

## CURRICULUM VITAE

**Date of Revision:** 9/2024

**Name:** Irina Esterlis, Ph.D.

**Position:** Professor, Traditional track  
Department of Psychiatry, with Secondary appointment  
in the Departments of Radiology and Biomedical Imaging and  
Psychology

**Term:** current

**School:** Yale School of Medicine

**Education:** B.A. Psychology, SUNY Buffalo, 1999  
B.A. Studio Art, SUNY Buffalo, 1999  
M.A. Clinical Psychology, University of Connecticut, 2003  
Ph.D. Clinical Neuropsychology, University of Connecticut, 2005

### Career/Academic Appointments

2004-2005	Intern, Clinical Neuropsychology, Yale School of Medicine, New Haven CT
2005-2007	Postdoctoral Fellow, Dept. Psychiatry, Yale School of Medicine, New Haven CT
2007-2008	Postdoctoral Associate, Dept. Psychiatry, Yale School of Medicine, New Haven CT
2008-2011	Neuropsychologist/Associate Research Scientist, Department of Psychiatry, VACHS and Yale School of Medicine, New Haven, CT
2011-2017	Assistant Professor, Department of Psychiatry, Yale School of Medicine
July 2017	Associate Professor, Departments of Psychiatry and Psychology Yale School of Medicine, New Haven, CT
2021-present	Member, Wu Tsai Institute, Yale University
2022-present	Member, Center for Brain and Mind Health (CBMH)
2024	Professor, Departments of Psychiatry, Radiology and Biomedical Imaging and Psychology Yale School of Medicine, New Haven, CT

### Administrative Positions:

2012-present	Co-Director, Yale Translational Brain Imaging Program
2013-present	Director, Molecular Brain Imaging Program, National Center for PTSD, VACHS

### Board Certification:

Licensure in Clinical Psychology, 10/10/2008

### Professional Honors or Recognition:

#### International

2024	Invited Plenary, Neuroreceptor Meeting, Montreal, CA
2019	American Association for the Advancement of Sciences (AAAS) media coverage of symposia (Chair) <a href="https://www.cbsnews.com/news/depression-may-speed-brain-aging-early-research/">https://www.cbsnews.com/news/depression-may-speed-brain-aging-early-research/</a>

Irina Esterlis, PhD.

2016 NIH, Early Career Reviewer

2013 Travel Award

American College for Neuropsychopharmacology

2012 Basic Science Award

Society for Nuclear Medicine (SNMMI) Young Professional Committee

National

2022 New Haven Medical Association Distinguished Service Award

2008 Junior Investigator Award

International Conference on Applications of Neuroimaging to Alcoholism (ICANA)

2006 Travel Award

Samuel B. Guze Symposium on Alcoholism

1999 Gamma Beta Phi Society

**Grant History:**

Active Grants

Yale Center for Clinical Investigations: KL2 TR001862

Title: "Longitudinal evaluation of synaptic changes during chronic stress using in vivo SV2A PET"

PI: Ruth Asch

Percent Effort: 0%

Direct Costs Per Year: \$104,869

Total Costs For Project Period: \$232,380

Project Period: 07/01/2023-06/30/2025

Role: Primary mentor

NIMH: R01MH132137

Title: "Role of synaptic density in mediating the relation between social disconnection and late-life suicide risk"

PI: Irina Esterlis; Robert Pietrzak

Percent effort: 30%

Direct Costs Per Year: \$539,973

Total costs for project period: \$4,249,982

Project period: 3/1/2023-12/31/27

NIMH: 1 R01 MH118728-01A1

Title: "Depression and accelerated brain aging: A PET imaging study"

PI: Irina Esterlis; Robert Pietrzak

Percent effort: 30%

Direct Costs Per Year: \$690,564

Total costs for project period: \$5,577,017

Project period: 8/23/19-5/30/25

NIMH: 1 R01 MH116657-01A1

Title: "In vivo imaging of a neural marker of suicidal behavior in bipolar disorder"

PI: Irina Esterlis

Percent effort: 30%

Direct Costs Per Year: \$494,016

Total costs for project period: \$4,114,019

Project period: 12/1/18-11/30/24

NIMH: 1R01MH129371

Irina Esterlis, PhD.

Title: "AMPA Receptor Components of the Antidepressant Response to Ketamine in Humans"

PI: Driesen, Naomi R

Percent Effort: 2%

Direct Costs Per Year: \$499,965

Total Award Amount (including Indirect Costs): \$4,177,600

Project/Proposal Start and End Date: 07/01/2023 - 06/30/2028

Role: Co-I

NIMH: 1R01NS125482-01A1

Title: "Identifying and targeting the neural basis of depression in Parkinson's disease"

PI: Holmes, Sophie

Percent of effort: 5%

Direct Costs Per Year: \$432,769

Total costs for project period: \$3,920,783

Project Period: 09/01/2023-08/31/2028

Role: Co-I

Nancy Taylor Foundation

Title: "Evaluation of glutamatergic system in adolescent depression"

PI: Irina Esterlis

Percent effort: 5%

Direct costs per year: \$108,000

Total costs for project period: \$233,280

Project period: 9/2018-12/2023 (NCE)

VA National Center for PTSD - NCPTSD (Esterlis)

Title: "Paradigm Development to Study Psychiatric Disorders with PET Imaging"

PI: Irina Esterlis

Percent effort: 0%

Direct Costs Per Year: \$150,000

Total costs for project period: \$1,750,000

Project period: 4/2012-9/2023

American Foundation for Suicide Prevention: YIG-033-21

Title: "*In vivo* investigation of the relationship between Kappa Opioid Receptor and Suicidal Behavior in PTSD"

PI: Margeret T. Davis

Percent effort: 5%

Direct Costs per Year: \$45,000

Total costs for project period: \$90,000

Project period: 01/01/2023-12/30/2025

Role: Primary mentor

### Past Grants

NIMH: R01MH110674-01A1

Title: "Imaging microglial activation in PTSD with PET"

PI: Kelly Cosgrove; Robert Pietrzak

Percent effort: 5%

Direct Costs Per Year: \$499,999

Total costs for project period: \$4,187,491

Project period: 7/1/17-10/31/22 (NCE)

Irina Esterlis, PhD.  
Role: Co-I

VA NCPTSD

Title: "Neuroinflammatory and synaptic markers of post-COVID-19 psychopathology:  
A multi-modal *in vivo* PET-MRI imaging study"  
PI: Irina Esterlis; Robert Pietrzak; Kelly Cosgrove  
Percent effort: 0%  
Direct Costs Per Year: \$375,760  
Total costs for project period: \$375,760  
Project period: 7/2021-12/2022

NIMH: R21 MH122887-01A1

Title: "In vivo investigation of the opioid system in borderline personality disorder"  
PI: Margaret T. Davis  
Percent effort: 0%  
Direct Costs per Year: \$150,000  
Total costs for project period: \$460,625  
Project period: 10/2020-9/2022  
Role: Co-I

NIMH: R03 MH118609-01

Title: "Predicting risk factors for suicide transdiagnostically"  
PI: Sophie Holmes  
Percent effort: 1%  
Direct Costs Per Year: \$50,000  
Total costs for project period: \$167,500  
Project period: 8/2019-5/2022 (NCE)  
Role: Co-I

NIMH: 1R01MH104459-01

Title: "PET-fMRI Study of Glutamate and Frontal Function in Bi- and Uni-polar Depression"  
P.I. Irina Esterlis  
Percent effort: 45%  
Direct costs per year: \$497,241  
Total costs for project period: \$3,573,873  
Project period: 9/2015-5/2021 (NCE)

Women Health Research at Yale

Title: "Evaluation of a Novel Target for the Treatment of Chronic Pain in Women"  
PI: Irina Esterlis  
Percent effort: 1%  
Direct costs Per Year: \$49,700  
Project period: 7/1/19-6/30/20

NIMH: R21MH112881

Title: "Role of neuroinflammation in the pathophysiology of bipolar depression"  
P.I.: Irina Esterlis, Ph.D.  
Total costs for project period: \$460,625  
Percent effort: 15%  
Project period: 4/01/17-3/31/19

NIMH: 1R21MH110850-01

Irina Esterlis, PhD.  
Title: "Glutamate Neurotransmission in Bipolar Depression and Mania"  
P.I.: Irina Esterlis, Ph.D.  
Total costs for project period: \$460,625  
Percent effort: 15%  
Project period: 4/01/17-3/31/19

