

## Curriculum Vitae

Name: Nora D. Volkow M.D.

Address: Office Address:  
National Institute on Drug Abuse  
6001 Executive Boulevard  
Rockville MD 20852

### Education:

B.A. Modern American School, Mexico City, Mexico - 1974.  
M.D. National University of Mexico UNAM, Mexico City, Mexico- 1975-1980.  
Postdoctoral New York University, New York, NY – 1980-1984. (Psychiatry).

### Medical Licenses:

New York and Mexico

### Certification:

ECFMG  
VQE  
FLEX  
Board Certified in Psychiatry

### Awards:

- *Premio Robins*, Best Medical Student of the Generation, U.N.A.M., 1978.
- *National Award* for the Outstanding Medical Student, 1981.
- *Premio Gabino Barrera*, Best Student National University of Mexico (U.N.A.M.), 1981.
- *Laughlin Fellowship Award* - Awarded by American College of Psychiatry to the 10 Outstanding Psychiatric Residents in the USA, 1984.
- *Scanditronix Scholarship* - Outstanding Young Nuclear Medicine Researchers, 1985.  
Member. American College of Neuropsychopharmacology, 1992
- *Distinguished Research and Development Award*, Brookhaven National Laboratory, 1995.
- *Women's Award in Medicine*, Town of Brookhaven, Long Island, NY, 1998.
- *Woman Scientist of the Year*, Museum of Science and History and the Association for Women in Science, Jacksonville Chapter, FL, 1999
- *Kuhl-Lassen Award*. Society of Nuclear Medicine, 1999.
- *Joel Elkes International Award for Clinical Research*. American College of Neuropsychopharmacology, 1999.
- *Fellow*, American College of Neuropsychopharmacology, 1999.
- *Member Institute of Medicine*, National Academy of Sciences, 2000.
- *Women Achievers Against the Odds*, Long Island Fund for Women and Girls, 2000.
- *Innovator of the Year*, U.S. New's Magazine's 2000.
- *Woman of Distinction*, NYS Senate's Award, 2001.

- *Council member*, NARSAD, 2001.
- *Recognition Award*, Suffolk Coalition to Prevent Alcohol and Drug Dependencies, Inc., 2002.
- *Paul Aebersold Award*, Society of Nuclear Medicine, 2003.
- *Arnold-Pfeffer Neuro-Psychoanalytic Prize*, Arnold Pfeffer Center for Neuro-Psychoanalysis, 2004.
- *Fellow*, American Academy of Psychiatry, 2004.
- *Thomas William Salmon Award*, New York Academy of Medicine, 2004.
- *Public Service Award*, Society for Prevention Research, 2005.
- *Founder's Award*, American Academy of Addiction Psychiatry, 2005.
- *Presidential Citation*, American Psychological Association (APA), 2005.
- *Castilla Del Pino Award for Achievement in Psychiatry*, Castilla del Pino Foundation, 2005.
- *Simon Bolivar Award*, American Psychiatric Association, 2005.
- *Ellis Grollman Award*, University of Maryland School of Pharmacy, 2006
- *Star of Science Award*, Children's Brain Research Foundation, 2006.
- *Who's Next 2007*, Newsweek 2006.
- *TIME 100*, the most influential people in the world, 2007
- *Doctorate Honoris Causa* CEU Cardenal Herrera University, 2007.
- *Annual Award. American Society of Addiction Medicine*, 2009.
- *Gold Medal of Merit of the National Drug Plan presented by the Queen of Spain*, 2009.
- *Prix International*, Inserm, December 2009.
- *100 Most Powerful Women*. The Washingtonian, October 2009.
- *Honorary Geographer*. Association of American Geographers, April 2010.
- *Doctor Honorary Degree*, University of British Columbia, 2010.
- *Perry Award*. Department of Psychiatry, Cornell University Medical College, March 2011.
- *Robert Anderson Award for Distinguished Service*. NASADAD, September 2012.
- *National Hispanic Scientist Award* by Museum of Science & Industry in Tampa, 2012
- *John P. McGovern Award*, American Society of Addiction Medicine, 2013.
- *Dr Ramon de la Fuente Muniz Prize* given by the Mexican President for outstanding work on addiction. Mexico City April 2013.
- Finalist for the *Samuel J. Heyman Service to America Medal for the "Science and Environment Medal"*, Washington DC 2013.
- *Burlingame award*. The Institute of Living. Hartford, Connecticut. 2013.
- *Doctor Honorary Degree*, State University of New York, Stony Brook, May 2013.
- *Distinguished Scientist Award*, Child Mind Institute, New York, 2013.
- *Hall of Fame Award*, CHADD, Washington DC, November, 2013.
- *Nathan B. Eddy Memorial Award*, College on Problems of Drug Dependence 2014.
- *100 Most Powerful Women*. The Washingtonian, 2015.

#### **Academic Appointments:**

1975-1976     *Research Assistant*, Electron Microscopy Department of Pathology on the Registro Nacional de Anatomia Patologica, Mexico City, Mexico.

- 1977-1978 *Research Assistant*, Miles Laboratory of Experimental Therapeutics, Mexico City, Mexico.
- 1979-1980 *Intern*, Centre des Maladies et de l'Encephale, SainteAnne Psychiatric Hospital, Paris, France.
- 1981-1987 *Research Collaborator*, Chemistry Department, Brookhaven National Laboratory.
- 1981-1984 *Resident*, Department of Psychiatry, New York University, New York, NY.
- 1981-1987 *Research Collaborator*, Chemistry Department, Brookhaven National Laboratory Upton, NY.
- 1984-1987 *Assistant Professor*, Department of Psychiatry and Behavioral Science, University of Texas Medical School.
- 1987-1989 *Associate Scientist*, Brookhaven National Laboratory, Upton, NY.
- 1987-1991 *Assistant Professor*, Department of Psychiatry, SUNY Stony Brook, NY.
- 1989- *Scientist*, Brookhaven National Laboratory, Upton, NY.
- 1991-1999 *Associate Professor*, Department of Psychiatry, SUNY Stony Brook, NY.
- 1989-1996 *Associate Chief of Staff*, Clinical Research Center, Medical Department, Brookhaven National Laboratory, Upton, NY.
- 1994- *Director Nuclear Medicine*, Medical Department, Brookhaven National Laboratory, Upton, NY.
- 1994- *Lecturer*, Department of Psychiatry, Columbia University, New York, NY.
- 1996-1998 *Chairman*, Medical Department, Brookhaven National Laboratory, Upton, NY.  
*Director*, NIDA/DOE Imaging Center at Brookhaven National Laboratory, Upton, NY.
- 1997 *Associate Dean* of the School of Medicine, SUNY-Stony Brook at Brookhaven National Laboratory, Upton, NY.
- 1998 *Senior Scientist*, Brookhaven National Laboratory, Upton, NY
- 1999 *Associate Laboratory Director*, Life Sciences, Brookhaven National Laboratory Upton, NY.
- 1999 *Professor*, Department of Psychiatry, SUNY Stony Brook, NY.
- 2003- *Director*, National Institute on Drug Abuse (NIDA).

### **Teaching Experience:**

- 1975-1977 *Instructor*, Medical Histology, National University of Mexico Department of Medicine, Mexico City, Mexico.
- 1983-1984 *Instructor*, Behavioral Sciences, New York University, New York, NY.
- 1985-1987 *Instructor*, Behavioral Sciences, University of Texas Medical School at Houston, Texas.

### **Membership in Professional Organizations:**

American Psychiatric Association  
 Society of Nuclear Medicine  
 Society for Neuroscience  
 American College of Neuropsychopharmacology  
 Institute of Medicine of the National Academy of Sciences  
 American College of Psychiatry

## **Membership in Institutional Committees:**

Psychiatry Department Research Committee, University of Texas, Houston, 1984-1987.  
Positron Diagnostic Research Center Committee, University of Texas, Houston, 1985-1987.  
Committee for the Prevention of Violence, University of Texas, Houston, 1986-1987.  
Committee for Protection of Human Subjects at Brookhaven National Laboratory, 1987-1997.  
Quality Care Committee of the Clinical Research Center, BNL, 1987-1990.  
Radioactive Drug Research Committee, BNL, 1989-1995.  
Scientific Advisory Group, Medical Department, BNL, 1990-1995.  
Scientific Council, Brookhaven National Laboratory, 1998-2003.  
Scientific Council, NIH, 2004-2010

## **National Committees:**

*Member*, Advisory Committee for Minority Research Training in Psychiatry, 1991-1995.  
*Member*, NIMH Study Section in Clinical Neurosciences NIH, 1992-1995.  
*Member*, NIAAA Board of Scientific Counselors, 1996-2001.  
*Member*, NIDA Blue Ribbon Intramural Review Panel, 1996-1997.  
*Member*, American Frontiers in Science Organizing Committee, National Academy of Sciences, 1996-1997.  
*Chairman*, American Frontiers in Science Organizing Committee, National Academy of Sciences, 1997.  
*Member*, Chinese-American Frontiers in Science Organizing Committee, National Academy of Sciences, 1998.  
*Member*, Program Committee, American College of Neuropsychopharmacology (ACNP), 1998-  
*Member*, Nominating Committee, American College of Neuropsychopharmacology (ACNP), 2000-2002.

## **PUBLICATIONS**

### **(1) Journal Articles:**

1. Volkow, N. and GomezMont, F. A multivariate classification of the depressive disorders. *Psiquiatria* **9**,1326, 1979.
2. Volkow, N., GomezMont, F. and Perez Rincon, H. Cycles and rhythms in nature: Chronobiology and chronopsychology. *Salud Mental* **3**, 2735, 1980.
3. Volkow, N.D., De la Fuente, J.R. and GomezMont, F. MMPI 168 as a tool to assess differences between medical students that will enroll on a postgraduate training. *Archivos de Investigacion Clinica del Instituto Nacional de Nutricion* **34**, 31-38,1982.
4. Volkow, N.D., Goldman, S., Flamm, E.S., Crevioto, H., Wolf, A.P. and Brodie, J. Labelled putrescine as a probe in brain tumors. *Science* **221**, 673-674, 1983.

5. Brodie, J., Christman, D., Corona, F.J., Fowler, J., GomezMont, F. Jaeger, J., Michael, P., Russell, J., Volkow, N., Wikler, A., Wolf, A. and Wolkin, A. Patterns of metabolic activity in the treatment of schizophrenia. *Ann. Neurol.* **15**, 5166-5169, 1984.
6. Volkow, N.D. and Brodie, J. Positron Emission Tomography in psychiatry. *The Overseas Medicine* **3**,161-164, 1985.
7. Goldman, S., Volkow, N., Brodie, J. and Flamm, J. Putrescine metabolism in human brain tumors. *J. Neurooncol.* **4**, 2329, 1986.
8. Tancredi, L. and Volkow, N. Aids: Symbolism and its ethical implications. *Medical Heritage* **2**,1220, 1986.
9. Pherson, M., Fowler, J., Wolf, A., Arnett, C., Brodie, J. and Volkow, N. Synthesis and Biodistribution of Nocarrier <sup>14</sup>C Putrescine. *J. Nucl. Med.* **26**,1186-1189, 1985.
10. Volkow, N.D., Brodie, J.D., Wolf, A.P., Gomez-Mont, F., Cancro, R., Van Gelder, P., Overall, J. Brain organization of schizophrenics. *J. Cereb. Blood Flow Metab.* **6**, 441-446, 1986.
11. Volkow, N.D. and Tancredi, L. Positron Emission Tomography: Technological Assessment. *Int. J. of Technol. Assist. in Health Care* **2**, 577-594, 1986.
12. Volkow, N.D., Brodie, J.D., Wolf, A.P., Angrist, B., Russell, J. and Cancro, R. Brain metabolism in schizophrenics before and after acute neuroleptic administration. *J. Neurol. Neurosurg. Psych.* **49**,1199-1202, 1986.
13. Volkow, N., Wolf, A.P., Van Gelder, P., Brodie, J.D. Overall, J.E., Cancro, R. and Gomez-Mont, F. Phenomenological correlates of metabolic activity in chronic schizophrenics. *Am. J. Psychiatry* **144**,151-158, 1987.
14. Volkow, N., Harper, A. and Swann, A. Temporal lobe abnormalities and panic attacks (letter). *Am. J. Psychiatry* **143**,1484-1485, 1986.
15. Volkow, N., Harper, A., Munisteri, D. and Clothier, J. AIDS and Catatonia (letter) *J. Neurol. Neurosurg. Psych.* **50**, 104, 1987.
16. Overall, J.E., Faillace, L.A., Rhoades, H.M., Johnson, S.R., Volkow, N.D., Stone, M.A. and Scott, C. Monitoring clinical care in a public psychiatric Hospital Unit. *Hosp. Comm. Psych.* **38**, 381-386, 1987.
17. Volkow, N.D., GomezMont, F., Inamdar, S., Lamella, M., Prichep, L. and John, R. Multivariate analyses of the EEG in normal adolescents. *Biol. Psychiatry* **22**,199-204, 1987.

18. Heisieger, E., Logan, J., Wolf, A.P., Brodie, J.D., McPherson, D., MacGregor, R., Fowler, J., Christman, D., Volkow N.D. and Flamm, E. Serial PET studies of human cerebral malignancies with [111C] Putrescine and [111]2DeoxyDGlucose. *J. Nucl. Med.* **28**,1251-1261, 1987.
19. Volkow, N.D. and Tancredi, L. Neural substrates of violent behavior: a study with positron emission tomography. *Br. J. Psychiatry* **151**, 668-673, 1987.
20. Volkow, N.D., Patchell, L., Kulkarni, M.V., Reed, K. and Simmons, M. Adrenoleukodystrophy: imaging with CT, MRI and PET. *J. Nucl. Med.* **28**, 524-527, 1987.
21. Volkow, N.D. Wolf, A.P., Vanbelder, P., Brodie, J.D., Overall, J.E., Cancro, R. and Gomez Mont, F. reply to Meltzer, H.Y., Locascio, J. Positive and negative subtypes in schizophrenia (letter). *Am. J. Psychiatry* **144**, 1366-1367, 1987.
22. Tancredi, L. and Volkow, N. Neural substrates of violent behavior: Implications for law and public policy. *Int J Law and Psychiatry* **11**, 13-49, 1988.
23. Volkow, N., Mullani, N. and Bendriem, B. PET instrumentation and clinical research. *Am. J. Physiol. Imaging* **3**,142-153, 1988.
24. Volkow, N.D., Wolf, A.P., Brodie, J.D., Cancro, R., Overall, J.E. and Rhoades, H. Brain interactions in chronic schizophrenics under resting and activation conditions. *Schizophr. Res.* **1**, 4754, 1988.
25. Volkow, N.D., Mullani, N., Gould, L., Krajewski, K. and Adler, S. Cerebral blood flow in chronic cocaine users. *Brit. J. Psychiatry* **152**, 641-648, 1988.
26. Volkow, N., Warner, N., MacIntyre, R. and Valentine, A. Cerebral involvement in systemic lupus erythematosus. *Am. J. Physiol. Imaging* **3**, 91-98, 1988.
27. Volkow, N.D., Guynn, R., Marani, S., Adler, S. and Gould L. Effects of alcohol on cerebral blood flow. *Psychiatry Res.* **24**, 201-209, 1988.
28. Demer, J.L., Gunter, K., von Noorden, G.K., Volkow, N.D. and Gould, L.K. Imaging of cerebral blood flow and metabolism in amblyopia by Positron Emission Tomography. *Am. J. Ophthal.* **100**, 337-347, 1988.
29. Volkow, N.D., Bellar, S., Mullani, N., Gould, L.K. and Dewey, S. Effects of electroconvulsive therapy on brain glucose metabolism. *Convulsive Therapy* **4**, 199-205, 1988.
30. Volkow, N.D. and Cancro, R. Positron emission tomography and the investigation of schizophrenia. *Psychiatry Letter* **6**, 33-35, 1989.
31. Overall, J., Rhoades, H., Garza-Trevino, E., Volkow, N.D. and Cecil, S. Justifying neuroleptic drug treatment. *Hosp. Community Psychiatry* **40**, 749-751, 1989.

32. Levy, A.V., Brodie, J.D., Russell, J.A., Volkow, N.D. and Wolf, A.P. The metabolic centroid method for PET brain image analysis. *J. Cereb. Blood Flow Metab.* **9**, 388-397, 1989.
33. Volkow, N.D., Valentine, A. and Kulkarni, M. Radiological and neurological changes in the drug abuse patient: a study with MRI. *J. Neuroradiol.* **15**, 288-293, 1989.
34. Demer, J.L., Volkow, N.D., Ulrich, I. Krajewski, K., Davis, Ch.M. and Porter, F. Eye movements in cocaine abusers. *Psychiatry Res.* **29**, 123-136, 1989.
35. Fowler, J.S., Volkow, N.D., Wolf, A.P., Dewey, S.L., Schlyer, D.J., MacGregor, R., Hitzemann, R., Logan, J., Bendriem, B., Gatley, J. and Christman, D. Mapping cocaine-binding sites in human and baboon brain in vivo. *Synapse* **4**, 371-377, 1989.
36. Dewey, S., MacGregor, R., Brodie, J., Bendriem, B., King, P., Volkow, N.D., Schlyer, D., Fowler, J., Wolf, A.P., Gatley, J. and Hitzemann, R. Mapping muscarinic receptors in humans and baboon brain using [N-11C-methyl-N]-benztropine. *Synapse* **4**, 371-377, 1989.
37. Volkow, N.D., Fowler, J.S., Wolf, A.P., Schlyer, D., Shiue, C-Y., Albert, R., Dewey, S.L., Logan, J., Bendriem, B., Christman, D., Hitzemann, R. and Henn, F. Effects of chronic cocaine abuse on postsynaptic dopamine receptors. *Am. J. Psychiatry* **147**, 719-724, 1990.
38. Dilmanian, F.A., Weber, D.A., Coderre, J.A., Joel, D.D., Schi, K.C., Meinken, G.E., Som, P., Tang, Y.N., Volkow, N.D. and Brill, A.B. A high resolution SPECT system based on a microchannel plate imager. *IEEE Trans. Nucl. Sci.* **37**, 687-695, 1990.
39. Volkow, N.D., Hitzemann, R., Wolf, A.P., Logan, J., Fowler, J.S., Christman, D., Dewey, S.L., Schlyer, D., Burr, G., Vitkun, S. and Hirschowitz, J. Acute effects of ethanol on regional brain glucose metabolism and transport. *Psychiatry Res.* **35**, 39-48, 1990.
40. Logan, J., Fowler, J.S., Volkow, N.D., Wolf, A.P., Dewey, S.L., Schlyer, D., MacGregor, R.R., Hitzemann, R., Bendriem, B., Gatley, S.J. and Christman, D.R. Graphical analysis of reversible binding from time activity measurements. *J. Cereb. Blood Flow Metab.* **10**, 740-747, 1990.
41. Garza, E., Volkow, N.D. and Cancro, R. Neurobiology of schizophrenic syndromes. *Hosp. Community Psychiatry* **41**, 971-980, 1990.
42. Dewey, S.L., Brodie, J.D., Fowler, J.S., MacGregor, R.R., Schlyer, D.J. King, P.T., Alexoff, D.L., Volkow, N.D., Shiue, C-Y., Wolf, A.P. and Bendriem, B. Positron emission tomography (PET) of dopaminergic and cholinergic system interaction in the baboon brain. *Synapse* **6**, 321-327, 1990.
43. Dewey, S.L., Volkow, N.D., Logan, J., MacGregor, R.R., Fowler, J.S., Schlyer, D.J. and Bendriem, B. Age-related decreases in muscarinic cholinergic receptor binding in the human brain measured with Positron Emission Tomography (PET). *J. Neurosci. Res.* **27**, 569-575, 1990.

44. Volkow, N.D., Mullani, N., Gould, L. and Gatley, S.J. Sensitivity of measurements of regional brain activation with 15O-water and PET to time of stimulation and period of image reconstruction. *J. Nucl. Med.* **32**, 58-61, 1991.
45. Dilmanian, F.A., Garrett, D.N., Thomlinson, W.C., Berman, L.E., Chapman, L.D., Hastings, J.B., Luke, P.N., Oversluizen, T., Siddon, D.P., Slatkin, D.N., Stojanoff, V., Thompson, A.C., Volkow, N.D. and Zeman, H.D. Computerized tomography with monochromatic x rays from the National Synchrotron Light Source. *Nuclear Instruments and Methods in Physics Research* **B56/57**, 1208-1213, 1991.
46. Demer, J.L., von Noorden, G.K., Volkow, N.D. and Gould, L. Brain activity in amblyopia. *Am. Orthoptic. J.* **41**, 56-71, 1991.
47. Levy, A.V., Laska, E., Brodie, J.D., Volkow, N.D. and Wolf, A.P. The spectral signature method for the analysis of PET brain images. *J. Cereb. Blood. Flow. Metab.* **11**, 103-113, 1991.
48. Volkow, N.D. and Tancredi, L. Biological correlates of mental activity studied with PET. *Am. J. Psych.* **148**, 439-443, 1991.
49. Volkow, N.D., Fowler, J.S., Wolf, A.P., Hitzemann, R., Dewey, S., Bendriem B., Alpert R. and Hoff, A. Changes in brain glucose metabolism in cocaine dependence and withdrawal. *Am. J. Psych.* **148**, 621-626, 1991.
50. Dewey, S.L. Logan, J. Wolf, A.P., Brodie, J.D., Angrist, B., Fowler, J.S. and Volkow, N.D. Amphetamine induced decreases in (18F)-N-methylsperiperidol binding in the baboon brain using positron emission tomography (PET). *Synapse* **7**, 324-327, 1991.
51. Bendriem, B., Dewey, S.L., Schlyer, D.J., Wolf, A.P. and Volkow, N.D. Quantitation of the human basal ganglia with positron emission tomography: A phantom study of the effect of contrast and axial positioning. *IEEE Trans. Med. Imaging* **10**, 216-222, 1991.
52. Volkow, N.D., Gillespie, H., Mullani, N., Tancredi, L., Grant, L., Ivanovic, M. and Hollister, L. Cerebellar metabolic activation by Delta-9-tetrahydrocannabinol in human brain: A study with Positron Emission Tomography and F-18-2 Fluoro-2-deoxyglucose. *Psychiatry Res.* **40**, 69-78, 1991.
53. Susskind, H., Weber, D.A., Volkow, N.D. and Hitzemann, R. Increased lung permeability following chronic use of free-base cocaine ("crack"). *Chest* **100**, 903-909, 1991.
54. Wang, G.-J., Som, P., Oster, Z.H. and Volkow, N.D. Evaluation of cocaine-induced hepatotoxicity. *Nuc. Compact-Eur. Am. Comm. Nucl. Med.* **22**, 72-75, 1991.
55. Weber, D.A., Cabahug, C., Klieger, P., Volkow, N.D., Wong, C., Sacker, D. and Ivanovic, M. Effects of visual stimulation on the redistribution of 123I-IMP rCBF SPECT imaging. *J. Nucl. Med.* **32**, 1866-1872, 1991.



