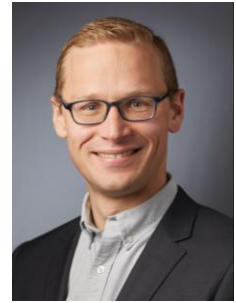


Ansel Thomas Hillmer, Ph.D.

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Education

- Ph.D. Medical Physics. University of Wisconsin, Madison 2014
Dissertation: “Imaging the $\alpha 4\beta 2^*$ nicotinic acetylcholine receptor system with [^{18}F]nifene PET”
Advisor: Dr. Bradley T. Christian (bchristian@wisc.edu)
- M.S. Medical Physics. University of Wisconsin, Madison 2011
- B.S. Physics; Mathematics; Humanities. *Summa cum laude*, Valparaiso University, Indiana 2009

Professional Experience

- Associate Director of Imaging for Brain Applications 2017-Present
Yale PET Center
- Assistant Professor 2017-Present
Departments of Radiology and Biomedical Imaging; Psychiatry, Yale University
- Associate Research Scientist 2017
Departments of Radiology and Biomedical Imaging; Psychiatry, Yale University
- Postdoctoral Fellow 2014-2016
Department of Radiology and Biomedical Imaging, Yale University – Dr. Kelly Cosgrove, Mentor
- Research Assistant 2009-2014
Department of Medical Physics, University of Wisconsin-Madison – Dr. Brad Christian, Mentor
- Teaching Assistant - Radioisotopes in Medicine and Biology Fall 2010
Department of Medical Physics, University of Wisconsin-Madison
- Undergraduate Research Fellow Summer 2009
National Center for Neutron Research, NIST, Gaithersburg, Maryland

Ongoing Research Support

NIH/NIAAA **K01AA024788** (Hillmer) 2/1/2017 - 1/31/2022
“Multimodal Neuroimaging of Alcohol Withdrawal: The Role of Glutamate in Neural Reorganization”
The goal of this award is to study the role of mGluR5 in neural reorganization during alcohol withdrawal by integrating [^{18}F]FPEB PET and fMRI imaging datasets.
Role: PI

Completed Research Support

NIH/NIDA **T32DA022975** (Mason) 7/1/2014 - 12/31/2016
 “Neuroimaging Sciences Training Program”

This program provides postdoctoral positions for interdisciplinary training and research in neuroimaging.

Role: Post-doctoral Research Fellow

NIH/NCI **T32CA009206** (Hall) 4/1/2013 - 5/31/2014
 “UW Radiological Sciences Training Program”

This program prepares research for careers in the application of physics to the medical diagnosis and treatment of cancer.

Role: Pre-doctoral Research Fellow

Honors and Awards

Helmsley Fellowship, Cold Spring Harbor Cellular Biology of Addiction Course 2017
World Molecular Imaging Congress Student Travel Award Recipient 2012; 2016
American College of Neuropsychopharmacology Travel Award Recipient 2015
Research Society for Alcoholism Student Travel Award Recipient 2015
 Alavi-Mandell Award - outstanding student authored publication in *Journal of Nuclear Medicine* 2015
Society of Nuclear Medicine Brain Imaging Council Young Investigator Award 2012

Refereed Original Research Publications

Baldassarri SR, Hillmer AT, Anderson JM, Jatlow P, Nabulsi N, Labaree D, Cosgrove KP, O’Malley SS, Krishnan-Sarin S, Eissenberg TE, Esterlis I. **In Press**. Preliminary evaluation of electronic cigarette use at $\beta 2$ nicotinic acetylcholine receptors. *Nicotine Tob. Res.*

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 Press**. In vivo imaging of translocator protein, a marker of activated microglia, in alcohol dependence. *Mol. Psychiatry*.