Nancy Taylor Foundation  
Title: "In vivo and postmortem study of synaptic plasticity"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 10%  
Total costs for project period: \$500,661  
Project period: 9/01/15-8/31/18

Agency: VA NCPTSD  
Title: "Imaging synaptic density in older veterans with PTSD: a multimodal PET-fMRI study"  
PI: Irina Esterlis, Ph.D.; Robert Pietrzak, Ph.D.  
Percent effort: 5%  
Direct Costs Per Year: \$260,000  
Total costs for project period: \$260,000  
Project period: 12/2016-9/2017

NIMH: 1K01MH092681-01A1  
Title: "Role of Beta2-nAChR in Bipolar Disorder"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 50%  
Total costs for project period: \$818,989  
Project period: 7/1/11-3/31/17

NIDA: 5R01DA15577-6  
Title: "Tobacco Smoking, Genes & Nicotinic Receptors"  
P.I.: Kelly P. Cosgrove, Ph.D.  
Role on project: Co-Investigator  
Percent effort: 5%  
Totals costs for project period: \$1,882,443  
Project period: 9/25/08-3/31/16

Brain & Behavior Research Foundation (Esterlis)  
Title: "mGluR5 Availability in Bipolar Disorder"  
PI: Irina Esterlis, Ph.D.  
Percent effort: 4%  
Total costs for project period: \$60,000  
Project period: 1/15/13-1/14/16

DANA foundation  
Title: "Brain Imaging of the Glutamatergic System in Depression"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 10%  
Total costs for project period: \$200,000  
Project period: 1/1/12-12/31/15

Nancy Taylor Foundation  
Title: "Validation of methods to image ketamine-induced changes in the human brain"

Irina Esterlis, PhD.  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 10%  
Total costs for project period: \$141,562  
Project period: 9/1/13-8/31/2015

YCCI  
Title: "In vivo PET brain imaging of ketamine-induced glutamate release"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 10%  
Total costs for project period: \$50,000  
Project period: 7/1/12-6/30/2014

WHRY and YCCI  
Title: Effect of sex and cigarette smoking on mGluR5 availability  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 17%  
Total costs for project period: \$34,980  
Project period: 7/1/12-6/30/2013

Nancy Taylor Foundation  
Title: "mGluR5 imaging in Hepatitis C"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 10%  
Total costs for project period: \$200,000  
Project period: 7/1/10-7/31/2013

NIMH: 1 R21 MH085198-01A1 (Esterlis)  
Title: "Validation of  $\beta_2$  containing nicotinic acetylcholinergic receptors as a potential therapeutic target in bipolar disorder"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 20%  
Total costs for project period: \$275,000  
Project period: 07/16/09 – 10/31/12

NIDA: 1 R01 DA022495-01  
Title: "Imaging Nicotinic Acetylcholine Receptors in Schizophrenia"  
P.I.: Deepak Cyril D'Souza, M.D.  
Percent effort: 10%  
Totals costs for project period: \$675, 000  
Role: Investigator  
Project Period: 12/1/08 - 11/30/12

Dept Vet Affairs  
Career Development Award - 1  
Title: "Cognition, Tobacco, and Nicotinic Receptor Occupancy in Schizophrenia"  
P.I.: Irina Esterlis, Ph.D.  
Percent effort: 100%  
Total costs for project period: \$186,742  
Project period: 7/01/08-9/30/10

Irina Esterlis, PhD.

**Invited Speaking Engagements, Presentations, Symposia Not Affiliated With Yale**

**International/National**

International

5/2024: Plenary Speaker, Neuroreceptor Mapping Conference, Montreal CA: "Synapses and Stress: Does Sex Matter"

1/2023: Invited Speaker, Mood Disorders Center, University British Columbia: "Synapses and Glutamate in Mood"

11/2021: Invited speaker, Janssen Pharmaceuticals, Sweden: "MDD and PTSD: Similarities and differences from mGluR5 perspective"

5/2021: Invited Speaker at McGill University, Department of Psychiatry: "Imaging synaptic density in psychiatric disorders and beyond"

10/2020: Invited Speaker at University of Toronto and CAMH: "Synapses and Glutamate in Psychiatry"

10/2019: Invited Speaker at McGill University, Department of Psychiatry: "On Neurobiology of PTSD: the Role and Need for Glutamate"

5/2013: Invited Symposium at CCNP conference, Toronto, Ontario "Individual Differences in Tobacco Addiction: Insights from Cognitive, Neuroimaging and Genetic Studies"

National

11/2023: Invited Speaker at UTHealth Grand Rounds: "Using PET for markers of mood and trauma disorders"

3/2023: Invited Speaker at National Network of Depression Centers, University of Utah: "Imaging synaptic density in psychiatric disorders and beyond"

3/2022: Invited Speaker at Baylor College of Medicine, Department of Neuropsychiatry: "Imaging synaptic density in psychiatric disorders and beyond"

11/2020: Invited Speaker at UC Berkley, Integrative Biology: "In vivo studies of synaptic density protein SV2A in mood and related disorders"

10/2020: Invited Speaker at Columbia University, Department of Psychiatry: "The glutamatergic metabotropic receptor 5: what is its role in psychiatry?"

3/2020: Invited Speaker at the High Country Nuclear Medicine meeting: "[<sup>18</sup>F]FPEB Imaging in Depression and Suicide"

1/2020: Invited Speaker at Duke University, Center on Addiction and Behavior Change: "The glutamatergic metabotropic receptor 5: what is its role in psychiatry?"

10/2019: Invited Speaker at VCU TCORS: "Imaging the Nicotinic System: Studies of Mood and Addiction"

Irina Esterlis, PhD.

5/2019: Invited Speaker at Indiana University Medical School, Department of Neuroscience, Stark Institute: "The glutamatergic metabotropic receptor 5: what is its role in psychiatry?"

9/2018: Invited Speaker at UPenn, Department of Psychiatry: "Where Does Glutamate Fit In The Neurobiology of PTSD? Lessons From Animal Models, Human Imaging Studies, And Clinical Trials"

4/2018: Invited Speaker at Florida Psychiatry Society: "Where Does Glutamate Fit In The Neurobiology of PTSD? Lessons From Animal Models, Human Imaging Studies, And Clinical Trials"

11/2017: Invited Speaker at NIMH "Insights from PET imaging studies of stress: questions, answers, and more questions"

10/2015: Invited Speaker at University of Pittsburgh, Department of Psychiatry "mGluR5 and Depression: Insights from Neuroimaging Studies"

3/2013: Web based CME course/credit based on my manuscript "Effect of a nicotine vaccine on nicotine binding to the beta2-nAChRs in vivo in human tobacco smokers. *Am J Psychiatry*."

### Regional

10/2020: Invited Speaker Columbia University, Division of Molecular Imaging and Neuropathology: "In vivo studies of synaptic density protein SV2A in mood and related disorders"

3/2020: Invited Speaker, Yeshiva University, Ferkauf Graduate School of Psychology: "The metabotropic glutamatergic receptor 5: what is its role in psychiatry?"

10/2019: Grand Rounds, Invited Speaker at UConn Health Center, Department of Psychiatry: "The glutamatergic metabotropic receptor 5: what is its role in psychiatry?"

9/2019: Grand Rounds, Invited Speaker at Stony Brook University, Department of Psychiatry: "On Neurobiology of PTSD: the Role and Need for Glutamate"

4/2019: Invited Speaker at Columbia University, Department of Psychiatry: "The glutamatergic metabotropic receptor 5: what is its role in psychiatry?"

3/2017: Invited Speaker at Harvard University, Martino's Center for Biomedical Imaging "Down with mGluR5, up with synaptic density: Insights from PET studies"

3/2015: Invited Speaker at Stony Brook University, Department of Psychiatry "The Cholinergic Hypothesis of Depression: Revisited with Receptor Imaging"

### **Peer-Reviewed Presentations & Symposia Given at Meetings Not Affiliated With Yale (included chair or first/last author only):**

### International

2023: World Congress of Neuropsychopharmacology, Montreal, QC: "Nicotine use and mGluR5 in individuals with major depressive and post traumatic stress disorders."

Irina Esterlis, PhD.

