

CURRICULUM VITAE

Date of Revision: August 25, 2019

Name: Ansel T. Hillmer, Ph.D.

Proposed for Reappointment: Assistant Professor, Departments of Radiology & Biomedical Imaging and Department of Psychiatry (Joint Appointment), Traditional Track

Term: Assistant Professor, July 1, 2017 to June 30, 2020

School: Yale University School of Medicine

Education

B.S. Valparaiso University (Physics; Mathematics; Humanities) 2009
M.S. University of Wisconsin, Madison (Medical Physics) 2011
Ph.D. University of Wisconsin, Madison (Medical Physics) 2014

Career/Academic Appointments:

2014-16 Postdoctoral Fellow, Dept. of Radiology & Biomedical Imaging, Yale University School of Medicine, New Haven, CT

2017 Associate Research Scientist, Depts. of Radiology & Biomedical Imaging; Psychiatry, Yale University School of Medicine, New Haven, CT

2017-Now Assistant Professor, Depts. of Radiology & Biomedical Imaging; Psychiatry, Yale University School of Medicine, New Haven, CT

2019-Now Assistant Professor (Secondary Appointment), Department of Biomedical Engineering, Yale School of Engineering & Applied Science, New Haven, CT

Administrative Positions:

2017-Now Associate Director of Imaging for Brain Applications, Yale PET Center, Yale University School of Medicine, New Haven, CT

Professional Honors & Recognition

International/National

2019: NIDA/NIAAA Frontiers in Addiction Research Early Career Investigator Awardee
2018: NIAAA-Funded Travel Support to International Society of Biomedical Research on Alcoholism 2018 Meeting (R13AA022578)
2017: Helmsley Fellowship, Cold Spring Harbor Cellular Biology of Addiction Course
2015: American College of Neuropsychopharmacology Travel Award Recipient
2015: Alavi-Mandell Award - *Journal of Nuclear Medicine*
2012: *Society of Nuclear Medicine* Brain Imaging Council Young Investigator Award

Grant/Clinical Trials History:

Current Grants

Agency: NSF
I.D.# 1953903
Title: “The role of a membrane channel in conferring fluoride resistance in plants”
P.I.: Scott Strobel
Role: Investigator
Percent effort: 2%
Direct costs per year: \$215,556
Total costs for project period: \$646,667
Project period: 03/01/2020 – 02/28/2023

Agency: Women’s Health Research at Yale
I.D.# Pilot Project Award
Title: “Sex Differences in Analgesic Response to Cannabinoids”
P.I.: Ansel T. Hillmer. Ph.D.
Percent effort: 2%
Direct costs per year: \$50,000
Total costs for project period: \$50,000
Project period: 07/01/2019 – 06/31/2020

Agency: NIH/NIAAA
I.D.# P50 AA012870
P.I.: John H. Krystal
Pilot Project Title: “Imaging Alcohol-Induced Glutamate Release”
Role on Project: Pilot Project PI
Percent effort: 2%, Concurrent with K01
Direct costs per year: \$50,000
Total costs for project period: \$68,892
Project period: 07/01/2019 – 06/31/2020

Agency: NIH/NIDA
I.D.# P30 DA046345
P.I.: Robert H. Mach
Pilot Project Title: “Measuring Superoxide Events in Nonhuman Primate Brain”
Role on Project: Pilot Project PI
Percent effort: 2%, Concurrent with K01
Direct costs per year: \$50,000
Total costs for project period: \$68,892
Project period: 07/01/2019 – 06/31/2020

Agency: NIH/NIDA/NIBIB
I.D.# R03 DA045788
Title: “Imaging the Opioid Response to Cannabis Smoking”
P.I.: Ansel T. Hillmer. Ph.D.
Percent effort: 15%
Direct costs per year: \$150,000
Total costs for project period: \$251,250
Project period: 02/01/2019 – 01/31/2020

Agency: NIH/NIDA
ID#: R21 DA0388323
Title: “Neuroimmune Disruption in Opioid Use Disorder”
PI: Kelly P. Cosgrove
Role: Investigator
Percent Effort: 3%, Concurrent with K01
Direct costs per year: \$137,500
Total costs for project period: \$444,062
Project period: 02/01/2019 - 01/31/2021