Lao PJ, Betthauser TJ, Tudorascu DL, Barnhart TE, Hillmer AT, Stone CK, Mukherjee J, Christian BT. **2017**. [^{18}F]Nifene test-retest reproducibility in first-in-human imaging of $\alpha 4\beta 2^*$ nicotinic acetylcholine receptors. *Synapse*. 71:e21981. **Issue Cover Image**.

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. **2017**. 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. *Eur. J. Nucl. Med. Mol. Imaging*. 44:1042-1050.

Esterlis I, Hillmer AT, Bois F, Pittman B, McGovern E, O’Malley SS, Picciotto M, Yang B, Gelernter J, Cosgrove KP. **2016**. *CHRNA4* and *ANKK1* polymorphisms influence smoking induced nicotinic acetylcholine receptor upregulation and normalization over abstinence. *Nicotine Tob. Res.* 18:1845-1852.

- Hillmer AT, Esterlis I, Gallezot JD, Bois F, Zheng MQ, Lin SF, Huang YY, Papke RL, Sabri O, Carson RE, Cosgrove KP. **2016**. 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*. 141:71-80.
- Lao PJ, Betthausen 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. **2016**. 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 Dement*. 12:380-390.
- Hillmer AT, Kloczynski T, Sandiego C, Pittman B, Anderson J, Labaree D, Gao H, Huang Y, DeIuliis G, O'Malley S, Carson R, Cosgrove K. **2016**. Nicotine and nicotine abstinence do not interfere with GABA_A receptor neuroadaptations during alcohol abstinence. *Alcohol Clin. Exp. Res*. 40:698-705.
- 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. **2016**. Cerebrospinal fluid ratios with A β 42 predict preclinical brain β -amyloid accumulation. *Alzheimer's Dement (Amst)*. 2:27-38.
- Mukherjee J, Bajwa AK, Wooten DW, Hillmer AT, Pan ML, Pandey SK, Saigal N, Christian BT. **2016**. Comparative assessment of ^{18}F -mefway as a serotonin 5-HT_{1A} receptor PET imaging agent across species – rodents, monkeys, and humans. *J. Comp. Neurol*. 524:1457-1471.
- 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. **2016**. PET Imaging evaluation of [^{18}F]DBT-10, a novel radioligand specific to $\alpha 7$ nicotinic acetylcholine receptors, in nonhuman primates. *Eur. J. Nucl. Med. Mol. Imaging*. 43:537-547. PMC4733418
- 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. **2015**. 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*; 20:18387-18421.
- Hillmer AT, Wooten DW, Bajwa AK, Higgins AT, Lao PJ, Betthausen TE, Barnhart TE, Rowley HA, Stone CK, Johnson SC, Mukherjee J, Christian BT. **2014**. First-in-human evaluation of [^{18}F]mefway, a PET radioligand specific to serotonin-1A receptors. *J. Nucl. Med*; 55:1973-1979. PMC4316674. **Issue Cover Image**.
- Hillmer AT, Wooten DW, Tudorascu DL, Barnhart TE, Ahlers EO, Resch LM, Larson JA, Converse A, Moore CF, Schneider ML, Christian BT. **2014**. The effects of chronic alcohol self-administration on serotonin 5-HT_{1A} binding in nonhuman primates. *Drug Alcohol Depend*. 144:119-126. PMC4253864
- Wooten DW, Hillmer AT, Murali D, Barnhart TE, Thio JP, Bajwa AK, Bonab AA, Normandin MD, Schneider ML, Mukherjee J, Christian BT. **2014**. Initial in vivo PET imaging of 5-HT_{1A} receptors with 3-[^{18}F]mefway. *Am. J. Nucl. Med. Mol. Imaging*; 4:483-489.
- Kuruvilla SA, Hillmer AT, Wooten DW, Patel A, Christian BT, Mukherjee J. **2014**. Synthesis and evaluation of 2- ^{18}F -5-iodo-3-[2-(S)-3,4-dehydropyrrolinylmethoxy]pyridine (^{18}F -niofene) as a

potential nicotinic $\alpha 4\beta 2$ receptor imaging agent for PET and SPECT. *Am. J. Nucl. Med. Mol. Imaging*; 4:354-364.