2023: Federation of European Neuroscience Societies, Portugal: "In vivo evidence for dysregulation of mGluR5 in PTSD as a biomarker of suicidal ideation."

2021: Neuroreceptor Mapping (NRM), Montreal, Canada: "mGluR5 as a biomarker for suicidal behavior in trauma related disorders: Evidence from *in vivo* PET imaging studies"

2021: Neuroreceptor Mapping (NRM), Montreal, Canada: "In vivo evidence for disrupted association between synaptic and glutamatergic markers in depression – a combined [11C]UCB-J and [18F]FPEB study"

2021: Neuroreceptor Mapping (NRM), Montreal, Canada: "Risk and resilience in a rodent model of posttraumatic stress disorder: an in vivo [18F]FPEB and positron emission tomography imaging study examining the role of metabotropic glutamate receptor 5"

2021: International Society for Bipolar Disorders, virtual: "Imaging tools may aid with quick differentiation and diagnosis of depression in bipolar versus unipolar disorder", Panel Chair

2018: NRM, London, UK: "Investigating mGluR5 as a biomarker of suicidality in Bipolar Disorder: in-vivo and post-mortem evidence"

2018: NRM, London, UK: "Dysregulation of mGluR5 in borderline personality disorder: A Pilot PET Study with [18F]FPEB"

2018: Winter Brain Conference, Whistler, British Columbia, Canada "mGlu5 Receptors at the Intersection of stress, sex and addiction: Tales of Rats and Humans", panel presentation

2015: BrainPET, Vancouver, CA, "Ketamine-induced changes in [<sup>11</sup>C]ABP688 binding in healthy and depressed human subjects"

2015: World Congress of Biological Psychiatry (WFSBP), Athens, Greece, "In vivo evidence for  $\beta_2^*$ -nAChR upregulation in smokers with schizophrenia", symposium presenter

2014: NRM, Netherlands, "Imaging ketamine-induced changes using Positron Emission Tomography and [<sup>11</sup>C]ABP688"

2011: Society for Research on Nicotine and Tobacco (SRNT), Toronto, Canada "Persistent  $\beta_2^*$ -nicotinic acetylcholinergic receptor dysfunction in major depressive disorder."

2007: SRNT, Dublin, Ireland "Nicotine occupancy of  $\beta_2^*$ -nAChRs after use of nicotine inhaler: relationship to craving"

2003: APA, Toronto, Canada "Effectiveness of short relaxation technique in the workplace"

2003: APA, Toronto, Canada "Comparative efficacy of two brief relaxation techniques in the workplace"

### National

2022: Society of Biological Psychiatry (SoBP), New Orleans, LA, "Combining Neuroimaging  $\alpha_7$  Nicotinic Acetylcholine Receptors and Peripheral Immune Markers in People With PTSD."

Irina Esterlis, PhD.

2022: Society of Biological Psychiatry, New Orleans, LA, "Differences in quantification of mGluR5 across bipolar disorder and major depressive disorder."

2022: American College for Neuropsychopharmacology (ACNP), Arizona: "Using Multimodal Neuroimaging to Differentiate Depression in BD From MDD"

2021: ACNP, Puerto Rico: "Molecular, Genetic and Imaging Markers of Resilience to Post Traumatic Stress", Panel Chair

2021: SoBP, Virtual meeting: "From Synapse to Symptoms: New Evidence on the Role of Synapses in Mental Disorders", Panel Chair

2021: SoBP, Virtual meeting: "First in vivo evidence of lower synaptic density marker in obesity and the impact of psychiatry"

2021: SoBP, Virtual meeting: "mGluR5 Availability in Chronic Pain: An in Vivo Study With [18F]FPEB Pet Study"

2020: ACNP, virtual meeting: "In Vivo Examination of mGluR5 Availability in Chronic Pain: A [18F]FPEB PET Study"

2020: SoBP, NYC, NY "mGluR5 as a Biomarker for Suicidal Behavior in Trauma Related Disorders: Evidence from in vivo PET Imaging Studies"

2019: International Summit on Suicide Research (IASR), Miami, FL: "Neurobiology of Suicide in Borderline Personality Disorder", Panel Chair

2019: SoBP, Chicago, IL: "Differential Effects of Ketamine on Mood Symptoms and Cognitive Function in MDD and PTSD"

2019: SoBP, Chicago, IL: "From Inflammation to Circuits - Cells, Synapses and Signaling Pathways in Depression"

2019: American Association for the Advancement of Science (AAAS), Washington DC, "Neurology and Psychiatry: Meeting in the Aging Brain", Session Chair and speaker

2018: ACNP, Hollywood FL: "Synapses and Cognition in Aging: Does Depression Accelerate the Decline?"

2018: ACNP, Hollywood FL: "In Vivo Evidence for mGluR5 Dysregulation as a Biomarker of Suicidality in PTSD, but Not MDD"

2018: AAAS, Austin, TX "Preliminary in vivo evidence for mGluR5 as a potential biomarker to differentiate Major Depressive Disorder from Bipolar Disorder"

2017: ACNP, Palm Springs, CA "Preliminary in Vivo Evidence for mGluR5 as a Potential Biomarker to Differentiate Major Depressive Disorder From Bipolar Disorder"

2017: Association of Behavioral and Cognitive Therapies (ABCT), San Diego, CA "Effect of Ketamine Administration on Posttraumatic Cognitions: Preliminary Evidence"

Irina Esterlis, PhD.

2017: International Summit on Suicide Research (IASR), Henderson, Nevada “Preliminary evidence for dysregulation in mGluR5 as a biomarker of suicidal ideation in PTSD: a PET imaging study”

2017: SoBP, San Diego, CA, “In Vivo Quantification of mGluR5 Availability in Posttraumatic Stress Disorder”

2017: SoBP, San Diego, CA, “In Vivo Evidence of Lower Synaptic Density in Depression and Associated Mood and Cognitive deficits: A [<sup>11</sup>C]UCB-J Pet Imaging Study”

2016: ACNP, Hollywood, FL, “In Vivo Quantification of Synaptic Density in Depression With <sup>11</sup>C-UCB-J PET Brain Imaging”

2016: ACNP, Hollywood, FL, “Prefrontal cortical mGluR5 availability in PTSD: preliminary findings from an [<sup>18</sup>F]FPEB PET study”

2016: Tobacco Centers of Regulatory Science (TCORS), Bethesda, MD, “Imaging the effect of electronic cigarettes at the beta2-nicotinic acetylcholine receptors”

2016: NRM, Boston, MA, “A test-retest study of same-day *in vivo* variation of estimates of metabotropic glutamate receptor subtype 5 binding using [<sup>11</sup>C]ABP688 and [<sup>18</sup>F]FPEB”

2015: ACNP, Miami, FL, “Ketamine-induced changes in [<sup>11</sup>C]ABP688 binding in healthy and depressed human subjects”

2015: SRNT, Philadelphia, PA, “Genetic Influences by *CHRNA4*, *ANKK1*, and *BDNF* on Beta2-Nicotinic Acetylcholine Receptor Availability in Smokers and Nonsmokers”

2013: ACNP, Hollywood, FL, “α4β2-Nicotinic Acetylcholine Receptors in Schizophrenia: Implications for Smoking Cessation and Therapeutics”, Co-Chair and presenter

2013: ACNP, Hollywood, FL, “Ketamine-induced changes in [<sup>11</sup>C]ABP688 binding in healthy human subjects

2012: ACNP, Hollywood, FL, “Imaging the Sensitivity of [<sup>123</sup>I]5-IA-85380 to Increases in Acetylcholine at the Beta2-Nicotinic Acetylcholine Receptors: Physostigmine Studies in Human Subjects”

2012: NRM, Baltimore, MD “Imaging the Sensitivity of [<sup>123</sup>I]5-IA-85380 to Increases in Acetylcholine at the Beta2-Nicotinic Acetylcholine Receptors: Physostigmine Studies in Human Subjects”

2012: NRM, Baltimore, MD “Effect of a Nicotine Vaccine on Nicotine Binding to the Beta2-nAChRs In Vivo in Human Tobacco Smokers”

2012: Society for Nuclear Medicine (SNMMI), Miami, FL “Imaging the Sensitivity of [<sup>123</sup>I]5-IA-85380 to Increases in Acetylcholine at the Beta2-Nicotinic Acetylcholine Receptors: Physostigmine Studies in Human Subjects”

2012: SRNT, Houston, TX “Effect of a Nicotine Vaccine on Nicotine Binding to the Beta2-nAChRs In Vivo in Human Tobacco Smokers”

Irina Esterlis, PhD.

