic Science
5. **Vincent KF**, Cho A, Kato R, Zhang E, Solt K. Role of midbrain dopaminergic neurones in post-anaesthetic cognitive recovery in rats. Abstract presented at The Memory and Awareness in Anesthesia Conference; February 2023. *British Journal of Anaesthesia*, Volume 130, Issue 2, 2023, Page e391, ISSN 0007-0912,

<https://doi.org/10.1016/j.bja.2022.07.022>.

Prato, Italy

6. **Vincent KF**, Park GH, Dillon E, Stapley B, Solt K. Methylphenidate and D-amphetamine Produce Distinct Arousal States After High-dose Dexmedetomidine in Rats. Abstract presented at the Society for Neuroscience in Anesthesiology and Critical Care Conference; April 2023. J Neurosurg Anesthesiol,35(4), e36. doi:10.1097/ANA.0000000000000935. Alexandria, VA
Best of Basic Science Award
7. **Vincent KF**, Park GH, Stapley B, Dillon E, Solt K. Methylphenidate and d-amphetamine produce distinct arousal states following dexmedetomidine in rats. Abstracts of International Anesthesia Research Society & Society of Critical Care Anesthesiologists 2023 Annual Meetings. Anesthesia & Analgesia 136(5S):p 1-1043, May 2023. | DOI: 10.1213/01.ane.0000977652.27377.97
Denver, CO
8. **Vincent KF**, Park GH, Stapley B, Dillon E, Solt K. Methylphenidate and d-amphetamine produce distinct arousal states following dexmedetomidine in rats. Poster presented at the the Association of University Anesthesiologists Annual Meeting; April 2023
Denver, CO
9. Fettiplace MF, **Vincent KF**, Cho A, Dillon E, Stapley B, Stewart V, Solt K. D1 dopamine receptor agonism restores locomotion without spatial memory recovery under isoflurane in rats. Poster presented at the Association of University Anesthesiologists 2023 Annual Meeting; April 2023.
Denver, CO
10. **Vincent KF**, Cho A, Park G, Stapley BM, Dillon EJ, Solt K. Activation of midbrain and brainstem arousal nuclei results in distinct neurocognitive recovery profiles following dexmedetomidine- and ketamine-induced loss of consciousness. Poster presented at the Consciousness, Anesthesia and Evolutionary Biology Gordon Research Conference; June 2023
Boston, MA
11. Obert DP, Park GH, Schreier D, Troyas C, **Vincent KF**, Solt K. A rat model of repeated, high-dose fentanyl abuse reveals minimal tolerance to unconsciousness muscle rigidity and respiratory depression. Poster presented at the Association of University Anesthesiologists 2024 meeting; April 2024
Montreal, Canada
12. Park GH, **Vincent KF**, Obert DP, Solt K. Atipamezole, D-amphetamine, and chloro-APB reverse xylazine-induced unconsciousness in rats. Poster presented at the International Anesthesia Research Society & Society of Critical Care Anesthesiologists 2024 meeting; May 2024
Seattle, WA
13. Obert DP, Park GH, **Vincent KF**, Solt K. (2024) A Rat Model of Human Fentanyl Abuse. Poster presented at the International College of Neuropsychopharmacology Congress; May

2024. [P411].

Tokyo, Japan

14. **Vincent KF**, Park GH, Cho GH, Obert D, Solt K. Attention deficits in the TgF344-AD rat model of Alzheimer's disease are associated with delayed cognitive recovery following sevoflurane anesthesia. Poster presented at the International Anesthesia Research Society; May 2024.
Seattle, WA
15. **Vincent KF**, Park GH, Cho GH, Obert DP, Solt K. Activating dopamine neurons in the ventral tegmental area facilitates cognitive recovery following dexmedetomidine-induced loss of consciousness in rats. Poster presented at the the International College of Neuropsychopharmacology Congress; May 2024. [P340]
Tokyo, Japan
16. **Vincent KF**, Park GH, Cho GH, Obert DP, Solt K. Attention deficits in the TgF344-AD rat model of Alzheimer's disease are associated with delayed cognitive recovery following sevoflurane anesthesia. Poster presented at the International College of Neuropsychopharmacology Congress; May 2024. [P380]
Tokyo, Japan
17. **Vincent KF**, Park GH, Cho GH, Obert DP, Solt K. Attention deficits in the TgF344-AD rat model of Alzheimer's disease are associated with delayed cognitive recovery following sevoflurane anesthesia. Poster presented at the Alzheimer's Association International Conference; June 2024.
Philadelphia, PA
18. Mehta RR, **Vincent K**, Bundock J, Hallmark A, Albert T, Dahia CL. 2024. Novel SHH Conditional Knockout Mouse Model Helps Decipher Painful Disc Degeneration. Abstract presented at the American Society for Bone and Mineral Research.
Toronto, ON

* Authors contributed equally

Narrative Report

Area of Excellence: Investigation

I am an Assistant Professor in the Department of Anesthesiology at Mass General Brigham and Harvard Medical School. My research centers on how the brain recovers cognitive function following general anesthesia. My goal is to identify the neural circuits involved in disorders like postoperative delirium to inform drug development.

My doctoral and early postdoctoral research focused on identifying the molecular targets, cellular signaling pathways, and transcriptional factors contributing to inflammatory, neuropathic, and age-related chronic pain disorders. A significant finding from my work was the discovery that mGluR1/5 glutamate receptors are involved in unique intracellular signaling that plays a key role in transitioning acute pain into chronic pain disorders, revealing a new target for analgesic drug development. My work was recognized with multiple training awards from provincial and federal agencies.

During my postdoctoral fellowship at Massachusetts General Hospital, I became profoundly interested in the subcortical substrates involved in anesthetic emergence. Using techniques like deep brain stimulation, chemogenetics, and optogenetics to target neural pathways, I found that activating midbrain dopamine neurons rapidly restores consciousness from mechanistically diverse anesthetics and sedative agents.

As an Assistant Professor supported by an R00 award, I use my expertise in aging rodent models, systems neuroscience, and neurocognitive assays to explore how brains affected by aging or neurodegenerative diseases respond to general anesthesia and to identify circuits associated with postoperative delirium.

Teaching: I mentor one to two undergraduates over the summer each year. I currently am the primary mentor of a postdoctoral fellow in my lab.

Diversity, Equity & Inclusion: Since 2020, I have been an advisory board member of the Science Ambassador Scholarship which seeks to provide full-ride scholarships for undergraduate women pursuing STEM degrees across the country. I also serve as a mentor for the winner of the award for the duration of their undergraduate studies.

Summary: Overall, my objective is to advance our understanding of the neurobiological basis of postoperative delirium, specifically in the context of neurodegenerative conditions such as Alzheimer's disease, using circuit-based approaches. My goal is to establish myself as an independent, NIH-funded investigator with expertise in postoperative delirium and Alzheimer's disease, studying the neural circuits driving these cognitive impairments, with the long-term goal of developing novel interventions for those at risk of developing postoperative delirium.