

Peter Herscovitch, M.D.
National Institutes of Health Clinical Center
PET Department, Bldg. 10, Rm 1C-495,
10 Center DR, MSC 1180
Bethesda, Maryland 20892-1180

telephone: (301) 451-4248 fax: (301) 402-3521
herscovitch@nih.gov

Education

Bachelor of Engineering (Honours Electrical) with distinction, McGill University, Montreal, Canada, 1971

M.D., C.M., McGill University, Montreal, 1975

Straight Internship and Resident II, Medicine, Royal Victoria Hospital, McGill University, Montreal, 1975-77

Resident and Fellow in Neurology, McGill University Program, 1977-80; and Chief Resident, Neurology, Montreal Neurological Hospital, July-Sept, 1979

Clinical and Academic Appointments

1981-1982 Lecturer, Dept of Neurology and Neurosurgery, McGill University, Montreal, Canada, and Assistant Neurologist, Montreal Neurological Hospital (on leave of absence)

1981-1986 Assistant Neurologist, Barnes Hospital, St. Louis, MO

1981-1983 Research Instructor and Instructor in Neurology, Dept of Neurology and Neurosurgery, Washington University School of Medicine, St. Louis

1983 Instructor, Division of Radiation Sciences, Dept of Radiology, Washington University School of Medicine, St. Louis

1983-1986 Assistant Professor of Neurology, Dept of Neurology and Neurosurgery, and Assistant Professor of Radiation Sciences, Dept of Radiology, Washington University School of Medicine, St. Louis

1983-1986 Instructor, Program in Occupational Therapy, Washington University School of Medicine, St. Louis

1984-1986 Consulting Neurologist, Jewish Hospital of St. Louis

1987-present Chief, Positron Emission Tomography Imaging Section, Nuclear Medicine Department / PET Department, National Institutes of Health, Bethesda, MD
Senior Attending Physician, National Institutes of Health Clinical Center

1989-1991 Acting Chief, Radiochemistry/Cyclotron Section,
 Department of Nuclear Medicine, NIH

2003-2005 Acting Director, PET Department, NIH Clinical Center

2005–present Director, PET Department, NIH Clinical Center

Medical Licenses and Certification

Licentiate, Medical Council of Canada (LMCC), July 1976

Diplomate, National Board of Medical Examiners, USA, April 1977

Medical Licenses:

 Province of Quebec, June 1976

 State of Missouri, February 1981

Board Certification, Neurology:

 Royal College of Physicians and Surgeons, Canada, November, 1980

 Professional Corporation of Physicians, Quebec, December, 1980

NIH Authorized User of Radioactive Materials in Human Subjects, 1988

Awards

McGill University Entrance Scholarship, 1966-67; McGill University Scholarships, 1967-68, 1971-72, 1972-73, 1973-74, 1974-75; Frederick Smith Memorial Scholar, Faculty of Medicine, McGill University 1973-74

Member, McGill University delegation, Voyage d'observation et d'information, France, May-June, 1970

Scarlet Key Honour Society, McGill University

Hackbusch Award, for the best paper submitted from student branches, Institute of Electrical and Electronic Engineers, Canada, 1971

Research Fellowship, Medical Research Council of Canada, 1981, 1982

Listed in Best Doctors in America (Nuclear Medicine) 1992-93, 1994-95, 1998, 2011-12, 2013; Best Doctors in America - Southeast Region (Nuclear Medicine), 1996-97

Fellow, American College of Physicians (FACP)

Fellow, Royal College of Physicians, Canada (FRCPC)

Fellow, Society of Nuclear Medicine and Molecular Imaging (FSNMMI)

Kuhl-Lassen Brain Imaging Award and Lecturer, Society of Nuclear Medicine, June 2000

NIH Clinical Center Director's Award, 2005

NIH Office of the Director Honor Award, 2012

NIAID Merit Award, 2015

Society of Nuclear Medicine and Molecular Imaging, Presidential Distinguished Service Award, 2013 and 2016

Organization for Human Brain Mapping 2013 Editors' Choice Award to K Simonyan, P Herscovitch, B Horowitz

Inclusion in the Journal of Nuclear Medicine's 60th Anniversary issue, 2020, as an author of one of the journal's most influential or cited manuscripts

Professional Associations

International Society for Cerebral Blood Flow and Metabolism:

President, 2015-2017

Immediate Past President, 2017-19, President-elect, 2013-2015

Treasurer, 2008-2013

Chair, Finance Committee, 2001-2003

Web Page Committee, 1997-2003

Membership Committee, 1995-97; Chair, 1997-1999

Board of Directors, 1995-99

Society of Nuclear Medicine and Molecular Imaging:

President 2014-15; Immediate Past President, 2015-16

President-elect 2013-14, Vice President-elect, 2012-13

Board of Directors, 2007-2010

Brain Imaging Council:

President 2006-2007

Vice-president/President-elect 2004-06

Board of Directors 1997-99, 2003-05

Molecular Imaging Center of Excellence:

Editorial Board, 2007-2012

Board of Directors, 2010-2013

PET Center of Excellence Board of Directors, 2012-15

Committee on Councils, 2005-07

Education Committee 2009-2013

Ethics Committee, 2009-2012

Committee on Outreach and Chair, Brain Working Group 2011-3; member 2013-23

Patient Advocacy Advisory Board, 2011-2015

Grants and Awards Committee, Chair 2016-7; member 2017-24
Committee on Fellows, 2019-25
Nominating Committee Chair 2016-17; member 2006-07

American Academy of Neurology
American College of Physicians
Institute of Electrical and Electronic Engineers
Radiologic Society of North America
Chair, GE/Scanditronix PET Users' Group, 1991-92

Organization of Scientific Meetings

Society of Nuclear Medicine, Annual Meeting Scientific Program Committee
Scientific Program Committee Chair, 2009-13
Associate Chair, 2005-08
Vice-Chair, Neurosciences, 2002-06
Sub-Chair: PET Instrumentation & Data Analysis, 1990; Neurology, 2001;
Neurosciences Young Investigator Award, 2007, 2008

International Society for Cerebral Blood Flow and Metabolism
Program Committee member, Biennial Meeting Taipei, 1999-2001
Program Committee member, Biennial Meeting Amsterdam, 2003-2005
Program Committee member, Biennial Meeting Berlin, 2015-2017

Co-organizer, 3rd International Symposium on Quantification of Brain Function "Brain PET'97,
Bethesda MD, June 1997

Program Committee, Third Theranostics World Congress on Ga-68 and Peptide Receptor
Radionuclide Therapy, Baltimore, March 12-14, 2015

Reviewer, Other Scientific Meetings:

Scientific Advisory Board, Biennial International Symposium on CBF and Metabolism, 1993, 1995,
1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017
Scientific Advisory Board, BrainPET'93, Akita Japan 1993
Scientific Advisory Board, Human Brain Mapping meeting HBM2007, Chicago
Society of Nuclear Medicine, Annual Meeting (Neurology): 1985, 1989-92, 1995-2000
American Acad of Neurology, Farber Award for Brain Tumor Research Review Cttee, 1993
International Scientific Program Cttee, International Symposium on Functional NeuroReceptor
Mapping of the Living Brain: Copenhagen 2006; Pittsburgh 2008; Glasgow 2010; Baltimore 2012;
Amsterdam 2014; Boston 2016; London 2018; Montreal 2021 (Local Organizing Cttee)
World Molecular Imaging Congress, 2009; 2011-17
Radiologic Society of North America (RSNA) Molecular Imaging Subcommittee/Scientific Program
Committee, and Education Exhibits Committee, 2011-17

Editorial Boards

Associate Editor, Journal of Cerebral Blood Flow and Metabolism, 2017-present
Editorial Board, Journal of Cerebral Blood Flow and Metabolism, 1992-2000
Editorial Board, Clinical Nuclear Medicine, 2009-2010
Editorial Board, Clinical & Translational Imaging: Reviews in Nuclear Medicine and Molecular Imaging, 2012-18
Editorial Board, American Journal of Nuclear Medicine and Molecular Imaging, 2013-
Editorial Board, Nuclear Medicine and Molecular Imaging (Korea), 2015-2018

Scientific Review Committees

NIH Review Committees:

NINDS Special Review Committee, Massachusetts General Hospital, Sept 1987, Jan 1989
NIMH Research Scientist Development Review Committee, 1987, 1988, 1989, 1990
NINCDS Special Review Committee, Brookhaven National Laboratories, Dec 1988
NCI Special Review Committee, University of Washington, April 1989
NIH Pathology A Study Section ad hoc member, 1989
NINDS Special Review Committee, University of Pennsylvania, March 1991, Dec 1991
NIMH Functional Imaging Centers Special Review Committee, May 1991
NIMH Special Review Committee, University of Michigan, July 1991
NIH DRG Radiation ad hoc Study Section, June 1992
NIH DRG Special Study Section X, Multidisciplinary Special Emphasis Panel, June 1993
NIA Special Review Committee, University of Southern California, Feb 1994
Human Brain Project P20 Special Review Committee, March 1994
NIA ad hoc Review Committee - CERAD Review, April 1994
NIH DRG Special Study Section 1, Multidisciplinary Special Emphasis Panel, July 1994
NIMH Special Emphasis Panel, Yale University review, March 1996.
NIA Neurosciences Aging Review Committee, March 1997
NINDS Special Emphasis Panel - Parkinson's Disease Centers, July 1998
NINDS Neurological Sciences and Disorders B, ad hoc member, Feb 25, 2000
NINDS Neurological Sciences and Disorders B, ad hoc member, Oct 19, 2000
NIA Special Emphasis Panel – Early Markers of Alzheimer's Disease, Aug 9, 2004
NCI In Vivo Cellular and Molecular Imaging Centers (ICMICS) Study Section, Nov 2005
NIDDK Toward Imaging the Pancreatic Beta Cell Special Emphasis Panel Aug 8 2006
NIMH Conte Center for Mood/Schizophrenia Review Panel, Feb 2007

Other Review Committees

Medical Research Council of Canada *ad hoc* reviewer, 1988, 1989, 1992, 1993, 1997
Dept of Veterans Affairs Medical Research Service, Research Advisory Group, 1991
Medical Research Council of Canada Review Cttee, Clarke Institute of Psychiatry, Toronto, January 1996
Medical Research Council of Canada Neurosciences B Cttee, ad hoc member, Dec 1997
Ontario Mental Health Foundation, 1993
Montreal Neurological Institute Brain Imaging Centre Review Committee, Chair, July 1994
Human Frontier Science Program, 1997
McGill University MNI Tenure and Promotions Cttee, *ad hoc* member, 2002

The Charles R. Dana Foundation: Advisory Cttee for Clinical Hypotheses in Neuroscience Research Program in Imaging, 1999-2003; Advisory Cttee for Immuno-imaging Program, 2001-2002
Cancer Research UK, 2003
Dept of Energy, Office of Biological and Environmental Research, Sept 2004
Scientific Review Committee, Montreal Neurological Institute, McGill University, Aug 27-28, 2008
Canada Foundation for Innovation Review Committee (Neuroimaging), November 25 2008
The Alzheimer's Association, 2004, 2005, 2007, 2009
Dept of Veterans Affairs Merit Review Panel, Cellular and Molecular Medicine, November 2011

NIH Intramural Committees

PET Scientific Review (Kety) Committee, NIH Intramural Research Program, 1987-1995
PET Advisory Committee, Intramural Research Program, NIDA, NIH, 1995-97
CC *ad hoc* Committee for Medical Record Design, 1995
Head, NIH Inter-Institute PET Interest Group, 1996-present
Animal Care and Use Committee, NIH Clinical Center, 1993-present;
Vice-chair 2019-2020
Chair 1996-1998, 2003-2005, 2010-2012, 2020-2022
NIH Animal Research Advisory Committee, 1996-1998, 2003-2005, 2010-2012, 2020-2022
NIH Clinical Center Scientific Advisory Committee, 2004-2005
NIH Imaging Probe Development Center (IPDC) Steering Committee, 2007- 2019, replaced by:
NIH Chemistry and Synthesis Center Steering Cttee, 2020-present
NIH PET Steering Committee, 2005 – present
NIMH PET Committee, 2020-present
NINDS Protocol Scientific Review Committee, 2014 – present

NIMH Search Committee, for Director of Magnetoencephalography Core, 2018
NIBIB Search Committee for PI, PET Radiochemistry Research Laboratory, 2007-08
Chair, Search Committee for Director of Imaging Probe Development Center, NIH IRP, 2013
Chair, Search Committee for Director of Radiology Dept., NIH Clinical Center, 2017

Department of Health and Human Services Committees

FDA Medical Imaging Drugs Advisory Committee (MIDAC), Member, 2015-2025
CMS Medicare Evidence Development & Coverage Advisory Committee, *ad hoc* member, Jan 30, 2013
FDA Peripheral and Central Nervous System Drugs Advisory Committee, *ad hoc* member, January 20, 2011, to consider an NDA for Florbetapir F 18 injection for use in PET imaging of beta-amyloid in the brain
FDA Peripheral and Central Nervous System Drugs Advisory Committee, *ad hoc* member, August 11, 2009, to consider an NDA for I-123 Ioflupane to detect loss of functional nigrostriatal dopaminergic neurons by SPECT imaging
FDA Peripheral and Central Nervous System Drugs Advisory Committee, *ad hoc* member, Oct 23, 2008, to consider radionuclide imaging products for the detection of amyloid to assist in the diagnosis of Alzheimer's Disease
FDA CDER Medical Imaging Drugs Advisory Committee, Guest Expert, June 28-29, 1999