2012: SoBP, Philadelphia, PA "Beta2-nicotinic acetylcholinergic receptors in bipolar depression: a SPECT imaging study"

2011: College on Problems of Drug Dependence (CPDD), Hollywood, FL "Genetic regulation of beta2-nAChR availability in nonsmokers: influence of ANKK1 and CHRNA4"

2011: CPDD, Hollywood, FL "Sex Differences in Tobacco Smoking-Induced Upregulation of Beta2-Nicotinic Acetylcholine Receptors: A [<sup>123</sup>I]5-IA-85380 SPECT Imaging Study"

2011: American Psychological Association (APA), Washington, DC "Sex Differences in Tobacco Smoking-Induced Upregulation of Beta2-Nicotinic Acetylcholine Receptors: A [<sup>123</sup>I]5-IA-85380 SPECT Imaging Study"

2010: ACNP, Miami, FL " $\beta_2^*$ -nAChR Receptor Availability is Lower in Recently Abstinent Smokers with Schizophrenia compared to Healthy Smokers"

2010: SRNT, Baltimore, MD "Sex and smoking status mediate GABAA-benzodiazepine receptor availability"

2010: SRNT, Baltimore, MD " $\beta_2^*$ -nAChR Receptor Availability is Lower in Recently Abstinent Smokers with Schizophrenia compared to Healthy Smokers"

2009: Research Society on Alcoholism, San Diego, CA "Preliminary evidence that smoking influences cortical GABAA-BZR availability in long term sober alcohol dependent subjects"

2008: SRNT, Portland, OR "[<sup>123</sup>I]5-IA-85380 SPECT imaging Nicotine Occupancy of Brain Beta2 Nicotinic Acetylcholine Receptors After Smoking Low Nicotine and Nicotine-Free Cigarettes"

2008: NRM, Pittsburg, PA "[<sup>123</sup>I]5-IA-85380 SPECT imaging Nicotine Occupancy of Brain Beta2 Nicotinic Acetylcholine Receptors After Smoking Low Nicotine and Nicotine-Free Cigarettes"

2008: NRM, Pittsburg, PA "Persistent  $\beta_2^*$ -nicotinic acetylcholinergic receptor dysfunction in major depressive disorder."

2008: NRM, Pittsburg, PA "[<sup>123</sup>I]5-IA SPECT imaging of nicotinic acetylcholine receptors in heavy drinking non-smokers."

2007: CPDD, Scottsdale, AZ "SPECT Imaging of GABA<sub>A</sub>-BZRs in smokers and non-smokers."

2006: RSA, Washington, DC "[<sup>123</sup>I]5-IA SPECT imaging of nicotinic acetylcholine receptors in heavy drinking non-smokers."

2006: SRNT, Austin, TX "SPECT Imaging of GABA<sub>A</sub>-BZRs in smokers and non-smokers"

2004: International Neuropsychological Society (INS), Baltimore, MD "Predicating reported memory loss in post treatment Lyme disease."

2002: APA, San Francisco, CA "Growth from traumatic experiences"

2002: APA, San Francisco, CA "Aspects of religiousness and compliance with diabetes self-care"

## Regional

Irina Esterlis, PhD.

2022: U.S. Department of Veterans Affairs, West Haven, CT: “Examining sex differences in responses to foot shock stress and the role of the metabotropic glutamate receptor 5 (mGlu5).”

2018: SoBP, NY, NY “Preliminary evidence for mGluR5 dysregulation in in borderline personality disorder and relationship to suicidal behavior”

2018: SoBP, NY, NY “Imaging  $\alpha 7$  Nicotinic Acetylcholine Receptors in PTSD”

2018: SoBP, NY, NY “Preliminary evidence for altered synaptic density and a possible role for accelerated aging in MDD: a [ $^{11}\text{C}$ ]UCB-J PET study “

2014: SoBP, New York, NY “Ketamine-induced changes in [ $^{11}\text{C}$ ]ABP688 binding in healthy and depressed human subjects”

2013: SRNT, Boston, MA “ $\alpha_4\beta_2$ -nicotinic acetylcholine receptors in schizophrenia: Implications for comorbid tobacco smoking and therapeutics”, Chair and presenter

2008: The International Conference on Applications of Neuroimaging to Alcoholism (ICANA), New Haven, CT “SPECT GABA<sub>A</sub>-Benzodiazepine Receptor Imaging of Abstinent Alcohol-Dependents

2006: INS, Boston, MA “The relationship of the P300 to cognition in male adolescent sons of substance dependent fathers”

2004: INS, Boston, MA “Age- and short form IQ-adjusted MOANS norms for the TMT, Stroop, and COWAT”

### **Professional Organizations**

2023-present	Fellow, American College for Neuropsychopharmacology (ACNP)
2019-present	Member, International Summit on Suicide Research (IASR)
2018-2022	Member, ACNP
2017-present	Member, Society for Neuroscience (SfN)
2017-present	Member, American Association for the Advancement of Science (AAAS)
2014-2017	Associate Member, ACNP
2010-present	Member, SoBP
2010-2015	Member, Society for Research on Nicotine and Tobacco
2006-2007	Associate Member, New York Academy of Sciences
2003-2015	Member, International Neuropsychological Society
2000-2003	Member, American Psychological Association

### **Professional Service**

#### ***Journal Service:***

Editorial Board: Scientific Reports (start 2023), Journal of Affective Disorders (JAD; start 2022), Journal of Clinical Medicine (start 2023), Chronic Stress (start 2018)

Guest Editor for special issue – Biological Psychiatry (2021-22), Scientific Reports (2023)

Reviewer: Biological Psychiatry, Neuroimage, Nicotine and Tobacco Research, Addiction, Pain, Psychiatry Research – Neuroimaging, Neuropsychopharmacology, American Journal of Psychiatry, Molecular Biology, JAMA, JAD

#### ***Professional Service for Professional Organizations***

Irina Esterlis, PhD.

2023-2026 Society for Biological Psychiatry (SoBP) JEDI Committee  
2023-2026 Society for Biological Psychiatry (SoBP) Honorary Awards Committee  
2023-2027 Society for Biological Psychiatry (SoBP) Program Committee  
2019-2022 American College for Neuropsychopharmacology (ACNP) Program Committee  
2019-2023 Society for Biological Psychiatry (SoBP) Education Committee/ ACTION task force  
2020-2024 Neural Basis of Psychopathology, Addictions and Sleep Disorders (NPAS), NIH study section permanent member  
2017-2019 ACNP Women's Task Force  
2017-2019 SoBP Mentoring Committee  
2014-present NIH LRP reviewer, NIH special study section reviewer (ETTN L51), NIH R61/R33 study section reviewer, ad hoc reviewer for several sections  
2014-2018 NIH I/START reviewer  
2010-2012 Society for Research on Nicotine and Tobacco (SRNT), Abstract reviewer, aided with program selection

### **Foundations/Institutes/Leadership/Support Groups**

2023-present Member, Scientific Advisory Board, American Foundation for Suicide Prevention (AFSP)

### **Yale University**

2019-present Scientific Review Committee, YCCI  
2023-present Scientific Review Committee, MD-PhD Interview Committee

### **Public Service**

2011-2016 Cook for Columbus House Overflow Shelter  
2010-2015 Congregation Mishkan Israel nursery school committee  
2012 Congregation Mishkan Israel director selection committee  
2013-2016 Bear Path Elementary School PTA committee volunteer  
2016-present Integrated Refugee & Immigrant Services (IRIS) refugee resettlement program  
2017-present Guilford Public Schools helping hand  
2017-2018 Guilford task force for Start School Later initiative  
2017-present Connecticut Suicide Advisory Board - South Central Suicide Advisory Coalition  
2017-present Developmental Assets for Youth (DAY) Coalition  
2020-present Temple Beth Tikvah Helping Hands program  
2022-present Co-founder and co-president, Doctors United for Ukraine (NGO)  
2022 PET Center Director Search Committee member  
2022-present Yale Forum of Jewish Faculty and Friends

### **Bibliography**

#### Peer-reviewed original research

1. Raynor HA, Kilanowski CK, **Esterlis I**, & Epstein LH (2002). A cost-analysis of adopting a healthy diet in a family-based obesity treatment program. *Journal of the American Dietetics Association*, 102, 645-650. of nondisplaceable binding. *Journal of Nuclear Medicine*, 51, 1226-1233.
2. Ponce AN, Lorber W, Paul J, **Esterlis I**, Barzvi A, Allen GJ, Pescatello L (2008). Comparisons of varying dosages of relaxation in a corporate setting: Effects on stress reduction. *International Journal of Stress Management*, 15, 396-407.