56. Logan, J., Dewey, S.L., Wolf, A.P., Fowler, J.S., Brodie, J.D., Angrist, B., Volkow, N.D. and Gatley, S.J. Effects of endogenous dopamine on measures of [18F]N-methyl-spiroperidol binding in the basal ganglia: Comparison of simulations and experimental results from PET studies in baboons. *Synapse* **9**, 195-207, 1991.
57. Biegon, A., Dillon, K., Volkow, N., Hitzemann, R., Fowler, J. and Wolf, A. Autoradiographic localization and characterization of cocaine binding sites in human brain postmortem. *Synapse* **10**, 126-130, 1992.
58. Levy, A.V. Gomez-Mont, F., Volkow, N.D., Corona, J.F., Brodie, J.D. and Cancro, R. Spatial low frequency pattern analysis in positron emission tomography: A study between normals and schizophrenics. *J. Nucl. Med.* **33**, 287-295, 1992.
59. Schlyer, D., Volkow, N., Fowler J., Schiue, C-H., Volkow, N. Wolf, A.P., Raully, R., Logan, J., Dewey, S., Hitzemann, R., Brodie, J., Alavi, A., Bendriem, B. and MacGregor, R. Regional distribution of the antipsychotic drug haloperidol in brain does not follow the regional distribution of dopamine D2 receptors. A PET study with [18F] haloperidol. *Synapse* **11**, 10-19, 1992.
60. Dilmanian, F.A., Garrett, R.F., Thomlinson, W.C., Berman, L.E., Chapman, L.D., Gmur, N.F., Lazarz, N.M., Luke, P.N., Moulin, H.R., Oversluizen, T., Slatkin, D.N., Stojanoff, V., Thompson, A.C., Volkow, N.D. and Zeman, H.D. Multiple Energy Computed Tomography for Neuroradiology with Monochromatic X-Rays from the National Synchrotron Light Source. *Physica Medica* **6**(3-4), 301-307, 1991.
61. Volkow, N.D., Hitzemann, R., Fowler, J.S. and Wolf, A.P. Issues regarding short-term abstinence in outpatient cocaine addicts (letter in reply to W.W. Weddington). *Am. J. Psychiatry* **148**, 1759-1760, 1991.
62. Volkow, N.D., Levy, A., Brodie, J.D., Cancro, R., Wolf, A.P., VanGelder, P. and Henn, F. Decreased cerebellar metabolism in medicated schizophrenics. *Am. J. Psychiatry* **149**, 686-688, 1992.
63. Volkow, N.D., Hitzemann, R., Wang, G.-J., Fowler, J.S., Wolf, A.P. and Dewey, S.L. Long-term frontal brain metabolic changes in cocaine abusers. *Synapse* **11**, 184-190, 1992.
64. Volkow, N.D., Fowler, J.S., Wolf, A.P., Wang, G.-J., Logan, J., MacGregor, R., Dewey, S.L., Schlyer, D.J. and Hitzemann, R. Distribution of 11C-Cocaine in human heart, lungs, liver and adrenals. A Dynamic PET study. *J. Nucl. Med.* **33**, 521-525, 1992.
65. Volkow, N.D., Hitzemann, R., Wang, G-J., Wolf, A.P. and Dewey, S.J. Decreased brain metabolism in neurologically intact healthy alcoholics. *Am. J. Psychiatry* **149**, 1016-1022, 1992.
66. Tancredi, L.R. and Volkow, N.D. The mind/brain dichotomy studied with positron emission tomography: towards an integrative theory. *Perspectives in Biology and Medicine* **35**, 549-571, 1992.

67. Dewey, S.L., Smith, G., Logan, J., Brodie, J.D., Wei, Y.D., Ferrieri, R.A., King, P., MacGregor, R., Martin, P.T., Wolf, A.P., Volkow, N.D. and Fowler, J.S. GABAergic inhibition of endogenous dopamine release measured in vivo with <sup>11</sup>C raclopride and positron emission tomography. *J. Neuroscience* **12**, 3773-3789, 1992.
68. Fowler, J.S., Volkow, N.D., MacGregor, R.R., Logan, J., Dewey, S.L., Gatley, S.J. and Wolf, A.P. Comparative PET Studies of the kinetics and distribution of cocaine and cocaethylene in baboon brain. *Synapse* **12**, 220-227, 1992.
69. Fowler, J.S., Volkow, N.D., Logan, J., MacGregor, R.R., Wang, G.-J. and Wolf, A.P. Alcohol intoxication does not change cocaine pharmacokinetics in human brain and heart. *Synapse* **12**, 228-235, 1992.
70. Smith, G.S., de Leon, M.J., George, A.E., Kluger, A., Volkow, N.D., McRae, T., Golomb, J., Ferris, S.H., Reisberg, B. and Ciaravino, J. Topography of cross-sectional and longitudinal glucose metabolic deficits in Alzheimer's disease: pathophysiologic implications. *Arch. Neurology* **49**, 1142-1150, 1992.
71. Volkow, N.D. and Fowler, J.S. Neuropsychiatric disorders: investigation of schizophrenia and substance abuse. *Seminars Nuclear Med.* **22**, 254-267, 1992.
72. Volkow, N.D. and Tancredi, L.R. Current and future applications of SPECT in clinical psychiatry. *J. Clin. Psychiatry* **53**, 26-27, 1992.
73. Wang, G.-J., Volkow, N.D., Roque, C., Cestaro, V., Hitzemann, R., Cantos, E., Levy, A.V. and Wolf, A.P. Functional significance of ventricular enlargement and cortical atrophy in normals and alcoholics as assessed by PET, MRI and neuropsychological testing. *Radiology* **186**, 59-65, 1992.
74. Mullani, N.A. and Volkow, N.D. Positron emission tomography instrumentation: a review and update. *Am. J. Physiol. Imaging* **7**, 121-135, 1992.
75. Larson, S.M., Pentlow, K.S., Volkow, N.D., Wolf, A.P., Finn, R.D., Graham, M.C., DiResta, G., Augenson, F., Malawi, O., Bendriem, B., Daghighian F., Yeh, S.D.J., Wang, G.-J., Lambrecht, R.M., Kalaigian, H., LaQuaglia, M., Kushner, B. and Cheung, N-K. V. PET scanning of <sup>129</sup>I-3F8 as a novel method of tumor dosimetry during treatment planning for radioimmunotherapy in a child with neuroblastoma. *J. Nucl. Med.* **33**, 2020-2023, 1992.
76. Fowler, J.S., Brodie, J.D., Hiesiger, E., Wolf, A.P. and Volkow, N.D. The value of "the putrescine experience" (Commentary). *J. Nucl. Med.* **33**, 1720-1721, 1992.
77. Wang, G.-J., Volkow, N.D., Hitzemann, R., Oster, Z.H., Rogue, C. and Cestaro, V. Brain Imaging of an alcoholic with MRI SPECT and PET. *Am. J. Physiological Imaging* **4**, 194-198, 1992.

78. Volkow, N.D., Wang, G.-J., Hitzemann, R., Fowler, J.S., Wolf, A.P., Pappas, N., Biegon, A. and Dewey, S.L. Decreased cerebral response to inhibitory neurotransmission in alcoholics. *Am. J. Psychiatry* **150**, 417-422, 1993.
79. Volkow, N.D., Fowler, J.S., Wang, G.-J., Dewey, S.L., Schlyer, D., MacGregor, R., Logan, J., Alexoff, D., Shea, C., Hitzemann, R., Angrist, B. and Wolf, A.P. Reproducibility of repeated measures of <sup>11</sup>C raclopride binding in the human brain. *J. Nucl. Med.* **34**, 609-613, 1993.
80. Ding, Y.S., Fowler, J.S., Dewey, S.L., Schlyer, D., Gatley, J., Volkow, N.D., King, P.T. and Wolf, A.P. Comparison of high specific activity 6-<sup>18</sup>F fluorodopamine and (+) and (-) 6-<sup>18</sup>F fluoronorepinephrine in baboon heart uptake, metabolism and the effect of desipramine. *J. Nucl. Med.* **34**, 619-629, 1993.
81. Ding, Y.S., Fowler, J.S., Dewey, S., Wolf, A.P., Logan, J., Gatley, S.J., Volkow, N.D., Sheu, C. and Taylor, D.P. Synthesis and PET studies of Fluorine-18 BMY 14802: a potential antipsychotic drug. *J. Nucl. Med.* **34**, 246-254, 1993.
82. Volkow, N.D., Fowler, J.S., Wang, G.-J., Hitzemann, R., Logan, J., Schlyer, D., Dewey, S. and Wolf, A.P. Decreased dopamine D2 receptor availability is associated with reduced frontal metabolism in cocaine abusers. *Synapse* **14**, 169-177, 1993.
83. Volkow, N.D., Wang, G.-J., Hitzemann, R., Fowler, J.S., Overall JE, Burr, G. and Wolf, A.P. Recovery of brain glucose metabolism in detoxified alcoholics. *Am J. Psychiatry* **151**, 178-183, 1994.
84. Wang, G.-J., Volkow, N.D., Fowler, J.S., Wolf, A.P., MacGregor, R., Shea, C.E., Schlyer, D. and Hitzemann, R. Comparison of two PET radioligands for imaging extrastriatal dopamine receptors in human brain. *Synapse* **15**, 246-249, 1993.
85. Fowler, J.S., Volkow, N.D., Logan, J., Schlyer, D.R., MacGregor, R.R., Wang, G.-J., Wolf, A.P., Pappas, N., Alexoff, D., Dorflinger, E. and Morawsky, L. MAO B inhibition therapy in Parkinson's disease: the degree and reversibility of human brain MAO B inhibition by RO 196327. *Neurology* **42**, 1984-1992, 1993.
86. Dewey, S.L., Smith, G., Logan, J., Simkowitz, P., Brodie, J.D., Fowler, J.S., Volkow, N. and Wolf, A.P. Effects of central cholinergic blockade on striatal dopamine release measured with positron emission tomography (PET) in normal human subjects. *Proc. Natl. Acad. Sci. U.S.A.* **90**, 11816-11820, 1993.
87. Gatley, S.J., Yu, D-W, Fowler, J.S., Schlyer, D.J., Dewey, S.L., Wolf, A.P., Martin, T., Shea, C.E. and Volkow, N.D. Studies with differentially labeled C-11 cocaine, C-11 norcocaine, C-11 benzoylsergine and C-11 and F-18 C-11-Fluorococaine to probe the extent to which C-11 cocaine metabolites contribute to PET images of the baboon brain. *J. Neurochem.* **62**, 1154-1162, 1994.

88. Wang, G-J., Volkow, N.D., Wolf, A.P., Madajewicz, S., Fowler, J.S., Schlyer, D.J. and MacGregor, R.R. Positron emission tomography study of human prostate adenocarcinoma using carbon-11 Putrescine. *Nuclear Medicine and Biology* **21**, 77-82, 1994.
89. Wang, G-J., Som, P., Oster, Z.H., Volkow, N.D., Knapp, F.F. and Sacker, D. Quantitative autoradiographic measurement of cocaine induced regional myocardial metabolic changes in hypertensive rats. *Nuclear Medicine and Biology* **21**, 245-250, 1994.
90. Fowler, J.S., Ding, Y.S., Volkow, N., Martin, T., Mac Gregor, R., Dewey, S.L., King, P., Pappas, N., Alexoff, D., Shea, C., Gatley, J., Schlyer, D. and Wolf A. PET studies of cocaine inhibition of the myocardial norepinephrine uptake. *Synapse* **16**, 312-317, 1994.
91. Volkow, N.D., Wang, G.-J., Fowler J.S., Logan, J., Schlyer, D, Hitzemann, R., Lieberman, J., Angrist, B., Pappas, N., Mac Gregor, R., Burr, G., Cooper, T. and Wolf, A.P. Imaging endogenous dopamine competition with [<sup>11</sup>C]raclopride in the human brain. *Synapse* **16**, 255-262, 1994.
92. Wang, G-J., Volkow, N.D., Fowler, J.S., Ferrieri, R., Schlyer, D., Alexoff, D., Pappas, N., Lieberman, J., King, P., Warner, D., Wong, C., Hitzemann, R. and Wolf, A.P. Methylphenidate decreases regional cerebral blood flow in normal human subjects. *Life Sciences* **54**, 143-146, 1994.
93. Bartlett, E.J., Brodie, J.D., Simkowitz, P., Dewey, S.L., Rusinek, H., Wolf, A.P., Fowler, J.S., Volkow, N.D., Smith, G., Wolkin, A. and Cancro, R. Effects of haloperidol challenge on regional cerebral glucose utilization in normal human subjects. *Am. J. Psychiatry* **151**, 681-686, 1994.
94. Wang, G-J., Volkow, N.D., Wolf, A.P., Brodie, J.D. and Hitzemann, R.J. Age effect and intersubjects variability of brain glucose metabolic measurements in young normal males. *J. Nucl. Med.* **35**, 1457-1466, 1994.
95. Volkow, N.D., Fowler, J.S., Wang, G.-J., Logan, J., Schlyer, D., Mac Gregor, R., Hitzemann, R. and Wolf, A.P. Decreased dopamine transporters with age in healthy human subjects. *Annals Neurology* **36**, 237-239, 1994.
96. Ding, Y-S., Fowler, J.S., Volkow, N.D., Gatley, S.J., Logan, J., Dewey, S., Alexoff, D. and Wolf, A.P. Pharmacokinetics and in vivo specificity of [<sup>11</sup>C]dl-threo-methylphenidate for the presynaptic dopaminergic neuron. *Synapse* **18**, 152-160, 1994.
97. Logan, J., Volkow, N.D., Fowler, J.S., Wang, G-J, Dewey, S.L., MacGregor, R., Schlyer, D., Gatley, S.J., Pappas, N., King, P., Hitzemann, R. and Vitkun, S. Effects of blood flow on [<sup>11</sup>C] raclopride binding in the brain: model simulations and kinetic analysis of PET data. *J. Cereb. Blood Flow Metab.* **14**, 995-1010, 1994.
98. Fowler, J.S., Volkow, N.D., Logan, J., Wang, G-J., MacGregor, R.R., Schlyer, D., Wolf, A.P., Pappas, N., Alexoff, D., Shea, C., Dorflinger, E., Yoo, K., Fazzini, E. and Patlak, C. Slow

- recovery of human brain MAO B after L-deprenyl (Selgiline) withdrawal. *Synapse* **18**, 86-93, 1994.
99. Guenther, W., Brodie, J.D., Bartlett, E.J., Dewey, S.L., Henn, F.A., Volkow, N.D., Alper, K., Wolkin, A., Cancro, R. and Wolf, A.P. Diminished cerebral metabolic response to motor stimulation in schizophrenia: a PET study. *Eur. Arch. Psychiatry Clin. Neurosci.* **244**, 115-125, 1994.
100. Som, P., Oster, Z.H., Wang, G.J., Volkow, N.D. and Sacker, D. Spatial and temporal distribution of cocaine and effects of pharmacological interventions: Wholebody autoradiographic microimaging studies. *Life Sciences* **55**, 1375-1382, 1994.
101. Yousef, K., Volkow, N.D., Schlyer, D., Fowler, J., Brodie, J., Smith, M. and Wolf, A.P. Inhibition of extrastriatal dopamine receptors by haloperidol. *Synapse* **19**, 14-17, 1995.
102. Fowler, J.S. and Volkow, N.D. Multi-tracer studies of cocaine pharmacokinetics and pharmacodynamics. *Med. Chem. Res.* **5**, 193-207, 1995.
103. Volkow, N.D., Ding, Y-S., Fowler, J.S., Wang, G.J., Logan, J., Gatley, S.J., Dewey, S.L., Ashby, C., Lieberman, J., Hitzemann, R. and Wolf, A.P. Is methylphenidate like cocaine? Studies on their pharmacokinetics and distribution in human brain. *Arch. Gen. Psychiatry* **52**, 456-463, 1995.
104. Volkow, N.D., Wang, G.J., Begleiter, H., Hitzemann, R., Pappas, N., Burr, G., Piscani, K., Wong, C., Fowler, J.S. and Wolf, A.P. Regional brain metabolic response to lorazepam in subjects at risk for alcoholism. *Alcoholism Clinical and Experimental Research* **19**, 510-516, 1995.
105. Volkow, N.D., Fowler, J.S., Logan, J., Gatley, J.S., Dewey, S.L., MacGregor, R.R., Schlyer, D.J., Pappas, N., King, P. and Wolf, A.P. Carbon-11-cocaine binding compared at sub-pharmacological and pharmacological doses: A PET study. *J. Nucl. Med.* **36**, 1289-1297, 1995.
106. Volkow, N.D., Gatley, J., Fowler, J.S., Logan, J., Dewey, S.L., Ding, Y-S., Pappas, N., King, P., Mac Gregor, R.R., Kuhar, M.J., Carroll, F.I. and Wolf, A.P. Long-lasting inhibition of in vivo cocaine binding to dopamine transporters by 3 $\beta$ -(4-iodophenyl)tropane-2-carboxylic acid methyl ester ; RTI-55 or  $\beta$ CIT. *Synapse* **19**, 206-211, 1995.
107. Gatley, S.J., Volkow, N.D., Fowler, J.S., Dewey, S.L. and Logan, J. Sensitivity of striatal [<sup>11</sup>C]cocaine binding to decreases in synaptic dopamine. *Synapse* **20**, 137-144, 1995.
108. Volkow, N.D., Wang, G.J., Hitzemann, R., Fowler, J.S., Pappas, N., Lowrimore, P., Burr, G., Piscani, K., Overall, J. and Wolf, A.P. Depression of thalamic metabolism by lorazepam is associated with sleepiness. *Neuropsychopharmacology* **12**, 123-132, 1995.

109. Wang, G-J., Volkow, N.D., Logan, J., Fowler, J.S., Schlyer, D., Mac Gregor, R., Hitzemann, R., Gur, R.C. and Wolf, A.P. Evaluation of age-related changes in serotonin 5-HT<sub>2</sub> and dopamine D<sub>2</sub> receptor availability in healthy human subjects. *Life Sciences* **56**, 249-253, 1995.
110. Wang, G-J., Volkow, N.D., Logan, J., Fowler, J.S., Schlyer, D., Mac Gregor, R., Hitzemann, R., Gjedde, A. and Wolf, A.P. Serotonin 5-HT<sub>2</sub> receptor availability in chronic cocaine abusers. *Life Sciences* **56**, 299-303, 1995.
111. Fowler, J.S., Wang, G-J., Logan, J., Xie, S., Volkow, N.D., Mac Gregor, R., Schlyer, D., Pappas, N., Alexoff, D. and Wolf, A.P. Selective reduction of radiotracer trapping by deuterium substitution: comparison of [11C]L-deprenyl and [11C]L-deprenyl-D<sub>2</sub> for MAO B mapping. *J. Nucl. Med.* **36**, 1255-1262, 1995.
112. Ding, Y-S., Fowler, J.S., Volkow, N.D., Logan, J., Dewey, S., Gatley, S.J., Alexoff, D., Sugano, Y. and Wolf, A.P. Carbon-11-d-threo-Methylphenidate binding to dopamine transporter in baboon brain. *J. Nucl. Med.* **36**, 2298-2305, 1995.
113. Volkow, N.D., Ding, Y.-S., Fowler, J.S., Wang, G.-J., Logan, J., Gatley, S.J., Schlyer, D.J. and Pappas, N. A new PET ligand for the dopamine transporter: Studies in the human brain. *J. Nucl. Med.* **36**, 2162-2168, 1995.
114. Gatley, J.S., Ding, Y-S., Volkow, N.D., Chen, R., Sugano, Y. and Fowler, J.S. Effects of L-DOPA on striatal uptake of d-threo-[11C]methylphenidate: implications for PET studies. *European J. Pharmacology* **281**, 141-149, 1995.
115. Ding, Y-S., Fowler, J.S., Gatley, S.J., Logan, J., Volkow, N.D. and Shea, C. Mechanistic PET studies of 6-[18F]fluorodopamine in living baboon heart: Selective imaging and control of radiotracer metabolism using the deuterium isotope effect. *J. Neurochem.* **65**, 682-690, 1995.
116. Arata, L., Dhawan, A.P., Broderick, J., Gaskil-Shipley, M., Levy, A.V. and Volkow, N.D. Multi-modality three-dimensional principal axes brain image registration and analysis: Part 1: Model-based segmentation, labeling and analysis of internal structure of MR images. *IEEE Transactions on Biomedical Engineering* **42**, 1069-1078, 1995.
117. Volkow, N.D., Tancredi, L.R., Grant, C., Gillespie, H., Valentine, A., Mullani, N., Wang, G-J. and Hollister, L. Brain glucose metabolism in violent patients. *Psychiatry Res.* **61**, 243-253, 1995.
118. Wang, G-J., Volkow, N.D., Fowler, J.S., Ding, Y.-S., Logan, J., Gatley, S.J., MacGregor, R.R. and Wolf, A.P. Comparison of two PET radioligands for imaging extrastriatal dopamine transporters in human brain. *Life Sciences* **57**, 187-191, 1995.
119. De Santi, S., de Leon, M.J., Convit, A., Tarshish, C., Rusinek, H., Tsui, W.H., Sinaiko, E., Wang, G-J., Bartlet, E. and Volkow, N. Age related changes in brain: II positron emission tomography of frontal and temporal lobe glucose metabolism in normal subjects. *Psychiatric Quarterly* **66**, 357-370, 1995.

120. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Hitzemann, R.J., Ding, Y-S., Pappas, N.S., Shea, C. and Piscani, K. Decreases in dopamine receptors but not in dopamine transporters in alcoholics. *Alcoholism Clinical Experimental Research* **20**, 1594-1598, 1996.
121. Ding, Y-S., Gatley, S.J., Fowler, J.S., Chen, R., Volkow, N.D., Logan, J., Shea, C.E., Sugano, Y. and Koomen, J. Mapping catechol-o-methyltransferase *in vivo*: initial studies with [18F] RO41-0960. *Life Sciences* **58**, 195-208, 1996.
122. Volkow, N.D., Ding, Y-S., Fowler, J.S., Wang, G-J., Logan, J., Gatley, S.J., Hitzemann, R., Smith, G., Fields, F., Gur, R. and Wolf, A.P. Dopamine transporters decrease with age in healthy subjects. *J. Nucl. Med.* **37**, 554-558, 1996.
123. Volkow, N.D., Gillespie, H., Mullani, N., Tancredi, L., Grant, C., Valentine, A. and Hollister, L. Brain glucose metabolism in chronic marijuana users during baseline and during marijuana intoxication. *Psychiatry Res.* **67**, 29-38, 1996.
124. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Hitzemann, R., Gatley, S.J., MacGregor, R.R. and Wolf, A.P. Cocaine binding is decreased in the brain of detoxified cocaine abusers. *J. Neuropsychopharmacology* **14**, 159-168, 1996.
125. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Gatley, J.S., MacGregor, R.R., Schlyer, D., Hitzemann, R. and Wolf, A.P. Measuring age related changes in DA D2 receptors with [11C]raclopride and with [18F]n-methylspiperidol. *Psychiatry Res.* **67**, 11-16, 1996.
126. Volkow, N.D., Wang, G-J., Gatley, S.J., Fowler, J.S., Ding, Y.-S., Hitzemann, R., Logan, J., Wong, C. and Lieberman, J. Temporal relationships between the pharmacokinetics of methylphenidate in the human brain and its behavioral and cardiovascular effects. *Psychopharmacology* **123**, 26-33, 1996.
127. Bartlett, E.J., Brodie, J.D., Simkowitz, P., Dewey, S.L., Rusinek, H., Volkow, N.D., Wolf, A.P., Smith G., Wolkin, A. and Cancro, R. Time dependent effects of a haloperidol challenge on energy metabolism in the normal human brain. *Psychiatry Res.* **60**, 91-99, 1996.
128. Volkow, N.D., Fowler, J.S., Gatley, J.S., Logan, J., Wang, G-J., Ding, Y.-S. and Dewey, S.L. Evaluation of the human brain dopamine system with PET. *J. Nucl. Med.* **37**, 1242-1256, 1996.
129. Youssef, K., Fowler, J.S., Volkow, N.D., Dewey, S.L., Schlyer, D., Logan, J. and Wolf, A.P. [18F]Haloperidol binding in baboon brain *in vivo*. *Nuclear Medicine and Biology* **23**, 47-52, 1996.
130. Gatley, S.J., Volkow, N.D., Chen, R., Fowler, J.S., Carroll, F.I. and Kuhar, M.J. Displacement of RTI-55 from the dopamine transporter by cocaine. *European J. Pharmacology* **296**, 145-151, 1996.

131. Wang, G-J., Volkow, N.D., Levy, A.V., Fowler, J.S., Logan, J., Alexoff, D., Hitzemann, R.J. and Schlyer, D. MR-PET images coregistration for quantitation of striatal dopamine D2 receptors. *J. Computer Assisted Tomography* **20**, 423-428, 1996.
132. Fowler, J.S., Volkow, N.D., Wang, G-J., Pappas, N., Logan, J., Mac Gregor, R., Alexoff, D., Shea, C., Wolf, A.P., Warner, D., Zezulkova, I. and Cilento, R. Neuropharmacological actions of cigarette smoke: brain MAO B inhibition. *Nature* **379**, 733-738, 1996.
133. Logan, J., Fowler, J.S., Volkow, N.D., Wang, G-J., Ding, Y-S. and Alexoff, D. Distribution volume ratios without blood sampling from graphical analysis of PET data. *J. Cereb. Blood Flow Metab.* **16**, 834-840, 1996.
134. Wang, G-J., Volkow, N.D., Hitzemann, R.J., Pappas, N., Pascani, K., MacGregor, R. and Fowler, J.S. Reproducibility of regional brain metabolic responses to lorazepam in normal human subjects. *J. Nucl. Med.* **37**, 1609-1613, 1996.
135. Gatley, S.J., Gifford, A., Makriyannis, A. and Volkow, N.D. Iodine-123 labeled AM251: A radioiodinated ligand with binding in vivo to mouse brain CB1 cannabinoid receptors. *Eur. J. Pharmacol.* **307**, 331-338, 1996.
136. Wei, H., Palyka, I., Li, H., Eisenstein, E.M., Volkow, N.D. and Springer, C.S. Functional MRI detection of the murine brain response to light: negative fMRI changes and temporal differentiation. *Proc. Nat. Acad. Science* **93**, 6037-6042, 1996.
137. Wang, G-J., Volkow, N.D., Fowler, J.S., Logan, J., Gur, R., Hitzemann, R.J. and Pappas, N. Age associated decrements in dopamine D2 receptors in thalamus and in temporal insula of human subjects. *Life Sciences* **59**, 31-35, 1996.
138. Volkow, N.D., Gatley, S.J., Fowler, J.S., Logan, J., Fischman, M., Gifford, A.N., Pappas, N., King, P., Ding, Y-S. and Wang, G-J. Cocaine doses equivalent to those abused by humans occupy most of the dopamine transporters. *Synapse* **24**, 339-402, 1996.
139. Cruz, S.L., Villarreal, J.E. and Volkow, N.D. Further evidence that naloxone acts as an inverse opiate agonist: implications for drug dependence and withdrawal. *Life Sciences* **58**, 381-389, 1996.
140. Volkow, N.D., Ding, Y-S., Fowler, J.S. and Wang, G-J. Cocaine addiction: hypothesis derived from imaging studies with PET. *J. Addictive Diseases* **15**, 55-71, 1996.
141. Wang, G-J., Volkow, N.D., Lau, Y.H., Fowler, J.S., Meek, A.G., Park, T.L., Wong, C., Rocque, C.T., Adler, A.J. and Wolf, A.P. Glucose metabolic changes in nontumoral brain tissue of patients with brain tumor following radiotherapy: a preliminary study. *J. Computed Assisted Tomography* **20**, 709-714, 1996.



142. Susskind, H., Weber, D.A., Atkins, H.L., Franceschi, D. and Volkow, N.D. Does detoxification reverse the acute lung injury of crack smokers? *Nuclear Medicine Communications* **17**, 963-970, 1996.
143. Ding, Y-S., Gatley, S.J., Fowler, J.S., Volkow, N.D., Aggarwal, D., Logan, J., Dewey, S., Liang, F., Carroll, F.I. and Kuhar, M.J. Mapping nicotinic acetylcholine receptors with PET. *Synapse* **24**, 403-407, 1996.
144. Hoff, A., Riordan, H., Morris, L., Cestaro, V., Wieneke, M., Alpert, R., Wang, G-J. and Volkow, N.D. Effects of crack cocaine on neurocognitive function. *Psychiatry Res.* **60**, 167-176, 1996.
145. Volkow, N.D., Wang, G-J., Fowler, J.S., Gatley, S.J., Ding, Y-S., Logan, J., Dewey, S.L., Hitzemann, R. and Lieberman, J. Relationship between psychostimulant induced high and dopamine transporter occupancy. *Proc. Natl. Acad. Sci.* **93**, 10388-10392, 1996.
146. Volkow, N.D., Wang, G-J. and Doria, J.J. Monitoring the brain's response to alcohol with Positron Emission Tomography. *Alcohol Health Research World* **19**, 296-299, 1996.
147. Fowler, J.S., Volkow, N.D., Wang, G-J., Pappas, N., Logan, J., Shea, C., Alexoff, D., MacGregor, R., Schlyer, D.I., Zezulkova, I. and Wolf, A.P. Brain monoamine oxidase A inhibition in cigarette smokers. *Proc. Natl. Acad. Sci. USA* **93**, 14065-14069, 1996.
148. Fowler, J.S., Fazzini, E. and Volkow, N.D. Deprenyl and levodopa and Parkinson's disease progression. *Annals of Neurology* **40**, 267-268, 1996.
149. Wang, G-J., Volkow, N.D., Hitzemann, R.J., Wong, C., Angrist, B., Burr, G., Pascani, K., Pappas, N., Lu, A., Cooper, T. and Lieberman, J.A. Behavioral and cardiovascular effects of intravenous methylphenidate in normal subjects and cocaine abusers. *European Addiction Research* **3**, 49-54, 1997.
150. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Angrist, B., Hitzemann, R.J., Lieberman, J. and Pappas, N.S. Effects of methylphenidate on regional brain glucose metabolism in humans: relationship to dopamine D2 receptors. *Am. J. Psychiatry* **154**, 50-55, 1997.
151. Volkow, N.D., Wang, G-J., Fowler, J.S., Hitzemann, R., Pappas, N.S., Piscani, K. and Wong C. Gender differences in cerebellar metabolism: test-retest reproducibility. *Am. J. Psychiatry* **154**, 119-121, 1997.
152. Dewey, S.L., Chaurasia, C.S., Chen, C-E., Volkow, N.D., Straughter-Moore, R.M., Alexoff, D.L., Tedeschi, D., Russo, N.B., Fowler, J.S., Clarkson, F.A., Porter, S. and Brodie, J.D. GABAergic attenuation of cocaine-induced dopamine release and locomotor activity. *Synapse* **25**, 393-398, 1997.

153. Gatley, S.J., Volkow, N.D., Gifford, A.N., Ding, Y-S., Logan, J. and Wang, G-J. A model for estimating dopamine transporter occupancy and subsequent increases in synaptic dopamine using positron emission tomography and carbon-11 labeled cocaine. *Biochemical Pharmacology* **51**, 43-52, 1997.
154. Gifford, A., Gatley, S.J. and Volkow, N.D. Evaluation of the importance of rebinding in slowing the approach to equilibrium of high affinity PET and SPECT radiotracers. *Synapse* **28**, 167-175, 1998.
155. Smith, G.S., Dewey, S.L., Brodie, J.D., Logan, J., Vitkun, S.A., Simkowitz, P., Schloesser, R., Alexoff, D.A., Hurley, A., Cooper, T. and Volkow, N.D. Serotonergic modulation of dopamine measured with [<sup>11</sup>C]raclopride and PET in normal human subjects. *Am. J. Psychiatry* **154**, 490-496, 1997.
156. Ding, Y-D., Fowler, J.S., Volkow, N.D., Dewey, S.L., Wang, G-J., Gatley, J., Logan, J. and Pappas, N. Chiral drugs: comparison of the pharmacokinetics of [<sup>11</sup>C]d-threo and l-threomethylphenidate in the human and baboon brain. *Psychopharmacology* **131**, 71-78, 1997.
157. Fowler, J.S., Volkow, N.D., Wang, G-J., Logan, J., Pappas, N., Shea, C. and MacGregor, R. Age-related increases in brain monoamine oxidase B in living healthy human subjects. *Neurobiol. Aging* **18**, 431-435, 1997.
158. Wang, G-J., Volkow, N.D., Fowler, J.S., Logan, J., Hitzemann, R.J., Pappas, N.S. and Piscani, K. Dopamine D2 receptor availability in opiate-dependent subjects before and after naloxone precipitated withdrawal. *Neuropsychopharmacology* **16**, 174-182, 1997.
159. Volkow, N.D., Wang, G-J., Fischman, M.W., Foltin, R.W, Fowler, J.S., Vitkun, S., Logan, J., Gatley, S.J., Pappas, N., Hitzemann, R. and Shea, K. Relationship between subjective effects of cocaine and dopamine transporter occupancy. *Nature* **386**, 827-830, 1997.
160. Volkow, N.D., Wang, G-J., Overall, J.E., Hitzemann, R., Fowler, J.S., Pappas, N., Frecska, E. and Piscani, K. Regional brain metabolic response to lorazepam in alcoholics during early and late alcohol detoxification. *Alcoholism: Clinical and Experimental Research* **21**, 1278-1284, 1997.
161. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Gatley, S.J., Hitzemann, R., Chen, A.D. and Pappas, N. Decreased striatal dopaminergic responsiveness in detoxified cocaine-dependent subjects. *Nature* **386**, 830-833, 1997.
162. Volkow, N.D., Rosen, B. and Farde, L. Imaging the living human brain: Magnetic resonance imaging and positron emission tomography. *Proc. Natl. Acad. Sci. USA* **94**, 2787-2788, 1997.
163. Morgan, A.E., Porter, S.P., Clarkson, F.A., Volkow, N.D., Fowler, J.S. and Dewey, S.L. Direct approach for attenuating cocaine's effects on extracellular dopamine: targeting the dopamine transporter. *Synapse* **26**, 423-427, 1997.

164. Logan, J.S., Volkow, N.D., Fowler, J.S., Wang, G-J., Fischman, M.W., Foltin, R.W., Vitkun, S., Gatley, S.J., Pappas, N., Hitzemann, R. and Shea, C. Concentration and occupancy of dopamine transporters in cocaine abusers with [<sup>11</sup>C]-cocaine and PET. *Synapse* **27**, 347-356, 1997.
165. Fowler, J.S., Volkow, N.D., Logan, J., Gatley, S.J., Pappas, N., King, P., Ding, Y-S. and Wang, G-J. Measuring dopamine transporter occupancy by cocaine: Radiotracer considerations. *Synapse* **28**, 111-116, 1998.
166. Schlosser, R., Brodie, J.D., Dewey, S.L., Alexoff, A., Wang, G-J., Fowler, J.S., Volkow, N.D., Logan, J. and Wolf, A.P. Long-term stability of neurotransmitter activity investigated with <sup>11</sup>C-raclopride PET. *Synapse* **28**, 66-70, 1998.
167. Volkow, N.D., Wang, G-J., Fowler, J.S., Hitzemann, R., Gatley, S.J., Dewey, S.L. and Pappas, N. Enhanced sensitivity to benzodiazepines in active cocaine abusing subjects: A PET Study. *Am. J. Psychiatry* **155**, 200-206, 1998.
168. Gatley, S.J., Lan, R., Volkow, N.D. and Makriyannis, A. Binding of the non-classical cannabinoid CP 55,940 and the diarylpyrazole AM251 to rodent cannabinoid receptors. *Life Sci.* **61**, 191-197, 1997.
169. Molina, P.E., Ding, Y-S., Carroll, I.F., Liang, F., Volkow, N.D., Pappas, N., Kuhar, M., Gatley, S.J. and Fowler, J.S. Fluoro-norchloroepibatidine: preclinical assessment of acute toxicity. *Nuclear Medicine and Biology* **24**, 743-747, 1997.
170. Wang, G-J., Volkow, N.D., Fowler, J.S., Fischman, M.W., Foltin, R.W., Logan, J. and Pappas, N. Cocaine abusers do not show age-related losses of dopamine transporters. *Life Sciences* **61**, 1059-1065, 1997.
171. Liang, F., Navarro, H.A., Abraham, P., Kotian, P., Ding, Y-S., Fowler, J., Volkow, N., Kuhar, M. and Carroll, F.I. Synthesis and nicotinic acetylcholine receptor binding properties of exo-2-(2'-fluoro-5'-pyridinyl)-7-azabicyclo-[2.2.1]heptane: a new positron emission tomography ligand for nicotinic receptors. *J. Medicinal Chemistry* **40**, 2293-2295, 1997.
172. Gatley, S.J., Lan, R., Volkow, N.D., Pappas, N., King, P., Wong, C.T., Gifford, A.N., Pyatt, B. and Makriyannis, A. Imaging the brain marijuana receptor: development of a radioligand that binds to cannabinoid CB1 receptors in vivo. *J. Neurochem.* **70**, 417-423, 1998.
173. De Leon, M., McRae, T., Rusinek, H., Convit, A., De Santi, S., Tarshish, C., Golomb, J., Volkow, N., Daisley, K., Orenterich, N. and Mc Ewen, B. Cortisol reduces hippocampal glucose metabolism in normal elderly but not in Alzheimer's disease. *J. Clin. Endocrinol. Metab.* **82**, 3251-3259, 1997.
174. Smith, G.S., Schloesser, R., Brodie, J.D., Dewey, S.L., Logan, J., Vitkun, S.A., Simkowitz, P., Hurley, A., Cooper, T., Volkow, N.D. and Cancro, R. Glutamate modulation of

dopamine measured in vivo with positron emission tomography (PET) and 11C-raclopride in normal human subjects. *Neuropsychopharmacology* **18**, 18-25, 1998.

175. Volkow, N.D., Gur, R., Wang, G-J., Fowler, J.S., Moberg, P.J., Ding, Y-S., Logan, J. and Smith, G. Decline of brain dopamine activity with age is associated with cognitive and motor impairment in healthy individuals. *Am. J. Psychiatry* **155**, 344-349, 1998.

176. Gifford, A.N., Tang, Y., Gatley, S.J., Volkow, N.D., Lan, R. and Makryannis, A. Effect of the cannabinoid receptor SPECT agent, AM 281, on hippocampal acetylcholine release from rat brain slices. *Neuroscience Letters* **238**, 84-96 1997.

177. Wang, G-J., Volkow, N.D., Fowler, J.S., Hitzemann, R., Pappas, N. and Netusil, N. Evaluation of gender differences in regional brain metabolic responses to lorazepam. *Psychiatry Research* **10**, 37-46, 1998.

178. Volkow, N.D., Wang, G-J., Fowler, J.S., Ding, Y-S., Gur, R., Gatley, S.J., Logan, J., Moberg, P.J., Hitzemann, R., and Smith, G. Parallel loss of pre and postsynaptic dopamine markers in normal aging. *Annals of Neurology* **44**, 143-147, 1998.

179. Fowler, J.S., Volkow, N.D., Logan, J., Pappas, N., MacGregor, R., Shea, C. and Gatley, S.J. An acute dose of nicotine does not inhibit MAO B in baboon brain in vivo. *Life Sciences* **63**, 19-23, 1998.

180. Fowler, J.S. and Volkow, N.D. PET imaging studies in drug abuse. *Journal of Toxicology-Clinical Toxicology* **36**, 163-174, 1998.

181. Fowler, J.S., Volkow, N.D., Wang, G-J., Pappas, N., Logan, J., Mac Gregor, R., Alexoff, D., Wolf, A.P., Warner, D., Cilento, R. and Zezulkova, I. Neuropharmacological actions of cigarette smoke: brain Monoamine Oxidase B (MAO B) inhibition. *J. Addictive Diseases* **17**, 23-34, 1998.

182. Gatley, J.S., Ding, Y-S., Brady, D., Gifford, A.N., Dewey, S.L., Carroll, F.I., Fowler, J.S. and Volkow, N.D. In vitro and in vivo autoradiographic studies of nicotinic acetylcholine receptors using [18F]fluoro-nor-chloroepibatidine in rodent and human brain. *Nucl. Med. Biol.* **25**, 449-454, 1998.

183. Volkow, N.D., Fowler, J.S., Gatley, S.J., Dewey, S.L., Wang, G-J., Logan, J., Ding, Y-S., Francesci, D., Gifford, A., Morgan, A., Pappas, N. and King, P. Comparable changes in synaptic dopamine induced by methylphenidate and by cocaine in the baboon brain. *Synapse* **31**, 59-66, 1998.

184. Volkow, N.D., Wang, G-J., Fowler, J.S., Hitzemann, R., Gatley, J.S., Ding, Y-S., Wong, C. and Pappas, N. Differences in regional brain metabolic responses between single and repeated doses of methylphenidate. *Psychiatry Research: Neuroimaging Section* **83**, 29-36, 1998.

185. Wang, G-J., Volkow, N.D., Fowler, J.S., Pappas, N.R., Wong, C.T., Felder, C.A. and Hitzemann, R.J. Regional cerebral metabolism in female alcoholics of moderate severity does not differ from that of controls. *Alcoholism: Clinical and Experimental Research* **22**, 1850-1854, 1998.
186. Volkow, N.D., Wang, G-J., Fowler, J.S., Gatley, J.S., Logan J., Ding, Y-S., Hitzemann, R. and Pappas, N. Dopamine transporter occupancies in the human brain induced by therapeutic doses of oral methylphenidate. *Am J Psychiatry* **155**, 1325-1331, 1998.
187. Fowler, J.S., Volkow, N.D., Ding, Y-S. and Wang, G-J. PET and the study of drug action in the human brain. *Pharmaceutical News* **5**, 11-16, 1998.
188. Ding, Y-S., Logan, J., Fowler, J.S. and Volkow, N.D. PET studies of peripheral catechol-o-methyltransferase in non-human primates using [<sup>18</sup>F]RO41-0960. *J Neural Transmission* **105**, 1199-1211, 1998.
189. Dewey, S.L., Morgan, A.E., Ashby, C.R., Horan, B., Kushner, S.A., Logan, J., Volkow, N.D., Fowler, J.S., Gardner, E.L. and Brodie, J.D. A novel strategy for the treatment of cocaine addiction. *Synapse* **30**, 119-129, 1998.
190. Gatley, S.J. and Volkow, N.D. Addiction and imaging of the living human brain. *Drug and Alcohol Dependence* **51**, 97-108, 1998.
191. Volkow, N.D., Wang, G-J., Fowler, J.S., Hitzemann, R., Angrist, B., Gatley, S.J., Logan, J., Ding, Y-S. and Pappas, N. Methylphenidate induced craving in cocaine abusers is associated with changes in right striato-orbitofrontal metabolism: implications in addiction. *Am J Psychiatry* **156**, 19-26, 1999.
192. Volkow, N.D., Wang, G-J., Fowler, J.S., Gatley, S.J., Logan, J., Ding, Y-S., Dewey, S.L., Hitzemann R, Gifford A. and Pappas, N.R. Blockade of striatal dopamine transporters by intravenous methylphenidate is not sufficient to induce self reports of "High". *J Pharmacol Exp Ther* **288**, 14-20, 1999.
193. Ding, Y-S., Molina, P.E., Fowler, J.S., Logan, J., Volkow, N.D., Kuhar, M.J. and Carroll, I. Comparative studies of epibatidine derivatives [<sup>18</sup>F]NFEP and [<sup>18</sup>F]N-Methyl-NFEP: kinetics, nicotine effect and toxicity. *Nucl. Med. Biol.* **26**, 139-148 1999.
194. Telang, F.W., Volkow, N.D., Levy, A., Logan, J., Fowler, J.S., Felder, C., Wong, C. and Wang, G-J. Distribution of tracer levels of cocaine in the human brain as assessed with averaged [<sup>11</sup>C]cocaine images. *Synapse* **31**, 290-296 1999.
195. Drucker-Colin, R., Verdugo-Diaz, L., Morgado-Valle, C., Solis-Maldonado, G., Ondarza, R., Boll, C., Miranda, G., Wang, G-J. and Volkow, N. Transplant of cultured neuron-like differentiated chromaffin cells in a Parkinson's disease patient: a preliminary report. *Archives of Medical Research* **30**, 33-39 1999.