Agency: NIH/NIAAA
ID.# K01 AA024788
Title: “Multimodal neuroimaging of alcohol withdrawal: The role of glutamate in neural reorganization”
P.I.: Ansel T. Hillmer. Ph.D.
Percent effort: 75%
Direct costs per year: \$167,990
Total costs for project period: \$907,145
Project period: 02/01/2017 – 01/31/2022

Past Support

Agency: NIH/NIDA
ID.# T32 DA022975
Title: “Neuroimaging Sciences Training Program”
P.I. Graeme Mason, Ph.D.
Role: Trainee, Post-doctoral research fellow
Percent Effort: 100%
Direct costs per year:
Total costs per year:
Project period: 7/1/2014 - 12/31/2016

Agency: NIH/NCI
ID.# T32CA009206
Title: “UW Radiological Sciences Training Program”
P.I. Timothy C. Hall, Ph.D.
Role: Trainee, Pre-doctoral research fellow
Percent Effort: 100%
Direct costs per year:
Total costs per year:
Project period: 4/1/2013 - 5/31/2014

Invited Speaking Engagements, Presentations, Symposia & Workshops Not Affiliated With Yale:

- 2020: Invited Speaker/Session Moderator, SNMMI Winter Meeting, Tampa, FL. “PET Imaging of Immune Function in Alcohol and Tobacco Use”
2019: Invited Speaker, NYU Radiology Seminar, New York City, NY. “PET Imaging of Immune Function in Psychiatric Disorders”

- Invited Speaker, Early Career Investigator Symposium, NIDA/NIAAA Frontiers in Addiction, Research, Chicago, IL. “Imaging the 18-kDa Translocator Protein in Alcohol Dependence: Past, Present, and Future”
- 2018: Invited Speaker, Multi-Scale Biomarker Integration Workshop, Service Hospitalier Frederic Joliot, Orsay, France. “Dynamic TSPO Imaging: Methods and Applications to Substance Use Disorders”
- 2016: Invited Speaker, UPMC PET Center Seminar, Pittsburgh, PA. “PET imaging of nicotinic acetylcholine receptors and nicotine-alcohol interactions in the brain.”
- 2013: Invited Speaker, Nuclear Medicine and Molecular Imaging Lecture Series at Massachusetts General Hospital, Boston, MA “Imaging the $\alpha 4\beta 2$ nicotinic acetylcholine receptor system with PET”
- 2013: Invited Speaker, Coloquios del Posgrado en Ciencias Físicas at Universidad Nacional Autónoma de México, Mexico City, Mexico. “Modelos compartimentales en neuroimágenes de Tomografía por Emisión de Positrones (PET).”

Peer-Reviewed Presentations & Symposia Given at Meetings Not Affiliated With Yale

- 2019: Poster Presentation, American College of Neuropsychopharmacology. Orlando, FL. “Imaging the 18-kDa Translocator Protein in Tobacco Smokers: Comparing Baseline and Endotoxin-Stimulated Levels with Non-Smokers.”
- Poster Presentation, Collaborative Research on Addiction at NIH, Bethesda, Maryland. “Longitudinal Neuroimaging of mGluR5 During Alcohol Abstinence.”
- Oral Presentation, Society for Nuclear Medicine and Molecular Imaging, Anaheim, CA. “Imaging neuroimmune responses in tobacco smokers: A [^{11}C]PBR28 PET Study.”
- 2018: Poster Presentation, American College of Neuropsychopharmacology. Hollywood, FL. “Imaging $\alpha 7$ nicotinic acetylcholine receptors in individuals with PTSD”.
- Symposium Speaker, International Society of Biomedical Research on Alcoholism, Kyoto, Japan. “Longitudinal Neuroimaging of mGlu5 During Alcohol Abstinence.”
- Oral Presentation, Society for Nuclear Medicine and Molecular Imaging, Philadelphia, PA. “A correction factor for incomplete equilibrium conditions in PET infusion studies: Application to [^{18}F]FPEB data.”
- Poster Presentation, Research Society on Alcoholism, San Diego, CA. “PET Imaging of mGlu5 During Alcohol Abstinence.”
- Poster Presentation, Society for Biological Psychiatry, New York City, NY. “Imaging $\alpha 7$ Nicotinic Acetylcholine Receptors in Individuals with PTSD.”
- 2017: Poster Presentation, Society for Research on Nicotine and Tobacco, Florence, Italy. “Imaging microglial activation after immune challenge in tobacco smokers: preliminary comparison with healthy nonsmokers”.
- Symposium Speaker; **Mini-Symposium Co-Organizer**. American College of Neuropsychopharmacology. Palm Springs, CA. “Imaging the 18-kDa Translocator Protein in Alcohol Dependence: Findings and Interpretations”.
- Poster Presentation. “Longitudinal PET Imaging of mGluR5 During Alcohol Abstinence”.
- 2016: Oral Presentation, World Molecular Imaging Congress, New York City, NY. “Sensitivity of the radioligand (-)-[^{18}F]flubatine to physostigmine-induced acetylcholine changes.”
- Poster Presentation, Research Society on Alcoholism, New Orleans, LA. “PET imaging of TSPO levels heavy drinking and healthy control subjects.”
- Poster Presentation, Neuroreceptor Mapping, Boston, MA. “Sensitivity of the $\alpha 4\beta 2^*$ -nicotinic acetylcholine receptor radioligand (-)-[^{18}F]flubatine to acetylcholine levels in humans: comparison of bolus and bolus plus infusion paradigms.”