Irina Esterlis, PhD.

3. Cosgrove KP, Batis JC, Bois F, Maciejewski PK, **Esterlis I**, Kloczynski T, Stiklus S, Krishnan-Sarin S, O'Malley S, Perry E, Tamagnan G, Seibyl JP, and Staley JK (2009).  $\beta_2$ -Nicotinic Acetylcholine Receptor Availability during Acute and Prolonged Abstinence from Tobacco Smoking. *Archives of General Psychiatry*, 66, 666-76.

4. **Esterlis I**, Cosgrove KP, Batis JC, Bois F, Kloczynski TA, Stiklus SM, Perry EB, Tamagnan GD, Seibyl JP, Makuch R, Krishnan-Sarin S, O'Malley S, and Staley JK (2009). GABA<sub>A</sub>-benzodiazepine receptor availability in smokers and nonsmokers: Relationship to subsyndromal anxiety and depression. *Synapse*, 63, 1089-1099.

5. **Esterlis I**, Cosgrove K, Petrakis I, Bois F, Krantzler E, Stiklus S, Perry E, Tamagnan G, Seibyl JP, Krystal JH, Staley J (2010). [<sup>123</sup>I]5-IA SPECT imaging of nicotinic acetylcholine receptors in heavy drinking nonsmokers. *Drug and Alcohol Dependence*, 108, 146-50.

6. Cosgrove KP, **Esterlis I**, McKee S, Bois F, Alagille, D, Tamagnan G, Seibyl JP, Krishnan-Sarin S, Staley JK (2010). Beta2\* nicotinic acetylcholine receptors modulate pain sensitivity in acutely abstinent tobacco smokers. *Nicotine and Tobacco Research*, 12, 535-9.

7. **Esterlis I**, Cosgrove KP, Batis JC, Bois F, Stiklus SM, Perkins E, Seibyl JP, Carson RE, Staley JK (2010). Quantification of smoking induced occupancy of  $\beta_2$ -nicotinic acetylcholine receptors: estimation of nondisplaceable binding. *Journal of Nuclear Medicine*, 51, 1226-1233.

8. **Esterlis I**, Mitsis EM, Batis JC, Bois F, Picciotto MR, Stiklus SM, Kloczynski T, Perry E, Seibyl JP, McKee S, Staley JK, Cosgrove KP (2011). Brain  $\beta_2^*$ -nicotinic acetylcholine receptor occupancy after use of a nicotine inhaler. *International Journal of Neuropsychopharmacology*, 14, 389-98.

9. D'Souza DC, **Esterlis I**, Carbutto M, Krasenics M, Seibyl J, Bois F, Pittman B, Ranganathan M, Cosgrove K, Staley J. (2012). Lower  $\beta_2^*$ -Nicotinic Acetylcholine Receptor Availability in Smokers with Schizophrenia. *American Journal of Psychiatry*, 169, 326-34.

10. **Esterlis I**, McKee SA, Kirk K, Lee D, Bois F, Stiklus SM, Seibyl JP, Krishnan-Sarin S, O'Malley SS, Staley JK, Cosgrove KP (2013). Sex-specific differences in GABA<sub>A</sub>-benzodiazepine receptor availability: Relationship with sensitivity to pain and tobacco smoking craving. *Addiction Biology*, 18, 370-8.

11. Cosgrove KP, **Esterlis I**, McKee SA, Bois F, Seibyl JP, Mazure CM, Krishnan-Sarin S, Staley JK, Picciotto MR, and O'Malley SS (2012). Sex differences in availability of  $\beta_2^*$ -nicotinic acetylcholine receptors in recently abstinent tobacco smokers. *Archives of General Psychiatry*, 69, 418-27.

12. Saricicek A,\* **Esterlis I**,\* Maloney KH, Mineur YS, Ruf BM, Muralidharan A, Chen JI, Cosgrove KP, Kerestes R, Ghose S, Tamminga CA, Pittman B, Bois F, Tamagnan G, Seibyl J, Picciotto MR, Staley JK, Bhagwagar Z. (2012). Persistent  $\beta_2^*$ -nicotinic acetylcholinergic receptor dysfunction in major depressive disorder. *American Journal of Psychiatry*, 169, 851-9. \*First author shared.

13. **Esterlis I**, Hannestad, JO, Bois, F, Sewell, RA, Tyndale, R, Seibyl, JP, Picciotto, MR, Laruelle, M, Carson, RE, Cosgrove, KP. (2013). Imaging changes in synaptic acetylcholine availability in living human subjects. *Journal of Nuclear Medicine*, 54, 78-82.

14. **Esterlis I**, Hannestad JO, Perkins E, Bois F, D'Souza DC, Tyndale RF, Seibyl JP, Hatsukami DM, Cosgrove KP, O'Malley SS (2013). Effect of a nicotine vaccine on nicotine binding to the beta2-nAChRs in vivo in human tobacco smokers. *American Journal of Psychiatry*, 170, 399-407.

Irina Esterlis, PhD.

15. Hannestad J, Cosgrove KP, DellaGioia N, Perkins E, Bois F, Bhagwagar Z, Seibyl JP, McClure-Begley TD, Picciotto MR, **Esterlis I** (2013). Changes in the cholinergic system between bipolar depression and euthymia as measured with [<sup>123</sup>I]5-IA SPECT. *Biological Psychiatry*, *74*, 768-76.

16. Hannestad J, Dellagioia N, Gallezot JD, Lim K, Nabulsi N, **Esterlis I**, Pittman B, Lee JY, O'Connor KC, Pelletier D, Carson RE (2013). The neuroinflammation marker translocator protein is not elevated in individuals with mild-to-moderate depression: A [<sup>11</sup>C]PBR28 PET study. *Brain, Behavior, and Immunity*, *33*, 131-8.

17. **Esterlis I**, Ranganathan M, Bois F, Pittman B, Picciotto MR, Shearer L, Anticevic A, Carlson J, Niciu MJ, Cosgrove KP, D'Souza DC. (2013). In vivo evidence for  $\beta 2$  nicotinic acetylcholine receptor subunit upregulation in smokers as compared with nonsmokers with schizophrenia. *Biological Psychiatry*, *76*, 495-502.

18. DeLorenzo C, DellaGioia N, Bloch M, Sanacora G, Nabulsi N, Abdallah C, Wen JYR, Mann JJ, Krystal JH, Parsey RV, Carson RE, **Esterlis I** (2015). In vivo ketamine-induced changes in [<sup>11</sup>C]ABP688 binding to metabotropic glutamate receptors subtype. *Biological Psychiatry*, *77*, 266-75.

19. Gallezot JD, **Esterlis I**, Bois F, Zheng MQ, Lin SF, Kloczynski T, Krystal JH, Huang Y, Sabri O, Carson RE, Cosgrove KP (2014). Evaluation of the sensitivity of the novel  $\alpha 4\beta 2^*$  nicotinic acetylcholine receptor PET radioligand (18) F-(-)-NCFHEB to increases in synaptic acetylcholine levels in rhesus monkeys. *Synapse*, *68*, 556-64.

20. Cosgrove KP, McKay R, **Esterlis I**, Kloczynski T, Perkins E, Bois F, Pittman B, Lancaster J, Glahn DC, O'Malley S, Carson RE, Krystal JH (2014). Tobacco smoking interferes with GABAA receptor neuroadaptations during prolonged alcohol withdrawal. *Proceedings of the National Academy of Sciences*, *111*, 18031-6.

21. Bois F, Gallezot JD, Zheng MQ, Lin SF, **Esterlis I**, Cosgrove KP, Carson RE, Huang Y (2015). Evaluation of [(18)F]-(-)-norchlorofluorohomoepibatidine [(18)F]-(-)-NCFHEB) as a PET radioligand to image the nicotinic acetylcholine receptors in non-human primates. *Nuclear Medicine and Biology*, *42*, 570-7.