Department of Defense Committees

Joint Human Imaging/Image Processing Steering Committee, Center for Neuroscience & Regenerative Medicine, USUHS, DoD 2009 - 2020
Translational Imaging Facility Steering Committee, Center for Neuroscience & Regenerative Medicine, USUHS, DoD 2009 - 2020
Neuroimaging Steering Committee for The National Intrepid Center of Excellence (NICoE), Bethesda, MD, Dept of Defense, 2010-2011

Consultant and Other Activities

Neurology Consultant, Missouri Patient Care Review Foundation, 1985-86
West Virginia University Center for Nuclear Medicine Research, External Advisory Committee, 1991-93
Consultant, Brain Imaging Center, Nathan Kline Institute, Rockland Psychiatric Center, Orangeburg NY, 1992
External Advisory Committee, Clinical Pathophysiology of Acute Brain Injury Program Project, Washington University School of Medicine, St. Louis, MO, 1997-2005
External Advisory Committee and DSMB, Pilot Collaborative PET Imaging Trial in Frontotemporal Dementia, University of Michigan, 2003-2006

Teaching

Program in Occupational Therapy, Washington University School of Medicine: Medical Neurology 319C, 1983-86
Foundation for Advanced Education in the Sciences (FAES) Graduate School at the NIH: Course Director, Imaging 505 "PET Principles and Applications", 1998-2004

PUBLICATIONS

Papers

1. Sniderman AD, Herscovitch P, Marpole D, Fallen EL. Restoration of regional wall motion by nitroglycerin therapy in patients with left ventricular asynergy. *Chest* 1974; 66: 545-548.
2. Herscovitch P, Markham J, Raichle ME. Brain blood flow measured with intravenous H₂¹⁵O. I. Theory and error analysis. *J Nucl Med* 1983; 24:782-789.
3. Raichle ME, Martin WRW, Herscovitch P, Mintun MA, Markham J. Brain blood flow measured with intravenous H₂¹⁵O. II. Implementation and validation. *J Nucl Med* 1983;24:790-798.
4. Herscovitch P, Raichle ME. Effect of tissue heterogeneity on the measurement of cerebral blood flow with the equilibrium C¹⁵O₂ inhalation technique. *J Cereb Blood Flow Metab* 1983; 3:407-415.
5. Mintun MA, Raichle ME, Martin WRW, Herscovitch P. Brain oxygen utilization measured with O-15 radiotracers and positron emission tomography. *J Nucl Med* 1984; 25:177-187.

6. Volpe JJ, Herscovitch P, Perlman JM, Raichle ME. Positron emission tomography in the newborn: Extensive impairment of regional cerebral blood flow with intraventricular hemorrhage and hemorrhagic intracerebral involvement. *Pediatrics* 1983; 72:589-601.
7. Powers WJ, Martin WRW, Herscovitch P, Raichle ME, Grubb RL, Jr. Extracranial-intracranial bypass surgery: hemodynamic and metabolic effects. *Neurology* 1984; 34:1168-1174.
8. Reiman EM, Raichle ME, Butler FK, Herscovitch P, Robins E. A focal brain abnormality in panic disorder, a form of severe anxiety. *Nature* 1984; 310:683-685.
9. Fox PT, Mintun PA, Raichle ME, Herscovitch P: A noninvasive approach to quantitative functional brain mapping with H₂¹⁵O and positron emission tomography. *J Cereb Blood Flow Metab* 1985; 4:329-333.
10. Perlman JKM, Herscovitch P, Kreusser KL, Raichle ME, Volpe JJ. Positron emission tomography in the newborn: effect of seizure on regional cerebral flow in an infant. *Neurology* 1985; 35:244-247.
11. Herscovitch P, Raichle ME. What is the correct value for the brain:blood partition coefficient for water? *J Cereb Blood Flow Metab* 1985; 5:65-69.
12. Volpe JJ, Herscovitch P, Perlman JM, Kreusser KL, Raichle ME. Positron emission tomography in the asphyxiated newborn: parasagittal impairment of cerebral blood flow. *Ann Neurol* 1985; 17:287-296.
13. Herscovitch P, Mintun MA, Raichle ME. Brain oxygen utilization measured with O-15 radiotracers and positron emission tomography: generation of metabolic images. *J Nucl Med* 1985; 26:416-417.
14. Perlmutter JS, Herscovitch P, Powers WJ, Fox PT, Raichle ME. Standardized mean regional method for calculating global positron emission tomography measurements. *J Cereb Blood Flow Metab* 1985; 5:476-480.
15. Lauter JL, Herscovitch P, Formby C, Raichle ME. Tonotopic organization in human auditory cortex revealed by positron emission tomography. *Hearing Research* 1985; 20:199-205.
16. Ter-Pogossian MM, Herscovitch P. Radioactive oxygen-15 in the study of cerebral blood flow, blood volume, and oxygen metabolism. *Semin Nucl Med* 1985; 15:377-394.
17. Herscovitch P, Auchus PA, Gado M, Chi D, Raichle ME. Correction of positron emission tomography data for cerebral atrophy. *J Cereb Blood Flow Metab* 1986; 6:120-124.
18. Reiman EM, Raichle ME, Robins E, Butler FK, Herscovitch P, Fox P, Perlmutter J. The application of positron emission tomography to the study of panic disorder. *Am J Psychiatry* 1986; 143:469-477.
19. Perlmutter JS, Powers WJ, Herscovitch P, Fox PT, Raichle ME. Regional asymmetries of cerebral blood flow, blood volume, oxygen utilization and extraction in normal subjects. *J Cereb Blood Flow Metab* 1987; 7:64-67.
20. Herscovitch P, Raichle ME, Kilbourn MR, Welch MJ. Positron emission tomographic measurement of cerebral blood flow and permeability-surface area product of water using ¹⁵O-water and ¹¹C-butanol. *J Cereb Blood Flow Metab* 1987; 7:527-542.

21. Videen TO, Perlmutter JS, Herscovitch P, Raichle ME. Brain blood volume, flow, and oxygen utilization measured with O-15 radiotracers and positron emission tomography: revised metabolic computations. *J Cereb Blood Flow Metab* 1987; 7:513-516.
22. Altman DI, Powers WJ, Perlman JW, Herscovitch P, Volpe SL, Volpe JJ. Cerebral blood flow requirement for brain viability in newborn infants is lower than in adults. *Ann Neurol* 1988; 24:218-226.
23. Powers WJ, Stabin M, Howse D, Eichling JO, Herscovitch P. Radiation absorbed dose estimates for oxygen-15 radiopharmaceuticals in newborn infants. *J Nucl Med* 1988; 29:1961-1970.
24. Herscovitch P: Cerebral blood flow and metabolism measured with oxygen-15 radiotracers. *J Neuropsychiatry Clin Neurosci* 1989; 1:19-29.
25. Schapiro MB, Grady CL, Kumar A, Herscovitch P, Haxby JV, Moore AM, White B, Friedland RP, Rapoport SI. Regional cerebral glucose metabolism is normal in young adults with Down syndrome. *J Cereb Blood Flow Metab* 1990; 10:199-206.
26. Goldstein DG, Smith CB, Herscovitch P, Austin SM, Eisenhofer G, Chang PC, Kopin IJ. Dosimetric estimates for clinical positron emission tomographic scanning after injection of [¹⁸F]-6-fluorodopamine. *J Nucl Med* 1991; 32:102-110.
27. Haxby JV, Grady CL, Horwitz B, Ungerleider LG, Mishkin M, Carson RE, Herscovitch P, Schapiro MB, Rapoport SI. Dissociation of spatial and object visual processing pathways in human extrastriate cortex. *Proc Nat Acad Sci* 1991; 88:1621-1625.
28. Saris SC, Blasberg RG, Carson RE, DeVroom HL, Lutz RJ, Dedrick RL, Pettigrew K, Chang R, Doppman J, Wright DC, Herscovitch P, Oldfield EH: Intravascular streaming during carotid artery infusions: demonstration in humans and reduction using diastole-phased, pulsatile administration. *J Neurosurg* 1991; 74:763-772.
29. Powers WJ, Perlmutter JS, Videen TO, Herscovitch P, Griffeth LK, Royal HD, Siegel BA, Morris JC, Berg L. Blinded clinical evaluation of positron emission tomography for diagnosis of Alzheimer's disease. *Neurology* 1992; 42:765-770.
30. Grady C, Haxby J, Horwitz B, Schapiro M, Rapoport SI, Ungerleider L, Mishkin M, Carson R, Herscovitch P. Dissociation of object and spatial vision in human extrastriate cortex: Age-related changes in activation of regional cerebral blood flow measured with [¹⁵O]water and positron emission tomography. *J Cog Neurosci* 1992; 4:23-34.
31. Theodore WH, Carson RE, Andreason P, Zametkin A, Blasberg R, Liederman DB, Rice K, Newman A, Channing M, Dunn B, Simpson N, Herscovitch P. PET imaging of opiate receptor binding in human epilepsy using [¹⁸F]cyclofoxy. *Epilepsy Research* 1992; 13:129-139.
32. Kumar A, Braun A, Schapiro M, Grady C, Carson R, Herscovitch P. Cerebral glucose metabolic rates after 30 and 45 minute acquisitions: A comparative study. *J Nucl Med* 1992; 33:2103-2105.

33. Carson RE, Channing MA, Blasberg RG, Dunn BB, Cohen RM, Rice KC, Herscovitch P. Comparison of bolus and infusion methods for receptor quantitation: application to [¹⁸F]-cyclofoxy and positron emission tomography. *J Cereb Blood Flow Metab* 1993; 13:24-42.
34. Grady CL, Haxby JV, Horwitz B, Gillette J, Salerno JA, Gonzales-Aviles A, Carson RE, Herscovitch P, Schapiro MB, Rapoport SI. Activation of regional cerebral blood flow during a face perception task in patients with dementia of the Alzheimer type. *Neurobiol Aging* 1993; 14:35-44.
35. Zametkin AJ, Liebenauer LL, Fitzgerald GA, King AC, Minkunas DV, Herscovitch P, Yamada EM, Cohen RM. Brain metabolism in teenagers with attention deficit hyperactivity disorder. *Arch Gen Psychiatry* 1993; 50:333-340.
36. Matthew E, Andreason P, Carson RE, Herscovitch P, Pettigrew K, Cohen R, King C, Johanson CE, Paul S. Reproducibility of resting cerebral blood flow measurements with H₂¹⁵O positron emission tomography in humans. *J Cereb Blood Flow Metab* 1993; 13:748-754.
37. Carson RE, Yan Y, Daube-Witherspoon ME, Freedman N, Bacharach SL, Herscovitch P. An approximation formula for the variance of PET region-of-interest values. *IEEE Trans Med Imag* 1993; 12:240-250.
38. Braun AR, Stoetter B, Randolph C, Hsiao J, Vladar K, Gernert J, Carson RE, Herscovitch P, Chase TN. The functional neuroanatomy of Tourette's syndrome: An FDG PET study. I. Regional changes in cerebral glucose metabolism differentiating patients and controls. *Neuropsychopharm* 1993; 9: 277-291.
39. Goldstein DS, Eisenhofer G, Dunn BB, Armando I, Lenders J, Grossman E, Holmes C, Kirk KL, Bacharach S, Adams R, Herscovitch P, Kopin IJ. Positron emission tomographic imaging of cardiac sympathetic innervation using 6-[¹⁸F]fluorodopamine: Initial findings in humans. *J Amer Coll Cardiol* 1993; 22:1961-1971.
40. George MS, Ketter TA, Gill DS, Haxby JV, Ungerleider LG, Herscovitch P, Post RM. Brain regions involved in recognizing facial emotion or identity: an oxygen-15 PET study. *J Neuropsychiat Clin Neurosci* 1993; 5:384-394.
41. George MS, Ketter TA, Parekh PI, Rosinsky N, Ring H, Casey BJ, Trimble MR, Horwitz B, Herscovitch P, Post RM. Regional brain activity when selecting a response despite interference: An H₂¹⁵O PET study of the Stroop and an emotional Stroop. *Human Brain Mapping* 1994; 1:194-209.
42. Braun AR, Carson RE, Adams HR, Finn RD, Francis BE, Herscovitch P. A kinetic comparison of [¹⁸F]2-fluoro-2-deoxyglucose and [¹⁸F]2-fluoro-2-deoxymannose using positron emission tomography. *Nucl Med Biol* 1994; 21:857-863.
43. Molchan SE, Sunderland T, McIntosh AR, Herscovitch P, Schreurs BG. A functional anatomical study of associative learning in humans. *Proceed Nat Acad Sci* 1994; 91:8122-8126.
44. Parekh P, Spencer JW, George MS, Gill DS, Ketter TA, Andreason P, Herscovitch P, Post RM. Procaine-induced increases in limbic rCBF correlate positively with increases in occipital and temporal fast EEG activity. *Brain Topogr* 1995; 7:209-216.