- 2015: Poster Presentation, American College of Neuropsychopharmacology, Hollywood, FL. "PET imaging of TSPO expression in alcohol dependent subjects during acute abstinence: Comparison with healthy control subjects."
Poster Presentation, Research Society on Alcoholism, San Antonio, TX. "The influence of nicotine on GABA-A receptors during alcohol dependence."
Oral Presentation, Society of Nuclear Medicine Annual Meeting, Baltimore, MD. "A comparative study of ^{18}F -ASEM and ^{18}F -DBT-10, two novel PET tracers for the α_7 nicotinic acetylcholine receptor, in nonhuman primates."
Poster Presentation, Society for Research on Nicotine and Tobacco, Philadelphia, PA. "Genetic influences by CHRNA4, ANKK1, and BDNF on β_2^* - nicotinic acetylcholine receptor availability in smokers and nonsmokers."
- 2014: Oral Presentation, Society of Nuclear Medicine Annual Meeting, St. Louis, MO. "[^{18}F]Mefway PET imaging of serotonin 5-HT_{1A} receptors in humans."
Oral Presentation, Society of Nuclear Medicine Annual Meeting, St. Louis, MO. "PET imaging of $\alpha_4\beta_2^*$ nicotinic acetylcholine receptors before and during chronic alcohol administration to rhesus monkeys."
Oral Presentation, Neuroreceptor Mapping, Amsterdam, The Netherlands. "PET imaging of serotonin 5-HT_{1A} receptors with [^{18}F]mefway in humans."
Poster Presentation, Neuroreceptor Mapping, Amsterdam, The Netherlands. "Acetylcholinesterase inhibitor induced reductions to [^{18}F]nifene binding."
- 2013: Poster Presentation, World Molecular Imaging Congress, Savannah, GA. "[^{18}F]Nifene is sensitive to the acetylcholinesterase inhibitors physostigmine and galanthamine."
Oral Presentation, Society of Nuclear Medicine Annual Meeting, Vancouver, BC. "Evaluation of experimental protocols to accurately measure $\alpha_4\beta_2^*$ nicotinic acetylcholine receptor density with [^{18}F]Nifene."
Poster Presentation, Society of Nuclear Medicine Annual Meeting, Vancouver, BC. "Lobeline competes with [^{18}F]nifene at the $\alpha_4\beta_2^*$ nicotinic acetylcholine receptor and reduces plasma-to-tissue transport rates."
- 2012: Oral Presentation, World Molecular Imaging Congress, Dublin, Ireland. "PET Measurement of $\alpha_4\beta_2^*$ nAChR Density (B_{max}) and in vivo affinity (K_{Dapp}) of [^{18}F]Nifene in the nonhuman primate."
Poster Presentation, Neuroreceptor Mapping, Baltimore, MD. "Determination of in vivo kinetic properties of $\alpha_4\beta_2^*$ nAChR specific [^{18}F]nifene in the nonhuman primate."
Oral Presentation, Society of Nuclear Medicine Annual Meeting, Miami, FL. "Quantitative Analysis of [^{18}F]Nifene Kinetics in the Nonhuman Primate."
Poster Presentation, Society of Nuclear Medicine Annual Meeting, Miami, FL. "Improvements to the Radiosynthesis of [^{18}F]Nifene."
- 2011: Oral Presentation, Society for Neuroscience Annual Meeting, Washington, DC. "PET Studies with [^{18}F]Nifene for Imaging $\alpha_4\beta_2$ Nicotinic Acetylcholine Receptors: Age Dependent Changes in the Rhesus Monkey."
Poster Presentation, Society of Nuclear Medicine Annual Meeting, San Antonio, TX. "Nicotinic Acetylcholine Receptor Binding of [^{18}F]Nifene in the Rhesus Monkey."