196. Wang, G-J., Volkow, N.D., Levy, A., Felder, C., Fowler, J.S., Pappas, N., Hitzemann, R.J. and Wong, C.T. Measuring reproducibility of regional brain metabolic responses to lorazepam using Statistical Parametric Maps (SPM). *J Nuclear Medicine* **40**, 715-720, 1999.
197. Wang, G-J., Volkow, N.D., Fowler, J.S., Cervany, P., Hitzemann, R.J., Pappas, N., Wong, C.T., and Felder, C. Regional brain metabolic activation during craving elicited by recall of previous drug experiences. *Life Sciences* **64**, 775-784, 1999.
198. Telang, F.W., Ding, Y-S., Volkow, N.D., Molina, P.E. and Gatley, J.S. Pyridostigmine, a carbamate acetylcholinesterase AChE inhibitor and reactivator, is used prophylactically against chemical warfare agents. *Nucl Med Biol* **26**, 249-250, 1999.
199. Gifford, A.N., Bruneus, M., Gatley, S.J., Lan, R., Makriyannis, A. and Volkow, N.D. Large receptor reserve for cannabinoid actions in the central nervous system. *J Pharmacol Exp Ther* **288**, 478-483, 1999.
200. Volkow, N.D., Wang, G-J., Fowler, J.S., Fischman M., Foltin, R., Gatley, S.J., Logan, J., Wong C., Gifford, A., Hitzemann, R. and Pappas, N. Methylphenidate and cocaine have a similar in vivo potency to block dopamine transporters in the human brain. *Life Sciences* **65**, 7-12, 1999.
201. Wang, G-J., Volkow, N.D., Fowler, J.S., Logan, J., Pappas, N.R., Natusil, N., Wong, C.T. and Hitzemann, R.J. Reproducibility of repeated measures of endogenous dopamine competition with [<sup>11</sup>C]-raclopride in the human brain. *J Nucl Medicine* **40**, 1285-1291 1999.
202. Fowler, J.S., Volkow, N.D., Cilento, R., Wang, G-J., Felder, C. and Logan, J. Comparison of brain glucose metabolism and Monoamine Oxidase B (MAO B) in traumatic brain injury. *Clinical Positron Imaging* **2**, 71-79, 1999.
203. Fowler, J.S., Volkow, N.D., Wang, G-J., Ding, Y-S. and Dewey, S.L. PET and drug research and development. *J Nucl Med* **40**, 1154-1163, 1999.
204. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Gatley, S.J., Gifford, A., Hitzemann, R.J., Ding, Y-S. and Pappas N. Prediction of reinforcing responses to psychostimulants in humans by brain dopamine D2 receptor levels. *Am J Psychiatry* **156**, 1440-1443, 1999.
205. Sammi, M.K., Felder, C.A., Fowler, J.S., Lee, J-H., Levy, A.V., Li, X., Logan, J., Palyka, I., Rooney, W.D., Volkow, N.D., Wang, G-J. and Springer, C. The intimate combination of low and high resolution image data: Real-space PET and <sup>1</sup>H<sub>2</sub>O MRI, PETAMRI. *Magn Reson Med* **42**, 345-360, 1999.
206. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Gatley, S.J., Wong C, Hitzemann, R.J., and Pappas N. Reinforcing effects of psychostimulants in humans are associated with increases in brain dopamine and occupancy of D2 receptors. *J Pharmacology and Experimental Therapeutics* **291**, 409-415 1999.

207. Ding, Y-S., Volkow, N.D., Logan, J., Garza, V., Pappas, N., King, P. and Fowler, J.S. Occupancy of brain nicotinic acetylcholine receptors by nicotine doses equivalent to those obtained when smoking a cigarette. *Synapse* **35**, 234-237, 2000.
208. Volkow, N.D., Fowler, J.S. and Wang, G-J. Imaging studies on the role of dopamine in cocaine reinforcement and addiction in humans. *J Psychopharmacology* **13**, 357-365, 1999.
209. Weng, X., Ding, Y-S. and Volkow, N. D. Imaging the functioning human brain. *PNAS* **96**, 11073-11074, 1999.
210. Lan, R., Gatley, S.J., Liu Q., Fan, P., Fernando, S.R., Volkow, N.D., Pertwee, R. and Makriyannis, A. Design and synthesis of the CB1 selective cannabinoid antagonist AM281: A potential human SPECT ligand. *AAPS Pharmaceutical Sciences* 1(2) article 4, 1999.
211. Gatley, S.J., Volkow, N.D., Gifford, A.N., Fowler, J.S., Dewey, S.L., Ding, Y-S. and Logan, J. Dopamine transporter occupancy after intravenous doses of cocaine and methylphenidate in mice and humans. *Psychopharmacology* **146**, 93-100, 1999.
212. Volkow, N.D., Fowler, J.S., Ding, Y-S., Wang, G-J., and Gatley, S.J. Imaging the neurochemistry of nicotine actions: studies with Positron Emission Tomography. *Nicotine & Tobacco Research* **1**, S127-S132, 1999.
213. Gifford A.N., Bruneus, M., Lin, S., Goutopoulos A., Makriyannis A., Volkow, N.D. and Gatley, S.J. Potentiation of the action of anandamide on hippocampal slices by the fatty acid amide hydrolase inhibitor, palmitylsulphonyl fluoride (AM374). *European J Pharmacology* **383**, 9-14, 1999.
214. Schroer, K., DeRisis, D., Kastrow, K., Busch, E., Volkow, N. and Capel, M. Attempts to replicate the claim of James' at NSLS Beam Line X12B. *Synchrotron Radiation News* **12**, 33-35, 1999.
215. Hetherington, H.P., Telang, F., Pan, J.W., Sammi, M., Schuhlein, D., Molina, P. and Volkow, N.D. Spectroscopic imaging of the uptake kinetics of human brain ethanol. *Magnetic Resonance in Medicine* **42**, 1019-1026, 1999.
216. Molina, P.E., Ahmed, N., Ajmal, M., Dewey, S., Volkow, N. and Fowler, J. Co-administration of gamma-vinyl GABA and cocaine: preclinical assessment of safety. *Life Sciences* **65**, 1175-1182, 1999.
217. Fowler, J.S., Wang, G-J., Volkow, N.D., Franceschi, D., Logan, J., Pappas, N., Shea, C., MacGregor, R. and Garza, V. Smoking a single cigarette does not produce a measurable reduction in brain MAO B in non-smokers. *Nicotine and Tobacco Research* **1**, 325-329, 1999.
218. Fowler, J.S., Volkow, N.D., Ding, Y-S., Wang, G-J., Dewey, S., Fischman, M.W., Foltin, R. and Hitzemann, R. PET studies of dopamine enhancing drugs. *J. Clin. Pharmacology* **8**, 13-16, 1999.

219. Fowler, J.S., Wang, G-J., Volkow, N.D., Ieni, J., Logan, J., Pappas, N., Dewey, S.L. PET Studies of the Effect of the Antidepressant Drugs Nefazodone or Paroxetine on [<sup>11</sup>C]Raclopride Binding in Human Brain. *Clin Positron Imaging*. **4**, 205-209, 1999.
220. Logan, J., Fowler, J.S., Volkow N.D., Wang, G-J., MacGregor, R.R. and Shea, C. Reproducibility of repeated measures of deuterium substituted [<sup>11</sup>C]L-Deprenyl ([<sup>11</sup>C]L-deprenyl-D2) binding in the human brain. *Nuclear Medicine and Biology* **27**, 43-49, 2000.
221. Wang, G-J., Volkow, N.D., Fowler, J.S., Franceschi, D., Logan, J., Pappas, N., Wong, C. and Netusil, N. PET studies of the effects of aerobic exercise (running) on human striatal dopamine release. *J Nucl Med* **41**, 1352-1356, 2000.
222. Volkow, N.D., Logan, J., Fowler, J.S., Wang, G-J., Gur, R.C., Wong, C., Felder, C., Gatley, S.J., Ding, Y-S., Hitzemann, R., and Pappas, N. Decreased brain dopamine activity with age is associated with impairment in frontal and cingulate metabolism. *Am J Psychiatry* **157**, 75-80, 2000.
223. Volkow, N.D. and Fowler, J.S. Addiction, a disease of compulsion and drive: involvement of the orbitofrontal cortex. *Cerebral Cortex* **10**, 318-325, 2000.
224. Ding, Y-S., Logan, J., Bermel, R., Garza, V., Rice, O., Fowler, J.S. and Volkow, N.D. Dopamine receptor-mediated regulation of striatal cholinergic activity: PET studies with [<sup>18</sup>F]norchlorofluoropibatidine. *J Neurochem* **74**, 1514-1521, 2000.
225. Fowler, J.S., Wang, G-J., Volkow, N.D., Logan, J., Franceschi, D., Franceschi, M., MacGregor, R., Shea, C., Garza, V., Liu, N., and Ding, Y-S. Evidence that Ginkgo Biloba extract does not inhibit MAO A and B in living human brain. *Life Sci*. **66**, 141-146, 2000.
226. Wang, G-J., Volkow, N. D., Franceschi, D., Fowler, J.S., Thanos, P., Sherbaum, N., Pappas, N., Wong, C., Hitzemann R. and Felder, C. Regional brain metabolism during alcohol intoxication. *Alcoholism Clinical Experimental Research* **24**, 22-829, 2000.
227. Volkow, N.D., Wang, G-J., Fowler, J.S., Franceschi, D., Thanos, P.K., Wong, C., Gatley, S.J., Ding, Y-S., Molina P., Schlyer D., Alexoff, D, Hitzemann, R. and Pappas, N. Blunted response to alcohol intoxication in active cocaine abusers as assessed with regional brain glucose metabolism. *Life Sciences* **66**, 161-167, 2000.
228. Rooney, W.D., Lee, L-H., Wang, G-J., Franceschi, D., Springer, C.S. and Volkow, N.D. 4.0 T Water Proton T1 relaxation times in normal human brain during acute ethanol intoxication. *Alc Clinical Exp Research* **24**, 830-836, 2000.
229. Volkow, N.D., Gatley, S.J., Fowler, J.S., Wang, G-J. and Swanson, J. Serotonin and the therapeutic effects of Ritalin. *Science* **288**, 11, 2000 (letter).



230. Volkow, N.D., Wang, G.-J., Fischman, M., Foltin, R., Fowler, J.S., Franceschi, D., Franceschi, M., Logan, J., Gatley, S.J., Wong, C., Ding, Y.-S., Hitzemann, R. and Pappas, N. Effects of route of administration on cocaine induced dopamine transporter blockade in the human brain. *Life Sciences* **67**, 1507-1515, 2000.
231. Sammi, M.K., Hetherington, H.P., Telang, F., Pan, J.W., Schuhlein, D., Molina, P. and Volkow, N.D. Measurements of human brain ethanol T2 by spectroscopy imaging at 4T. *Magnetic Resonance in Medicine* **44**, 35-40, 2000.
232. Gerasimov, M.R., Franceschi, M., Volkow, N.D., Rice, O., Schiffer, W.K. and Dewey, S.L. Synergistic interactions between nicotine and cocaine or methylphenidate depend on the dose of dopamine transporter inhibitor. *Synapse* **38**, 432-437, 2000
233. Volkow, N.D., Wang, G.-J., Fowler, J.S., Logan, J., Gatley, S.J., Wong, C. and Felder, C. Increased activity of the temporal insula in subjects with bradycardia. *Life Sciences* **67**:2213-2220, 2000.
234. Anderson, B.J., Gatley, S.J., Rapp, D., Coburn-Litvak, P.S. and Volkow, N.D. The Ratio of D1 to muscarinic receptors changes in aging rats housed in an enriched environment. *Brain Research* **872**, 262-265, 2000.
235. Gerasimov, M.R., Franceschi, M., Volkow, N.D., Gifford, A., Gatley, S.J., Marstsellar, D., Molina, P.E. and Dewey, S.L. Neurochemical and locomotor responses to oral and intraperitoneal methylphenidate. *J Pharmacology and Experimental Therapeutics* **295**:51-57, 2000.
236. Volkow, N.D., Wang, G.-J., Fowler, J.S., Rooney, W.D., Felder, C.A., Franceschi, D., Maynard, L., Schlyer, D., Pan, J.W., Gatley, S.J. and Springer, C. Resting brain metabolic activity in a 4 Tesla magnetic field. *Magnetic Resonance in Medicine* **44**, 701-705, 2000.
237. Volkow, N.D., Fowler, J.S., Logan, J., Gatley, S.J., Wang, G.J. and Hitzemann, R. Do differences in dopamine D2 receptor availability reflect differences in receptor levels or on receptor occupancy by dopamine? *Am J Psychiatry* (letter) **157**, 1709-1710, 2000.
238. Gifford, A.N., Bruneus, M., Gatley, S.J. and Volkow, N.D. Cannabinoid receptor-mediated inhibition of acetylcholine release from hippocampal and cortical synaptosomes. *Br J Pharmacol.* **131**, 645-650, 2000.
239. Gifford, A.N., Park, M.H., Kash, T.L., Herman, L.M., Park, E.H., Gatley, S.J. and Volkow, N.D. Effect of amphetamine-induced dopamine release on radiotracer binding to D1 and D2 receptors in rat brain striatal slices. *Naunyn-Schmiedeberg's Arch Pharmacol* **362**, 413-418, 2000.
240. Cosenza, M., Gifford, A.N., Gatley, S.J., Pyatt, B.E., Liu, Q., Makriyannis, A. and Volkow, N.D. Locomotor activity and occupancy of brain cannabinoid cb1 receptors by the antagonist AM281. *Synapse* **38**, 477-482, 2000.

241. Gatley, S.J., Gifford, A.N., Carroll, F.I. and Volkow, N.D. Sensitivity of binding of high-affinity dopamine receptor radioligands to increased synaptic dopamine. *Synapse* **38**, 483-488, 2000.
242. Fowler, J.S., Wang, G-J., Volkow, N.D., Franceschi, D., Logan, J., Pappas, N., Shea, C., MacGregor, R. and Garza, V. Maintenance of brain MAO B inhibition in smokers after a 12-hour cigarette abstinence. *Am. J. Psychiatry* **157**, 1864-1866, 2000.
243. Volkow, N.D., Chang, L., Wang, G-J., Fowler, J.S., Leonido-Yee, M., Franceschi, D., Sedler, M., Gatley, S.J., Hitzemann, R., Ding, Y-S., Logan, J., Wong, C. and Miller, E.N. Dopamine transporter losses in methamphetamine abusers are associated with psychomotor impairment. *Am J. Psychiatry* **158**, 377-382, 2001.
244. Volkow, N.D., Chang, L., Wang, G-J., Fowler, J.S., Franceschi, D., Sedler, M., Gatley, S.J., Hitzemann, R., Ding, Y-S., Wong, C. and Logan, J. Increased cortical and decreased subcortical metabolism in detoxified methamphetamine abusers. *Am J. Psychiatry* **158**, 383-389, 2001.
245. Volkow, N.D., Wang, G.J., Fowler, J.S., Logan, J., Gerasimov, M., Maynard, L., Ding, Y-S., Gatley, S.J., Gifford A. and Franceschi, D. Therapeutic doses of oral methylphenidate significantly increase extracellular dopamine in the human brain. *J Neuroscience* **21**, RC121, 1-5, 2001.
246. Fowler J.S., Volkow, N.D., Logan, J. Franceschi, D., Wang, G-J., MacGregor, R., Shea, C., Garza, V., Pappas, N., Carter, P., Netusil, N., Bridge, P., Liederman, D., Elkashef, A., Rotrosen, J. and Hitzemann R. Evidence that l-deprenyl treatment for 1 week does not inhibit MAO A or the dopamine transporter in the human brain. *Life Sciences* **68**, 2759-2768, 2001.
247. Wang, G-J., Volkow, N.D., Logan, J., Pappas, N.R., Wong C.T., Zhu, W., Netusil, N. and Fowler J.S. Evidence of brain dopamine pathology in obesity. *Lancet* **357**, 354-357, 2001.
248. Volkow, N.D., Ding, Y-S., Fowler, S.J. and Gatley, S.J. Imaging brain cholinergic activity with positron emission tomography: Its role in the evaluation of cholinergic treatments in Alzheimer's dementia. *Biol. Psych.* **49**: 211-220, 2001.
249. Logan, J., Fowler, J.S., Dewey, S.L., Volkow, N.D. and Gatley, S.J. A consideration of the dopamine D2 receptor monomer-dimer equilibrium and the anomalous binding properties of the dopamine D2 receptor ligand, N-methyl spiperone. *J. Neural. Transm.* **108**, 279-286, 2001.
250. Logan, J., Fowler, J.S., Volkow, N.D., Ding, Y-S., Wang, G-J. and Alexoff, D. A strategy for removing the bias in the graphical analysis method. *J. Cereb. Blood Flow Metab.* **21**, 307-320, 2001.
251. Fowler, J.S., Ding, Y-S., Logan, J., MacGregor, R., Shea, C., Garza, V., Gimi, R., Volkow, N.D., Wang, G-J., Schlyer, D., Ferrieri, R., Gatley, S.J., Alexoff, D., Carter, P., King,

P., Pappas, N. and Arnett, C.D. Species differences in [<sup>11</sup>C]clorgyline binding in brain. *Nuclear Medicine and Biology* **28**, 779-785, 2001.

252. Uhl, G.R. and Volkow, N. Perspectives on reward circuitry, neurobiology, genetics and pathology: dopamine and addiction. *Mol. Psychiatry* **6**, Suppl 1:S1 2001.

253. Goldstein, R.Z., Volkow, N.D., Wang, G-J., Fowler, J.S., Rajaram, S. Addiction changes orbitofrontal gyrus function: involvement in response inhibition. *Neuroreport* **12**, 2595-2599, 2001.

254. Fowler, J.S. and Volkow, N.D. 18FDG for the study of central nervous system drugs. *J Clin Pharmacol Suppl* **9**:S-10S, 2001.

255. Volkow, N.D., Chang, L., Wang, G-J., Fowler, J.S., Ding, Y-S., Sedler, M., Logan, J., Franceschi, D., Gatley, S.J., Hitzemann, R., Gifford, A., Wong, C. and Pappas, N. Decreased brain dopamine D2 receptors in methamphetamine abusers: association with metabolism in orbitofrontal cortex *Am J Psychiatry* **158**, 2015-2021, 2001.

256. Volkow, N.D. Drug abuse and mental illness: progress in understanding comorbidity. *Am J Psychiatry* **158**, 1181-1183, 2001.

257. Fowler, J.S., Volkow, N.D., Wang, G.J., Gatley, S.J. and Logan, J. [(11)]Cocaine: PET studies of cocaine pharmacokinetics, dopamine transporter availability and dopamine transporter occupancy. *Nucl Med Biol* **28**, 561-572, 2001.

258. Thanos, P.K., Volkow, N.D., Freimuth, P., Umegaki, H., Ikari, H., Roth, G., Ingram, D.K. and Hitzemann, R. Overexpression of dopamine D2 receptors reduces alcohol self-administration. *J Neurochem* **78**, 1094-1103, 2001.

259. Molina, P.E., Ahmed, N., Gatley, S.J. and Volkow, N.D. L-Tryptophan modulation of neurochemical and behavioral responses to cocaine. *Life Sciences* **69**, 1897-1906, 2001.

260. Rice, O.V., Gatley, S.J., Shen, J., Huemmer, C.L., Rogoz, R., DeJesus, O.T., Volkow, N.D. and Gifford, A.N. Effects of endogenous neurotransmitters on the in vivo binding of dopamine and 5-HT radiotracers in mice. *Neuropsychopharmacology* **25**, 679-689, 2001.

261. Volkow, N.D., Chang, L., Wang, G-J., Fowler, J.S., Franceschi, D., Sedler, M., Gatley, S.J., Miller, E., Hitzemann, R., Ding, Y-S. and Logan, J. Loss of dopamine transporters in methamphetamine abusers recovers with protracted abstinence. *J Neuroscience* **21**, 9414-9418, 2001.

262. Fowler, J.S., Logan, J., Ding, Y-S., Franceschi, D., Wang, G-J., Volkow, N.D., Pappas, N., Schlyer, D., Biegon, A. and Zhu, W. Non-MAO A binding of clorgyline in white matter in human brain. *J Neurochem* **79**, 1039-1046, 2001.

263. Marsteller, D.A., Gerasimov, M.R., Schiffer, W.K., Geiger, J.M., Bennett, C.R., Schaich Borg, J., Scott, S., Ceccarelli, J., Volkow, N.D., Molina, P.E., Alexoff, D.L. and Dewey, S.L.

Acute handling stress modulates methylphenidate-induced catecholamine overflow in medial prefrontal cortex. *Neuropsychopharmacology* **27**, 163-170, 2002.

264. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Franceschi, D., Maynard L., Ding, Y-S., Gatley, S.J., Gifford, A. and Zhu, W. Relationship between blockade of dopamine transporters by oral methylphenidate and the increases in extracellular dopamine: Therapeutic implications. *Synapse* **43**, 181-187, 2002.

265. Swanson, J.M. and Volkow, N.D. Pharmacokinetic and pharmacodynamic properties of stimulants: implications for the design of new treatments for ADHD. *Behavioural Brain Research* **130**, 73-78, 2002.

266. Volkow, N.D., Zhu, W., Felder, C.A., Mueller, K., Welsh T.F., Wang, G-J. and de Leon, M.J. Changes in brain functional homogeneity in subjects with Alzheimer's disease. *Psychiatry Research* **114**, 39-50, 2002.