45. Matthew E, Andreason P, Pettigrew K, Carson RE, Herscovitch P, Cohen R, King C, Johanson C, Greenblatt D, Paul SM. Benzodiazepine receptors mediate regional blood flow changes in the living human brain. *Proc Nat Acad Sci* 1995; 92:2775-2779.
46. Berman KF, Ostrem J, Randolph C, Gold J, Goldberg TE, Coppola R, Carson RE, Herscovitch P, Weinberger DR. Physiological activation of a cortical network during performance of the Wisconsin Card Sort Test: a positron emission tomographic study. *Neuropsychologia* 1995; 33:1027-1046.
47. Gaillard WD, Fazilat S, White S, Malow B, Sato S, Reeves P, Herscovitch P, Theodore WH. Interictal metabolism and blood flow are uncoupled in temporal lobe cortex of patients with complex partial epilepsy. *Neurology* 1995; 45:1841-1847.
48. George MS, Ketter TA, Parekh PI, Horwitz B, Herscovitch P, Post RM. Brain activity during transient sadness and happiness in healthy women. *Am J Psychiatry* 1995; 152:341-351.
49. Braun AR, Randolph C, Stoetter B, Mohr E, Cox C, Vladar K, Sexton R, Carson RE, Herscovitch P, Chase TN. The functional neuroanatomy of Tourette's syndrome: An FDG PET study. II. Relationships between regional cerebral metabolism and associated behavioral and cognitive features of the illness. *Neuropsychopharm* 1995; 13:151-168.
50. Arai T, Wakabayashi S, Channing MA, Dunn BB, Der MG, Bell JM, Herscovitch P, Eckelman WC, Rapoport SI, Chang MCJ. Incorporation of [1-carbon-11] palmitate in monkey brain using PET. *J Nucl Med* 1995; 36:2261-2267.
51. VanMeter JW, Maisog JM, Zeffiro TA, Hallett M, Herscovitch P, Rapoport SI. Parametric analysis of positron emission tomography images: a variable-rate motor task. *NeuroImage* 1995; 2:273-283.
52. Ketter TA, Andreason PJ, George MS, Lee C, Gill DS, Parekh P, Herscovitch P, Post RM. Anterior paralimbic mediation of procaine-induced emotional and psychosensory experiences. *Arch Gen Psychiatry* 1996; 53:59-69.
53. George MS, Parekh PI, Rosinsky N, Ketter TA, Kimbrell TA, Heilman K, Herscovitch P, Post RM. Understanding emotional prosody activates right hemisphere regions: an O15-water PET study in healthy volunteers. *Arch Neurol* 1996; 53:665-670.
54. Zünkeler B, Carson RE, Olson J, Blasberg RG, Girton M, Bacher J, Herscovitch P, Oldfield EH. Hyperosmolar blood-barrier disruption in primates: an *in vivo* study using positron emission tomography and ⁸²rubidium. *J Neurosurg* 1996; 84:494-502.
55. Theodore W, Balish M, Leiderman D, Bromfield E, Sato S, Herscovitch P. The effect of seizures on cerebral blood flow measured with ¹⁵O-H₂O and positron emission tomography. *Epilepsia* 1996; 37:796-802.
56. George MS, Ketter TA, Parekh PI, Herscovitch P, Post RM. Gender differences in regional cerebral blood flow during transient self-induced sadness or happiness. *Biol Psychiatry* 1996; 40:859-871.
57. Zünkeler B, Carson RE, Olson J, Blasberg R, DeVroom H, Lutz R, Saris S, Wright D, Kammerer W, Patronas N, Dedrick RL, Herscovitch P, Oldfield E. Quantitation of human blood-brain barrier disruption. *J Neurosurg* 1996; 85:1056-1065.

58. Marangell LB, Ketter TA, George MS, Pazzaglia PJ, Callahan AM, Parekh P, Andreason PJ, Horwitz B, Herscovitch P, Post RM. Inverse relationship of peripheral thyrotropin-stimulating hormone levels to brain activity in mood disorders. *Am J Psychiatry* 1997; 154:224-230.
59. Schreurs BG, Mcdntosh AR, Bahro M, Herscovitch P, Sunderland T, Molchan SE. Lateralization and behavioral correlation of changes in regional cerebral blood flow with classical conditioning of the human eyeblink response. *J Neurophysiol* 1997; 77:2153-2163.
60. Aloj L, Carson RE, Lang L, Herscovitch P, Eckelman WC. Measurement of transferrin receptor kinetics in the baboon liver using dynamic positron emission tomography imaging and [¹⁸F]holo-transferrin. *Hepatology* 1997; 25:986-990.
61. Sadato N, Carson RE, Daube-Witherspoon ME, Campbell G, Hallett M, Herscovitch P. Optimization of non-invasive activation studies with O-15 water and 3D PET. *J Cereb Blood Flow Metab* 1997; 17:732-739.
62. Braun AR, Balkin TJ, Wessenstein NJ, Carson RE, Varga M, Baldwin P, Belenky G, Herscovitch P. Regional cerebral blood flow during sleep and wakefulness: an H₂¹⁵O positron emission tomography study. *Brain* 1997; 120:1173-1197.
63. Chang MCJ, Arai T, Freed LM, Wakabayashi S, Channing MA, Dunn BB, Der MG, Bell JM, Herscovitch P, Eckelman WC, Rapoport SI. Brain incorporation of [1-11C]arachidonate in normocapnic and hypercapnic monkeys: a PET study. *Brain Res* 1997; 755:74-83.
64. Kiesewetter DO, Carson RE, Jagoda EM, Endres CJ, Der MG, Herscovitch P, Eckelman WC. In vivo muscarinic binding selectivity of (R,S) and (R,R)-[¹⁸F]fluoromethyl QNB. *Bioorganic Med Chem* 1997; 5:1555-1567.
65. George MS, Ketter TA, Parekh PI, Gill DS, Marangell LB, Pazzaglia PJ, Herscovitch P, Post RM. Depressed subjects have abnormal right hemisphere rCBF activation during facial emotion recognition. *CNS Spectrums* 1997; 2:45-55.
66. Braun AR, Balkin TJ, Wessenstein NJ, Gwady F, Carson RE, Varga M, Baldwin P, Belenky G, Herscovitch P. Dissociated activity within the visual cortices and their projections during rapid eye movement sleep. *Science* 1998; 279:91-95.
67. Chmielowska J, Coghill RC, Maisog JM, Carson RE, Herscovitch P, Honda M, Chen R, Hallett M. PET [¹⁵O] water studies with short interscan interval for single subject and group analysis: influence of background subtraction. *J Cereb Blood Flow Metab* 1998; 18:433-444.
68. Shoaf SE, Carson RE, Hommer D, Williams W, Higley JD, Schmall B, Herscovitch P, Eckelman WC, Linnoila M. Brain serotonin synthesis rates determined by [¹¹C]methyl-L-tryptophan and positron emission tomography compared to CSF 5-hydroxyindole-3-acetic acid concentrations. *Neuropsychopharm* 1998; 19:345-353.
69. Carson RE, Kiesewetter DO, Jagoda E, Der MG, Herscovitch P, Eckelman WC. Muscarinic cholinergic receptor measurements with [¹⁸F]FP-TZTP: control and competition studies. *J Cereb Blood Flow Metab* 1998; 18:1130-1142.

70. Carrasquillo JA, Lang L, Whatley M, Herscovitch P, Wang Q, Pastan I, Eckelman WC. Aminosyn II effectively blocks renal uptake of ^{18}F -labeled anti-Tac disulfide-stabilized FV. *Cancer Res* 1998; 58:2612-2617.
71. Kiesewetter DO, Carson RE, Jagoda EM, Herscovitch P, Eckelman WC. *In vivo* muscarinic binding of 3-(alkylthio)-3-thiadiazolyl tetrahydropyridines. *Synapse* 1999; 31:29-40.
72. Kiesewetter DO, Carson RE, Jagoda EM, Herscovitch P, Eckelman WC. Using single photon emission tomography (SPECT) and positron emission tomography (PET) to trace the distribution of muscarinic acetylcholine receptor (mAChR) binding radioligands. *Life Sci* 1999; 64:511-518.
73. Chmielowska J, Coghill RC, Carson RE, Ishii K, Chen R, Hallett M, Herscovitch P. Comparison of PET [^{15}O]water studies with 6-min and 10-min interscan intervals: single-subject and group analyses. *J Cereb Blood Flow Metab* 1999; 19:570-582.
74. Beason-Held LL, Desmond RE, Herscovitch P, Carson RE. Bolus injection versus slow infusion of [^{15}O]water for PET activation studies. *J Cereb Blood Flow Metab* 1999; 19:843-52.
75. Bahro M, Molchan SE, Sunderland T, Herscovitch P, Scheurs B. The effects of scopolamine on changes in regional cerebral blood flow during classical conditioning of the human eyeblink response. *Neuropsychobiology* 1999; 39:187-195.
76. Ketter TA, Kimbrell TA, George MS, Willis MW, Benson BE, Danielson A, Frye MA, Herscovitch P, Post RM. Baseline cerebral hypermetabolism associated with carbamazepine response, and hypometabolism with nimodipine response in mood disorders. *Biol Psychiatry* 1999; 46: 1364-1374.
77. Kimbrell TA, George MS, Parekh PI, Ketter TA, Podell DM, Danielson AL, Willis MW, Herscovitch P, Post RM. Regional brain activity during transient self-induced anxiety and anger in healthy adults. *Biol Psychiat* 1999; 46:454-465.
78. Shoaf SE, Carson RE, Hommer D, Williams W, Higley JD, Schmall B, Herscovitch P, Eckelman WC. The suitability of [^{11}C] α -methyl-L-tryptophan as a trace for serotonin synthesis: studies with dual administration of [^{11}C] and [^{14}C] labeled tracer. *J Cereb Blood Flow Metab* 2000; 20: 244-252.
79. Kiesewetter D, Sassaman M, Robbins J, Jagoda EM, Carson RE, Appel N, Sutkowski E, Herscovitch P, Braun A, Eckelman WC. Synthesis and evaluation of an F-18 analogue of forskolin for imaging adenylyl cyclase. *J Fluorine Chem* 2000; 10: 297-304.
80. Watabe H, Channing MA, Der MG, Adams HR, Jagoda E, Herscovitch P, Eckelman WC, Carson RE. Kinetic analysis of the 5-HT_{2A} ligand [C-11] MDL 100,907. *J Cereb Blood Flow Metab* 2000; 20:899-909.
81. Osuch EA, Ketter TA, Kimbrell TA, George MS, Benson BE, Willis MW, Herscovitch P, Post RM. Regional cerebral metabolism associated with anxiety symptoms in affective disorder patients. *Biol Psychiatry* 2000; 48:1020-1023.

82. Speer AM, Kimbrell TA, Wassermann EM, Repella J, Willis MW, Demian N, Herscovitch P, Post RM. Opposite effects of high and low frequency rTMS on regional brain activity in depressed patients *Biol Psych* 2000; 48:1133-1141.
83. Carson RE, Lang LX, Watabe H, Der MG, Adams HR, Jagoda E, Herscovitch P, Eckelman WC. PET evaluation of [F-18]FCWAY, an analog of the 5-HT1A receptor antagonist, WAY-100635. *Nuclear Med Biology* 2000; 27:493-497.
84. Kling MA, Carson RE, Borg L, Zametkin A, Matochik JA, Schluger J, Herscovitch P, Rice KC, Ho A, Eckelman WC, Kreek MJ. Opioid receptor imaging with positron emission tomography and [F-18]cyclofoxy in long-term, methadone-treated former heroin addicts. *J Pharmacol Exp Ther* 2000; 295:1070-1076.
85. Ketter TA, Kimbrell TA, George MS, Dunn RT, Speer AM, Benson BE, Willis MW, Danielson A, Frye MA, Herscovitch P, Post RM. Effects of mood and subtype on cerebral glucose metabolism in treatment-resistant bipolar disorder. *Biol Psychiatry* 2001; 49:97-109.
86. Moore DF, Herscovitch P, Schiffmann R. Selective arterial distribution of cerebral hyperperfusion in Fabry disease. *J Neuroimaging* 2001; 11:303-307.
87. Osuch EA, Benson B, Geraci M, Podell D, Morgan C, Herscovitch P, McCann UD, Post RM. Regional cerebral blood flow correlated with flashback intensity in patients with posttraumatic stress disorder. *Biol Psychiatry* 2001; 50:246-253.
88. Moore DF, Gladwin M, Leland S, Altarescu G, Kaneski C, Pease-Fye M, Brady RO, Ferri R, Iuliano B, Herscovitch P, Schiffmann R. Regional cerebral hyperperfusion and nitric oxide pathway dysregulation in Fabry disease: reversal by enzyme replacement therapy. *Circulation* 2001; 104:1506-1512.
89. Kimbrell TA, Ketter TA, George MS, Little JT, Benson BE, Willis MW, Herscovitch P, Post RM. Regional cerebral glucose utilization in patients with a range of severities of unipolar depression. *Biol Psychiatry* 2002; 51:237-252.
90. Willis MW, Ketter TA, Kimbrell TA, George MS, Herscovitch P, Danielson A, Benson BE, Post RM. Age, sex and laterality effects on cerebral glucose metabolism in healthy adults. *Psychiatry Res: Neuroimaging* 2002; 114:23-37.
91. Balkin TJ, Braun AR, Wesensten NJ, Varga M, Jeffries K, Baldwin P, Herscovitch P. The process of awakening: Reactivation and functional reorganization of heteromodal association cortices. *Brain* 2002; 125:2308-2319.
92. Moore DF, Altarescu G, Herscovitch P, Schiffmann R. Abnormal cerebrovascular responses in Fabry disease reversed are reversed following enzyme replacement therapy. *BMC Neurology* 2002; 2: 4 (1-10).
93. Jeffries KJ, Schooler C, Schoenbach C, Carson RE, Herscovitch P, Chase TN, Braun AR. The functional neuroanatomy of Tourette's syndrome III. *Neuropsychopharmacology* 2002; 27:92-104.