Peng Y, Li M, Clarkson B, Pehar M, Lao PJ, Hillmer AT, Barnhart TE, Christian BT, Mitchell HA, Bendlin BB, Sandor M, Puglielli L. **2014**. Deficient import of acetyl-CoA into the ER lumen causes neurodegeneration and propensity to infections, inflammations, and cancer. *J. Neurosci*; 35:6772-6789.

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.

Hillmer AT, Tudorascu DL, Wooten DW, Lao PJ, Ahlers EO, Resch L, Converse AK, Moore CF, Schneider ML, Christian BT. **2014**. Changes in the $\alpha 4\beta 2^*$ nicotinic acetylcholine system during chronic controlled alcohol exposure in nonhuman primates. *Drug Alcohol Depend*; 138:216-219. PMC3992705

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. **2014**. Amyloid Burden and Neural Function in People at Risk for AD. *Neurobiol Aging*; 35:576-584.

Hillmer AT, Wooten DW, Slesarev MS, Ahlers EO, Barnhart TE, Schneider ML, Mukherjee J, Christian BT. **2013**. Measuring $\alpha 4\beta 2^*$ Nicotinic Acetylcholine Receptor Density in vivo with [^{18}F]Nifene PET in the Nonhuman Primate. *J Cereb Blood Flow Metab*; 33:1806-1814. PMC3824181.

Hillmer AT, Wooten DW, Farhoud M, Higgins AT, Lao PJ, Barnhart TE, Mukherjee J, Christian BT. **2013**. PET Imaging of Acetylcholinesterase Inhibitor Induced Effects on $\alpha 4\beta 2^*$ Nicotinic Acetylcholine Receptor Binding. *Synapse*; 67:882-886. PMC3806056.

Wooten DW, Hillmer AT, Moirano JM, Tudorascu DL, Ahlers EO, Slesarev MS, Barnhart TE, Mukherjee J, Schneider ML, Christian BT. **2013**. 5-HT_{1A} Sex Based Differences in B_{max}, in vivo K_{Dapp}, and BP_{ND} in the Nonhuman Primate. *NeuroImage*; 77:125-132.

Hillmer AT, Wooten DW, Farhoud M, Barnhart TE, Mukherjee J, Christian BT. **2013**. The Effects of Lobeline on $\alpha 4\beta 2^*$ Nicotinic Acetylcholine Receptor Binding and Uptake of [^{18}F]Nifene in Rats. *J Neurosci Methods*; 214:163-169. PMC3644313.

Christian BT, Wooten DW, Hillmer AT, Tudorascu DL, Converse AK, Moore CF, Ahlers EO, Barnhart TE, Kalin NH, Barr CS, Schneider ML. **2013**. Serotonin Transporter Genotype Affects Serotonin 5-HT_{1A} Binding in Primates. *J Neurosci*, 33:2512-2516.

Hillmer AT, Wooten DW, Slesarev MS, Ahlers EO, Barnhart TE, Murali D, Schneider ML, Mukherjee J, Christian BT. **2012**. PET imaging of $\alpha 4\beta 2^*$ nicotinic acetylcholine receptors: Quantitative analysis of [^{18}F]nifene kinetics in the nonhuman primate. *J Nucl Med*; 53:1471-1480. PMC3705633.

Wooten DW, Hillmer AT, Moirano JM, Ahlers EO, Slesarev M, Barnhart TE, Mukherjee J, Schneider ML, Christian BT. **2012**. Measurement of 5-HT_{1A} Receptor Density and In Vivo Binding Parameters of [¹⁸F]Mefway in the Nonhuman Primate. *J Cereb Blood Flow Metab*; 32:1546-1558.