267. Volkow, N.D., Wang, G-J., Fowler, J.S., Logan, J., Jayne, B., Franceschi, D., Wong, C., Gatley, S.J., Gifford, A., Ding, Y-S. and Pappas, N. "Non-hedonic" food motivation in humans involves dopamine in the dorsal striatum. *Synapse* **44**, 175-180, 2002.

268. Wang, G-J., Volkow, N.D., Felder, C., Fowler, J.S., Levy, A.V., Pappas, N.R., Wong, C.T., Zhu, W. and Netusil, N. Enhanced resting activity of the oral somatosensory cortex in obese subjects. *Neuroreport* **13**, 1151-1155, 2002

269. Volkow, N.D., Wang, G-J., Fowler, J.S., Thanos, P., Logan, J., Gatley, S.J., Gifford, A., Ding, Y-S., Wong, C. and Pappas, N. Brain DA D2 receptors predict reinforcing effects of stimulants in humans: replication study. *Synapse* **46**, 79-82, 2002.

270. Goldstein, R. and Volkow, N.D. Drug addiction and its underlying neurobiological basis: neuroimaging evidence for the involvement of the frontal cortex. *Am J Psychiatry* **159**, 1642-1652, 2002.

271. Fowler, J., Logan, J., Volkow, N., Wang, G., MacGregor, R. and Ding, Y. Monoamine oxidase: radiotracer development and human studies. *Methods* **27**, 263, 2002.

272. Volkow, N.D., Fowler, J.S., Wang, G-J. and Goldstein, R.Z. Role of dopamine, the frontal cortex and memory circuits in drug addiction: insight from imaging studies. *Neurobiology of Learning and Memory* **78**, 610-624, 2002.

273. Thanos, P.K., Taintor, N.B., Alexoff, D., Logan, J., Grandy, D., Fang, Y., Lee, J.H., Fowler, J.S. and Volkow, N.D. In Vivo comparative imaging of dopamine D2 knockout and wild-type mice with (11)C-raclopride and microPET *J Nucl Med* **43**, 1570-1577, 2002.

274. Fowler, J., Logan, J., Wang, G-J., Volkow, N.D., Zhu, W., Franceschi, D., Pappas, N., Ferrieri, R., Shea, C., Garza, V., Xu, Y., MacGregor, R.R., Schlyer, D., Gatley, S.J., Ding, Y-S.

- and Alexoff, D. PET imaging of monoamine oxidase B in peripheral organs in humans. *J Nucl Med* **43**, 1331-1338, 2002.
275. Volkow, N.D., Fowler, J.S. and Wang, G-J. Role of dopamine in drug reinforcement and addiction in humans: results from imaging studies. *Behavioral Pharmacology* **13**, 355-366, 2002.
276. Goldstein, R.Z., Volkow, N.D., Chang, L., Wang, G-J., Fowler, J.S., Depue, R. and Gur, R. The orbitofrontal cortex in methamphetamine addiction: involvement in fear. *Neuroreport* **13**, 2253-2257, 2002.
277. Volkow, N.D., Wang, G-J., Maynard, L., Fowler, J.S., Jayne, B., Telang, F., Logan, J., Ding, Y-S., Gatley, J.S., Wong, C. and Pappas, N. Effects of alcohol detoxification in dopamine D2 receptors in alcoholics. *Psychiatry Research* **116**, 163-172, 2002.
278. Wang, G-J., Volkow, N.D. and Fowler, J.S. The role of dopamine in motivation for food in humans: implications for obesity. *Expert Opin. Ther. Targets* **6**, 601-609, 2002.
279. Logan, J., Fowler, J.S., Ding, Y-S., Franceschi, D., Wang, G-J., Volkow, N.D., Felder, C. and Alexoff, D. Strategy for the formation of parametric images under conditions of low injected radioactivity applied to PET studies with the irreversible monoamine oxidase A tracers [C-11]clorgyline and deuterium-substituted [C-11]clorgyline. *J. Cereb. Blood Flow Metab.* **22**, 1367-1376, 2002.
280. Volkow, N.D., Fowler, J.S., Wang, G-J., Ding, Y-S. and Gatley, S.J. Role of dopamine in the therapeutic and reinforcing effects of methylphenidate in humans: results from imaging studies. *European Neuropsychopharmacology* **12**, 557-566, 2002.
281. Volkow, N.D., Fowler, J.S., Wang, G-J., Ding, Y-S. and Gatley, S.J. Mechanism of action of methylphenidate: insights from PET imaging studies. *J Attention Disorders* **6**, S31-S43, 2002.
282. Greenhill, L., Beyer, D.H., Finkleson, J., Shaffer, D., Biederman, J., Conners, C.K., Gillberg, C., Huss, M., Jensen, P., Kennedy, J.L., Klein, R., Rapoport, J., Sagvolden, T., Spencer, T., Swanson, J.M. and Volkow, N. Guidelines and algorithms for the use of methylphenidate in children with attention-deficit/hyperactivity disorder. *J Attention Disorders* **6**, S89-S100, 2002.
283. Gifford, A.N., Makriyannis, A., Volkow, N.D. and Gatley, S.J. In vivo imaging of the brain cannabinoid receptor. *Chem. Phys. Lip.* **121**, 65-72, 2002.
284. Schiffer, W.K., Azmoodeh, M., Gerasimov, M., Volkow, N.D., Fowler, J.S. and Dewey, S.L. Selegiline potentiates cocaine-induced increases in rodent nucleus accumbens dopamine. *Synapse* **48**, 35-38, 2003.

285. Volkow, N.D., Wang, G-J., Maynard, L., Jayne, M., Fowler, J.S., Zhu, W., Logan, J., Gatley, S.J., Ding, Y-S., Wong, C. and Pappas, N. Brain dopamine is associated with eating behaviors in humans. *Int J Eat Disord* **33**, 136-142, 2003.
286. Fowler, J.S., Ding, Y-S. and Volkow, N.D. Radiotracers for positron emission tomography imaging. *Semin Nucl Med* **33**, 14-27, 2003.
287. Volkow, N.D., Fowler, J.S. and Wang, G-J. Positron emission tomography and single-photon emission computed tomography in substance abuse research. *Semin Nucl Med* **33**, 114-128, 2003.
288. Fowler, J.S., Logan, J., Wang, G-J. and Volkow, N.D. Monoamine oxidase and cigarette smoking. *Neurotoxicology* **24**, 75-82, 2003.
289. Volkow, N.D., Wang, G-J., Fowler, J.S., Molina, P.E., Logan, J., Gatley, S.J., Gifford, A., Ding, Y-S., Wong, C., Pappas, N.R., Zhu, W. and Swanson, J.M. Cardiovascular effects of methylphenidate in humans are associated with increases of dopamine in brain and of epinephrine in plasma. *Psychopharmacology (Berl)* **166**, 264-270, 2003.
290. Wang, G-J., Volkow, N.D., Thanos, P.K. and Fowler, J.S. Positron emission tomographic evidence of similarity between obesity and drug addiction. *Psychiatric Annals* **33**, 105-111, 2003.
291. Volkow, N.D., Fowler, J.S. and Wang, G-J. The addicted human brain: insights from imaging studies. *J Clin Invest* **111**, 1444-1451, 2003.
292. Wang, G-J., Volkow, N.D., Fowler, J.S., Franceschi, D., Wong, C.T., Pappas, N.R., Netusil, N., Zhu, W., Felder, C. and Ma, Y. Alcohol intoxication induces greater reduction in brain metabolism in male than in female subjects. *Alcohol Clin Exp Res.* **27**, 909-917, 2003.
293. Lee, J-H., Telang, F.W., Springer, C.S. and Volkow, N.D. Abnormal brain activation to visual stimulation in cocaine abusers. *Life Sciences* **73**, 1953-1961, 2003.
294. Fowler, J.S., Logan, J., Wang, G-J., Franceschi, D., Volkow, N.D., Telang, F., Pappas, N., Ferrieri, R., Shea, C., Garza, V., Xu, Y., King, P., Schlyer, D., Gatley, S.J., Ding, Y-S., Warner, D., Netusil, N., Carter, P., Jayne, M., Alexoff, D., Zhu, W. and Vaska, P. Monoamine oxidase A imaging in peripheral organs in healthy human subjects. *Synapse* **49**, 178-187, 2003.
295. Alexoff, D.L., Vaska, P., Marsteller, D., Gerasimov, T., Li, J., Logan, J., Fowler, J.S., Taintor, N.B., Thanos, P.K. and Volkow, N.D. Reproducibility of <sup>11</sup>C-raclopride binding in the rat brain measured with the microPET R4: effects of scatter correction and tracer specific activity. *J Nucl Med* **44**, 815-822, 2003.
296. Benveniste, H., Fowler, J.S., Rooney, W.D., Moller, D.H., Backus, W.W., Warner, D.A., Carter, P., King, P., Scharf, B., Alexoff, D.A., Ma, Y., Vaska, P., Schlyer, D. and Volkow, N.D.

Maternal-Fetal In Vivo Imaging: A Combined PET and MRI Study. *J Nucl Med* **44**, 1522-1530, 2003.

297. Volkow, N.D., Wang, G-J., Ma, Y., Fowler, J.S., Zhu, W., Maynard, L., Telang, F., Vaska, P., Ding, Y-S., Wong, C. and Swanson, J.M. Expectation enhances the regional brain metabolic and the reinforcing effects of stimulants in cocaine abusers. *J Neurosci* **23**, 11461-11468, 2003.

298. Fowler, J.S., Logan, J., Wang, G-J., Volkow, N.D., Telang, F., Zhu, W., Franceschi, D., Pappas, N., Ferrieri, R., Shea, C., Garza, V., Xu, Y., Schlyer, D., Gatley, S.J., Ding, Y-S., Alexoff, D., Warner, D., Netusil, N., Carter, P., Jayne, M., King, P. and Vaska, P. Low monoamine oxidase B in peripheral organs in smokers. *Proc Natl Acad Sci U S A.* **100**, 11600-11605, 2003.

299. Volkow, N.D. and Swanson, J.M. Variables that affect the clinical use and abuse of methylphenidate in the treatment of ADHD. *Am J Psychiatry* **160**, 1909-1918, 2003.

300. Swanson, J.M. and Volkow, N.D. Serum and brain concentration of methylphenidate: implications for use and abuse. *Neuroscience Biobehavioral Reviews* **27**, 615-621 2003.

301. Lindsey, K.P., Gatley, S.J. and Volkow, N.D. Neuroimaging in drug abuse. *Curr Psychiatry Rep.* **5**, 355-361, 2003

302. Insel, T.R., Volkow, N.D., Li, T.K., Battey, J.F. and Landis, S.C. Neuroscience Networks: Data-sharing in an Information Age. *PLoS Biol.* **1(1)**, E17, 2003.

303. Volkow, N.D. and Insel, T.R. What are the long-term effects of methylphenidate treatment? *Biol Psychiatry* **54**, 1307-1309, 2003.

304. Thanos, P.K., Taintor, N., Rivera, S.N., Umegaki, H., Ikari, H., Roth, G., Ingram, D.K., Hitzemann, R., Fowler, J.S., Gatley, J., Wang, G-J. and Volkow, N.D. DRD2 Gene transfer into the nucleus accumbens of the alcohol preferring (P) and non preferring (NP) rats attenuates alcohol drinking. *Alcoholism, Clinical and Experimental Research* **28**, 720-728, 2004.

305. Wang, G.J., Volkow, N.D., Chang, L., Miller, E., Sedler, M., Hitzemann, R., Zhu, W., Logan, J., Ma, Y. and Fowler, J.S. Partial recovery of brain metabolism in methamphetamine abusers after protracted abstinence. *Am J Psychiatry* **161**, 242-248, 2004.

306. Zhu, W., Volkow, N.D., Ma, Y., Fowler, J.S. and Wang, G-J. Relationship between ethanol-induced changes in brain regional metabolism and its motor, behavioral and cognitive effects. *Alcohol* **39**, 53-58, 2004.

307. Wang, G-J., Volkow, N.D., Telang, F., Millard, J., Ma, J., Rao, M., Zhu, W., Wong, C., Pappas, N.R., Geliebter, A. and Fowler, J.S. Exposure to appetitive food stimuli markedly activates the human brain. *Neuroimage* **21**, 1790-1797, 2004.

308. Volkow, N.D. Drug Dependence and Addiction, III: Expectation and Brain Function in Drug Abuse. *Am J Psychiatry* **161**, 621, 2004.
309. Fowler, J.S., Volkow, N.D., Wang, G-J. and Ding, Y-S. 2-deoxy-2-[F]fluoro-d-glucose and alternative radiotracers for positron emission tomography imaging using the human brain as a model. *Semin Nucl Med* **34**, 112-121, 2004.
310. Fowler, J.S., Logan, J., Wang, G.J., Volkow, N.D., Telang, F., Ding, Y-S., Shea, C., Garza, V., Xu, Y., Li, Z., Alexoff, D., Vaska, P., Ferrieri, R., Schlyer, D., Zhu, W. and Gatley, J. S. Comparison of the binding of the irreversible monoamine oxidase tracers, [(11)C]clorgyline and [(11)C]l-deprenyl in brain and peripheral organs in humans. *Nucl Med Biol* **31**, 313-319, 2004.
311. Kaftarian, S., Robinson, E., Compton, W., Davis, B.W. and Volkow, N. Blending prevention research and practice in schools: critical issues and suggestions. *Prev Sci*. **5**, 1-3, 2004.
312. Berrettini, W., Bierut, L., Crowley, T.J., Cubells, J.F., Frascella, J., Gelernter, J., Hewitt, J.K., Kreek, M.J., Lachman, H., Leppert, M., Li, M.D., Lachman, H., Madden, P., Miner, C., Pollock, J.D., Pomerleau, O., Rice, J.P., Rutter, J.L., Shurtleff, D., Swan, G.E., Tischfield, J.A., Tsuang, M., Uhl, G.R., Vanyukov, M., Volkow, N.D. and Wanke, K. Setting priorities for genomic research. *Science* (letter to the editor) **304**, 1445-1447, 2004.
313. Insel, T.R., Volkow, N.D., Landis, S.C., Li, T.K., Battey, J.F. and Sieving, P. Limits to growth: why neuroscience needs large-scale science. *Nat Neurosci* **7**, 426-427, 2004 (editorial).
314. Goldstein, R.Z., Leskovjan, A., Hoff A.L., Hitzemann, R., Bashan, F., Khalsa, S.S., Wang, G-J., Fowler, J.S. and Volkow, N.D. Severity of neuropsychological impairment in cocaine and alcohol addiction: association with metabolism in the prefrontal cortex. *Neuropsychologia*, **42**, 1447-1458, 2004.
315. Volkow, N.D., Wang, G-J., Fowler, J.S., Telang, F., Maynard, L., Logan, J., Gatley, S.J., Pappas, N., Wong, C., Vaska, P., Zhu, W. and Swanson, J.M. Evidence that methylphenidate enhances the saliency of a mathematical task by increasing dopamine in the human brain. *Am J Psychiatry* **161**, 1173-1180, 2004.
316. Ding, Y-S., Gatley, S.J., Thanos, P.K., Shea, C., Garza, V., Xu, Y., Carter, P., King, P., Warner, D., Taintor, N.B., Park, D.J., Pyatt, B., Fowler, J.S. and Volkow, N.D. Brain kinetics of methylphenidate (Ritalin) enantiomers after oral administration. *Synapse* **53**, 168-175, 2004.
317. Ding, Y-S., Fowler, J.S., Logan, J., Wang, G.J., Telang, F., Garza, V., Biegon, A., Pareto, D., Rooney, W., Shea, C., Alexoff, D., Volkow, N.D. and Vocci, F. 6-[(18)F]Fluoro-A-85380, a new PET tracer for the nicotinic acetylcholine receptor: Studies in the human brain and in vivo demonstration of specific binding in white matter. *Synapse* **53**, 184-189, 2004.



318. Wang, G-J., Volkow, N.D., Thanos, P.K. and Fowler, J.S. Similarity between obesity and drug addiction as assessed by neurofunctional imaging: a concept review. *J Addict Dis.* **23**, 39-53, 2004.
319. Volkow, N.D., Fowler, J.S., Wang, G.J. and Swanson, J.M. Dopamine in drug abuse and addiction: results from imaging studies and treatment implications. *Mol Psychiatry.* **9**, 557-569, 2004.
320. Wang, G-J., Chang, L., Volkow, N.D., Telang, F., Logan, J., Ernst, T. and Fowler, J.S. Decreased brain dopaminergic transporters in HIV-associated dementia patients. *Brain.* **127**, 2452-2458, 2004.
321. Volkow, N.D., Fowler, J.S. and Wang, G.J. The addicted human brain viewed in the light of imaging studies: brain circuits and treatment strategies. *Neuropharmacology (suppl.)* **47**, 3-13, 2004.
322. Volkow, N.D. The reality of comorbidity: Depression and drug abuse. *Biol Psychiatry.* **56**, 714-717, 2004.
323. Volkow, N.D. and Li, T.K. Science and Society: Drug addiction: the neurobiology of behaviour gone awry. *Nat Rev Neurosci.* **5**, 963-970, 2004.
324. Erinoff, L., Compton, W.M. and Volkow, N.D. Drug abuse and suicidal behavior. *Drug Alcohol Depend.* **76**, Suppl:S1-2, 2004.
325. Volkow, N.D. Imaging the addicted brain: from molecules to behavior. *J Nucl Med.* **45**, 13N-22N, 2004.
326. Benveniste, H., Fowler, J.S., Rooney, W., Ding, Y-S., Baumann, A.L., Moller, D.H., Du, C., Backus, W., Logan, J., Carter, P., Coplan, J.D., Biegon, A., Rosenblum, L., Scharf, B., Gatley, J.S. and Volkow, N.D. Maternal and fetal 11C-cocaine uptake and kinetics measured in vivo by combined pet and mri in pregnant nonhuman primates. *J Nucl Med.* **46**, 312-320, 2005.
327. Goldstein, R.Z., Alia-Klein, N., Leskovjan, A.C., Fowler, J.S., Wang, G-J., Gur, R.C., Hitzemann, R. and Volkow, N.D. Anger and depression in cocaine addiction: association with the orbitofrontal cortex. *Psychiatry Res.* **138**, 13-22, 2005.
328. Kalivas, P.W. and Volkow, N.D. The neurobiology of addiction: a pathology of motivation and choice. *Am J Psychiatry,* **162**(8), 1403-1413, 2005.
329. Volkow, N.D., Wang, G-J., Fowler, J.S., Learned-Coughlin, S., Yang, J., Logan, J., Schlyer, D., Gatley, J.S., Wong, C., Zhu, W., Pappas, N., Schueller, M., Netusil, N., Millar, J., Carter, P., Warner, D., Ding, Y-S., Shea, C. and Xu, Y. The slow and long lasting blockade of dopamine transporters in human brain induced by the new antidepressant drug radafaxine predict poor reinforcing effects. *Biological Psychiatry* **57**, 640-646, 2005.

330. Kalivas, P.W., Volkow, N. and Seamans, J. Unmanageable motivation in addiction: a pathology in prefrontal-accumbens glutamate transmission. *Neuron*. **45**, 647-650, 2005.
331. Volkow, N.D. and Wise, R.A. How can drug addiction help us understand obesity? *Nat Neurosci* **8**, 555-560, 2005.
332. Spiegel, A., Nabel, E., Volkow, N., Landis, S. and Li, T.K. Obesity on the brain. *Nat Neurosci* **8**, 552-553, 2005 (Editorial).
333. Volkow, N.D., Wang, G-J., Ma, Y., Fowler, J.S., Wong, C., Ding, Y-S., Hitzemann, R., Swanson, J.M. and Kalivas, P. Activation of orbital and medial prefrontal cortex by methylphenidate in cocaine-addicted subjects but not in controls: relevance to addiction. *J Neurosci* **25**, 3932-3939, 2005.
334. Thanos, P.K., Katana, J.M., Ashby, C.R. Jr., Michaelides, M., Gardner, E.L., Heidbreder, C.A. and Volkow, N.D. The selective dopamine D3 receptor antagonist SB-277011-A attenuates ethanol consumption in ethanol preferring (P) and non-preferring (NP) rats. *Pharmacol Biochem Behav.* **81**, 190-197, 2005.
335. Thanos, P.K., Rivera, S.N., Weaver, K., Grandy, D.K., Rubinstein, M., Umegaki, H., Wang, G-J., Hitzemann, R. and Volkow, N.D. Dopamine D2R DNA transfer in dopamine D2 receptor-deficient mice: Effects on ethanol drinking. *Life Sci.* **77**, 130-139, 2005.
336. Volkow, N.D., Wang, G-J., Fowler, J.S. and Ding, Y-S. Imaging the effects of methylphenidate on brain dopamine: new model on its therapeutic actions for attention-deficit/hyperactivity disorder. *Biol Psychiatry.* **57**, 1410-1415, 2005.
337. Fowler, J.S., Logan J., Volkow, N.D., Wang, G.J. Translational Neuroimaging: Positron Emission Tomography Studies of Monoamine Oxidase. *Mol Imaging Biol*, **7(6)**, 377-387 2005.
338. Kalivas P.W. and Volkow, N.D. The neural basis of addiction: a pathology of motivation and choice. *Am J Psychiatry.* **162**, 1403-1413, 2005.
339. Volkow, N.D. What do we know about drug addiction? *Am J Psychiatry.* **162**, 1401-1402 2005.
340. Volkow, N.D. and Li, T.K. Drugs and alcohol: Treating and preventing abuse, addiction and their medical consequences. *Pharmacol Ther.* **108**, 3-17 2005.
341. Thanos, P.K., Dimitrakakis, E.S., Rice, O., Gifford, A. and Volkow, N.D. Ethanol self-administration and ethanol conditioned place preference are reduced in mice lacking cannabinoid CB1 receptors. *Behav Brain Res.* **164**, 206-213 2005.
342. Fowler JS, Logan J, Wang GJ, Volkow ND, Telang F, Zhu W, Franceschi D, Shea C, Garza V, Xu Y, Ding YS, Alexoff D, Warner D, Netusil N, Carter P, Jayne M, King P, Vaska P.