94. Giovacchini G, Chang MCJ, Channing MA, Toczek M, Mason A, Bokde ALW, Connolly C, Vuong B-K, Ma Y, Der MG, Doudet DJ, Herscovitch P, Eckelman WC, Rapoport SI, Carson RE. Brain incorporation of [¹¹C]arachidonate in young healthy humans measured with positron emission tomography. *J Cereb Blood Flow Metab* 2002; 22:1453-1462.
95. Kimbrell TA, Dunn RT, George MS, Danielson AL, Willis MW, Repella JD, Benson BE, Herscovitch P, Post RM, Wassermann EM. Left prefrontal-repetitive transcranial magnetic stimulation (rTMS) and regional cerebral glucose metabolism in normal volunteers. *Psychiatry Res: Neuroimaging* 2002; 115:101-113.
96. Carson RE, Wu Y, Lang L, Ma Y, Der MG, Herscovitch P, Eckelman WC. Brain uptake of the acid metabolites of F-18 labeled WAY 100,634 analogs. *J Cereb Blood Flow Metab* 2003; 23:249-260.
97. Podruchny TA, Connolly C, Bokde A, Herscovitch P, Eckelman W, Kiesewetter D, Sunderland T, Carson RE, Cohen RM. In vivo muscarinic 2 receptor imaging in cognitively normal young and older volunteers. *Synapse* 2003; 48:39-44.
98. Toczek MT, Carson RE, Lang L, Ma Y, Spanaki MV, Der MG, Fazilat S, Kopylev L, Herscovitch P, Eckelman WC, Theodore WH. PET imaging of 5-HT_{1A} receptor binding in patients with temporal lobe epilepsy. *Neurology* 2003; 60:749-756.
99. Speer AM, Willis MW, Herscovitch P, Daube-Witherspoon M, Shelton JR, Benson B, Post RM, Wassermann EM. Intensity-dependent regional cerebral blood (rCBF) during 1 Hz repetitive transcranial magnetic stimulation in healthy volunteers studied with H₂¹⁵O PET: I. Effects of primary motor cortex rTMS. *Biol Psychiatry* 2003; 54:818-825.
100. Speer AM, Willis MW, Herscovitch P, Daube-Witherspoon M, Shelton JR, Benson B, Post RM, Wassermann EM. Repetitive transcranial magnetic stimulation in healthy volunteers studied with H₂¹⁵O PET: II. Effects of prefrontal cortex rTMS. *Biol Psychiatry* 2003; 54:826-832.
101. Cohen RM, Podruchny TA, Bokde AL, Carson RE, Herscovitch P, Kiesewetter DO, Eckelman WC, Sunderland T. Higher In vivo muscarinic-2 receptor distribution volumes in aging subjects with an apolipoprotein E-epsilon4 allele. *Synapse* 2003; 49:150-156.
102. Frank SM, Satitpunwaycha P, Bruce SR, Herscovitch P, Goldstein D. Increased myocardial perfusion and sympathoadrenal activation during mild core hypothermia in awake humans. *Clin Sci* 2003; 104:503-508.
103. Kurdziel KA, Kiesewetter DO, Carson RE, Eckelman WC, Herscovitch P. Biodistribution, radiation dose estimates and *in vivo* Pgp modulation studies of [¹⁸F]paclitaxel in non-human primates. *J Nucl Med* 2003; 44:1330-1339.
104. Moore DF, Altarescu G, Barker WC, Patronas N, Herscovitch P, Schiffmann. White matter lesions in Fabry Disease occur in 'prior' selectively hypometabolic and hypoperfused brain regions: a pathophysiological model of leukoariosis. *Brain Res Bull* 2003; 62: 231-240.
105. Marengo S, Carson RE, Berman K, Herscovitch P, Weinberger D. Nicotine-induced dopamine release in primates measured with [¹¹C]raclopride PET. *Neuropsychopharm* 2004; 29:259-68.

106. Neumeister A, Bain E, Nugent AC, Carson RE, Bonne O, Luckenbaugh DA, Eckelman W, Herscovitch P, Charney DS, Drevets WC. Reduced serotonin type 1_A receptor binding in panic disorder. *J Neurosci* 2004; 24:589-591.
107. Poremba A, Malloy M, Saunders RC, Carson RE, Herscovitch P, Mishkin M. Species-specific calls evoke asymmetric activity in the monkey's temporal poles. *Nature* 2004; 427:448-451.
108. Benson BE, Carson RE, Kiesewetter DO, Herscovitch P, Eckelman WC, Post RM, Ketter TA. A potential cholinergic mechanism of procaine's limbic activation. *Neuropsychopharm* 2004; 29:1239-1250.
109. Neumeister A, Nugent AC, Waldeck T, Geraci M, Schwarz M, Bonne O, Luckenbaugh DA, Herscovitch P, Charney DS, Drevets WC. Neural and behavioral responses to tryptophan depletion in unmedicated remitted patients with major depressive disorder and controls. *Arch Gen Psychiat* 2004; 61:765-773.
110. Giovacchini G, Lerner A, Toczek M, Fraser C, Ma K, DeMar JC, Herscovitch P, Eckelman WC, Rapoport SI, Carson RE. Brain incorporation of [¹¹C]arachidonate acid, blood volume, and blood flow in healthy aging: A study with partial volume correction. *J Nucl Med* 2004; 45:1471-1479.
111. GF Wittenberg, KJ Werhahn, EM Wassermann, P Herscovitch, LG Cohen. Functional connectivity between somatosensory and visual cortex in early blind humans. *Eur J Neurosci* 2004; 20:1923-1927.
112. R Gil-da-Costa, A Braun, M Lopes, MD Hauser, RE Carson, P Herscovitch, A Martin. Towards an evolutionary perspective on conceptual representation: Species-specific calls activate visual and affective processing systems in the macaque. *Proceed Nat Acad Sci* 2004; 101:17516-17521.
113. O Bonne, E Bain, A Neumeister, AC Nugent, M Vythilingam, RE Carson, DA Luckenbaugh, W Eckelman, P Herscovitch, WC Drevets, DS Charney. No change in serotonin type 1A receptor binding in posttraumatic stress disorder. *Am J Psychiat* 2005; 162:383-385.
114. C Smith, KC Schmidt, M Qin, T Burlin, M Cook, J Kang, R Saunders, J Bacher, RE Carson, M Channing, WC Eckelman, P Herscovitch, P Laverman, BK Vuong. Measurement of regional rates of cerebral protein synthesis with L-[1-¹¹C]leucine and PET with correction for recycling of tissue amino acids: II. Validation in rhesus monkeys. *J CBF Metabol* 2005, 25:629-640.
115. Giovacchini G, Toczek MT, Bonwetsch R, Lang L, Fraser C, Reeves-Tyer P, Herscovitch P, Eckelman WC, Carson RE, Theodore WH. 5-HT_{1A} receptors are reduced in temporal lobe epilepsy after partial volume correction. *J Nucl Med* 46 2005; 1128-1135.
116. G Giovacchini, L Lang, Y Ma, P Herscovitch, WC Eckelman, RE Carson. Differential effects of paroxetine on raphe and cortical 5-HT_{1A} binding: A PET study in monkeys. *NeuroImage* 2005; 28:238-248.
117. Neumeister A, Drevets WC, Belfer I, Luckenbaugh DA, Henry S, Bonne O, Herscovitch P, Goldman D, Charney DS. Effects of a α_{2C} -adrenoreceptor gene polymorphism on neural responses to facial expressions in depression. *Neuropsychopharm* 2006; 31:1750-1756.

118. Theodore WH, Giovacchini G, Bonwetsch R, Bagic A, Reeves-Tyer P, Herscovitch P, Carson RE. The effect of antiepileptic drugs on 5-HT-receptor binding measured by positron emission tomography. *Epilepsia* 2009; 47:499-503.
119. Neumeister A, Hu XZ, Luckenbaugh DA, Schwarz M, Nugent AC, Bonne O, Herscovitch P, Goldman D, Drevets WC, Charney DS. Differential effects of 5-HTTLPR genotypes on the behavioral and neural responses to tryptophan depletion in patients with major depression and controls. *Arch Gen Psychiatry* 2006; 63:978-986.
120. Bankiewicz KS, Forsayeth JR, Eberling JL, Sanchez-Pernaute R, Pivrotto P, Bringas J, Herscovitch P, Carson RE, Eckelman WC, Reutter B, Cunningham J. Long-term clinical improvement in MPTP-lesioned primates after gene therapy with AAV-hAADC. *Mol Therapy* 2006; 14:564-570.
121. Esposito G, Giovacchini G, Der M, Liow JS, Bhattacharjee AK, Ma K, Herscovitch P, Channing M, Eckelman WC, Hallett M, Carson RE, Rapoport SI. Imaging signal transduction via arachidonic acid in the human brain during visual stimulation, by means of positron emission tomography. *Neuroimage* 2007; 34:1342-1351.
122. Theodore WH, Hasler G, Giovacchini G, Kelley K, Reeves-Tyer P, Herscovitch P, Drevets W. Reduced hippocampal 5HT1A PET receptor binding and depression in temporal lobe epilepsy. *Epilepsia* 2007; 48:1526-1530.
123. Giovacchini G, Bonwetsch R, Herscovitch P, Carson R, Theodore W. Cerebral blood flow in temporal lobe epilepsy: a partial volume correction study. *Eur J Nucl Med Mol Imaging* 2007; 34:2066-2072.
124. Floel A, Garraux G, Xu B, Breitenstein C, Knecht S, Herscovitch P, Cohen LG. Levodopa increases memory encoding and dopamine release in the striatum in the elderly. *Neurobiol Aging* 2008; 29:267-279.
125. Cropley VL, Fujita M, Bara-Jimenez W, Brown AK, Zhang Y, Sangare, Herscovitch P, Pike VW, Hallett M, Nathan PJ, Innis RB. Pre- and post-synaptic dopamine imaging and its relation with frontostriatal cognitive function in Parkinson disease: PET studies with [¹¹C]NNC 112 and [¹⁸F]FDOPA. *Psychiatry Research: Neuroimaging* 2008; 163:171-182.
126. Willis MW, Benson BE, Ketter TA, Kimbrell T, George MS, Speer AM, Herscovitch P, Post R. Interregional cerebral metabolic associativity during a continuous performance task (Part I): Healthy adults. *Psychiatry Research: Neuroimaging* 2008; 164:16-29.
127. Benson BE, Willis MW, Ketter TA, Speer AM, Kimbrell T, George MS, Herscovitch P, Post R. Interregional cerebral metabolic associativity during a continuous performance task (Part II): Differential alterations in bipolar and unipolar disorders. *Psychiatry Research: Neuroimaging* 2008; 164:30-47.
128. Smith CB, Schmidt KC, Bishu S, Channing M, Bacon J, Burlin T, Qin M, Liu Z, Xia Z, Huang T, Vuong B, Herscovitch P. Use of acute hyperphenylalaninemia in rhesus monkeys to examine sensitivity and stability of the L-[1-¹¹C]leucine method for measurement of regional rates of cerebral protein synthesis with PET. *J Cereb Blood Flow Metab* 2008; 28:1388-1398.

129. Bishu S, Schmidt KC, Burlin T, Channing M, Huang T, Liu Z, Qin M, Unterman A, Xia Z, Zametkin A, Herscovitch P, Smith C. Regional rates of cerebral protein synthesis measured with L-[1-¹¹C]leucine and PET in conscious, young adult men: Normal values, variability, and reproducibility. *J Cereb Blood Flow Metab* 2008; 28:1502-1513.
130. Esposito G, Giovacchini G, Liow JS, Bhattacharjee AK, Greenstein D, Schapiro M, Hallett M, Herscovitch P, Eckelman WC, Carson RE, Rapoport SI. Imaging neuroinflammation in Alzheimer Disease with radiolabeled arachidonic acid and PET. *J Nucl Med* 2008; 49:1414-1421.
131. Nugent AC, Neumeister A, Goldman D, Herscovitch P, Charney, D, Drevets WC. Serotonin transporter genotype and depressive phenotype determination by discriminant analysis of glucose metabolism under tryptophan depletion. *Neuroimage* 2008; 43:764-774.
132. Liew CJ, Lim Y-M, Bonwetsch R, Shamim, Sato S, Giovacchini G, Herscovitch P, Dustin I, Bagic A, Reeves P-T, Theodore WH. 5-HT_{1A} and FDG-PET in MRI negative temporal lobe epilepsy. *Epilepsia* 2009; 50: 234-239.
133. Liow J-S, Kreisl W, Zoghbi SS, Lazarova N, Seneca N, Gladding R, Tuan E, Taku A, Herscovitch P, Pike VW, Innis RB. P-Glycoprotein function at the blood-brain barrier imaged with ¹¹C-N-Desmethyl-Loperamide in monkeys. *J Nucl Med* 2009; 50:108-115.
134. Umhau JC, Zhou W, Carson RE, Rapoport SI, Polozova A, Demar J, Hussein N, Bhattacharjee AK, Ma K, Esposito G, Majchrzak S, Herscovitch P, Eckelman WC, Kurdziel KA, Salem N. Quantitative imaging of human brain incorporation of docosahexaenoic acid using positron emission tomography. *J Lipid Res* 2009; 50:1259-68.
135. Speer AM, Benson BE, Kimbrell TK, Wassermann EM, Willis MW, Herscovitch P, Post RM. Opposite effects of high and low frequency rTMS on mood in depressed patients: Relationship to baseline cerebral activity on PET. *J Affect Disord* 2009; 115:386-394.
136. Seneca N, Zoghbi SS, Liow JS, Kreisl W, Herscovitch P, Jenko K, Gladding RL, Taku A, Pike VW, Innis RB. Human brain imaging and radiation dosimetry of ¹¹C-N-Desmethyl-Loperamide, a PET radiotracer to measure the function of P-Glycoprotein. *J Nuc Med* 2009; 50:807-813.
137. Bishu S, Schmidt KC, Burlin TV, Channing MA, Horowitz L, Huang T, Liu ZH, Qin M, Vuong BK, Unterman AJ, Xia Z, Zametkin A, Herscovitch P, Quezado Z, Smith CB. Propofol anesthesia does not alter regional rates of cerebral protein synthesis measured with L-[1-(¹¹C)]leucine and PET in healthy male subjects. *J Cereb Blood Flow Metab* 2009; 29:1035-1047.
138. Giovacchini G, Herscovitch P, Theodore WH. Using cerebral white matter for estimation of nonspecific binding of 5-HT_{1A} receptors in temporal lobe epilepsy. *J Nuc Med* 2009; 50:1794-800.
139. Mascio D, Srinivasula S, Bhattacharjee A, Cheng L, Martiniova L, Herscovitch P, Lertora J, Kiesewetter D. Antiretroviral tissue kinetics: In vivo imaging using positron emission tomography. *Antimicrob Agents Chemother* 2009; 53:4086-4095.
140. Pearl PL, Gibson KM, Quezado Z, Dustin I, Taylor J, Trzcinski S, Schreiber J, Forester K, Reeves-Tyer P, Liew C, Shamim S, Herscovitch P, Carson R, Butman J, Jakobs C, Theodore W: Decreased GABA-A binding on FMZ-PET in succinic semialdehyde dehydrogenase deficiency. *Neurology* 2009; 73:423-429.