22. **Esterlis I**, Hillmer AT, Bois F, Pittman B, McGovern E, O'Malley SS, Picciotto MR, Yang BZ, Gelernter J, Cosgrove KP (2016). *CHRNA4* and *ANKK1* polymorphisms influence smoking induced nicotinic acetylcholine receptor upregulation. *Nicotine and Tobacco Research*, *18*, 1845-52.

23. Hillmer AT, **Esterlis I**, Gallezot JD, Bois F, Zheng MQ, Nabulsi N, Lin SF, Papke RL, Huang Y, Sabri O, Carson RE, Cosgrove KP (2016). Imaging of cerebral  $\alpha 4\beta 2^*$  nicotinic acetylcholine receptors with (-)-[<sup>18</sup>F]Flubatine PET: Implementation of bolus plus constant infusion and sensitivity to acetylcholine in human brain. *Neuroimage*, *141*, 71-80.

24. McClure-Begley TD, **Esterlis I**, Stone KL, Lam TT, Grady SR, Colangelo CM, Lindstrom JM, Marks MJ, Picciotto MR (2016). Evaluation of the nicotinic acetylcholine receptor-associated proteome at baseline and following nicotine exposure in human and mouse cortex, *eNeuro*, *3*.

25. DeLorenzo C, Gallezot JD, Gardus J, Yang J, Planeta B, Nabulsi N, Ogden RT, Labaree DC, Huang Y, Mann JJ, Gasparini F, Lin X, Javitch JA, Parsey RV, Carson RE, **Esterlis I** (2017). In

Irina Esterlis, PhD.

vivo variation in same-day estimates of metabotropic glutamate receptor subtype 5 binding using [<sup>11</sup>C]ABP688 and [<sup>18</sup>F]FPPEB. *Journal of Cerebral Blood Flow and Metabolism*, 37, 2716-2727.

26. Holmes SE, **Esterlis I**, Mazure CM, Lim YY, Ames D, Rainey-Smith S, Martins RN, Salvado O, Dore V, Villemagne VL, Rowe CC, Laws SM, Masters CL, Maruff P, Pietrzak RH (2016). Amyloid-B, APOE and BDNF genotype, and depressive and anxiety symptoms in cognitively normal older women and men. *American Journal of Geriatric Psychiatry*, 24, 1191-1195.

27. Hillmer AT, Li S, Zheng MQ, Scheunemann M, Lin SF, Nabulsi N, Holden D, Pracitto R, Labaree D, Ropchan J, Teodoro R, Deuther-Conrad W, **Esterlis I**, Cosgrove KP, Brust P, Carson RE, Huang Y (2017). PET imaging of  $\alpha 7$  nicotinic acetylcholine receptors: a comparative study of [<sup>18</sup>F]ASEM and [<sup>18</sup>F]DBT-10 in nonhuman primates, and further evaluation of [<sup>18</sup>F]ASEM in humans. *European Journal of Nuclear Medicine and Molecular Imaging*, 44, 1042-1050.

28. Boggs DL, Surti TS, **Esterlis I**, Pittman B, Cosgrove K, Sewell RA, Ranganathan M, D'Souza DC (2017). Minimal effects of prolonged smoking abstinence or resumption on cognitive performance challenge the "self-medication" hypothesis in schizophrenia. *Schizophr Res*, S0920-9964; 30187-1.

29. **Esterlis I**, DellaGioia N, Pietrzak R, Matuskey D, Nabulsi N, Abdallah C, Yang J, Pittenger C, Sanacora G, Krystal J, Parsey R, Carson R, and DeLorenzo C (2018). Ketamine-induced reduction in mGluR5 availability is associated with an antidepressant response: an [<sup>11</sup>C]ABP688 and PET imaging study in depression. *Molecular Psych*. 23, 824-832.

30. Baldassarri SR, Hillmer AT, Anderson JM, Jatlow P, Nabulsi N, Labaree D, Cosgrove KP, O'Malley SS, Eissenberg T, Krishnan-Sarin S, **Esterlis I** (2018). Use of electronic cigarettes leads to significant beta2-nicotinic acetylcholine receptor occupancy: evidence from a PET imaging study. *Nicotine and Tobacco Research*, 20, 425-433.

31. Abdallah CG, Hannestad J, Mason GF, Holmes SE, DellaGioia N, Sanacora G, Jiang L, Matuskey D, Satodiya R, Gasparini F, Lin X, Javitch J, Planeta B, Nabulsi N, Carson RE, **Esterlis I** (2017). mGluR5 and glutamate involvement in MDD: a multimodal imaging study. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 2, 449-456.

32. Davis MT, DellaGioia N, Matuskey D, Harel B, Pietrzak R, & **Esterlis I** (2017). Preliminary evidence concerning cognitive deficits in individuals with major depressive disorder assessed by Cogstate measures. *Journal of Affective Disorders*, 218, 82-85.

33. Holmes SE, Girgenti MJ, Davis MT, Pietrzak RH, DellaGioia N, Nabulsi N, Matuskey D, Southwick S, Duman R, Carson RE, Krystal JH, **Esterlis I**, Traumatic Stress Brain Study Group (2017). Altered metabotropic glutamate receptor 5 markers in PTSD: *in-vivo* and postmortem evidence. *Proceedings of the National Academy of Sciences*, 114, 8390-8395.

34. Holmes SE, **Esterlis I**, Mazure CM, Lim YY, Ames D, Rainey-Smith S, Fowler C, Ellis K, Martins RN, Salvado O, Doré V, Villemagne VL, Rowe CC, Laws SM, Masters CL, Pietrzak RH, Maruff P; Australian Imaging, Biomarkers and Lifestyle Research Group (2017). Trajectories of depressive and anxiety symptoms in older adults: a 6-year prospective cohort study. *International Journal of Geriatric Psychiatry*, 33, 405-413.

35. Scheinost D, Holmes SE, DellaGioia N, Schleifer C, Matuskey D, Hampson M, Krystal JH, Anticevic A, **Esterlis I** (2018). Multimodal investigation of network level effects using intrinsic functional connectivity, anatomical covariance, and structure-to-function

Irina Esterlis, PhD.

correlations in unmedicated major depressive disorder. *Neuropsychopharmacology*, 43, 1119-1127.

36. Bhatt S, Hillmer AT, Nabulsi N, Matuskey D, Lim K, Lin SF, **Esterlis I**, Carson RE, Huang Y, Cosgrove KP (2017). Evaluation of (-)-[18F]Flubatine Specific Binding: Implications for Reference Region Approaches. *Synapse*, 72, 10.

37. Holmes SE, Scheinost D, DellaGioia N, Davis M, Matuskey D, Pietrzak R, Hampson M, Krystal J, **Esterlis I** (2018). Cerebellar and prefrontal cortical alterations in PTSD: structural and functional evidence. *Chronic Stress*, 2, 2470547018786390.

38. Abdallah CG, De Feyter HM, Averill LA, Jiang L, Averill CL, Chowdhury G, Purohit P, de Graaf RA, **Esterlis I**, Juchem C, Pittman BP, Krystal JH, Rothman DL, Sanacora G, Mason GF (2018). The Effects of Ketamine on Prefrontal Glutamate Neurotransmission in Healthy and Depressed Subjects. *Neuropsychopharmacology*, 43, 2154-2160.

39. Holmes S, Scheinost D, Finnema S, Naganawa M, Davis MT, DellaGioia N, Nabulsi N, Matuskey D, Angarita G, Pietrzak R, Duman R, Sanacora G, Krystal J, Carson R, **Esterlis I** (2019). Lower synaptic density is associated with depression severity and network alterations. *Nature Communications*, 10, 1529.

40. Davis MT, Hillmer A, Holmes SE, Pietrzak RH, DellaGioia N, Nabulsi N, Matuskey N, Angarita GA, Carson RE, Krystal JH, **Esterlis I** (2019). *In vivo* evidence for dysregulation of mGluR5 as a biomarker of suicidal ideation. *Proceedings of the National Academy of Sciences*, 116, 11490-11495.

41. Toczek J, Hillmer AT, Han J, Liu C, Peters D, Emami H, Wu J, **Esterlis I**, Cosgrove KP, Sadeghi MM (2019). FDG PET imaging of vascular inflammation in post-traumatic stress disorder: A pilot case-control study. *Journal of Nuclear Cardiology*, 46, 2329-2338.