- Comparison of monoamine oxidase A in peripheral organs in nonsmokers and smokers. *J Nucl Med.* **46**, 1414-1420 2005.
343. Gatley, S.J., Volkow, N.D., Wang, G.J., Fowler, J.S., Logan, J., Ding, Y.S., Gerasimov, M. PET imaging in clinical abuse research. *Current Pharmaceutical Design*, **11**, 3203-3219 2005.
344. Compton, W.M., Stein, J.B., Robertson, E.B., Pintello, D., Pringle B., Volkow, N.D. Charting a course for health services research at the National Institute on Drug Abuse. *J Subst Abuse Treat.* **29**, 167-172 2005.
345. Volkow, N., Li T.K. The neuroscience of addiction. *Nat Neurosci.* **8**, 1429-1430 2005.
346. Gatley, S.J., Volkow, N.D., Wang, G.J., Fowler, J.S., Logan, J., Ding, Y.S., Gerasimov, M. PET Imaging in Clinical Drug Abuse Research. *Curr Pharm Des.* **11**, 3203-3219 2005.
347. Zhang, L., Samaras, D., Tomasi, D., Alia-Klein, N., Cottone, L., Leskovjan, A., Volkow, N., Goldstein R. Exploiting temporal information in functional magnetic resonance imaging brain data. *Med Image Comput Assist Interv.* **8**, 679-687 2005.
348. Compton, W.M. and Volkow, N.D. Major increases in opioid analgesic abuse in the United States: Concerns and strategies. *Drug Alcohol Depend.* **81**, 103-107 2006.
349. Volkow, N.D., Wang, G.-J., Franceschi, D., Fowler, J.S., Thanos, P.P., Maynard, L., Gatley, S.J., Wong, C., Veech, R.L., Kunos, G. and Li, T.K. Low doses of alcohol substantially decrease glucose metabolism in the human brain. *Neuroimage.* **29**, 295-301 2006.
350. Schiffer, W.K., Volkow, N.D., Fowler, J.S., Alexoff, D.L., Logan, J., Dewey, S.L. Therapeutic doses of amphetamine or methylphenidate differentially increase synaptic and extracellular dopamine. *Synapse.* **59**, 243-251 2006.
351. Volkow, N.D. Stimulant medications: how to minimize their reinforcing effects? *Am J Psychiatry.* **163**, 359-361 2006.
352. O'Brien, C.P., Volkow, N., Li, T.K. What's in a Word? Addiction Versus Dependence in DSM-V. *Am J Psychiatry.* **163**, 764-765 2006.
353. Alexander, D.F., Alving, B.M., Battey, J.F., Berg, J.M., Collins, F.S., Fauci, A.S., Gallin, J.I., Grady, P.A., Hodes, R.J., Hrynkow, S.H., Insel, T.R., Jones, J.F., Katz, S.I., Landis, S.C., Li, T.K., Lindberg, D.A., Nabel, E.G., Niederhuber, J.E., Pettigrew, R.I., Rodgers, G.P., Ruffin, J., Scarpa, A., Schwartz, D.A., Sieving, P.A., Straus, S.E., Tabak, L.A., Volkow, N.D. Response to: "Rescuing the NIH before it is too late". *J Clin Invest.* **116**, 1462-1463 2006.
354. Compton, W.M., Volkow, N.D. Abuse of prescription drugs and the risk of addiction. *Drug Alcohol Depend.* **83**, Suppl 1:S4-7 2006.

355. Drgon T, Lin Z, Wang GJ, Fowler J, Pablo J, Mash DC, Volkow N, Uhl GR. Common human 5' dopamine transporter (SLC6A3) haplotypes yield varying expression levels in vivo. *Cell Mol Neurobiol.* **26**, 875-889 2006.
356. Volkow ND, Wang GJ, Ma Y, Fowler JS, Wong C, Jayne M, Telang F, Swanson JM. Effects of expectation on the brain metabolic responses to methylphenidate and to its placebo in non-drug abusing subjects. *Neuroimage* **32**, 1782-1792 2006.
357. Volkow ND, Wang GJ, Telang F, Fowler JS, Logan J, Childress AR, Jayne M, Ma Y, Wong C. Cocaine cues and dopamine in dorsal striatum: mechanism of craving in cocaine addiction. *J Neurosci.* **26**, 6583-6588 2006.
358. Volkow ND, Wang GJ, Begleiter H, Porjesz B, Fowler JS, Telang F, Wong C, Ma Y, Logan J, Goldstein R, Alexoff D, Thanos PK. High levels of dopamine d2 receptors in unaffected members of alcoholic families: possible protective factors. *Arch Gen Psychiatry.* **63**, 999-1008 2006.
359. Volkow ND. Hispanic drug abuse research: Challenges and opportunities. *Drug Alcohol Depend.* **84**, Suppl: S4-7 2006.
360. Du C, Yu M, Volkow ND, Koretsky AP, Fowler JS, Benveniste H. Cocaine increases the intracellular calcium concentration in brain independently of its cerebrovascular effects. *J Neurosci.* **26**, 11522-11531 2006.
361. Wang GJ, Yang J, Volkow ND, Telang F, Ma Y, Zhu W, Wong CT, Tomasi D, Thanos PK, Fowler JS. Gastric stimulation in obese subjects activates the hippocampus and other regions involved in brain reward circuitry. *Proc Natl Acad Sci U S A.* **103**, 15641-15645 2006.
362. Goldstein RZ, Cottone LA, Jia Z, Maloney T, Volkow ND, Squires NK. The effect of graded monetary reward on cognitive event-related potentials and behavior in young healthy adults. *Int J Psychophysiol.* **62**, 272-279 2006.
363. Insel, T.R., Volkow, N., Li, T.K. Research Funding: The View From NIH. *Am. J. Psychiatry.* **163**, 2043-2045 2006.
364. Baler, R.D., Volkow, N.D. Drug addiction: the neurobiology of disrupted self-control. *Trends Mol Med.* **12**, 559-566 2006.
365. Goldstein RZ, Tomasi D, Alia-Klein N, Cottone LA, Zhang L, Telang F, and Volkow ND. Subjective sensitivity to monetary gradients is associated with frontolimbic activation to reward in cocaine abusers. *Drug and Alcohol Dependence*, **87**, 233-240 2007.
366. Volkow ND, Wang GJ, Newcorn J, Fowler JS, Telang F, Solanto MV, Logan J, Wong C, Ma Y, Swanson JM. Brain dopamine transporter levels in treatment and drug naive adults with ADHD. *Neuroimage.* **34**, 1182-1190 2007.

367. Fowler JS, Alia-Klein N, Kriplani A, Logan J, Williams B, Zhu W, Craig IW, Telang F, Goldstein R, Volkow ND, Vaska P, Wang GJ. Evidence That Brain MAO A Activity Does Not Correspond to MAO A Genotype in Healthy Male Subjects. *Biological Psychiatry*. **62**, 355-358 2007.
368. Li, T.K., Volkow, N.D., Baler, R.D., Egli, M. The biological bases of nicotine and alcohol co-addiction. *Biol Psychiatry*. **61**, 1-3 2007.
369. Goldstein RZ, Tomasi D, Rajaram S, Cottone LA, Zhang L, Maloney T, Telang F, Alia-Klein N, Volkow ND. Role of the anterior cingulate and medial orbitofrontal cortex in processing drug cues in cocaine addiction. *Neuroscience*. **144**, 1153-1159 2007.
370. Goldstein RZ, Alia-Klein N, Tomasi D, Zhang L, Cottone LA, Maloney T, Telang F, Caparelli EC, Chang L, Ernst T, Samaras D, Squires NK, and Volkow ND. Is decreased prefrontal cortical sensitivity to monetary reward associated with impaired motivation and self-control in cocaine addiction? *American Journal of Psychiatry*, **164**, 43-51 2007.
371. Volkow ND, Wang GJ, Fowler JS, Telang F, Jayne M, Wong C. Stimulant-induced enhanced sexual desire as a potential contributing factor in HIV transmission. *American Journal of Psychiatry*, **164**, 157-160 2007.
372. Goldstein RZ, Woicik PA, Lukasik T, Maloney T, Volkow ND. Drug fluency: A potential marker for cocaine use disorders. *Drug Alcohol Depend*. **89**, 97-101 2007.
373. Goldstein RZ, Tomasi D, Alia-Klein N, Zhang L, Telang F, Volkow ND. The effect of practice on a sustained attention task in cocaine abusers. *Neuroimage*. **35**, 194-206 2007.
374. Swanson JM, Kinsbourne M, Nigg J, Lanphear B, Stefanatos GA, Volkow N, Taylor E, Casey BJ, Castellanos FX, Wadhwa PD. Etiologic subtypes of attention-deficit/hyperactivity disorder: brain imaging, molecular genetic and environmental factors and the dopamine hypothesis. *Neuropsychol Review*. **17**, 39-59 2007.
375. Grant BF, Compton WM, Crowley TJ, Hasin DS, Helzer JE, Li TK, Rounsaville BJ, Volkow ND, Woody GE. Errors in assessing DSM-IV substance use disorders. *Arch Gen Psychiatry*. **64**, 379-380 2007.
376. Volkow, N.D., O'Brien, C.P. Issues for DSM-V: Should obesity be included as a brain disorder? *Am J Psychiatry*. **164**, 708-710 2007.
377. Borycz, J., Zapata, A., Quiroz, C., Volkow, N.D., Ferre, S. 5-HT(1B) Receptor-mediated serotonergic modulation of methylphenidate-induced locomotor activation in rats. *Neuropsychopharmacology*. **33**, 619-626 2007.
378. Chang, L., Alicata, D., Ernst, T., Volkow, N. Structural and metabolic brain changes in the striatum associated with methamphetamine abuse. *Addiction* **102** Suppl 1:16-32, 2007.

379. Fowler, J.S., Volkow, N.D., Kassed, C.A., Chang, L. Imaging the addicted human brain. *Sci Pract Perspect.* **3**, 4-16 2007.
380. Tomasi D, Goldstein RZ, Telang F, Maloney T, Alia-Klein N, Caparelli EC, Volkow ND. Thalamo-cortical dysfunction in cocaine abusers: Implications in attention and perception. *Psychiatry Res.* **155**, 189-201, 2007.
381. Thanos PK, Michaelides M, Benveniste H, Wang GJ, Volkow ND. Effects of chronic oral methylphenidate on cocaine self-administration and striatal dopamine D2 receptors in rodents. *Pharmacol Biochem Behav.* **87**, 426-433 2007.
382. Swanson JM, Elliott GR, Greenhill LL, Wigal T, Arnold LE, Vitiello B, Hechtman L, Epstein JN, Pelham WE, Abikoff HB, Newcorn JH, Molina BS, Hinshaw SP, Wells KC, Hoza B, Jensen PS, Gibbons RD, Hur K, Stehli A, Davies M, March JS, Conners CK, Caron M, Volkow ND. Effects of stimulant medication on growth rates across 3 years in the MTA follow-up. *J Am Acad Child Adolesc Psychiatry.* **46**, 1015-1027 2007.
383. Volkow ND, Wang GJ, Newcorn J, Telang F, Solanto MV, Fowler JS, Logan J, Ma Y, Schulz K, Pradhan K, Wong C, Swanson JM. Depressed dopamine activity in caudate and preliminary evidence of limbic involvement in adults with attention-deficit/hyperactivity disorder. *Arch Gen Psychiatry.* **64**, 932-940 2007.
384. Alia-Klein N, Goldstein RZ, Tomasi D, Zhang L, Fagin-Jones S, Telang F, Wang GJ, Fowler JS, Volkow ND. What is in a word? No versus Yes differentially engage the lateral orbitofrontal cortex. *Emotion.* **7**, 649-659 2007.
385. Logan J, Wang GJ, Telang F, Fowler JS, Alexoff D, Zabroski J, Jayne M, Hubbard B, King P, Carter P, Shea C, Xu Y, Muench L, Schlyer D, Learned-Coughlin S, Cosson V, Volkow ND, Ding YS. Imaging the norepinephrine transporter in humans with (S,S)-[(11)C]O-methyl reboxetine and PET: problems and progress. *Nucl Med Biol.* **34**, 667-679 2007.
386. Fowler JS, Kroll C, Ferrieri R, Alexoff D, Logan J, Dewey SL, Schiffer W, Schlyer D, Carter P, King P, Shea C, Xu Y, Muench L, Benveniste H, Vaska P, Volkow ND. PET Studies of d-Methamphetamine Pharmacokinetics in Primates: Comparison with l-Methamphetamine and (-)-Cocaine. *J Nucl. Med.* **48**, 1724-1732 2007.
387. Tomasi D, Goldstein RZ, Telang F, Maloney T, Alia-Klein N, Caparelli EC, Volkow ND. Widespread disruption in brain activation patterns to a working memory task during cocaine abstinence. *Brain Res.* **1171**, 83-92 2007.
388. Volkow ND, Fowler JS, Wang GJ, Swanson JM, Telang F. Dopamine in drug abuse and addiction: results of imaging studies and treatment implications. *Arch Neurol.* **64**, 1575-1579 2007.
389. Volkow ND, Wang GJ, Telang F, Fowler JS, Logan J, Jayne M, Ma Y, Pradhan K, Wong C. Profound decreases in dopamine release in striatum in detoxified alcoholics: possible

orbitofrontal involvement. *J Neurosci.* **27**, 12700-12706 2007.

390. Tomer R, Goldstein RZ, Wang GJ, Wong C, Volkow ND. Incentive motivation is associated with striatal dopamine asymmetry. *Biol. Psychol.* **77**, 98-101 2008.

391. Volkow ND, Wang GJ, Telang F, Fowler JS, Logan J, Childress AR, Jayne M, Ma Y, Wong C. Dopamine increases in striatum do not elicit craving in cocaine abusers unless they are coupled with cocaine cues. *Neuroimage.* **39**, 1266-1273 2008.

392. Thanos PK, Michaelides M, Piyis YK, Wang GJ, Volkow ND. Food restriction markedly increases dopamine D2 receptor (D2R) in a rat model of obesity as assessed with in-vivo muPET imaging ([<sup>11</sup>C] raclopride) and in-vitro ([<sup>3</sup>H] spiperone) autoradiography. *Synapse.* **62**, 50-61 2008.

393. Wang GJ, Tomasi D, Backus W, Wang R, Telang F, Geliebter A, Korner J, Bauman A, Fowler JS, Thanos PK, Volkow ND. Gastric distention activates satiety circuitry in the human brain. *Neuroimage.* **39**, 1824-1831 2008.

394. Volkow, N.D., Swanson, J.M. The action of enhancers can lead to addiction. *Nature.* **451**, 520 2008.

395. Volkow ND, Ma Y, Zhu W, Fowler JS, Li J, Rao M, Mueller K, Pradhan K, Wong C, Wang GJ. Moderate doses of alcohol disrupt the functional organization of the human brain. *Psychiatry Res.* **162**, 205-213 2008.

396. Thanos PK, Michaelides M, Benveniste H, Wang GJ, Volkow ND. The effect of cocaine on regional brain glucose metabolism is attenuated in dopamine transporter knockout mice. *Synapse.* **62**, 319-324 2008.

397. Volkow ND, Fowler JS, Wang GJ, Telang F, Logan J, Wong C, Ma J, Pradhan K, Benveniste H, Swanson JM. Methylphenidate decreased the amount of glucose needed by the brain to perform a cognitive task. *PLoS ONE.* **3**(4), e2017 2008.

398. Thanos PK, Michaelides M, Umegaki H, Volkow ND. D2R DNA transfer into the nucleus accumbens attenuates cocaine self-administration in rats. *Synapse.* **62**, 481-486, 2008.

399. Volkow, N. D., Swanson, J. M. Does childhood treatment of ADHD with stimulant medication affect substance abuse in adulthood? *Am. J. Psychiatry* **165**, 553-555, 2008.

400. Alia-Klein N, Goldstein RZ, Kriplani A, Logan J, Tomasi D, Williams B, Telang F, Shumay E, Biegon A, Craig IW, Henn F, Wang GJ, Volkow ND, Fowler JS. Brain monoamine oxidase A activity predicts trait aggression. *J. Neuroscience* **28**, 5099-5104 2008.

401. Thanos PK, Michaelides M, Gispert JD, Pascau J, Soto-Montenegro ML, Desco M, Wang R, Wang GJ, Volkow ND. Differences in response to food stimuli in a rat model of obesity: in-vivo assessment of brain glucose metabolism. *Int. J. Obes. (Lond).* **32**, 1171-1179

2008.

402. Swanson JM, Volkow ND. Increasing use of stimulants warns of potential abuse. *Nature*. **453(7195)**, 586 2008.
403. Vinod KY, Yalamanchili R, Thanos PK, Vadasz C, Cooper TB, Volkow ND, Hungund BL. Genetic and pharmacological manipulations of the CB(1) receptor alter ethanol preference and dependence in ethanol preferring and nonpreferring mice. *Synapse*. **62**, 574-581 2008.
404. Goldstein RZ, Parvaz MA, Maloney T, Alia-Klein N, Woicik PA, Telang F, Wang GJ, Volkow ND. Compromised sensitivity to monetary reward in current cocaine users: An ERP study. *Psychophysiology*. **42**, 1537-1543. 2008.
405. Thanos PK, Ramalhete RC, Michaelides M, Piyis YK, Wang GJ, Volkow ND. Leptin receptor deficiency is associated with upregulation of cannabinoid 1 receptors in limbic brain regions. *Synapse*. **62**, 637-642 2008.
406. Chang L, Wang GJ, Volkow ND, Ernst T, Telang F, Logan J, Fowler JS. Decreased brain dopamine transporters are related to cognitive deficits in HIV patients with or without cocaine abuse. *Neuroimage*. **42**, 869-878 2008.
407. Baler RD, Volkow ND, Fowler JS, Benveniste H. Is fetal brain monoamine oxidase inhibition the missing link between maternal smoking and conduct disorders? *J Psychiatry Neurosci*. **33**, 187-95 2008.
408. Volkow ND, Wang GJ, Telang F, Fowler JS, Thanos PK, Logan J, Alexoff D, Ding YS, Wong C. Low dopamine striatal D2 receptors are associated with prefrontal metabolism in obese subjects: Possible contributing factors. *Neuroimage*. **42**, 1537-1543. 2008.
409. Volkow N, Rutter J, Pollock JD, Shurtleff D, Baler R. One SNP linked to two diseases-addiction and cancer: a double whammy? Nicotine addiction and lung cancer susceptibility. *Mol Psychiatry*. **13**, 990-992 2008.
410. Volkow ND, Wang GJ, Fowler JS, Telang F. Overlapping neuronal circuits in addiction and obesity: evidence of systems pathology. *Philos Trans R Soc Lond B Biol Sci*. **363**, 3191-200 2008.
411. Volkow ND, Wang GJ, Telang F, Fowler JS, Logan J, Wong C, Ma J, Pradhan K, Tomasi D, Thanos PK, Ferré S, Jayne M. Sleep deprivation decreases binding of [<sup>11</sup>C]raclopride to dopamine D2/D3 receptors in the human brain. *J Neurosci*. **28**, 8454-8461 2008.
412. Fowler JS, Volkow ND, Logan J, Alexoff D, Telang F, Wang GJ, Wong C, Ma Y, Kriplani A, Pradhan K, Schlyer D, Jayne M, Hubbard B, Carter P, Warner D, King P, Shea C, Xu Y, Muench L, Apelskog K. Fast uptake and long-lasting binding of methamphetamine in the human brain: Comparison with cocaine. *Neuroimage*. **43**, 756-763 2008.



413. Alia-Klein N, Kriplani A, Pradhan K, Ma JY, Logan J, Williams B, Craig IW, Telang F, Tomasi D, Goldstein RZ, Wang GJ, Volkow ND, Fowler JS. The MAO-A genotype does not modulate resting brain metabolism in as. *Psychiatry Res.* **164**, 73-76 2008.
414. Langs G, Samaras D, Paragios N, Honorio J, Alia-Klein N, Tomasi D, Volkow ND, Goldstein RZ. Task-specific functional brain geometry from model maps. *Med Image Comput Assist Interv.* **11(Pt 1)**, 925-933 2008.
415. Thanos PK, Cavigelli SA, Michaelides M, Olvet DM, Patel U, Diep MN, Volkow ND. A non-invasive method for detecting the metabolic stress response in rodents: Characterization and disruption of the circadian corticosterone rhythm. *Physiol Res.* **58(2)**, 219-228 2009.
- 416.
417. Tomasi D, Wang RL, Telang F, Boronikolas V, Jayne MC, Wang GJ, Fowler JS, Volkow ND. Impairment of attentional networks after 1 night of sleep deprivation. *Cereb. Cortex.* **19(1)**, 233-240 2009.
418. Woicik PA, Moeller SJ, Alia-Klein N, Maloney T, Lukasik TM, Yeliosof O, Wang GJ, Volkow ND, Goldstein RZ. The neuropsychology of cocaine addiction: recent cocaine use masks impairment. *Neuropsychopharmacology.* **34(5)**, 1112-1122 2009.
419. Volkow ND, Fowler JS, Wang GJ, Baler R, Telang F. Imaging dopamine's role in drug abuse and addiction. *Neuropharmacology.* **56**, Suppl 1:3-8 2009.
420. Volkow ND, Wang GJ, Telang F, Fowler JS, Goldstein RZ, Alia-Klein N, Logan J, Wong C, Thanos PK, Ma Y, Pradhan K. Inverse association between BMI and prefrontal metabolic activity in healthy adults. *Obesity.* **17**, 60-65 2009.
421. Davis LM, Michaelides M, Cheskin LJ, Moran TH, Aja S, Watkins PA, Pei Z, Contoreggi C, McCullough K, Hope B, Wang GJ, Volkow ND, Thanos PK. Bromocriptine administration Reduces hyperphagia and adiposity and differentially affects dopamine D2 receptor and transporter binding in leptin-receptor-deficient zucker rats and rats with diet-induced obesity. *Neuroendocrinology.* **89**, 152-162 2009.
422. Pascau J, Gispert JD, Michaelides M, Thanos PK, Volkow ND, Vaquero JJ, Soto-Montenegro ML, Desco M. Automated method for small-animal PET image registration with intrinsic validation. *Mol Imaging Biol.* **11**, 107-113 2009.
423. Luo Z, Yu M, Smith SD, Kritzer M, Du C, Ma Y, Volkow ND, Glass PS, Benveniste H. The effect of intravenous lidocaine on brain activation during non-noxious and acute noxious stimulation of the forepaw: a functional magnetic resonance imaging study in the rat. *Anesth Analg.* **108**, 334-344 2009.
424. Thanos PK, Bermeo C, Wang GJ, Volkow ND. d-Cycloserine accelerates the extinction of cocaine-induced conditioned place preference in C57bL/c mice. *Behav Brain Res.* **199**, 345-349 2009.