Presentations & Symposia Given at Meetings Affiliated With Yale

- 2020: Invited Oral Presentation, Yale Translational Research Imaging Center Seminar. "Targeted PET imaging of TSPO: Kinetic modeling and implications for neuroimmune signaling."
2019: Invited Oral Presentation, ICANA5, New Haven, CT. "Imaging the 18-kDa Translocator Protein in Alcohol Dependence: Findings, Interpretations, and Future Directions"

Professional Service

Peer Review Groups/Grant Study Sections:

Advisory Boards

Journal Service:

Reviewer

2013-Present Ad-Hoc Reviewer for: *Theranostics; IEEE Transactions on Radiation and Plasma Medical Sciences; Molecular Psychiatry; Journal of Nuclear Medicine; NeuroImage; Alcoholism: Clinical and Experimental Research; Journal of Cerebral Blood Flow and Metabolism; Psychological Medicine; Public Library of Science One*

Professional Service for Professional Organizations

Society for Research on Nicotine and Tobacco

2018 Annual Program Committee, Basic Science/Preclinical

World Molecular Imaging Society

2016-Now Annual Meeting Abstract Reviewer

Society of Nuclear Medicine and Molecular Imaging

2013-Now Annual Meeting Abstract Reviewer

2020 Program Sub-Chair, Brain Imaging Council: Neurology/Psychiatry

Human Amyloid Imaging

2019-Now Program Committee; Technical/Imaging Methodology Co-Chair

Yale University Service:

Organizing Committee Member, BioImaging Sciences Retreat, 2018

Public Service:

Bibliography:**Peer-Reviewed Original Research**

- 1) Wooten DW, Moirano J, **Hillmer AT**, Engle J, DeJesus O, Murali D, Barnhart T, Nickles R, Davidson R, Schneider M, Mukherjee J, Christian BT.. In vivo kinetics of [¹⁸F]mefway: A comparison with [¹¹C]WAY-100635 and [¹⁸F]MPPF in the nonhuman primate. *Synapse*; **2011**. 65:592-600. PMC3080024
- 2) Wooten DW, **Hillmer AT**, Murali D, Barnhart TE, Schneider ML, Mukherjee J, Christian BT. An in vivo comparison of cis- and trans- [¹⁸F]mefway in the nonhuman primate. *Nuclear Medicine and Biology*; **2011**. 38:925-932. **Issue Cover Image**. PMC3190069
- 3) **Hillmer AT**, Wooten DW, Moirano JM, Slesarev M, Barnhart TE, Engle JW, Nickles RJ, Murali D, Schneider ML, Mukherjee J, Christian BT. Specific $\alpha 4\beta 2$ nicotinic acetylcholine receptor binding of [¹⁸F]nifene in the rhesus monkey. *Synapse*; **2011**. 65:1309-1318. PMC3705633.
- 4) Wooten DW, **Hillmer AT**, Moirano JM, Ahlers EO, Slesarev M, Barnhart TE, Mukherjee J, Schneider ML, Christian BT. Measurement of 5-HT_{1A} receptor density and in vivo binding parameters of [¹⁸F]mefway in the nonhuman primate. *Journal of Cerebral Blood Flow and Metabolism*; **2012**. 32:1546-1558. PMC3421091
- 5) **Hillmer AT**, Wooten DW, Slesarev MS, Ahlers EO, Barnhart TE, Murali D, Schneider ML, Mukherjee J, Christian BT. PET imaging of $\alpha 4\beta 2^*$ nicotinic acetylcholine receptors: Quantitative analysis of [¹⁸F]nifene kinetics in the nonhuman primate. *Journal of Nuclear Medicine*; **2012**. 53:1471-1480. PMC3705633.
- 6) Christian BT, Wooten DW, **Hillmer AT**, Tudorascu DL, Converse AK, Moore CF, Ahlers EO, Barnhart TE, Kalin NH, Barr CS, Schneider ML. Serotonin transporter genotype affects serotonin 5-HT_{1A} binding in primates. *Journal of Neuroscience*, **2013**. 33:2512-2516. PMC3711259
- 7) **Hillmer AT**, Wooten DW, Farhoud M, Barnhart TE, Mukherjee J, Christian BT. The effects of lobeline on $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor binding and uptake of [¹⁸F]nifene in rats. *Journal of Neuroscience Methods*; 214:163-169. **2013**. PMC3644313.
- 8) Wooten DW, **Hillmer AT**, Moirano JM, Tudorascu DL, Ahlers EO, Slesarev MS, Barnhart TE, Mukherjee J, Schneider ML, Christian BT. 5-HT_{1A} sex based differences in B_{max}, in vivo K_{Dapp}, and BP_{ND} in the nonhuman primate. *NeuroImage*; **2013**. 77:125-132. PMC3654069
- 9) **Hillmer AT**, Wooten DW, Farhoud M, Higgins AT, Lao PJ, Barnhart TE, Mukherjee J, Christian BT. PET imaging of acetylcholinesterase inhibitor induced effects on $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor binding. *Synapse*; **2013**. 67:882-886. PMC3806056.
- 10) **Hillmer AT**, Wooten DW, Slesarev MS, Ahlers EO, Barnhart TE, Schneider ML, Mukherjee J, Christian BT. Measuring $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor density in vivo with [¹⁸F]nifene PET in the nonhuman primate. *Journal of Cerebral Blood Flow and Metabolism*; **2013**. 33:1806-1814. PMC3824181.
- 11) Johnson SC, Christian BT, Okonkwo OC, Oh JM, Harding S, Xu G, **Hillmer AT**, Wooten DW, Murali D, Barnhart TE, Hall L, Racine AM, Klunk WE, Mathis CA, Bendlin BB, Gallagher CL, Carlsson CM, Hermann BP, Rowley HA, Dowling NM, Asthana S, Sager MA. Amyloid burden and neural function in people at risk for AD. *Neurobiology of Aging*; **2014**. 35:576-584. PMC4018215
- 12) **Hillmer AT**, Tudorascu DL, Wooten DW, Lao PJ, Ahlers EO, Resch L, Converse AK, Moore CF, Schneider ML, Christian BT. Changes in the $\alpha 4\beta 2^*$ nicotinic acetylcholine system during chronic controlled alcohol exposure in nonhuman primates. *Drug & Alcohol Dependence*; **2014**. 138:216-219. PMC3992705
- 13) Racine AM, Adluru N, Alexander AL, Christian BT, Okonkwo OC, Oh J, Cleary C, Birdsill A, **Hillmer AT**, Murali D, Barnhart TE, Gallagher CL, Carlsson CM, Rowley HA, Dowling NM, Asthana S, Sager MA, Bendlin BB, Johnson SC. **2014**. Associations between white matter