141. Kreisl WC, Liow JS, Kimura N, Seneca N, Zoghbi SS, Morse CL, Herscovitch P, Pike VW, Innis RB. P-glycoprotein function at the blood-brain barrier in humans can be quantified with the substrate radiotracer ¹¹C-N-desmethyl-loperamide. *J Nucl Med* 2010; 51:559-66.
142. Ramchandani VA, Umhau J, Pavon FJ, Ruiz-Velasco V, Margas W, Sun H, Damadzic R, Eskay R, Schoor M, Thorsell A, Schwandt ML, Sommer WH, George WT, Parsons LH, Herscovitch P, Hommer D, Heilig M. A genetic determinant of the striatal dopamine response to alcohol in males. *Mol Psychiatry* 2011; 16:809-817.
143. Kitano M, Millo C, Rahbari R, Herscovitch P, Gesuwan K, Webb RC, Venkatesan AM, Phan GQ, MS Hughes, Libutti SK, Nilubol N, Linehan W, Kebebew E. Comparison of 6-¹⁸F-Fluoro-L-DOPA, ¹⁸F-2-deoxy-D-glucose, CT, and MRI in patients with pancreatic neuroendocrine neoplasms with von Hippel-Lindau disease. *Surgery* 2011; 150:1122-1128.
144. Martin-Soelch C, Szczepanik J, Nugent A, Barhaghi K, Rallis D, Herscovitch P, Carson RE, Drevets WC. Lateralization and gender differences in the dopaminergic response to unpredictable reward in the human ventral striatum. *Europ J Neurosci* 2011; 33:1705-1715.
145. Thambisetty M, Gallardo K, Liow JS, Beason-Held L, Umhau J, Bhattacharjee A, Der M, Herscovitch P, Rapoport S. The utility of ¹¹C-arachidonate PET to study *in vivo* dopaminergic neurotransmission in humans. *J Cereb Blood Flow Metab* 2012; 32:676-684.
146. Weisbrod AB, Kitano M, Gesuwan, Millo C, Herscovitch P, Nilubol N, Linehan WM, Kebebew E. Clinical utility of functional imaging with ¹⁸F-FDOPA in Von Hippel-Lindau Syndrome. *J Clinical Endocrinology Metabol* 2012; 97:613-617.
147. Lerner A, Bagic A, Simmons JM, Mari Z, Bonne O, Xu B, Kazuba D, Herscovitch P, Carson RE, Murphy DL, Drevets WC, Hallet M. Widespread abnormality of the GABA-ergic system in Tourette syndrome. *Brain* 2012; 135: 1926-1936.
148. Savitz J, Nugent AC, Cannon DM, Carlson PJ, Davis R, Neumeister R, Rallis-Frutos D, Fromm S, Herscovitch P, Drevets WC. Differential effects of arterial cannulation stress on regional cerebral blood flow in patients with major depressive disorder (MDD) and healthy controls: an [¹⁵O]-H₂O PET study. *Scientific Reports* 2012; 2:308.
149. Via L, Schimel D, Weiner D, Dartois V, Dayao E, Cai Y, Yoon YS, Dreher M, Kastenmayer R, Laymon C, Carney E, Flynn J, Herscovitch P, Barry C. Infection dynamics and the response to chemotherapy in a rabbit model of tuberculosis using [¹⁸F]-2-Fluoro-deoxy-D-glucose positron emission tomography - computed tomography. *Antimicrobial Agents Chemotherapy* 2012; 56: 4391-4402.
150. Hipp SJ, Steffen-Smith EA, Patronas N, Herscovitch P, Solomon JM, Bent RS, Steinberg SM, Warren KE. Molecular imaging of pediatric brain tumors: comparison of tumor metabolism using ¹⁸F-FDG-PET and MRSI. *J Neurooncol* 2012; 109: 521-527.
151. P Lee, Brychta RJ, Collins MT, Linderman J, Smith S, Herscovitch P, Millo C, Chen K, Celi FS. Cold-activated brown adipose tissue is an independent predictor of higher bone mineral density in women but not men. *Osteoporosis Int* 2013; 24:1513-1518.

152. A Martinez, A Finegersh, DM Cannon, I Dustin, A Nugent, P Herscovitch, WH Theodore: The 5HT_{1A} receptor and 5HT transporter in temporal lobe epilepsy. *Neurology* 2013; 80:1465-1471.
153. Simonyan K, Herscovitch P, Horwitz B. Speech-induced striatal dopamine release is left lateralized and coupled to functional striatal circuits in healthy humans: A combined PET, fMRI and DTI study. *Neuroimage* 2013; 70:21-32.
154. Savitz J, Hodgkinson CA, Martin-Soelch C, Shen PH, Szczepanik J, Nugent A, Herscovitch P, Grace AA, Goldman D, Drevets WC. The functional DRD3 Ser9Gly polymorphism (rs6280) is pleiotropic, affecting reward as well as movement. *PLoS ONE* 2013; 8:e54108.
155. CS Hines, M Fujita, SS Zoghbi, JS Kim, Z Quezado, P Herscovitch, N Miao, MD Ferraris Araneta, C Morse, VW Pike, J Labovsky, RB Innis: Propofol decreases in vivo binding of [¹¹C]PBR28 to translocator protein (18kD) in human brain. *J Nuc Med* 2013; 54:64-69.
156. Nugent AC, Bain EE, Carlson PJ, Neumeister A, Bonne O, Carson RE, PhD, Eckelman W, Herscovitch P, Zarate Jr CA, Charney DS, Drevets WC. Reduced post-synaptic serotonin type 1A receptor binding in bipolar depression. *Europ Neuropsychopharm* 2013; 23:822-829.
157. Johnson KA, Minoshima S, Bohnen NI, Donohoe KJ, Foster NL, Herscovitch P, Karlawish JH, Rowe CC, Carrillo MC, Hartley DM, Hedrick S, Pappas V, Thies WH. Appropriate use criteria for amyloid PET. *J Nucl Med* 2013; 54:476-490.
158. Carlson PJ, Diazgranados N, Nugent AC, Ibrahim L, Luckenbaugh DA, Brutsche N, Herscovitch P, Manji HK, Zarate Jr CA, Drevets WC. Neural correlates of rapid antidepressant response to ketamine in treatment-resistant unipolar depression: A preliminary PET study. *Biol Psychiat* 2013; 73:1213-1221.
159. Chen KY, Brychta RJ, Linderman J, Smith S, Courville A, Dieckmann W, Herscovitch P, Millo C, Reitman M, Lee P, Celi FS. Brown fat activation explains cold-induced thermogenesis in adult humans responding to a mild decrease in ambient temperature. *J Clin Endocrin Metabol* 2013; 98:E1218-1223.
160. Savitz J, Hodgkinson CA, Martin-Soelch C, Shen PH, Szczepanik J, Nugent AC, Herscovitch P, Grace AA, Goldman D, Drevets WC. DRD2/ANKK1 Taq1A polymorphism (rs1800497) has opposing effects on D2/3 receptor binding in healthy controls and patients with major depressive disorder. *Int J Neuropsychopharmacol* 2013; 20:1-7.
161. Blanchet EM, Martucci V, Millo C, Chen CC, Herscovitch P, Pacak K. Multi-tracer PET imaging of bone metastases from paraganglioma: peripheral halo of uptake on ¹⁸F-FLT PET mismatching with central uptake of ¹⁸F-FDOPA, ¹⁸F-Fdopamine, and ¹⁸F-FDG. *Eur J Nucl Med Mol Imaging* 2013; 40:1928-1929.
162. Johnson KA, Minoshima S, Bohnen NI, Donohoe KJ, Foster NL, Herscovitch P, Karlawish JH, Rowe CC, Hedrick S, Pappas V, Carrillo MC, Hartley DM. Update on appropriate use criteria for amyloid PET imaging: Dementia experts, mild cognitive impairment, and education. *J Nucl Med* 2013; 54:1011-1013.

163. Simonyan K, Berman B, Herscovitch P, Hallett M. Abnormal striatal dopaminergic neurotransmission during rest and task production in spasmodic dysphonia. *J Neurosci* 2013; 33:14705-14714.
164. Berman BD, Hallett M, Herscovitch P, Simonyan K. Striatal dopaminergic dysfunction at rest and during task performance in writer's cramp. *Brain* 2013; 136(Pt12):3645-3658.
165. Nugent AC, Carlson PJ, Bain EE, Eckelman W, Herscovitch P, Manji H, Zarate CA Jr, Drevets WC. Mood stabilizer treatment increases serotonin type 1A receptor binding in bipolar depression. *J Psychopharmacol* 2013; 27:894-902.
166. Savitz J, Nugent AC, Bellgowan PS, Wright N, Tinsley R, Zarate CA Jr, Herscovitch P, Drevets WC. Catecholamine depletion in first-degree relatives of individuals with mood disorders: An [¹⁸F]fluorodeoxyglucose positron emission tomography study. *NeuroImage Clin* 2013; 2:341-355.
167. Umhau JC, Zhou W, Thada S, Demar J, Hussein N, Bhattacharjee AK, Ma K, Majchrzak-Hong S, Herscovitch P, Salem N Jr, Urish A, Hibbeln JR, Cunnane SC, Rapoport SI, Hirvonen J: Brain docosahexaenoic acid [DHA] incorporation and blood flow are increased in chronic alcoholics: a positron emission tomography study corrected for cerebral atrophy. *PLoS One* 2013; 8:e75333.
168. Speer AM, Wassermann EM, Benson BE, Herscovitch P. R M Post Antidepressant efficacy of high and low frequency rTMS at 110% of motor threshold versus sham stimulation over left prefrontal cortex, brain stimulation. *Brain Stimul* 2014; 7:36-41.
169. Nugent AC, Diazgranados N, Carlson PJ, Ibrahim L, Luckenbaugh DA, Brutsche N, Herscovitch P, Drevets WC, Zarate Jr CA. Neural correlates of rapid antidepressant response to ketamine in bipolar disorder. *Bipolar Disord* 2014; 16:119-128.
170. Benson BE, Willis MW, Ketter TA, Speer A, Kimbrell TA, Herscovitch P, George MS. RM Post: Differential abnormalities of functional connectivity of the amygdala and hippocampus in unipolar and bipolar affective disorders. *J Affective Disorders* 2014; 168:243-253.
171. Guo J, Simmons WK, Herscovitch P, Martin A, Hall KD. Striatal dopamine D2-like receptor correlation patterns with human obesity and opportunistic eating behavior. *Mol Psychiatry* 2014; 19:1078-1084.
172. Chen R, Dodd L, Lee M, Paripati P, Hammoud D, Mountz J, Jeon D, Zia N, Coleman T, Carroll M, Via L, Lee JD, Jeong YJ, Herscovitch P, Lahouar S, Tartakovsky M, Rosenthal A, Lee S, Goldfeder L, Cai C, Park SK, Cho R, Barry C. PET/CT imaging correlates with treatment outcome in patients with multidrug-resistant tuberculosis. *Science Transl Med* 2014; 6:265.
173. Chittiboina P, Montgomery B, Millo C, Herscovitch P, Lonser R. High resolution ¹⁸F-fluorodeoxyglucose positron emission tomography and magnetic resonance imaging for pituitary adenoma detection in Cushing disease. *J Neurosurg* 2015; 122:791-797.
174. Sadowski SM, Millo C, Cottle-Delisle C, Merkel R, Yang LA, Cochran C, Gramza A, Nilubol N, Herscovitch P, Pacak K, Marx SJ, Kebebew E. Results of ⁶⁸Gallium-DOTATATE PET/CT scanning in patients with multiple endocrine neoplasia type 1. *J Am Coll Surg* 2015; 221:509-517.
175. Janssen I, Blanchet EM, Adams K, Chen CC, Millo C, Herscovitch P, Taieb D, Kebebew E, Lehnert H, AT Fojo, K Pacak. Superiority of [⁶⁸Ga]-DOTATATE PET/CT to other functional imaging modalities in