Hillmer AT, Wooten DW, Moirano JM, Slesarev M, Barnhart TE, Engle JW, Nickles RJ, Murali D, Schneider ML, Mukherjee J, Christian BT. **2011**. Specific α 4 β 2 Nicotinic Acetylcholine Receptor Binding of [¹⁸F]Nifene in the Rhesus Monkey. *Synapse*; 65:1309-1318. PMC3705633.

Wooten DW, Hillmer AT, Murali D, Barnhart TE, Schneider ML, Mukherjee J, Christian BT. **2011**. An In Vivo Comparison of cis- and trans- [¹⁸F]Mefway in the Nonhuman Primate. *Nucl Med Biol*; 38:925-932. **Issue Cover Image.**

Wooten DW, Moirano J, Hillmer AT, Engle J, DeJesus O, Murali D, Barnhart T, Nickles R, Davidson R, Schneider M, Mukherjee J, Christian BT. **2011**. In Vivo Kinetics of [¹⁸F]Mefway: A Comparison With [¹¹C]WAY-100635 and [¹⁸F]MPPF in the Nonhuman Primate. *Synapse*; 65:592-600.

Original Research Manuscripts in Preparation

Hillmer AT, Holden D, Fowles K, Nabulsi N, West BL, Carson RE, Cosgrove KP. **Under Review**. Imaging microglial depletion and activation: a [¹¹C]PBR28 PET study in nonhuman primates.

Bhatt S, Hillmer AT, Matuskey D, Esterlis I, Carson RE, Huang Y, Cosgrove KP. **Under Review**. Evaluation of (-)-[¹⁸F]flubatine specific binding: implications for reference region approaches.

Bethausen TJ, Hillmer AT, Lao PJ, Ehlerding E, Mukherjee J, Stone CK, Christian BT. **Under Review**. Human biodistribution and dosimetry of [¹⁸F]nifene, an α 4 β 2* nicotinic acetylcholine receptor PET tracer.

Chapters, Books, and Reviews

Hillmer AT, Mason GF, Fucito LM, O'Malley SS, Cosgrove KP. **2015**. How imaging GABA, glutamate, and dopamine can inform the clinical treatment of alcohol dependence and withdrawal. *Alcohol Clin. Exp. Res.*; 39:2268-2282. PMC4253864

Invited Talks

Hillmer AT. "PET imaging of nicotinic acetylcholine receptors and nicotine-alcohol interactions in the brain." UPMC PET Center Seminar. April 20, **2016**. Pittsburgh, PA.

Hillmer AT. "Translational imaging of the α 4 β 2* nicotinic acetylcholine receptor." inviCRO Outside Lecture Series. March 11, **2015**. Boston, MA.

Hillmer AT. "Imaging the α 4 β 2 nicotinic acetylcholine receptor system with PET." *Nuclear Medicine and Molecular Imaging Lecture Series* at Massachusetts General Hospital. October 18, **2013**. Boston, MA.

Hillmer AT, Avila-Rodriguez MA. "Modelos compartimentales en neuroimágenes de Tomografía por Emisión de Positrones (PET)." For *Coloquios del Posgrado en Ciencias Físicas* at Universidad Nacional Autónoma de México. September 26, **2013**. Mexico City, Mexico.

Ad-Hoc Peer Review Experience

Molecular Psychiatry (2017)

Journal of Nuclear Medicine (2017)

NeuroImage (2016-2017)

Alcoholism: Clinical & Experimental Research (2016-2017)

World Molecular Imaging Congress (2016-2017)

Journal of Cerebral Blood Flow and Metabolism (2014-2017)

Public Library of Science One (2014-2017)

Society for Nuclear Medicine and Molecular Imaging Annual Meeting (2013, 2014, 2017)

Professional Memberships

Research Society on Alcoholism

Society for Research on Nicotine and Tobacco

Society of Nuclear Medicine and Molecular Imaging

World Molecular Imaging Society