- microstructure and amyloid burden in preclinical Alzheimer's disease: a multi-modal imaging investigation. *NeuroImage: Clinical*; 4:604-614. PMC4053642
- 14) Peng Y, Li M, Clarkson B, Pehar M, Lao PJ, **Hillmer AT**, Barnhart TE, Christian BT, Mitchell HA, Bendlin BB, Sandor M, Puglielli L. Deficient import of acetyl-CoA into the ER lumen causes neurodegeneration and propensity to infections, inflammations, and cancer. *Journal of Neuroscience*; **2014**. 35:6772-6789. PMC4019794
 - 15) Kuruvilla SA, **Hillmer AT**, Wooten DW, Patel A, Christian BT, Mukherjee J. Synthesis and evaluation of 2-¹⁸F-5-iodo-3-[2-(S)-3,4-dehydropyrrolinylmethoxy]pyridine (¹⁸F-niofene) as a potential nicotinic $\alpha 4\beta 2$ receptor imaging agent for PET and SPECT. *American Journal of Nuclear Medicine and Molecular Imaging*; **2014**. 4:354-364. PMC4074501
 - 16) Wooten DW, **Hillmer AT**, Murali D, Barnhart TE, Thio JP, Bajwa AK, Bonab AA, Normandin MD, Schneider ML, Mukherjee J, Christian BT. Initial in vivo PET imaging of 5-HT_{1A} receptors with 3-[¹⁸F]mefway. *American Journal of Nuclear Medicine and Molecular Imaging*; **2014**. 4:483-489. PMC4138142
 - 17) **Hillmer AT**, Wooten DW, Tudorascu DL, Barnhart TE, Ahlers EO, Resch LM, Larson JA, Converse A, Moore CF, Schneider ML, Christian BT. The effects of chronic alcohol self-administration on serotonin 5-HT_{1A} binding in nonhuman primates. *Drug & Alcohol Dependence*. **2014**. 144:119-126. PMC4253864
 - 18) **Hillmer AT**, Wooten DW, Bajwa AK, Higgins AT, Lao PJ, Bethausen TE, Barnhart TE, Rowley HA, Stone CK, Johnson SC, Mukherjee J, Christian BT. First-in-human evaluation of [¹⁸F]mefway, a PET radioligand specific to serotonin-1A receptors. *Journal of Nuclear Medicine*; **2014**. 55:1973-1979. PMC4316674. **Issue Cover Image.**
 - 19) Teodoro R, Scheunemann M, Deuther-Conrad W, Wenzel B, Colombo SF, Gotti C, Kranz M, Patt M, **Hillmer AT**, Zheng MQ, Peters D, Steinbach J, Sabri O, Huang Y, Brust P. A promising PET tracer for imaging of $\alpha 7$ nicotinic acetylcholine receptors in the brain: Design, synthesis, and in vivo evaluation of a dibenzothiophene-based radioligand. *Molecules*, **2015**. 20:18387-18421. PMC6332508
 - 20) **Hillmer AT**, Zheng MQ, Lin S, Scheunemann M, Lin S, Holden D, Labaree D, Ropchan J, Teodoro R, Deuther-Conrad W, Carson RE, Brust P, Huang YY. PET Imaging evaluation of [¹⁸F]DBT-10, a novel radioligand specific to $\alpha 7$ nicotinic acetylcholine receptors, in nonhuman primates. *European Journal of Nuclear Medicine and Molecular Imaging*. **2016**. 43:537-547. PMC4733418
 - 21) Mukherjee J, Bajwa AK, Wooten DW, **Hillmer AT**, Pan ML, Pandey SK, Saigal N, Christian BT. Comparative assessment of ¹⁸F-mefway as a serotonin 5-HT_{1A} receptor PET imaging agent across species – rodents, monkeys, and humans. *Journal of Comparative Neurology*. **2016**. 524:1457-1471. PMC4783179
 - 22) Racine AM, Nicholas CR, Oh JM, Clark LR, Kosciak R, Okonkwo OC, **Hillmer AT**, Murali D, Barnhart TE, Gallagher CL, Rowley HA, Dowling NM, Asthana S, Bendlin BB, Zetterberg H, Carlsson CM, Christian BT, Johnson SC. Cerebrospinal fluid ratios with A β 42 predict preclinical brain β -amyloid accumulation. *Alzheimer's and Dementia: Diagnosis, Assessment & Disease Monitoring*. **2016**. 2:27-38. PMC4778249
 - 23) **Hillmer AT**, Kloczynski T, Sandiego C, Pittman B, Anderson J, Labaree D, Gao H, Huang Y, DeLuliis G, O'Malley S, Carson R, Cosgrove K. Nicotine and nicotine abstinence do not interfere with GABA_A receptor neuroadaptations during alcohol abstinence. *Alcohol: Clinical and Experimental Research*. **2016**. 40:698-705. PMC4983773
 - 24) Lao PJ, Bethausen TJ, **Hillmer AT**, Price JC, Klunk WE, Mihaila I, Higgins AT, Bulova PD, Hartley SL, Hardison R, Tumuluru R, Murali D, Mathis CA, Cohen AD, Barnhart TE, Devenny DA, Mailick MR, Johnson SC, Handen BL, Christian BT. The effects of normal aging on amyloid-