- the localization of SDHB-associated metastatic pheochromocytoma and paraganglioma. *Clin Cancer Res* 2015; 21:3888-3895.
176. Via L, England K, Weiner D, Schimel D, Zimmerman M, Dayao E, Chen R, Dodd L, Richardson M, Robbins K, Cai Y, Hammoud D, Herscovitch P, Dartois V, Flynn J, Barry C. A sterilizing tuberculosis treatment regimen is associated with faster clearance of bacteria in cavitory lesions in marmosets. *Antimicrob Agents Chemother* 2015; 59:4181-4189.
 177. Sadowski SM, Millo C, Neychev V, Aufforth R, Keutgen X, Glanville J, Alimchandi M, Nilubol N, Herscovitch P, Quezado M, Kebebew E. Feasibility of radioguided surgery with ⁶⁸Gallium DOTATATE in patients with gastro-entero-pancreatic neuroendocrine tumors. *Ann Surg Oncol* 2015; 22 Suppl 3:676-682.
 178. Blanchet E, Taieb D, Millo C, Martucci V, Chen CC, Merino M, Herscovitch P, Pacak K. [¹⁸F-FLT PET/CT in the evaluation of pheochromocytomas and paragangliomas: A pilot study.](#) *J Nucl Med* 2015; 56:1849-1854.
 179. Sadowski SM, Neychev V, Millo C, Shih J, Nilubol N, Herscovitch P, Pacak K, Marx SJ, Kebebew E. A prospective study of ⁶⁸Gallium-DOTATATE PET/CT for detecting unknown primary and metastatic gastro-entero-pancreatic neuroendocrine tumors. *J Clin Oncol* 2016; 34:588-596.
 180. Janssen I, Chen CC, Taieb D, Patronas NJ, Millo CM, Adams KT, Nambuba J, Herscovitch P, Sadowski SM, Fojo AT, Buchmann I, Kebebew E, Pacak K. ⁶⁸Ga-DOTATATE PET/CT in the localization of head and neck paragangliomas compared with other functional imaging modalities and CT/MRI. *J Nuc Med* 2016; 57:186-191.
 181. Janssen I, Xekouki P, Nambuba J, Chen CC, Herscovitch P, Millo CM, Schrupp DS, Pacak K. Rapidly growing chest wall mass in a case of sporadic metastatic paraganglioma: imaging with 4 different PET radiopharmaceuticals. *Clin Nuc Med* 2016; 41:399-400.
 182. Janssen I, Chen CC, Millo CM, Ling A, Taieb D, Lin FI, Adams KT, Wolf KI, Herscovitch P, Fojo AT, Buchmann I, Kebebew E, Pacak K. PET/CT comparing ⁶⁸Ga-DOTATATE and other radiopharmaceuticals and in comparison with CT/MRI for the localization of sporadic metastatic pheochromocytoma and paraganglioma. *Eur J Nucl Med Mol Imaging* 2016; 43:1784-1791.
 183. Liow J-S, Zoghbi SS, Hu S, Hall MD, Hines CS, Shetty HU, Araneta MD, Page EM, Pike VW, Kreisl WC, Herscovitch P, Gottesman MM, MD, PhD; Theodore W, MD, Innis RB. ¹⁸F-FCWAY, a serotonin 1A receptor radioligand, is a substrate for efflux transport at the human blood-brain barrier. *NeuroImage* 2016; 138:134-140.
 184. Nockel P, Millo C, Keutgen X, Klubo-Gwiedzinska J, Shell J, Patel D, Nilubol N, Herscovitch P, Sadowski SM, Kebebew E. The rate and clinical significance of incidental thyroid uptake on ⁶⁸-Gallium DOTATATE PET/CT. *Thyroid* 2016; 26:831-835.
 185. Babic B, Keutgen X, Nockel P, Miettinen M, Millo C, Herscovitch P, Patel D, Nilubol N, Cochran C, Gorden P, Kebebew E. Insulinoma due to multiple pancreatic microadenoma localized by multimodal imaging. *J Clin Endocrinol Metab* 2016; 101:3559-3563.

186. Coates EE, Costner PJ, Nason MC, Herrin DM, Conant S, Herscovitch P, Sarwar UN, Holman L, Mitchell J, Yamshchikov, Koup RF, Graham BS, Millo C, Ledgerwood JE. The VRC 902 Study Team. Lymph node activation by PET/CT following vaccination with licensed vaccines for human papillomaviruses. *Clin Nucl Med* 2017; 42(5):329-334.
187. Nockel P, Babic B, Millo C, Herscovitch P, Patel D, Nilubol N, Sadowski S, Cochran C, Gorden P, Kebebew E. Localization of insulinoma using ^{68}Ga -DOTATATE PET/CT scan. *J Clin Endocrinol Metab* 2017; 102(1):195-199.
188. Tirosh A, Papadakis GZ, Milo C, Sadowski SM, Herscovitch P, Pacak K, Marx SJ, Yang L, Nockel P, Shell J, Green P, Keutgen XM, Patel D, Nilubol N, Kebebew E. Association between neuroendocrine tumors biomarkers and primary tumor site and disease type based on total ^{68}Ga -DOTATATE-avid tumor volume measurements. *Europ J Endocrinol* 2017; 176:575-582.
189. Janssen I, Chen CC, Zhuang Z, Millo CM, Wolf K, Ling A, Lin FI, Adams KT, Herscovitch P, Feelders RA, Fojo AT, Taieb D, Kebebew E, Pacak K. Functional imaging signature of patients presenting with polycythemia/paraganglioma syndromes. *J Nuclear Med* 2017; 58(8):1236-1242.
190. BP Leitner, S Huang, RJ Brychta, CJ Duckworth, AS Baskin, S McGehee, I Tal, GM Kolodny, W Dieckmann, K Pacak, P Herscovitch, AM Cypess, KY Chen. Mapping of human brown adipose tissue in lean and obese young men: "BATlas 1.0". *Proceed Nat Acad Sci* 2017; 114(2):8649-8654.
191. J Shell, X Keutgen, C Millo, N Nilubol, D Patel, S Sadowski, M Boufraquech, L Yang, R Merkel, C Atallah, P Herscovitch, E Kebebew. ^{68}Ga -Gallium DOTATATE PET/CT scanning in symptomatic patients with negative anatomical imaging but suspected neuroendocrine tumors. *Int J Endocrine Oncology* 2018; 5(1):IJE04
192. MA Ahlman, DM Vigneault, V Sandfort, R Maass-Moreno, J Dave, A Sadek, MB Mallek, MAF Selwaness, P Herscovitch, NN Mehta, DA Bluemke. Internal tissue references for ^{18}F Fluorodeoxyglucose vascular inflammation imaging: Implications for cardiovascular risk stratification and clinical trials. *PLOS One* 2017;12(11):e0187995. doi: 10.1371.
193. A Tirosh, GZ Papadakis, C Millo, SM Sadowski, P Herscovitch, K Pacak, SJ Marx, L Yang, P Nockel, J Shell, P Green, XM Keutgen, D Patel, N Nilubol, E Kebebew. Prognostic utility of total ^{68}Ga -DOTATATE-avid tumor volume in patients with neuroendocrine tumors. *Gastroenterology* 2018; 154(4):998-1008.
194. Jha A, Ling A, Millo C, Gupta G, Viana B, Lin FI, Herscovitch P, Adams KT, Taieb D, Metwalli AR, Linehan WM, Brofferio A, Stratakis CA, Kebebew E, Lodish M, Civelek AC, Pacak K. Superiority of ^{68}Ga -DOTATATE over ^{18}F -FDG and anatomic imaging in the detection of succinate dehydrogenase mutation (SDHx)-related pheochromocytoma and paraganglioma in the pediatric population. *Europ J Nucl Med Mol Imag* 2018; 45(5):787-797.
195. P Brugarolas, JE Sánchez-Rodríguez, HM Tsai, F Basuli, SH Cheng, X Zhang, AV Caprariello, JJ Lacroix, R Freifelder, D Murali, O DeJesus, RH Miller, RE Swenson, CT Chen, P Herscovitch, DS Reich, F Bezanilla, B Popko. Development of a PET radioligand for potassium channels to image CNS demyelination. *Sci Rep* 2018; 8:607.

196. G Saar, CM Millo, LP Szajek, J Bacon, P Herscovitch, AP Koretsky. Anatomy, functionality, and neuronal connectivity with manganese radiotracers for positron emission tomography. *Mol Imag Biol*, 2018; 20(4):562-574.
197. AS Baskin, JD Linderman, RJ Brychta, S McGehee, E Chames, C Cero, JW Johnson, AE O'Mara, LA Fletcher, BP Leitner, CJ Duckworth, S Huang, H Cai, HM Garraffo, CM Millo, W Dieckmann, V Tolstikov, EY Chen, F Gao, NR Narain, MA Kiebish, PJ Walter, P Herscovitch, KY Chen, AM Cypess. Regulation of brown adipose tissue thermogenesis and bile acid metabolism by a β 3-adrenergic receptor agonist. *Diabetes* 2018; 67(1):2113-2125.
198. PA Spagnolo, A Kimes, ML Schwandt, E Shokri-Kojori, S Thada, KA Phillip, N Diazgranados, KL Preston, P Herscovitch, D Tomasi, VA Ramchandani, M Heilig. Striatal dopamine release in response to morphine and its role in the reinforcing effects of opioids: a [^{11}C]-raclopride PET study in healthy men. *Biol Psychiat* 2019; 86(5):356-364.
199. J Boyle, NJ Patronas, J Smirniotopoulos, P Herscovitch, W Dieckman, C Millo, D Maric, GP Chatain, CP Hayes, S Benzo, G Scott, N Edwards, AR Chaudhury, MB Lodish, S Sharma, LK Nieman, CA Stratakis, RR Lonser, P Chittiboina. CRH stimulation improves ^{18}F -FDG-PET detection of pituitary adenomas in Cushing's disease. *Endocrine* 2019; 65(1):155-165.
200. J Heiss, C Lungu, DA Hammoud, P Herscovitch, DJ Ehrlich, DP Argersinger, SS Sinharay, G Scott, T Wu, KA Zaghoul, M Hallett, RR Lonser, KS Bankiewicz. Phase 1 trial of MR-guided putaminal GDNF gene therapy for advanced Parkinson's Disease. *Movement Disord* 2019; 34(7):1073-1078.
201. G Knudsen, M Ganz, S Apelhoff, *et al.* Guidelines for the content and format of PET brain data in publications and archives: A consensus paper. *J Cereb Blood Flow Metabol* 2020; 40(8):1576-1585.
202. AE O'Mara, JW Johnson, JD Linderman, *et al.* Chronic mirabegron treatment increases human brown fat, HDL cholesterol, and insulin sensitivity. *J Clin Invest* 2020; 130(5):2209-2219.
203. Morbelli S, Esposito G, Arbizu J, *et al.* EANM Practice Guideline/SNMMI Procedure Standard for Dopaminergic Imaging in Parkinsonian Syndromes 1.0. *Europ J Nud Med Mol Imaging* 2020; 47(8):1885-1912.
204. NJ Guehl, KM Ramos-Torres, C Linnman, S-H Moon, M Dhaynaut, MQ Wilks, PK Han, C Ma, R Neelamegam, Y-P Zhou, B Popko, JA Correia, DS Reich, G El Fakhri, P Herscovitch, MD Normandin, P Brugarolas. Evaluation of the potassium channel tracer [^{18}F]3F4AP in rhesus macaques. *J Cereb Blood Flow Metabol* 2021; 41(7):1721-1733.
205. A Jha, M Patel, JA Carrasquillo, A Ling, C Millo, B Saboury, CC Chen, P Wakim, M Gonzales, L Meuter, K Marianne, S Talvacchio, P Herscovitch, J del Rivero, N Nilubol, D Taïeb, FI Lin, AC Civelek, K Pacak. Sporadic primary pheochromocytoma: A prospective intraindividual comparison of six imaging tests (CT, MRI, and PET/CT using ^{68}Ga -DOTATATE, FDG, ^{18}F -FDOPA, and ^{18}F -FDA). *AJR: Am J Roentgol* 2022; 218(2):342-350.
206. VL Darcey, J Guo, A Courville, I Gallagher, JA Avery, WK Simmons, JE Ingeholm, P Herscovitch, A Martin, KD Hall. Restriction of dietary fat, but not carbohydrate, affects brain reward regions in adults with obesity. *JCI Insight* 2023; 8(12):e169759.

Books

Carson RE, Daube-Witherspoon ME, Herscovitch P (eds): Quantitative Functional Brain Imaging with Positron Emission Tomography, Academic Press, San Diego, 1998.

Senda M, Kimura Y, Herscovitch P (eds): Brain Imaging Using PET, Academic Press, San Diego, 2002.

Herlholz K, Herscovitch P, Heiss W-D: NeuroPET: PET in Neuroscience and Clinical Neurology, Springer-Verlag, Heidelberg, 2004.