42. Holmes SE, Gallezot JD, Davis MT, DellaGioia N, Matuskey D, Nabulsi N, Krystal JH, Javitch JA, DeLorenzo C, Carson RE, **Esterlis I** (2019). Measuring the effects of ketamine on mGluR5 using [18F]FPEB and PET. *Journal of Cereb Blood Flow and Metabolism*, 20, 2254-2264.

43. Batt S, Hillmer AT, Girgenti MJ, Rusowicz A, Kapinos M, Nabulsi N, Huang H, Matuskey D, Angarita GA, **Esterlis I**, Davis MT, Southwick SM, Friedman MJ, Duman RS, Carson RE, Krystal JH, Pietrzak RH, Cosgrove KP (2020). PTSD is associated with neuroimmune suppression: Evidence from PET imaging and postmortem transcriptomic studies, *Nature Communications*, 11.

44. Tuisku J, Plavén-Sigray P, Gaiser EC, Airas L, Al-Abdulrasul H, Brück A, Carson RE, Chen MK, Cosgrove KP, Ekblad L, **Esterlis I**, Farde L, Forsberg A, Halldin C, Helin S, Kosek E, Lekander M, Lindgren N, Marjamäki P, Rissanen E, Sucksdorff M, Varrone A; HRRT [11C]PBR28 study group, Collste K, Gallezot JD, Hillmer A, Huang Y, Höglund CO, Johansson J, Jucaite A, Lampa J, Nabulsi N, Pittman B, Sandiego CM, Stenkrone P, Rinne J, Matuskey D, Cervenka S. (2019). Effects of age, BMI and sex on the glial cell marker TSPO - a multicentre [11C]PBR28 HRRT PET study. *European Journal of Nuclear Medicine and Molecular Imaging*, 46, 2329-2338.

45. Toczek J, Wu J, Hillmer AT, Han J, **Esterlis I**, Cosgrove KP, Liu C, Sadeghi MM (2020). Accuracy of arterial [18F]-Fluorodeoxyglucose uptake quantification: A kinetic modeling study. *Journal of Nuclear Cardiology*, 27, 1578-1581.

Irina Esterlis, PhD.

46. Pitts BL, Wen V, Whealin JM, Fogle BM, Southwick SM, **Esterlis I**, Pietrzak RH (2020). Depression and cognitive dysfunction in older U.S. military veterans: moderating effects of BDNF Val66Met polymorphism and physical exercise. *American Journal of Geriatric Psychiatry*, 28, 959-967.

47. Baldassarri SR, Kachadourian LK, **Esterlis I**, & Pietrzak RH (2020). Nicotine dependence in U.S. military veterans: Results from the National Health and Resilience in Veterans study. *Addiction Research & Theory*, 28, 160-164.

48. Hillmer AT, Angarita GA, **Esterlis I**, Anderson JM, Nabulsi N, Lim K, Ropchan J, Carson RE, Krystal JH, Malley SSO, Cosgrove KP (2021). Longitudinal imaging of metabotropic glutamate 5 receptors during early and extended alcohol abstinence. *Neuropsychopharmacology*, 46, 380-385.

49. Naganawa M, Gallezot JD, Finnema S, Matuskey D, Mecca AP, Nabulsi NB, Labaree D, Ropchan J, Malison RT, D'Souza DC, **Esterlis I**, Detyniecki K, van Dyck CH, Huang Y, Carson RE (2021). Simplified Quantification of 11C-UCB-J PET Evaluated in a Large Human Cohort. *J Nucl Med*, 62, 418-21.

50. Asch RH, **Esterlis I**, Wendt FR, Kachadourian L, Southwick SM, Gelernter J, Polimanti R, & Pietrzak RH (2021). Polygenic risk for traumatic loss-related PTSD in U.S. military veterans: Protective effect of secure attachment style. *World Journal of Biological Psychiatry*, 22, 792-799.

51. Davis MT, Pietrzak R, Maruff P, **Esterlis I** (2021). Acute Cognitive Effects of Single-Dose Intravenous Ketamine in Major Depressive and Posttraumatic Stress Disorder. *Translational Psychiatry*, 205.

52. Byrne S, Fogle B, Asch R, **Esterlis I**, Harpaz-Rotem I, Tsai J, Pietrzak R (2021). The hidden burden of social anxiety disorder in U.S. military veterans: Results from the National Health and Resilience in Veterans Study. *Journal of Affective Disorders*, 291, 9-14.

53. Fang XT, Toyonaga T, Hillmer AT, Matuskey D, Holmes SE, Radhakrishnan R, Mecca AP, van Dyck CH, D'Souza DC, **Esterlis I**, Worhunsky PD, Carson RE (2021). Identifying brain networks in synaptic density PET (11C-UCB-J) with independent component analysis. *Neuroimage*, 237, 118167.

54. Radhakrishnan R, Skosnik P, Ranganathan M, Naganawa M, Toyonaga T, Finnema S, Hillmer A, **Esterlis I**, Huang Y, Nabulsi N, Carson R, D'Souza CD (2021). In vivo evidence of lower synaptic vesicle density in schizophrenia. *Molecular Psychiatry*, 26, 7690-7698.

55. Mecca AP, Rogers K, Jacobs Z, McDonald JW, Michalak HR, DellaGioia N, Zhao W, Hillmer AT, Nabulsi N, Lim K, Ropchan J, Huang Y, Matuskey D, **Esterlis I**, Carson RE, van Dyck CH (2021). Effect of Age on Brain Metabotropic Glutamate Receptor Subtype 5 Measured with [18F]FPEB PET. *NeuroImage*, 238:118217.

56. Asch RH, Holmes SE, Jastreboff AM, Potenza MN, Baldassarri SR, Carson RE, Pietrzak RH, **Esterlis I**. (2021). Lower synaptic density is associated with psychiatric and cognitive alterations in obesity. *Neuropsychopharmacology*, 47, 543-552.

57. Asch RH, Kachadourian L, Southwick SM, **Esterlis I**, Pietrzak RH. (2021). Psychological Resilience to the Challenges of Physical Aging in Older U.S. Veterans: Results From the 2019-2020 National Health and Resilience in Veterans Study. *Am J Geriatr Psychiatry*, 29, 1280-1285.

Irina Esterlis, PhD.

58. Angarita GA, Worhunsky PD, Naganawa M, Toyonaga T, Nabulsi NB, Li CR, **Esterlis I**, Skosnik PD, Radhakrishnan R, Pittman B, Gueorguieva R, Potenza MN, Finnema SJ, Huang Y, Carson RE, Malison RT. (2021). Lower prefrontal cortical synaptic vesicle binding in cocaine use disorder: An exploratory 11 C-UCB-J positron emission tomography study in humans. *Addict Biol*, 27, e13123.

59. Holmes SE, Finnema SJ, Naganawa M, DellaGioia N, Holden D, Fowles K, Davis M, Ropchan J, Emory P, Ye Y, Nabulsi N, Matuskey D, Angarita GA, Pietrzak RH, Duman RS, Sanacora G, Krystal JH, Carson RE, **Esterlis I**. (2022). Imaging the effect of ketamine on synaptic density (SV2A) in the living brain. *Molecular Psychiatry*, 27, 2273-2281.

60. Smart K, Worhunsky PD, Scheinost D, Angarita GA, **Esterlis I**, Carson RE, Krystal JH, O'Malley SS, Cosgrove KP, Hillmer AT. (2022). Multimodal neuroimaging of metabotropic glutamate 5 receptors and functional connectivity in alcohol use disorder. *Alcohol Clin Exp Res*, 46, 770-782.

61. **Esterlis I**, DeBonee S, Cool R, Holmes S, Baldassari SR, Maruff P, Pietrzak RH, Davis MT. (2022). Differential Role of mGluR5 in Cognitive Processes in Posttraumatic Stress Disorder and Major Depression. *Chronic Stress* (Thousand Oaks), 6, 24705470221105804.

62. Asch RH, Pothula S, Toyonaga T, Fowles K, Groman SM, Garcia-Milian R, DiLeone RJ, Taylor JR, **Esterlis I**. (2022). Examining sex differences in responses to footshock stress and the role of the metabotropic glutamate receptor 5: an [18F]FPEB and positron emission tomography study in rats. *Neuropsychopharmacology*. 48, 489-97.