- β deposition in a population of nondemented adults with Down syndrome as imaged by [^{11}C]PiB. *Alzheimer's and Dementia*. **2016**. 12:380-390. PMC4677061
- 25) Hillmer AT, Esterlis I, Gallezot JD, Bois F, Zheng MQ, Lin SF, Huang YY, Papke RL, Sabri O, Carson RE, Cosgrove KP. Human imaging of cerebral $\alpha 4\beta 2^*$ nicotinic acetylcholine receptors with (-)-[^{18}F]flubatine PET: Implementation of bolus-plus-constant infusion and sensitivity to acetylcholine. *NeuroImage*. **2016**. 141:71-80. PMC5026941
 - 26) Esterlis I, Hillmer AT, Bois F, Pittman B, McGovern E, O'Malley SS, Picciotto M, Yang B, Gelernter J, Cosgrove KP. *CHRNA4* and *ANKK1* polymorphisms influence smoking induced nicotinic acetylcholine receptor upregulation and normalization over abstinence. *Nicotine and Tobacco Research*. **2016**. 18:1845-1852. PMC4978979
 - 27) Hillmer AT, Li S, Zheng M-Q, Scheunemann M, Lin S-F, Nabulsi N, Holden D, Pracitto R, Labaree D, Ropchan J, Teodoro R, Deuther-Conrad W, Esterlis I, Cosgrove KP, Brust P, Carson RE, Huang YY. PET imaging of $\alpha 7$ nicotinic acetylcholine receptors: A comparison of ^{18}F -ASEM and ^{18}F -DBT-10 in nonhuman primates, and further evaluation of ^{18}F -ASEM in humans. *European Journal of Nuclear Medicine and Molecular Imaging*. **2017**, 44:1042-1050. PMC5400702
 - 28) Lao PJ, Betthauser TJ, Tudorascu DL, Barnhart TE, Hillmer AT, Stone CK, Mukherjee J, Christian BT. [^{18}F]Nifene test-retest reproducibility in first-in-human imaging of $\alpha 4\beta 2^*$ nicotinic acetylcholine receptors. *Synapse*. **2017**, 71:e21981. PMC5541262 **Issue Cover Image**.
 - 29) Hillmer AT, Holden D, Fowles K, Nabulsi N, West BL, Carson RE, Cosgrove KP. Imaging microglial depletion and activation: a [^{11}C]PBR28 PET study in nonhuman primates. *EJNMMI Research*. **2017**, 7(1):59. PMC5524658
 - 30) Betthauser TJ, Hillmer AT, Lao PJ, Ehlerding E, Mukherjee J, Stone CK, Christian BT. Human biodistribution and dosimetry of [^{18}F]nifene, an $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor PET tracer. *Nuclear Medicine and Biology*. **2017**, 17:7-11. PMC5709231
 - 31) Hillmer AT, Sandiego CM, Hannestad J, Angarita-Africano G, Kumar A, Anderson JM, McGovern EM, Huang YY, O'Connor KC, Carson RE, O'Malley SS, Cosgrove KP. In vivo imaging of translocator protein, a marker of activated microglia, in alcohol dependence. *Molecular Psychiatry*. **2017**, 22:1759-1766. PMC5573660
 - 32) Baldassarri SR, Hillmer AT, Anderson JM, Jatlow P, Nabulsi N, Labaree D, Cosgrove KP, O'Malley SS, Krishnan-Sarin S, Eissenberg TE, Esterlis I. Preliminary evaluation of electronic cigarette use at $\beta 2$ nicotinic acetylcholine receptors. *Nicotine and Tobacco Research*. **2017**. 40:425-433. PMC5896427
 - 33) Bhatt S, Hillmer AT, Matuskey D, Esterlis I, Carson RE, Huang Y, Cosgrove KP. Evaluation of (-)-[^{18}F]flubatine specific binding: implications for reference region approaches. *Synapse*. **2018**. 72:e122016. PMC6547815
 - 34) Davis MT, Hillmer AT, Holmes SE, Pietrzak RH, DellaGioia N, Nabulsi N, Matuskey D, Angarita GA, Southwick S, Carson RE, Krystal J, Esterlis I. In vivo evidence for dysregulation of mGluR5 as a biomarker of suicidal ideation in PTSD. *Proceedings of the National Academy of Sciences, U.S.A.* **2019**. 23:11490-11495. PMC6561298
 - 35) Zakiniaieiz Y, Hillmer AT, Matuskey D, Nabulsi N, Huang YY, Ropchan J, McKee SA, Morris ED, Cosgrove KP. Sex differences in dorsolateral prefrontal cortical amphetamine-induced dopamine release in tobacco smokers. *Neuropsychopharmacology*. **2019**. 44:2205-2211. PMC6897943
 - 36) Woodcock EA, Schain M, Cosgrove KP, Hillmer AT. Quantification of [^{11}C]PBR28 data after lipopolysaccharide challenge. *EJNMMI Research*. **2020**. 10:19.
 - 37) Bhatt S, Nabulsi N, Li S, Cai Z, Matuskey D, Lin SF, Ropchan JR, Carson RE, Cosgrove KP, Huang YY, Hillmer AT. First-in-Human kinetic evaluation of [^{18}F]2471907, a PET radiotracer specific to 11β -hydroxysteroid dehydrogenase type 1. *Journal of Cerebral Blood Flow and Metabolism*. **2020**. 40:695-70