Book Chapters, Review Articles, Editorials

1. Raichle ME, Herscovitch P, Martin W, Markham J: Measurement of regional cerebral oxygen consumption and blood flow in man. In: Heiss WD and Phelps ME (eds.), Positron Emission Tomography of the Brain, Springer Verlag, Berlin, 1983, pp 104-106.
2. Raichle ME, Herscovitch P, Martin W, Markham J: Quantitative dynamic imaging of brain with positron-emitting radionuclides. In: Functional Radionuclide Imaging of the Brain, PL Magestretti (ed), Raven Press, New York, 1983, pp 253-256.
3. Herscovitch P, Gado M, Mintun MA, Raichle ME: The necessity for correcting for cerebral atrophy in global positron emission tomography measurements. In: Monographs in Neural Sciences, Vol II, Effects of Aging on Regulation of Cerebral Blood Flow and Metabolism, Karger, Basel, 1984, pp 94-97.
4. Herscovitch P: Positron emission tomography - physiological and clinical applications. In: National Conference On Biological Imaging II. Clinical Aspect, National Academy Press, Washington DC, 1983, pp 143-158.
5. Raichle ME, Herscovitch P, Mintun MA, Martin RW. Cerebral metabolism with positron emission tomography and O-15 radiopharmaceuticals. *Int J Neurol* 1984; 18:75-78.
6. Raichle ME, Mintun MA, Herscovitch P: Positron emission tomography with oxygen-15 radiopharmaceuticals. In: Brain Imaging and Brain Function, Research Publications, ARNMD, Vol 63, L Sokoloff (ed), Raven Press, New York, 1985, pp 51-59.
7. Raichle ME, Herscovitch P, Mintun MA, Martin WRW: Dynamic measurements of local blood flow and metabolism in man with positron emission tomography. In: The Metabolism of the Human Brain Studied with Positron Emission Tomography, T Greitz, DH Ingvar, L Widen (eds), Raven Press New York, 1985, pp 159-164.
8. Raichle ME, Robbins E, Herscovitch P, Butler K: Brain circulation and metabolism in sodium lactate induced panic attacks. *Ibid*, pp 335-338.
9. Raichle ME, Taylor JR, Herscovitch P, Guze SB: Brain circulation and metabolism in depression. *Ibid*, pp 453-456.

10. Volpe JJ, Herscovitch P, Perlman JM, Kreusser KL, Raichle ME: Parasagittal impairment of cerebral blood flow in the asphyxiated term infant. In: Cerebrovascular Diseases, [Fourteenth Research (Princeton-Williamsburg) Conferences], F Plum, W Pulsinelli (eds), Raven Press New York, 1985, pp 123-132.
11. Raichle ME, Mintun MA, Herscovitch P: Positron emission tomography with oxygen-15 radiopharmaceuticals. In: Biomedical Imaging, Takeda Science Foundation, 1986, pp 275-283.
12. Herscovitch P, Powers WJ: Measurement of regional cerebral blood flow by positron emission tomography. In: Cerebral Blood Flow: Physiologic and Clinical Aspects, J H Wood (ed), McGraw Hill, 1987, pp 257-271.
13. Herscovitch P: Measurement of regional cerebral hemodynamics and metabolism by positron emission tomography. In: Neuromethods, Vol 8: Imaging and Correlative Physicochemical Techniques, Boulton AA, Baker CB, Boisvert DPJ (eds), Humana Press, Clifton NJ, 1988, pp 179-232.
14. Lauter JL, Herscovitch P, Raichle ME: Human auditory physiology studied with positron emission tomography. In: Auditory pathway: Structure and Function, Syka J, Masterton RB (eds), Plenum, New York, 1988, pp 313-317.
15. Herscovitch P: Principles of positron emission tomography. In: Functional Imaging in Movement Disorders, Martin WRW (ed), CRC Press, Boca Raton, 1990, pp 1-46.
16. Stoetter B, Braun AR, Randolph C, Gernert J, Carson RE, Herscovitch P, Chase TN: Functional neuroanatomy of Tourette Syndrome: Limbic - motor interactions studied with FDG PET. In: Advances in Neurology, vol 52, Chase TN, Friedhoff AJ, Cohen DJ (eds), 1992, pp 213-226.
17. Herscovitch P. Evaluation of the brain by PET. Rheumatic Disease Clinics of North America 1993; 19:765-794.
18. Herscovitch P: Radiotracer techniques for functional neuroimaging with positron emission tomography. In: Functional Neuroimaging: Technical Foundations. Thatcher RW, Hallett M, et al. (eds), Academic Press, San Diego, 1994, pp 29-46.
19. Herscovitch P: Positron emission tomography in the newborn. In: Physiological Monitoring and Instrument Diagnosis in Perinatal and Neonatal Medicine, Brans Y and Hay WW, Jr., (eds), Cambridge University Press, Cambridge, 1995, pp 93-121.
20. Herscovitch P: Measurement of cerebral blood flow, blood volume, and oxygen metabolism with positron emission tomography. In: Principles of Nuclear Medicine, 2nd ed, Wagner HN Jr. et al, (eds), W.B. Saunders, 1995, pp 505-514.
21. Herscovitch P: Functional mapping of the human brain. In: Principles of Nuclear Medicine, 2nd ed, Wagner HN Jr. et al., (eds), W.B. Saunders, 1995, pp 514-531.
22. Daube-Witherspoon M, Herscovitch P: Positron emission tomography. In Nuclear Medicine: Diagnosis and Therapy. Harbert J et al. (eds), Thieme, 1996, pp 121-143.

23. Herscovitch P: Functional brain imaging - basic principles and application to head trauma. In: Head Injury and Post-Concussive Syndrome, M Rizzo and D Tranel (eds), Churchill Livingstone, 1996, pp 89-118.
24. Sadato N, Carson RE, Daube-Witherspoon ME, Campbell G, Hallett M, Herscovitch P: Optimization of non-invasive activation studies with O-15 water and 3D PET. In: Quantification of Brain Function using PET, Myers R, Cunningham VJ, Bailey DL, Jones T (eds), Academic Press, San Diego, 1996, pp 98-101.
25. Herscovitch P: Cerebral circulation and its measurement by inert diffusible tracers. In: Encyclopedia of Neuroscience, 2nd edition, Adelman G and Smith B (eds), Elsevier, 1997.
26. Herscovitch P, Ernst M: Functional brain imaging with PET and SPECT. In: Functional Neuroimaging in Child Psychiatry, M Ernst and JM Rumsey (eds), Cambridge University Press, Cambridge, 2000, pp 3-26.
27. Shoaf SE, Carson RE, Hommer D, Williams W, Higley JD, Schmall B, Herscovitch P, Eckelman WC: [¹¹C]alpha-methyl-L-tryptophan in anesthetized rhesus monkeys: A tracer for serotonin synthesis or tryptophan uptake? In: Physiologic Imaging of the Brain with PET, A Gjedde, SB Hanson, GM Knudsen, OL Paulson (eds), Academic Press, San Diego, 2000, pp 205-209.
28. Carson RE, Channing MA, Vuong B, Watabe H, Herscovitch P, Eckelman W: Amphetamine-induced dopamine release: duration of action assessed with [¹¹C]raclopride in anesthetized monkeys. In: Physiologic Imaging of the Brain with PET, A Gjedde, SB Hanson, GM Knudsen, OL Paulson (eds), Academic Press, San Diego, 2000, pp 229-235.
29. Herscovitch P: Can [¹⁵O]water be used to evaluate drugs? *J Clin Pharmacol* 2001; 41:115-205.
30. Carson RE, Channing MA, Der MG, Herscovitch P, Eckelman WC: Scatchard analysis with bolus/infusion administration of [¹¹C]raclopride: amphetamine effects in anesthetized monkeys. In: Brain Imaging Using PET, M Senda, Y Kimura, and P Herscovitch (eds), Academic Press, San Diego, 2002, pp 63-69.
31. Herscovitch P: Single photon emission computed tomography. In: Encyclopedia of the Neurological Sciences, MJ Aminoff and RB Daroff (eds), Academic Press, San Diego, 2003, pp 279-284.
32. Herscovitch P: Cerebral physiologic measurements with PET. In: Positron Emission Tomography: Principles and Practice, DL Bailey, DW Townsend, PE Valk and MN Maisey (eds), Springer-Verlag, 2003, pp 283-307.
33. Herscovitch P: Functional neuroimaging. In: Principles and Practice of Behavioral Neurology and Neuropsychology, M Rizzo and PJ Eslinger (eds), Saunders/Churchill, 2004, pp 115-143.
34. Herscovitch P: Cerebral circulation and its measurement by inert diffusible tracers. In: Encyclopedia of Neuroscience, 3d edition, Adelman G and Smith B (eds), Elsevier, 2004.
35. NS Vyas, NH Patel, P Herscovitch, BK Puri, Lanzenberger R: Recent Developments in Neurochemical Imaging in Schizophrenia: An Update. *Curr Med Chem* 2013; 20:351-6.

36. Herscovitch P. (2014) Single-Photon Emission Computed Tomography (SPECT). In: Aminoff MJ and Daroff RB (eds.) Encyclopedia of the Neurological Sciences, 2nd edition, vol. 4, pp. 173-178. Oxford: Academic Press.
37. Herscovitch P. Regulatory approval and insurance reimbursement: the final steps in clinical translation of amyloid brain imaging. *Clinical Trans Imaging: Rev Nucl Med Mol Imaging* 2015; 3: 75-77.
38. Amyot F, Arciniegas DB, Brazaitis MP, Curley KC, Diaz-Arrastia R, Gandjbakhche A, Herscovitch P, Hinds II SR, Manley GT, Pacifico A, Razumovsky A, Riley J, Salzer W, Shih R, Smirniotopoulos JG, Stocker D. A review of the effectiveness of neuroimaging modalities for the detection of traumatic brain injury. *J Neurotrauma* 2015; 32:1693-721.
39. Herscovitch P. A pioneering paper that provided a tool for accurate, observer-independent analysis of ¹⁸F-FDG brain scans in neurodegenerative dementias. Invited Editorial comment. *J Nuc Med* 2020; 61(Suppl 2):140S-141S.
40. Herscovitch P. Regulatory agencies and PET/CT imaging in the clinic. *Curr Cardiol Rep* 2022; 24(10):1361-1371.
41. Hammoud DA, Herscovitch P. Neuroinflammation Imaging in Neurodegenerative Diseases. In: Molecular Imaging of Neurodegenerative Disorders, D Cross, K Mosci, S Minoshima (eds), Springer, 2023, In press.

Professional Guidelines

AD Waxman, K Herholz, DH Lewis, P Herscovitch, S Minoshima, M Ichise, AE Drzezga, MD Devous, JM Mountz: Society of Nuclear Medicine Procedure Guideline for FDG PET Brain Imaging, Version 1.0, February 2009. [http://interactive.snm.org/docs/Society of Nuclear Medicine Procedure Guideline for FDG PET Brain Imaging.pdf](http://interactive.snm.org/docs/Society%20of%20Nuclear%20Medicine%20Procedure%20Guideline%20for%20FDG%20PET%20Brain%20Imaging.pdf)

Member, Alzheimer's Association / Society of Nuclear Medicine Amyloid Imaging Taskforce, to develop appropriate use criteria for amyloid PET imaging in cognitive impairment and dementia, 2012-2013

Member, American College of Radiology Collaborative Committee to revise the ACR-ACNM-ASNR-SNMMI Practice Parameter for Brain PET-CT Imaging in Dementia, 2019

Writing Group, EANM Practice Guideline/SNMMI Procedure Standard for Dopaminergic Imaging in Parkinsonian Syndromes, 2018-2020

Member, SNMMI-Alzheimer's Association Appropriate Use Criteria Workgroup for Brain Imaging (including Amyloid and Tau PET), 2020-present

Letters

1. Herscovitch P, Mintun MA, Raichle ME: Brain blood flow measurement with bolus intravenous H₂¹⁵O. *J Nucl Med* 25:730-732, 1984.

2. Herscovitch P, Gado M, Raichle ME: Correction of positron emission tomography data for cerebral atrophy. *J Cereb Blood Flow Metab* 6:634-635, 1986.
3. Ketter TA, Andreason PJ, George MS, Lee C, Gill DS, Parekh P, Herscovitch P, Post RM: Anterior paralimbic mediation of procaine-induced emotional and psychosensory experiences (response). *Arch Gen Psychiatry* 54:764-765, 1997
4. Shoaf SE, Hommer D, Williams W, Higley JD, Carson RE, Herscovitch P, Eckelman WC: Reply, The validity of the PET/ α -[¹¹C]methyl-L-tryptophan method for measuring rates of serotonin synthesis in the human brain. *Neuropsychopharm* 21:156-157, 1999.
5. Shoaf SE, Carson RE, Herscovitch P, Eckelman WC: Does labeled α -methyl-L-tryptophan image only blood-brain barrier transport of tryptophan? *J Cereb Blood Flow Metab* 20:1508-1511, 2000.
6. Kimbrell TA, Ketter TA, George MS, Little JT, Benson BE, Willis MW, Herscovitch P, Post RM: Comment on "Regional cerebral glucose utilization in patients with a range of severities of unipolar depression". *Biol Psychiatry* 52:1031-1032, 2002.