63. Cations M, Cook J, Nichter B, **Esterlis I**, Pietrzak RH. (2023). Subjective cognitive difficulties and posttraumatic stress disorder interact to increase suicide risk among older U.S. military veterans. *International Psychogeriatrics*. Online ahead of print.

64. Fang XT, Volpi T, Holmes SE, **Esterlis I**, Carson RE, Worhunsky PD. (2023). Linking resting-state network fluctuations with systems of coherent synaptic density: a multimodal fMRI and 11C-UCB-J PET study. *Frontiers in Human Neuroscience*, 17:1124254.

65. Baldassarri SR, Asch RH, Hillmer AT, Pietrzak RH, DellaGioia N, **Esterlis I**,\* Davis MT.\* (2023). Nicotine Use and Metabotropic Glutamate Receptor 5 (mGluR5) in Individuals with Major Depressive and Post Traumatic Stress Disorders. *Chronic Stress*, 7:24705470231154842. \*Last author shared.

66. Holmes SE, Asch RH, Davis MT, DellaGioia N, Pashankar N, Gallezot JD, Nabulsi N, Matuskey D, Sanacora G, Carson RE, Blumberg HP, **Esterlis I**. (2023). Differences in Quantification of the Metabotropic Glutamate Receptor 5 Across Bipolar Disorder and Major Depressive Disorder. *Biol Psychiatry*, 93, 1099-1107.

67. Sawant-Basak A, Chen L, Lockwood P, Boyden T, Doran AC, Mancuso J, Zasadny K, McCarthy T, Morris ED, Carson RE, **Esterlis I**, Huang Y, Nabulsi N, Planeta B, Fullerton T. (2023). Investigating CNS distribution of PF-05212377, a P-glycoprotein substrate, by translation of 5-HT6 receptor occupancy from non-human primates to humans. *Biopharm Drug Dispos*, 44, 48-59.

68. Fischer IC, Nichter B, Aunon FM, Feldman DB, Levy BR, **Esterlis I**, Pietrzak RH (2023). Suicidal Thoughts and Behaviors in Older US Military Veterans: Results from the National Health and Resilience in Veterans Study. *American Journal of Geriatric Psychiatry*. Online ahead of print.

Irina Esterlis, PhD.

69. Asch RH, Fowles K, Pietrzak RH, Taylor JR, **Esterlis I**. (2023). Examining mGlu5 Receptor Availability as a Predictor of Vulnerability to PTSD: An [<sup>18</sup>F]FPEB and PET Study in Male and Female Rats. *Chronic Stress*, 7.

70. Holmes SE, Honhar P, Tinaz S, Naganawa M, Hilmer AT, Gallezot JD, Dias M, Yang Y, Toyonaga T, **Esterlis I**, Mecca A, Van Dyck C, Henry S, Ropchan J, Nabulsi N, Louis E, Comley R, Finnema SJ, Carson RE, Matuskey D. (2024). Synaptic loss and its association with symptom severity in Parkinson's disease. *NPJ Parkinsons Dis*, 10, 42.

71. Kang H, Fischer IC, **Esterlis I**, Kolyshkina A, Ponomarenko L, Chobanian A, Vus V, Pietrzak, RH (in press). Helping the helpers: Mental health challenges of psychosocial support workers during the Russian-Ukrainian war. *Disaster Medicine and Public Health Preparedness*.

72. Fan S, Asch RH, Davis MT, DellaGioia N, Cool R, Blumberg HP, **Esterlis I** (2024). Preliminary Study of White Matter Abnormalities and Associations With the Metabotropic Glutamate Receptor 5 to Distinguish Bipolar and Major Depressive Disorders. *Chronic Stress* (Thousand Oaks).

73. Asch RH, Worhunsky PD, Davis MT, Holmes SE, Cool R, Boster S, Carson RE, Blumberg HP, **Esterlis I** (2024). Deficits in prefrontal metabotropic glutamate receptor 5 are associated with functional alterations during emotional processing in bipolar disorder. *J Affect Disord*, 15, 415-424.

74. Weiss ER, Davis MT, AschRH, D'Souza DC, Ryan Cool R, **Esterlis I** (2024). Metabotropic glutamatergic receptor 5 as a potential biomarker of the intersection of trauma and cannabis use. *International Journal of Neuropsychopharmacology*, doi.org/10.1093/ijnp/pyae044.

75. Bonomi R, Hillmer AT, Woodcock E, Bhatt S, Rusowicz A, Angarita GA, Carson RE, Davis MT, **Esterlis I**, Nabulsi N, Huang Y, Krystal JH, Pietrzak RH, Cosgrove KP.(2024). Microglia-mediated neuroimmune suppression in PTSD is associated with anhedonia. *Proc Natl Acad Sci U S A*, 121, e2406005121.

#### Chapters, Books and Reviews

1. **Esterlis I**, Krishnan-Sarin S, and Staley JK. Neurochemical Substrates of Habitual Tobacco Smoking (2007). In *Drug Abuse Handbook*, Second Edition, Ed S.B. Karch CRC Press, New York.

2. Cosgrove KP, **Esterlis I**, Mason GF, Bois F, O'Malley SS, Krystal JH (2011). Neuroimaging insights into the role of cortical GABA systems and the influence of nicotine on the recovery from alcohol dependence. *Neuropharmacology*.

3. Cosgrove KP, **Esterlis I**, Sandiego C, Petrulli R, Morris ED (2015). Imaging Tobacco Smoking with PET and SPECT. *Current Topics in Behavioral Neurosciences*, 24, 1-17.

4. Abdallah CG, AdamsTG, Kelmendi B, **Esterlis I**, Sanacora G, Krystal JH (2016). Ketamine's mechanisms of action: a path to rapid-acting antidepressants. *Depression and Anxiety*, 33, 689-97.

5. Davis MT, Holmes S, Pietrzak R, **Esterlis I** (2017). Neurobiology of chronic stress related psychiatric disorders: Evidence from molecular imaging studies. *Chronic Stress*. Jan-Dec.

6. **Esterlis I**, Holmes SE, Sharma P, Krystal JH, DeLorenzo C (2018). mGluR5 and Stress Disorders: Knowledge Gained from Receptor Imaging Studies. *Biological Psychiatry*, 84, 95-105.

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7. Banasr M, Sanacora G, **Esterlis I** (2021). Macro- and Microscale Stress-Associated Alterations in Brain Structure: Translational Link With Depression. *Biological Psychiatry*, 90, 118-27.

8. **Esterlis I**, Holmes SE (2021). First in vivo evaluations of synaptic density alterations in the brain. *Neuropsychopharm*, 47, 381-382.

9. Holmes SE, Abdallah C, **Esterlis I**. Imaging synaptic density in depression. (2022). *Neuropsychopharmacology*. Epub ahead of print.

10. Vus V, **Esterlis I**. (2022). Support of the Population Within the Russian-Ukrainian war: Insider's Perspective. *Chronic Stress* (Thousand Oaks), 6:24705470221101884.

11. Asch, RH, Hillmer, AT, Baldassarri, SR, & **Esterlis, I**. (2022). The metabotropic glutamate receptor 5 as a biomarker for psychiatric disorders. In International review of neurobiology: Academic Press.

12. Kang H, **Esterlis I**, Chobanian AV, Boriak O, Pietrzak RH, Vus V. Perceived mental health of psychosocial support professionals in Ukraine. (2023). *Psychiatry Res*. Online ahead of print.

13. Krystal JH, Kaye AP, Jefferson S, Girgenti MJ, Wilkinson ST, Sanacora G, **Esterlis I**. (2023). Ketamine and the neurobiology of depression: Toward next-generation rapid-acting antidepressant treatments. *Proc Natl Acad Sci U S A*, 120.

14. Asch RH, Abdallah CG, Carson RE, **Esterlis I**. (2024). Challenges and rewards of in vivo synaptic density imaging, and its application to the study of depression. *Neuropsychopharm*. Online ahead of print.

#### Case Reports, Technical Notes, Letters

1. Lane M, **Esterlis I**, Tello A, Vesga-Lopez O, Zonana H, & Jean-Baptiste M (2006). Using the Internet for Clinical Information Gathering about Unidentified Psychiatric Patients. *Journal of Psychiatric Practice*, 12, 324-326.