- 38) **Hillmer AT**, Carson RE. A correction for non-equilibrium conditions in PET infusion measurements. *Journal of Cerebral Blood Flow and Metabolism*. **2020**. 40:860-874.
- 39) Smart K, Gallezot JD, Nabulsi N, Labaree D, Zheng MQ, Huang Y, Carson RE, Worhunsky P*, **Hillmer AT***. Separating dopamine D2 and D3 receptor sources of [¹¹C]-(+)-PHNO binding potential: independent component analysis of competitive binding. *NeuroImage*. **2020**. 214:116762.
- 40) **Hillmer AT**, Nadim H, Devine L, Jatlow P, O'Malley SS. Acute alcohol consumption alters the peripheral cytokines IL-8 and TNF- α . *Alcohol*. **2020**. 85:95-99.
- 41) Bhatt S, **Hillmer AT**, Girgenti MJ, Rusowicz A, Kapinos M, Naublsi N, Huang Y, Matuskey D, Angarita GA, Esterlis I, Southwick SM, Duman RS, Carson RE, Krystal JK, Piertzak RH, Cosgrove KP. PTSD is associated with neuroimmune suppression: Evidence from PET imaging and postmortem cortical transcriptomics. *Nature Communications*. **2020**. 11:2360.

Chapters, Books, and Reviews

- 1) **Hillmer AT**, Mason GF, Fucito LM, O'Malley SS, Cosgrove KP. How imaging GABA, glutamate, and dopamine can inform the clinical treatment of alcohol dependence and withdrawal. *Alcohol: Clinical and Experimental Research*; **2015**. 39:2268-2282. PMC4253864
- 2) **Hillmer AT**, Cosgrove KP, Carson RE. PET Brain Imaging Methodologies. Charney, DS and Nestler, EJ. Eds. *Charney & Nestler's Neurobiology of Mental Illness*. Oxford University Press. **2017**.
- 3) Woodcock EA, **Hillmer AT**, Mason GF, Cosgrove KP. Imaging *in vivo* biomarkers of the neuroimmune system among substance use disorders: A systematic review. *Mol. Neuropsychiatry*; **2019**. 5:125-146. PMC6597912
- 4) Drake LR, **Hillmer AT**, Cai Z. Approaches to PET imaging of glioblastoma. **2020**. *Molecules*. 25(3):568.

Invited Editorials and Commentaries

- 1) **Hillmer AT**. The Importance of Drug and Sex Effects in Psychiatric Research. *Biological Psychiatry*; **2018**. 84:e71-e72. PMC6793934

Scholarship In Press

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