Invited Lectures

Canadian Anaesthetists' Society Annual Meeting, Quebec City, Canada, May 1982. "Regional vs. global cerebral metabolism"

Department of Neurosciences, University of Calgary Medical School, Calgary, Canada, November 1982. "Positron emission tomography: from image to applications"

Devices and Technology Branch Contractors Meeting, NHLBI, NIH, Washington D.C, December 1982. "Measurement of cerebral blood flow with positron emission tomography"

Stroke Centers Directors' Workshop, San Diego CA, February 1983. "Cerebral blood flow: Introduction to the radioisotopic methods and a discussion of the effects of tissue inhomogeneity"

National Alliance for the Mentally Ill, Annual Conference, St. Louis, MO, August, 1983. "Positron emission tomography - current applications in psychiatry and neurology"

National Conference on Biological Imaging II. Clinical Aspect, National Academy of Sciences, Washington D.C., October 1983. "Positron emission tomography - physiological and clinical application"

Alberta Heritage Foundation for Medical Research Lecturer, University of Alberta, Edmonton, Canada, September 1984. "Positron emission tomography - technical aspects" and "Positron emission tomography - applications"

Brain Agent Symposium, Mallinckrodt Inc., St. Louis, MO, May 1985. "Tracer techniques for tomographic measurement of cerebral blood flow"

Society of Nuclear Medicine Midwinter meeting, San Antonio, February 1987. Symposium on Perfusion Imaging, "First pass techniques for measuring CBF with O-15 Water"

Johns Hopkins Medical Institutions, Baltimore, MD, March 1988. Imaging Living Brain Chemistry: Principles and Practice, "Cerebral blood flow and metabolism measured with oxygen-15 radiotracers"

Johns Hopkins Medical Institutions, Division of Nuclear Medicine, Baltimore, MD, February 1990. "Recent PET studies with O-15 labelled water"

University of Iowa, Dept of Neurology, Iowa City, IA, April 1990. "PET cerebral blood flow studies with oxygen-15 water"

Case Western Reserve University Hospitals PET Program, Cleveland, OH, October, 1991. "PET cerebral blood flow studies"

American Society of Hospital Pharmacists, New Orleans, December 1991. "Application of positron emission tomography in psychopharmacology research"

Johns Hopkins University, Baltimore, MD, March 1992. PET and SPECT Imaging of Living Brain Chemistry in Health and Disease. "Task-related patterns of cerebral activation"

Biomedical Engineering Society Meeting, PET & Modeling Symposium, Salt Lake City, Oct 18, 1992. "PET and modeling: blood flow and metabolism"

University of Minnesota PET Program, Minneapolis, November 1992. "PET studies of the brain"

American Speech Language Hearing Association annual conference, New Orleans, Nov 16, 1994. Research Frontiers in Brain Imaging, "PET - basic principles and applications to the study of auditory and language processing"

NIMH Workshop on Psychotropic Medications and the Developing Brain, Bethesda, MD, July 16, 1997. "Applications of PET to the study of CNS effects of psychotropics"

Kuhl-Lassen Award Lecture, Society of Nuclear Medicine, St. Louis MO, June 2000. "Challenges for clinical functional brain imaging"

Society for Nuclear Imaging in Drug Development meeting, Bethesda MD, Oct 23, 2000. "Can O-15 Water Be Used to Evaluate Drugs?"

Uniformed Services University of the Health Sciences, Dept of Psychiatry Seminar Series, Bethesda MD, Feb 1, 2001. "Positron emission tomography"

American Pharmacists Association, San Francisco CA, March 19, 2001. "PET in the Evaluation of Drug Effects"

First International Workshop on Endocrine Hypertension, Bethesda, MD, Nov 16, 2001. "Use of PET scanning in clinical cancer research"

NIAID 2nd Annual Workshop on Experimental Imaging of Infectious Disease, Bethesda MD, September 18, 2007. "PET imaging of nonhuman primates"

3rd Annual Kim Paterson Lang Lecture, Chester-Crozer Medical Center, Philadelphia, Nov 16, 2007.
"Molecular Imaging with PET"

Division of Medical Imaging and Hematology Products, CDER, U.S. Food and Drug Administration,
Rockville, MD, January 8, 2008. "Molecular Imaging with PET"

Neuroimaging in Obesity Research Workshop, NIDDK, NIH, Bethesda MD, Oct 27, 2008. "PET Methods for
Functional Neuroimaging and PET Data Analysis"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 1, 2009. "Neurologic Imaging in
the Era of Molecular Medicine"

American Pharmacists Association annual meeting, Washington DC, March 14, 2010. "PET Imaging in Drug
Development: Focus on Clinical Trials"

University of Maryland Radiology Department Grand Rounds, Baltimore, March 17, 2010. "Molecular Imaging
of Neuropsychiatric Disorders with PET: Three Decades of Clinical Research"

American Academy of Neurology annual meeting, Toronto, April 16, 2010. AAN Future of Neuroscience
Conference, "The New PET: Imaging Molecular Targets in Neurological Disease"

International Tuberculosis Research Center, Masan Korea, October 27, 2010. "PET Imaging in Drug
Development and Clinical Trials: Relevance to Tuberculosis"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 2, 2010. Refresher Course: "PET
Imaging of Neuropsychiatric Disorders"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 1, 2011. Refresher Course: "PET
Imaging of Neuropsychiatric Disorders"

Society of Nuclear Medicine, Western Region annual meeting, Monterey, CA, Oct 26, 2012. "National
Issues in Nuclear Medicine"

Medical Imaging Technology Alliance PET Endpoints Workshop, Baltimore, Nov 13, 2012. "Appropriate
Use Criteria for beta-Amyloid PET Imaging"

American Association for Geriatric Psychiatry annual meeting, Los Angeles, March 16, 2013. "Emerging
Concepts in Appropriate Use Criteria for Amyloid PET Imaging"

Society of Nuclear Medicine and Molecular Imaging, MidEastern Chapter, Ocean City MD, April 12, 2013.
"Molecular Imaging of Dementia"

The Ottawa Hospital, Ottawa, Canada, May 9, 2013, City-wide Nuclear Medicine Grand Rounds, "Amyloid
Imaging in Dementia"; and May 10, 2013, Neurology Grand Rounds. "Molecular Imaging of the Brain with
PET"

Society of Nuclear Medicine and Molecular Imaging annual meeting, Vancouver BC, June 11, 2013.
"Clinical Diagnosis of Alzheimer's Disease and Approval for Amyloid PET"

European Association of Nuclear Medicine annual meeting, Lyon France, Oct 21, 2013. "Dementia Imaging with Amyloid Agents"

Society of Nuclear Medicine and Molecular Imaging, Missouri Valley Region meeting, Omaha NE, Oct 2013. "Molecular Imaging of Dementia"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 2013. "Making Molecular Brain Imaging Available in the Clinic: FDA and CMS"

Johns Hopkins University School of Medicine, Baltimore, March 2014. Nuclear Molecular Imaging and Therapy: Focus on Value symposium, "Appropriate Use of Amyloid Imaging"

Association of University Radiologists annual meeting, Baltimore MD, April 4, 2014. "Nuclear Medicine and Molecular Imaging of the Future"

Canadian Association of Nuclear Medicine annual meeting, Calgary, Alberta, April 12, 2014. "Molecular Imaging in Neuropsychiatry"

American Psychiatric Association annual meeting, New York, May 4, 2014. "PET Amyloid Imaging: Appropriate Use Criteria Development and CMS Consideration"

Tsinghua University Graduate School, International Symposium for Translational Theranostics, Shenzhen, China, May 26, 2014. "Amyloid Imaging in the Development of Anti-Alzheimer Disease Therapeutics"

Peking Union Medical College, International Symposium on Molecular Imaging and Translational Medicine, Beijing, Sept 14, 2014. "PET in Drug Development and Translation"

European Association of Nuclear Medicine annual meeting, Gothenburg Sweden, Oct 21, 2014. "Regulatory Approval – The Final Step in Translational Molecular Imaging"

Japanese Society of Nuclear Medicine 54th Annual Scientific Meeting, Osaka, Nov 6, 2014. "PET in Neuroscience"

Korean Society of Nuclear Medicine annual meeting, Seoul, Nov 8, 2014. "Molecular Imaging of the Brain with PET"

EE Kim Distinguished Lectureship, Department of Nuclear Medicine, Seoul National University College of Medicine, Seoul, Korea, Nov 10, 2014. "PET in Drug Development and Translation"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 2014. "Making Molecular Brain Imaging Available in the Clinic: FDA and CMS"

Canadian Association of Nuclear Medicine annual meeting, Montreal, Jan 30, 2015. "PET Imaging and Dementia in 2015 and Beyond"

Society of Nuclear Medicine and Molecular Imaging, Southwest Chapter, Austin TX, April 12, 2015. "Contributions of PET to Clinical Neuroscience"

Australia New Zealand Society of Nuclear Medicine annual meeting, Brisbane, April 19, 2015.
"Contributions of PET to Clinical Neuroscience"

Sydney Medical School, Westmead Hospital, Nuclear Medicine Rounds, Sydney Australia, April 21, 2015.
"PET in Drug Development and Translation"

American College of Radiology (ACR) annual meeting, Washington DC, May 18, 2015. "Translation to the Clinic: FDA Approval and CMS Coverage for Amyloid Radiopharmaceuticals"

Society of Nuclear Medicine and Molecular Imaging, Northeast Region annual meeting, Newport RI, Nov 6, 2015. "PET Imaging in Dementia"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Nov 30, 2015. "Making Molecular Brain Imaging Available in the Clinic: FDA, CMS, and the IDEAS Study"

Chinese Society for Cerebral Blood Flow & Metabolism and Chinese Stroke Association, Shijiazhuang, China, February 27, 2016. "Contributions of PET to Clinical Neuroscience"

Montreal Neurological Institute, McGill University, May 30, 2016, William Feindel Brain Imaging Lecture series, "Contributions of PET to Basic and Clinical Neuroscience"

Society of Nuclear Medicine and Molecular Imaging annual meeting, San Diego, June 11, 2016. "Update on Amyloid Brain Imaging"

Society of Nuclear Medicine and Molecular Imaging annual meeting, San Diego, June 12, 2016. "IDEAS: Imaging Dementia – Evidence for Amyloid Scanning Study"

Georgetown University Medical Center, Radiology Grand Rounds, Washington DC, September 23, 2016. "Molecular Imaging in Dementia"

Peterson Memorial Lecture in Nuclear Medicine, University of Iowa School of Medicine, Iowa City IA, November 14, 2016. "Contributions of PET to Basic and Clinical Neuroscience"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Nov 28, 2016. "Clinical Translation in Molecular Brain Imaging"

Society of Nuclear Medicine and Molecular Imaging midwinter meeting, Phoenix AZ, January 22, 2017. "How to Lead a Clinical Molecular Imaging Program"

Chinese Society for Cerebral Blood Flow & Metabolism, Guangzhou, China, March 4, 2017. "Molecular Imaging of Alzheimer's Disease and Related Disorders"

Society of Nuclear Medicine and Molecular Imaging annual meeting, Denver CO, June 13, 2017. "Molecular Imaging Programs for Clinical Research"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Nov 27, 2017. "Making Molecular Brain Imaging Available in the Clinic: FDA, CMS and the IDEAS Study"

Society of Nuclear Medicine and Molecular Imaging Mideast Chapter meeting, April 13, 2018.
"Neuroimaging in Nuclear Medicine with Emphasis on Amyloid Imaging"

World Federation of Nuclear Medicine and Biology meeting, Melbourne Australia, April 22, 2018. "Tracer Kinetic Modeling in Brain PET"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Nov 26, 2018. "Clinical Trials and Approval Process for New Brain MI Radiopharmaceuticals"

Society of Nuclear Medicine and Molecular Imaging annual meeting, Anaheim CA, June 25, 2019.
"Molecular Imaging of Dementia"

International Society for Cerebral Blood Flow and Metabolism BRAIN/BRAINPET meeting, Yokohama Japan, July 6, 2019, plenary lecture. "Advances in Neuroimaging with PET"

Shanghai Jiao Tong University, School of Biomedical Engineering, Shanghai, Oct 31, 2019. "Advances in Brain Imaging with PET: 40 Years of Progress"

Radiologic Society of North America (RSNA) annual meeting, Chicago, Dec 2, 2019. "New Brain Molecular Imaging Tracers"

American Society for Nuclear Cardiology annual meeting, Sept 24, 2020. "Making PET Imaging Available in the Clinic"

Radiologic Society of North America (RSNA) annual meeting, Chicago, 2021.
Nov 29, 2021. Keynote talk, Brain Science Session, "Advances in Molecular Brain Imaging,"
Dec 2, 2021. "New Brain Molecular Imaging Tracers"

Radiologic Society of North America (RSNA) annual meeting, Chicago, 2022.
Nov 28, 2022: Keynote talk, Nuclear Medicine (Brain) Science Session, "Focus on Patient Health Outcomes";
Nov 30, 2022. "Read with the Experts: Translating Molecular Brain Imaging to the Clinic"

Society of Nuclear Medicine and Molecular Imaging Mid-Winter meeting, San Francisco, Jan 28, 2023.
"Regulatory Challenges in Brain Molecular Imaging"

Invited Participant/Discussant, Workshops and Symposia

NIMH Human Brain Project Clinical Neuroscience Workshop, Rockville, MD, discussant, Feb 28, 1992.

NINDS Workshop on Positron Emission Tomography, Bethesda, MD, invited speaker Nov 9-10, 1992.

NIMH Mentored Awardees meeting, Brain Imaging in Depression, Discussant, Rockville, MD, June 23, 1994.

Perfusion Imaging Workshop, Discussant, NIMH, Bethesda, MD, Oct 20, 1997.

3rd Cologne PET Symposium, Invited participant, Dec 8-10 1999.

4th International Scientific Symposium on Tourette Syndrome, "Neuroimaging and Neurophysiology", discussant, Cleveland OH, June 2004.

Infectious Disease Imaging Workshop, Invited participant, NIAID, San Antonio TX, Feb 2-3, 2009.

Positron Emission Tomography Evidence Workshop, Center for the Evaluation of Value and Risk in Health, Invited participant, Arlington VA, Feb 24, 2015

Brain Scanning to Assess for Traumatic Injury and Encephalopathy (SAFTIE) Symposium, Dallas TX, May 6-7, 2017.

Pathways for Successful Translation of New Imaging Agents and Modalities: Phase III Studies workshop, NCI, Rockville, MD, May 15, 2017.