425. Chandler RK, Fletcher BW, Volkow ND. Treating drug abuse and addiction in the criminal justice system: improving public health and safety. *JAMA*. **301**, 183-190 2009.
426. Wang GJ, Volkow ND, Telang F, Jayne M, Ma Y, Pradhan K, Zhu W, Wong CT, Thanos PK, Geliebter A, Biegon A, Fowler JS. Evidence of gender differences in the ability to inhibit brain activation elicited by food stimulation. *Proc Natl Acad Sci U S A*. **106**, 1249-1254 2009.
427. Volkow ND, Wang GJ, Kollins SH, Wigal TL, Newcorn JH, Telang F, Fowler JS, Zhu W, Logan J, Ma Y, Pradhan K, Wong C, Swanson JM. Evaluating dopamine reward pathway in ADHD: clinical implications. *JAMA*. **302(10)**, 1084-1091 2009.
428. Ferré S, Baler R, Bouvier M, Caron MG, Devi LA, Durroux T, Fuxe K, George SR, Javitch JA, Lohse MJ, Mackie K, Milligan G, Pflieger KD, Pin JP, Volkow ND, Waldhoer M, Woods AS, Franco R. Building a new conceptual framework for receptor heteromers. *Nat Chem Biol*. **5**, 131-134 2009.
429. Swanson JM, Volkow ND. Psychopharmacology: concepts and opinions about the use of stimulant medications. *J Child Psychol Psychiatry*. **50**, 180-193 2009.
430. Tomasi D, Volkow ND, Wang R, Telang F, Wang GJ, Chang L, Ernst T, Fowler JS. Dopamine transporters in striatum correlate with deactivation in the default mode network during visuospatial attention. *PLoS One*. 2009 **4(6)**, e6102 2009.
431. Volkow ND, Fowler JS, Logan J, Alexoff D, Zhu W, Telang F, Wang GJ, Jayne M, Hooker JM, Wong C, Hubbard B, Carter P, Warner D, King P, Shea C, Xu Y, Muench L, Apelskog-Torres K. Effects of modafinil on dopamine and dopamine transporters in the male human brain: clinical implications. *JAMA*. **301**, 1148-1154 2009.
432. Tomasi D, Wang GJ, Wang R, Backus W, Geliebter A, Telang F, Jayne MC, Wong C, Fowler JS, Volkow ND. Association of body mass and brain activation during gastric distention: implications for obesity. *PLoS One*. 4(8), e6847 2009.
433. Asensio S, Romero MJ, Romero FJ, Wong C, Alia-Klein N, Tomasi D, Wang GJ, Telang F, Volkow ND, Goldstein RZ. Striatal dopamine D2 receptor availability predicts the thalamic and medial prefrontal responses to reward in cocaine abusers three years later. *Synapse*. **64**, 397-402 2010.
434. Thanos P, Bermeo C, Rubinstein M, Suchland K, Wang G, Grandy D, Volkow N. Conditioned place preference and locomotor activity in response to methylphenidate, amphetamine and cocaine in mice lacking dopamine D4 receptors. *J Psychopharmacol*. **24(6)**, 897-904 2010.
435. Goldstein R, Woicik P, Moeller S, Telang F, Jayne M, Wong C, Wang G, Fowler J, Volkow N. Liking and wanting of drug and non-drug rewards in active cocaine users: the STRAP-R questionnaire. *J Psychopharmacol*. **24(2)**, 257-266 2010.

436. Koob GF, Volkow ND. Neurocircuitry of Addiction. *Neuropsychopharmacology*. **35(1)**, 217-238 2010.
437. Thanos PK, Ivanov I, Robinson JK, Michaelides M, Wang GJ, Swanson JM, Newcorn JH, Volkow ND. Dissociation between spontaneously hypertensive (SHR) and Wistar-Kyoto (WKY) rats in baseline performance and methylphenidate response on measures of attention, impulsivity and hyperactivity in a visual stimulus position discrimination task. *Pharmacol Biochem Behav*. **94**, 374-379 2010.
438. Thanos PK, Habibi R, Michaelides M, Patel UB, Suchland K, Anderson BJ, Robinson JK, Wang GJ, Grandy DK, Volkow ND. Dopamine D4 receptor (D4R) deletion in mice does not affect operant responding for food or cocaine. *Behav. Brain Res*. **207**, 508-511 2010.
439. Volkow ND, Fowler JS, Wang GJ, Telang F, Logan J, Jayne M, Ma Y, Pradhan K, Wong C, Swanson JM. Cognitive control of drug craving inhibits brain reward regions in cocaine abusers. *Neuroimage*. **49(3)**, 2536-2543 2010.
440. Pfaffly J, Michaelides M, Wang GJ, Pessin JE, Volkow ND, Thanos PK. Leptin increases striatal dopamine D2 receptor binding in leptin-deficient obese (ob/ob) mice. *Synapse*. **64**, 503-510 2010.
441. Volkow ND, Tomasi D, Wang GJ, Fowler JS, Telang F, Wang R, Alexoff D, Logan J, Wong C, Pradhan K, Caparelli EC, Ma Y, Jayne M. Effects of low-field magnetic stimulation on brain glucose metabolism. *Neuroimage*. **51(2)**, 623-288 2010.
442. Benveniste H, Fowler JS, Rooney WD, Scharf BA, Backus WW, Izrailtyan I, Knudsen GM, Hasselbalch SG, Volkow ND Cocaine is pharmacologically active in the nonhuman primate fetal brain. *Proc. Natl. Acad. Sci. U S A*. **107**, 1582-1587 2010.
443. Pawlosky RJ, Kashiwaya Y, Srivastava S, King MT, Crutchfield C, Volkow N, Kunos G, Li TK, Veech RL. Alterations in brain glucose utilization accompanying elevations in blood ethanol and acetate concentrations in the rat. *Alcohol Clin. Exp. Res*. **34**, 375-381 2010.
444. Dunn JP, Cowan RL, Volkow ND, Feurer ID, Li R, Williams DB, Kessler RM, Abumrad NN. Decreased dopamine type 2 receptor availability after bariatric surgery: Preliminary findings. *Brain Res*. **1350**, 123-130 2010.
445. Wang R, Wang GJ, Goldstein RZ, Caparelli EC, Volkow ND, Fowler JS, Tomasi D. Induced magnetic force in human heads exposed to 4 T MRI. *J. Magn. Reson. Imaging*. **31**, 815-820 2010.
446. Volkow N.D., Montaner J. Enhanced HIV testing, treatment, and support for HIV-infected substance users. *JAMA*. **303**, 1423-1424 2010.
447. Moeller SJ, Maloney T, Parvaz MA, Alia-Klein N, Woicik PA, Telang F, Wang GJ, Volkow ND, Goldstein RZ. Impaired insight in cocaine addiction: laboratory evidence and

- effects on cocaine-seeking behaviour. *Brain*. **33(Pt 5)**, 1484-1493 2010.
448. Tomasi, D., Volkow, N.D. Functional connectivity density mapping. *Proc. Natl. Acad. Sci. USA*. **107(21)**, 9885-9890 2010.
449. Tomasi D, Volkow ND, Wang R, Carrillo JH, Maloney T, Alia-Klein N, Woicik PA, Telang F, Goldstein RZ. Disrupted functional connectivity with dopaminergic midbrain in cocaine abusers. *PLoS One*. **5(5)**, e10815 2010.
450. Shumay E, Fowler JS, Volkow ND, Genomic features of the human dopamine transporter gene and its potential epigenetic States: implications for phenotypic diversity. *PLoS One*. **5(6)**, e11067 2010.
451. Thanos PK, Tucci A, Stamos J, Robison L, Wang GJ, Anderson BJ, Volkow ND. Chronic forced exercise during adolescence decreases cocaine conditioned place preference in lewis rats. *Behav Brain Res*. **215**, 77-82 2010.
452. Hooker JM, Kim SW, Alexoff D, Xu Y, Shea C, Reid A, Volkow N, Fowler JS. Histone deacetylase inhibitor, MS-275, exhibits poor brain penetration: PK studies of [C]MS-275 using Positron Emission Tomography. *ACS Chem Neurosci*. **1(1)**, 65-73 2010.
453. Michaelides M, Pascau J, Gispert JD, Delis F, Grandy DK, Wang GJ, Desco M, Rubinstein M, Volkow ND, Thanos PK. Dopamine D4 receptors modulate brain metabolic activity in the prefrontal cortex and cerebellum at rest and in response to methylphenidate. *Eur J Neurosci*. **31**, 668-676 2010.
454. Volkow ND, Wang GJ, Tomasi D, Telang F, Fowler JS, Pradhan K, Jayne M, Logan J, Goldstein RZ, Alia-Klein N, Wong C. Methylphenidate attenuates limbic brain inhibition after cocaine-cues exposure in cocaine abusers. *PLoS One*. **5(7)**: e11509 2010.
455. Volkow ND, Wang GJ, Fowler JS, Tomasi D, Telang F, Baler R. Addiction: Decreased reward sensitivity and increased expectation sensitivity conspire to overwhelm the brain's control circuit. *Bioessays*. **32**, 748-755 2010.
456. Volkow ND. Opioid-dopamine interactions: implications for substance use disorders and their treatment. *Biol Psychiatry*. **68(8)**, 685-686 2010.
457. Thanos PK, Kim R, Cho J, Michaelides M, Anderson BJ, Primeaux SD, Bray GA, Wang GJ, Robinson JK, Volkow ND. Obesity resistant S5B rats showed greater cocaine conditioned place preference than the obesity prone OM rats. *Physiol Behav*. **101(5)**, 713-718 2010.
458. Volkow ND, Fowler JS, Wang GJ, Shumay E, Telang F, Thanos PK, Alexoff D. Distribution and pharmacokinetics of methamphetamine in the human body: clinical implications. *PLoS One*. **5(12)**, e15269 2010.
459. Goldstein RZ, Woicik PA, Maloney T, Tomasi D, Alia-Klein N, Shan J, Honorio J,

- Samaras D, Wang R, Telang F, Wang GJ, Volkow ND. Oral methylphenidate normalizes cingulate activity in cocaine addiction during a salient cognitive task. *Proc Natl Acad Sci U S A*. **107(38)**, 16667-16672 2010.
460. Yuan Z, Luo Z, Volkow ND, Pan Y, Du C. Imaging separation of neuronal from vascular effects of cocaine on rat cortical brain in vivo. *Neuroimage*. **54(2)**, 1130-1139 2011.
461. Volkow ND, Wang GJ, Newcorn JH, Kollins SH, Wigal TL, Telang F, Fowler JS, Goldstein RZ, Klein N, Logan J, Wong C, Swanson JM. Motivation deficit in ADHD is associated with dysfunction of the dopamine reward pathway. *Mol Psychiatry*. **16(11)**, 1147-54 2011.
462. Swanson, J., Baler, R.D., Volkow, N.D. Understanding the Effects of Stimulant Medications on Cognition in Individuals with Attention-Deficit Hyperactivity Disorder: A Decade of Progress. *Neuropsychopharmacology*. **36(1)**, 207-26 2011.
463. Thanos PK, Gopez V, Delis F, Michaelides M, Grandy DK, Wang GJ, Kunos G, Volkow ND. Upregulation of Cannabinoid Type 1 Receptors in dopamine D2 receptor knockout mice is reversed by chronic forced ethanol consumption. *Alcohol Clin Exp Res*. **35(1)**, 19-27 2011.
464. Tomasi D, Volkow ND, Wang GJ, Wang R, Telang F, Caparelli EC, Wong C, Jayne M, Fowler JS. Methylphenidate enhances brain activation and deactivation responses to visual attention and working memory tasks in healthy controls. *Neuroimage*. **54(4)**, 3101-3110 2011.
465. Thanos PK, Cho J, Kim R, Michaelides M, Primeaux S, Bray G, Wang GJ, Volkow ND. Bromocriptine Increased Operant Responding for High Fat Food but Decreased Chow Intake in Both Obesity-Prone and Resistant Rats. *Behav Brain Res*. **217(1)**, 165-170 2011.
466. Volkow ND, Wang GJ, Baler RD. Reward, dopamine and the control of food intake: implications for obesity. *Trends Cogn Sci*. **15(1)**, 37-46 2011.
467. Goldstein, R.Z, Volkow, N.D. Oral methylphenidate normalizes cingulate activity and decreases impulsivity in cocaine addiction during an emotionally salient cognitive task. *Neuropsychopharmacology*. **36(1)**, 366-367 2011.
468. Tomasi, D., Volkow, N.D., Association between Functional Connectivity Hubs and Brain Networks. *Cereb Cortex*. **21(9)**, 2003-13 2011.
469. Volkow ND, Baler RD, Goldstein RZ. Addiction: pulling at the neural threads of social behaviors. *Neuron*. **69(4)**, 599-602 2011.
470. Wang GJ, Geliebter A, Volkow ND, Telang FW, Logan J, Jayne MC, Galanti K, Selig PA, Han H, Zhu W, Wong CT, Fowler JS. Enhanced Striatal Dopamine Release During Food Stimulation in Binge Eating Disorder. *Obesity* (Silver Spring). **19(8)**, 1601-1608 2011.
471. Volkow ND, Tomasi D, Wang GJ, Vaska P, Fowler JS, Telang F, Alexoff D, Logan J,

- Wong C. Effects of cell phone radiofrequency signal exposure on brain glucose metabolism. *JAMA*. **305(8)**, 808-813 2011.
472. Thanos PK, Bermeo C, Wang GJ, Volkow ND. D-cycloserine facilitates extinction of cocaine self-administration in rats. *Synapse*. **65(9)**, 938-944 2011.
473. Volkow ND, Tomasi D, Wang GJ, Fowler JS, Telang F, Goldstein RZ, Alia-Klein N, Wong C. Reduced metabolism in brain "control networks" following cocaine-cues exposure in female cocaine abusers. *PLoS One*. **6(2)**, e16573 2011.
474. Alia-Klein N, Parvaz MA, Woicik PA, Konova AB, Maloney T, Shumay E, Wang R, Telang F, Biegan A, Wang GJ, Fowler JS, Tomasi D, Volkow ND, Goldstein RZ. Gene x disease interaction on orbitofrontal gray matter in cocaine addiction. *Arch Gen Psychiatry*. **68(3)**, 283-294 2011.
475. Woicik PA, Urban C, Alia-Klein N, Henry A, Maloney T, Telang F, Wang GJ, Volkow ND, Goldstein RZ. A pattern of perseveration in cocaine addiction may reveal neurocognitive processes implicit in the wisconsin card sorting test. *Neuropsychologia*. **49(7)**, 1660-1669 2011.
476. Volkow ND, Wang GJ, Fowler JS, Tomasi D, Telang F. Quantification of Behavior Sackler Colloquium: Addiction: Beyond dopamine reward circuitry. *Proc Natl Acad Sci U S A*. **108(37)**, 15037-15042 2011.
477. Tomasi D, Volkow ND. Gender differences in brain functional connectivity density. *Hum Brain Mapp*. **33(4)**, 849-60 2011.
478. Baler RD, Volkow ND. Addiction as a systems failure: focus on adolescence and smoking. *J Am Acad Child Adolesc Psychiatry*. **50(4)**, 329-339 2011.
479. Volkow ND, McLellan TA. Curtailing diversion and abuse of opioid analgesics without jeopardizing pain treatment. *JAMA*. **305(13)**, 1346-1347 2011.
480. Volkow ND, McLellan TA, Cotto JH, Karithanom M, Weiss SR. Characteristics of opioid prescriptions in 2009. *JAMA*. **305(13)**, 1299-1301 2011.
481. Dunning JP, Parvaz MA, Hajcak G, Maloney T, Alia-Klein N, Woicik PA, Telang F, Wang GJ, Volkow ND, Goldstein RZ. Motivated attention to cocaine and emotional cues in abstinent and current cocaine users - an ERP study. *Eur J Neurosci*. **33**, 1716-1723 2011.
482. Volkow ND, Tomasi D, Wang GJ, Fowler JS, Telang F, Goldstein RZ, Alia-Klein N, Woicik P, Wong C, Logan J, Millard J, Alexoff D. Positive emotionality is associated with baseline metabolism in orbitofrontal cortex and in regions of the default network. *Mol Psychiatry*. **16**, 818-825 2011.
483. Kalivas PW, Volkow ND. New medications for drug addiction hiding in glutamatergic neuroplasticity. *Mol Psychiatry*. **16(10)**, 974-86 2011.

484. Krasnova IN, Ladenheim B, Hodges AB, Volkow ND, Cadet JL. Chronic methamphetamine administration causes differential regulation of transcription factors in the rat midbrain. *PLoS One*. **6(4)**, e19179 2011.
485. Tomasi D, Volkow ND. Functional connectivity hubs in the human brain. *Neuroimage*. **57(3)**, 908-17 2011.
486. Thanos PK, Subrizi M, Lui W, Puca Z, Ananth M, Michaelides M, Wang GJ, Volkow ND. D-cycloserine facilitates extinction of cocaine self-administration in c57 mice. *Synapse*. **65(10)**, 1099-105 2011.
487. Tomasi D, Volkow ND. Aging and functional brain networks. *Mol Psychiatry*. **17(5)**, 549-58 2012.
488. Wang GJ, Smith L, Volkow ND, Telang F, Logan J, Tomasi D, Wong CT, Hoffman W, Jayne M, Alia-Klein N, Thanos P, Fowler JS. Decreased dopamine activity predicts relapse in methamphetamine abusers. *Mol Psychiatry*. **17(9)**, 918-25 2011.
489. Shumay E, Chen J, Fowler JS, Volkow ND. Genotype and ancestry modulate brain's DAT availability in healthy humans. *PLoS One*. **6(8)**, e22754 2011.
490. Volkow ND, Montaner J. The urgency of providing comprehensive and integrated treatment for substance abusers with HIV. *Health Aff (Millwood)*. **30(8)**, 1411-1419 2011.
491. Swanson JM, Wigal TL, Volkow ND. Contrast of medical and nonmedical use of stimulant drugs, basis for the distinction, and risk of addiction: Comment on Smith and Farah. *Psychol Bull*. **137(5)**, 742-748 2011.
492. Tomasi D, Volkow ND. Laterality Patterns of Brain Functional Connectivity: Gender Effects. *Cereb Cortex*. **22(6)**, 1455-62 2011.
493. Luo Z, Volkow ND, Heintz N, Pan Y, and Du C. Acute cocaine induces fast activation of D1 receptor and progressive deactivation of D2 receptor striatal neurons: in vivo optical microprobe [Ca<sup>2+</sup>]<sub>i</sub> imaging. *J. Neurosci*. **31**, 13180-13190 2011.
494. Javitt DC, Schoepp D, Kalivas PW, Volkow ND, Zarate C, Merchant K, Bear MF, Umbrecht D, Hajos M, Potter WZ, Lee CM. Translating glutamate: from pathophysiology to treatment. *Sci Transl Med*. **3(102)**, 102mr2 2011.
495. Volkow ND, Wang GJ, Fowler JS, Tomasi D. Addiction circuitry in the human brain. *Annu Rev Pharmacol Toxicol*. **52**, 321-36 2011.
496. Volkow ND, Baler RD, Normand JL. The unrealized potential of addiction science in curbing the HIV epidemic. *Curr HIV Res*. **9(6)**, 393-5 2011.

497. Zhang S, Huang J, Uzunbas M, Shen T, Delis F, Huang X, Volkow N, Thanos P, Metaxas DN. 3D segmentation of rodent brain structures using hierarchical shape priors and deformable models. *Med Image Comput Comput Assist Interv.* **14(Pt 3)**, 611-618 2011.
498. Golstein RZ, Volkow ND. Dysfunction of the prefrontal cortex in addiction: neuroimaging findings and clinical implications. *Nat Rev Neurosci.* **12(11)**, 652-669 2011.
499. Volkow, N.D., Tomasi, D., Vaska, P. Cell phone activation and brain glucose metabolism-reply. *JAMA.* **305(20)**, 2066-2068 2011.
500. Volkow ND, Wang GJ, Fowler JS, Tomasi D, Baler R. Food and drug reward: overlapping circuits in human obesity and addiction. *Curr Top Behav Neurosci.* **11** 1-24 2011.
501. Parvaz MA, Konova AB, Tomasi D, Volkow ND, Goldstein RZ. Structural integrity of the prefrontal cortex modulates electrocortical sensitivity to reward. *J Cogn Neurosci.* **24(7)**, 1560-70 2011.
502. Volkow ND. Epigenetics of nicotine: another nail in the coughing. *Sci Transl Med.* **3(107)**, 107ps43 2011.
503. Parvaz MA, Alia-Klein N, Woicik PA, Volkow ND, Goldstein RZ. Neuroimaging for drug addiction and related behaviors. *Rev Neurosci.* **22(6)**, 609-24 2011.
504. Skolnick P, Volkow ND. Magic Bullets and Arrows: Biologic Approaches to Treat Substance Use Disorders. *CNS Neurol Disord Drug Targets.* **10(8)**, 864 2011.
505. Ren H, Du C, Yuan Z, Park K, Volkow ND, Pan Y. Cocaine-induced cortical microischemia in the rodent brain: clinical implications. *Mol Psychiatry.* **17(10)**, 1017-1025 2012.
506. Hirvonen J, Goodwin RS, Li CT, Terry GE, Zoghbi SS, Morse C, Pike VW, Volkow ND, Huestis MA, Innis RB. Reversible and regionally selective downregulation of brain cannabinoid CB(1) receptors in chronic daily cannabis smokers. *Mol Psychiatry.* **17(6)**, 642-9 2012.
507. González S, Rangel-Barajas C, Peper M, Lorenzo R, Moreno E, Ciruela F, Borycz J, Ortiz J, Lluís C, Franco R, McCormick PJ, Volkow ND, Rubinstein M, Floran B, Ferré S. Dopamine D(4) receptor, but not the ADHD-associated D(4.7) variant, forms functional heteromers with the dopamine D(2S) receptor in the brain. *Mol Psychiatry.* **17(6)**, 650-62 2012.
508. Delis F, Benveniste H, Xenos M, Grandy D, Wang GJ, Volkow ND, Thanos PK. Loss of Dopamine D2 receptors induces atrophy in the temporal and parietal cortices and the caudal thalamus of ethanol-consuming mice. *Alcohol Clin Exp Res.* **36(5)**, 815-825 2012.
509. Michaelides M, Thanos PK, Kim R, Cho J, Ananth M, Wang GJ, Volkow ND. PET imaging predicts future body weight and cocaine preference. *Neuroimage.* **59(2)**, 1508-13 2012.
510. Volkow ND, Skolnick P. New medications for substance use disorders: challenges and



- opportunities. *Neuropsychopharmacology*. **37(1)**, 290-292 2012.
511. Tomasi D, Volkow ND. Abnormal functional connectivity in children with attention-deficit/hyperactivity disorder. *Biol Psychiatry*. **71(5)**, 443-50 2012.
512. Tomasi D, Volkow ND. Resting functional connectivity of language networks: characterization and reproducibility. *Mol Psychiatry*. **17(8)**, 841-54 2012.
513. Volkow ND, Wang GJ, Tomasi D, Kollins SH, Wigal TL, Newcorn JH, Telang FW, Fowler JS, Logan J, Wong CT, Swanson JM. Methylphenidate-elicited dopamine increases in ventral striatum are associated with long-term symptom improvement in adults with attention deficit hyperactivity disorder. *J Neurosci*. **32(3)**, 841-849 2012.
514. Volkow ND, Baler R. To stop or not to stop? *Science* **335(6068)**, 546-548 2012.
515. Moeller SJ, Tomasi D, Woicik PA, Maloney T, Alia-Klein N, Honorio J, Telang F, Wang GJ, Wang R, Sinha R, Carise D, Astone-Twerell J, Bolger J, Volkow ND, Goldstein RZ. Enhanced midbrain response at 6-month follow-up in cocaine addiction, association with reduced drug-related choice. *Addict Biol*. **17(6)**, 1013-25 2012.
516. Dunn JP, Kessler RM, Feurer ID, Volkow ND, Patterson BW, Ansari MS, Li R, Marks-Shulman P, Abumrad NN. Relationship of Dopamine Type 2 Receptor Binding Potential With Fasting Neuroendocrine Hormones and Insulin Sensitivity in Human Obesity. *Diabetes Care*. **35(5)**, 1105-11 2012.
517. Komatsu DE, Thanos PK, Mary MN, Janda HA, John CM, Robison L, Ananth M, Swanson JM, Volkow ND, Hadjiargyrou M. Chronic exposure to methylphenidate impairs appendicular bone quality in young rats. *Bone*. **50(6)**, 1214-22 2012.
518. Volkow ND, Muenke M. The genetics of addiction. *Hum Genet*. **131(6)**, 773-7 2012.
519. Tomasi D, Volkow ND. Functional connectivity density and the aging brain. *Mol Psychiatry*. **17(5)**, 471 2012.
520. Volkow ND, Tomasi D, Wang GJ, Telang F, Fowler JS, Logan J, Benveniste H, Kim R, Thanos PK, Ferré S. Evidence that sleep deprivation downregulates dopamine D2R in ventral striatum in the human brain. *J Neurosci*. **32(19)**, 6711-6717 2012.
521. Michaelides M, Thanos PK, Volkow ND, Wang GJ. Dopamine-related frontostriatal abnormalities in obesity and binge-eating disorder: Emerging evidence for developmental psychopathology. *Int Rev Psychiatry*. **24(3)**, 211-218 2012.
522. Konova AB, Moeller SJ, Tomasi D, Parvaz MA, Alia-Klein N, Volkow ND, Goldstein RZ. Structural and behavioral correlates of abnormal encoding of money value in the sensorimotor striatum in cocaine addiction. *Eur J Neurosci*. **36(7)**, 2979-88 2012.

523. Parvaz MA, Maloney T, Moeller SJ, Woicik PA, Alia-Klein N, Telang F, Wang GJ, Squires NK, Volkow ND, Goldstein RZ. Sensitivity to monetary reward is most severely compromised in recently abstaining cocaine addicted individuals: A cross-sectional ERP study. *Psychiatry Res.* **203(1)**, 75-82 2012.
524. Shumay E, Fowler JS, Wang GJ, Logan J, Alia-Klein N, Goldstein RZ, Maloney T, Wong C, Volkow ND. Repeat variation in the human PER2 gene as a new genetic marker associated with cocaine addiction and brain dopamine D2 receptor availability. *Transl Psychiatry.* **2**, e86 2012.
525. Tomasi D, Volkow ND. Language network: segregation, laterality and connectivity. *Mol Psychiatry.* **17(8)**, 759 2012.
526. Ren H, Du C, Park K, Volkow ND, Pan Y. Quantitative imaging of red blood cell velocity invivo using optical coherence Doppler tomography. *Appl Phys Lett.* **100(23)**, 233702-2337024 2012.
527. Shumay E, Logan J, Volkow ND, Fowler JS. Evidence that the methylation state of the monoamine oxidase A (MAOA) gene predicts brain activity of MAOA enzyme in healthy men. *Epigenetics.* **7(10)**, 1151-60 2012.
528. Thanos PK, Subrizi M, Delis F, Cooney RN, Culnan D, Sun M, Wang GJ, Volkow ND, Hajnal A. Gastric bypass increases ethanol and water consumption in diet-induced obese rats. *Obes Surg.* **22(12)**, 1884-92 2012.
529. Alzghoul L, Bortolato M, Delis F, Thanos PK, Darling RD, Godar SC, Zhang J, Grant S, Wang GJ, Simpson KL, Chen K, Volkow ND, Lin RC, Shih JC. Altered cerebellar organization and function in monoamine oxidase A hypomorphic mice. *Neuropharmacology.* **63(7)**, 1208-1217 2012.
530. Volkow N.D., Long-term safety of stimulant use for ADHD: findings from nonhuman primates. *Neuropsychopharmacology.* **37(12)**, 2551-2552 2012.
531. Li Z, Xu Y, Warner D, Volkow ND. Alcohol ADME in Primates Studied with Positron Emission Tomography. *PLoS One.* **7(10)**, e46676 2012.
532. Moeller SJ, Hajcak G, Parvaz MA, Dunning JP, Volkow ND, Goldstein RZ. Psychophysiological prediction of choice: relevance to insight and drug addiction. *Brain.* **135(Pt 11)**, 3481-94 2012.
533. Hajnal A, Zharikov A, Polston JE, Fields MR, Tomasko J, Rogers AM, Volkow ND, Thanos PK. Alcohol reward is increased after roux-en-y gastric bypass in dietary obese rats with differential effects following ghrelin antagonism. *PLoS One.* **7(11)**, e49121 2012.
534. Skolnick P, Volkow ND. Addiction therapeutics: obstacles and opportunities. *Biol Psychiatry.* **72(11)**, 890-891 2012.

535. Moeller SJ, Tomasi D, Honorio J, Volkow ND, Goldstein RZ. Dopaminergic involvement during mental fatigue in health and cocaine addiction. *Transl Psychiatry*. **e176** Oct 23 2012.
536. Delis F, Thanos PK, Rombola C, Rosko L, Grandy D, Wang GJ, Volkow ND. Chronic mild stress increases alcohol intake in mice with low dopamine D2 receptor levels. *Behav Neurosci*. **127(1)**, 95-105 2013.
537. Thanos PK, Robison LS, Robinson JK, Michaelides M, Wang GJ, Volkow ND. Obese rats with deficient leptin signaling exhibit heightened sensitivity to olfactory food cues. *Synapse*. **67(4)**, 171-8 2013.
538. Tomasi D, Volkow ND. Striatocortical pathway dysfunction in addiction and obesity: differences and similarities. *Crit Rev Biochem Mol Biol*. **48(1)**, 1-19 2013.
539. Grady DL, Thanos PK, Corrada MM, Barnett JC Jr, Ciobanu V, Shustarovich D, Napoli A, Moyzis AG, Grandy D, Rubinstein M, Wang GJ, Kawas CH, Chen C, Dong Q, Wang E, Volkow ND, Moyzis RK. DRD4 Genotype predicts longevity in mouse and human. *J Neurosci*. **33(1)**, 286-291 2013.
540. Compton WM, Volkow ND, Throckmorton DC, Lurie P. Expanded access to opioid overdose intervention: research, practice, and policy needs. *Ann Intern Med*. **158(1)**, 65-6 2013.
541. Volkow ND, Kim S, Wang GJ, Alexoff D, Logan J, Muench L, Shea C, Telang F, Fowler JS, Wong C, Benveniste H, Tomasi D. Acute alcohol intoxication decreases glucose metabolism but increases acetate uptake in the human brain. *Neuroimage*. **64**, 277-83 2013.
542. Volkow ND, Wang GJ, Tomasi D, Baler RD. Obesity and addiction: neurobiological overlaps. *Obes Rev*. **14(1)**, 2-18 2013.
543. Hyman S, Volkow N, Nutt D. Pharmacological cognitive enhancement in healthy people: potential and concerns. *Neuropharmacology*. **64**, 8-12 2013.
544. Thanos PK, Stamos J, Robison LS, Heyman G, Tucci A, Wang GJ, Robinson JK, Anderson BJ, Volkow ND. Daily treadmill exercise attenuates cocaine cue-induced reinstatement and cocaine induced locomotor response but increases cocaine-primed reinstatement. *Behav Brain Res*. **239**, 8-14 2013.
545. Benveniste H, Volkow ND. Dopamine-enhancing Medications to Accelerate Emergence from General Anesthesia. *Anesthesiology*. **118(1)**, 5-6 2013.
546. Compton WM, Volkow ND, Throckmorton DC, Lurie P. Expanded access to opioid overdose intervention: research, practice, and policy needs. *Ann Intern Med*. **158(1)**, 65-6 2013.
547. Volkow ND, Wang GJ, Tomasi D, Baler RD. The addictive dimensionality of obesity. *Biol Psychiatry*. **73(9)**, 811-8 2013.

548. Volkow, ND. Impact of fetal drug exposures on the adolescent brain. *JAMA Pediatr.* **167(4)**, 390-1 2013.
549. Volkow ND, Wang GJ, Tomasi D, Baler RD. Unbalanced neuronal circuits in addiction. *Curr Opin Neurobiol.* **23(4)**, 639-648 2013.
550. Volkow ND, Tomasi D, Wang GJ, Telang F, Fowler JS, Logan J, Maynard LJ, Wong CT. Predominance of D2 receptors in mediating dopamine's effects in brain metabolism: effects of alcoholism. *J Neurosci.* **33(10)**, 4527-35 2013.
551. Michaelides M, Miller ML, Subrizi M, Kim R, Robison L, Hurd YL, Wang GJ, Volkow ND, Thanos PK. Limbic activation to novel versus familiar food cues predicts food preference and alcohol intake. *Brain Res.* **1512**, 37-44, 2013.
552. Richardson DB, Volkow ND, Kwan MP, Kaplan RM, Goodchild MF, Croyle RT. Medicine. Spatial turn in health research. *Science.* **339(6126)**, 1390-2 2013.
553. Muniyappa R, Sable S, Ouwerkerk R, Mari A, Gharib AM, Walter M, Courville A, Hall G, Chen KY, Volkow ND, Kunos G, Huestis MA, Skarulis MC. Metabolic effects of chronic cannabis smoking. *Diabetes Care.* **36(8)**, 2415-2422 2013.
554. Saint-Preux F, Bores LR, Tulloch I, Ladenheim B, Kim R, Thanos PK, Volkow ND, Cadet JL. Chronic co-administration of nicotine and methamphetamine causes differential expression of immediate early genes in the dorsal striatum and nucleus accumbens. *Neuroscience.* **243**, 89-96 2013.
555. Thanos PK, Robison L, Nestler EJ, Kim R, Michaelides M, Lobo MK, Volkow ND. Mapping Brain Metabolic Connectivity in Awake Rats with  $\mu$ PET and Optogenetic Stimulation. *J Neurosci.* **33(15)**, 6343-6349 2013.
556. Hajnal A, Thanos PK, Volkow ND. Notes on "roux en y gastric bypass increases ethanol intake in the rat" by Davis et al. *Obes Surg.* **23(8)**, 1317 2013.
557. Volkow ND, Baler RD. Brain imaging biomarkers to predict relapse in alcohol addiction. *JAMA Psychiatry.* **70(7)**, 661-663 2013.
558. Volkow ND, Tomasi D, Wang GJ, Telang F, Fowler JS, Goldstein RZ, Klein N, Wong C, Swanson JM, Shumay E. Association between dopamine D4 receptor polymorphism and age related changes in brain glucose metabolism. *PLoS One.* **8(5)**, e63492 2013.
559. Wang GJ, Volkow ND, Wigal T, Kollins SH, Newcorn JH, Telang F, Logan J, Jayne M, Wong CT, Han H, Fowler JS, Zhu W, Swanson JM. Long-term stimulant treatment affects brain dopamine transporter level in patients with attention deficit hyperactive disorder. *PLoS One.* **8(5)**, e63023 2013.
560. Moeller SJ, Parvaz MA, Shumay E, Beebe-Wang N, Konova AB, Alia-Klein N, Volkow

ND, Goldstein RZ. Gene x abstinence effects on drug cue reactivity in addiction: multimodal evidence. *J Neurosci.* **33(24)**, 10027-10036 2013.

561. Tai B, Volkow ND. Treatment for substance use disorder: opportunities and challenges under the affordable care act. *Soc Work Public Health.* **28(3-4)**, 165-174 2013.

562. Tomasi D, Volkow ND. Brain activation and neurochemistry. *Proc Natl Acad Sci.* **110(27)**, 10888-10889 2013.

563. Konova AB, Moeller SJ, Tomasi D, Volkow ND, Goldstein RZ. Effects of Methylphenidate on Resting-State Functional Connectivity of the Mesocorticolimbic Dopamine Pathways in Cocaine Addiction. *JAMA Psychiatry.* **70(80)**, 857-868 2013.

564. Kim SW, Hooker JM, Otto N, Win K, Muench L, Shea C, Carter P, King P, Reid AE, Volkow ND, Fowler JS. Whole-body pharmacokinetics of HDAC inhibitor drugs, butyric acid, valproic acid and 4-phenylbutyric acid measured with carbon-11 labeled analogs by PET. *Nucl Med Biol.* **40(7)**, 912-918 2013.

565. Tomasi D, Wang GJ, Volkow ND. Energetic cost of brain functional connectivity. *Proc Natl Acad Sci U S A.* **110(33)**, 13642-13647 2013.

566. Elman I, Borsook D, Volkow ND. Pain and suicidality: Insights from reward and addiction neuroscience. *Prog Neurobiol.* **109**, 1-27 2013.

567. Park K, Volkow ND, Pan Y, Du C. Chronic Cocaine Dampens Dopamine Signaling during Cocaine Intoxication and Unbalances D1 over D2 Receptor Signaling. *J Neurosci.* **33(40)**, 15827-15836 2013.

568. Park K, Volkow ND, Pan Y, Du C. Chronic Cocaine Dampens Dopamine Signaling during Cocaine Intoxication and Unbalances D1 over D2 Receptor Signaling. *J Neurosci.* **33(40)**, 15827-15836 2013.

569. Seo YJ, Muench L, Reid A, Chen J, Kang Y, Hooker JM, Volkow ND, Fowler JS, Kim SW. Radionuclide labeling and evaluation of candidate radioligands for PET imaging of histone deacetylase in the brain. *Bioorg Med Chem Lett.* **23(24)**, 6700-6705 2013.

570. Wood E, Samet JH, Volkow ND. Physician education in addiction medicine. *JAMA.* **310(16)**, 1673-1674 2013.

571. Michaelides M, Anderson SA, Ananth M, Smirnov D, Thanos PK, Neumaier JF, Wang GJ, Volkow ND, Hurd YL. Whole-brain circuit dissection in free-moving animals reveals cell-specific mesocorticolimbic networks. *J Clin Invest.* **123(12)**, 5342-50 2013.

572. Anderson SA, Michaelides M, Zarnegar P, Ren Y, Fagergren P, Thanos PK, Wang GJ, Bannon M, Neumaier JF, Keller E, Volkow ND, Hurd YL. Impaired periamygdaloid-cortex prodynorphin is characteristic of opiate addiction and depression. *J Clin Invest.* **123(12)**, 5334-41

2013.

573. Volkow ND, Swanson JM. Clinical practice: Adult attention deficit-hyperactivity disorder. *N Engl J Med.* **369(20)**, 1935-44 2013.
574. Thanos P, Delis F, Rosko L, Volkow ND. Passive Response to Stress in Adolescent Female and Adult Male Mice after Intermittent Nicotine Exposure in Adolescence. *J Addict Res Ther.* Apr 23;Suppl 6:007 2013.
575. Polston JE, Pritchett CE, Tomasko JM, Rogers AM, Leggio L, Thanos PK, Volkow ND, Hajnal A Roux-en-Y gastric bypass increases intravenous ethanol self-administration in dietary obese rats. *PLoS One.* **8(12)**, e83741 2013.
576. Wang GJ, Tomasi D, Volkow ND, Wang R, Telang F, Caparelli EC, Dunayevich E. Effect of combined naltrexone and bupropion therapy in the brain's reactivity to food cues. *Int J Obes (Lond).* **38(5)**, 682-688 2014.
577. Moeller SJ, Honorio J, Tomasi D, Parvaz MA, Woicik PA, Volkow ND, Goldstein RZ. Methylphenidate enhances executive function and optimizes prefrontal function in both health and cocaine addiction. *Cereb Cortex.* **24(3)**, 643-653 2014.
578. Tomasi D, Volkow ND. Functional connectivity of substantia nigra and ventral tegmental area: maturation during adolescence and effects of ADHD. *Cereb Cortex.* **24(4)**, 935-944 2014.
579. Tomasi D, Wang R, Wang GJ, Volkow ND. Functional connectivity and brain activation: a synergistic approach. *Cereb Cortex.* **24(10)**, 2619-2629 2014.
580. Volkow ND, Baler RD. Addiction science: uncovering neurobiological complexity. *Neuropharmacology.* **76**, Pt B:235-249 2014.
581. Belcher AM, Volkow ND, Moeller FG, Ferré S. Personality traits and vulnerability or resilience to substance use disorders. *Trends Cogn Sci.* **18(4)**, 211-217 2014.
582. Savage SW, Zald DH, Cowan RL, Volkow ND, Marks-Shulman PA, Kessler RM, Abumrad NN, Dunn JP. Regulation of novelty seeking by midbrain dopamine D2/D3 signaling and ghrelin is altered in obesity. *Obesity (Silver Spring).* **22(6)**, 1452-1457 2014.
583. Volkow ND, Frieden TR, Hyde PS, Cha SS Medication-Assisted Therapies - Tackling the Opioid-Overdose Epidemic. *N Engl J Med.* **370(22)**, 2063-2066 2014.
584. Volkow ND, Tomasi D, Wang GJ, Studentsova Y, Margus B, Crawford TO. Brain glucose metabolism in adults with ataxia-telangiectasia and their asymptomatic relatives. *Brain.* **137(Pt 6)**, 1753-1761 2014.
585. Kim SW, Fowler JS, Skolnick P, Muench L, Kang Y, Shea C, Logan J, Kim D, Carter P,

King P, Alexoff D, Volkow ND. Therapeutic doses of buspirone block D3 receptors in the living primate brain. *Int J Neuropsychopharmacol.* **17(8)**, 1257-1267 2014.

CORRIGENDUM. *Int J Neuropsychopharmacol.* **17(8)**, 1354 2014.

586. Tomasi D, Volkow ND. Mapping Small-World Properties through Development in the Human Brain: Disruption in Schizophrenia. *PLoS One.* 9(4), e96176 2014.

587. Seo YJ, Kang Y, Muench L, Reid A, Caesar S, Jean L, Fevier-Wagner F, Holson EB, Haggarty SJ, Weiss P, King P, Carter P, Volkow ND, Fowler JS, Hooker JM, Kim SW. Image-guided synthesis reveals potent blood-brain barrier permeable histone deacetylase inhibitors. *ACS Chem Neurosci.* **5(7)**, 588-596 2014.

588. Volkow ND, Baler RD, Compton WM, Weiss SR. Adverse health effects of marijuana use. *N Engl J Med.* **370(23)**, 2219-2227 2014.

589. Volkow ND, Compton WM, Weiss SR. Adverse health effects of marijuana use. *N Engl J Med.* **371(9)**, 879 2014.

590. Wang GJ, Tomasi D, Convit A, Logan J, Wong CT, Shumay E, Fowler JS, Volkow ND. BMI modulates calorie-dependent dopamine changes in accumbens from glucose intake. *PLoS One.* **9(7)**, e101585 2014.

591. Volkow ND, Tomasi D, Wang GJ, Logan J, Alexoff DL, Jayne M, Fowler JS, Wong C, Yin P, Du C. Stimulant-induced dopamine increases are markedly blunted in active cocaine abusers. *Mol Psychiatry.* **19(9)**, 1037-1043 2014.

592. Volkow ND, Wang GJ, Telang F, Fowler JS, Alexoff D, Logan J, Jayne M, Wong C, Tomasi D. Decreased dopamine brain reactivity in marijuana abusers is associated with negative emotionality and addiction severity. *Proc Natl Acad Sci U S A.* **111(30)**, E3149-3156.

593. Tomasi D, Wang GJ, Wang R, Caparelli EC, Logan J, Volkow ND. Overlapping patterns of brain activation to food and cocaine cues in cocaine abusers: Association to striatal D2/D3 receptors. *Hum Brain Mapp.* **36(1)**, 120-136 2015.

594. Rutter JL, Volkow ND. Re-defining Addict(CH3)Tion: genomics and epigenomics on substance use disorders. *Mol Genet Genomic Med.* **2(4)**, 273-279 2014.

595. Alia-Klein N, Wang GJ, Preston-Campbell RN, Moeller SJ, Parvaz MA, Zhu W, Jayne MC, Wong C, Tomasi D, Goldstein RZ, Fowler JS, Volkow ND. Reactions to media violence: it's in the brain of the beholder. *PLoS One.* **9(9)**, e107260 2014.

596. Pan Y, You J, Volkow ND, Park K, Du C. Ultrasensitive detection of 3D cerebral microvascular network dynamics in vivo. *Neuroimage.* **103**, 492-501 2014.

597. Fowler JS, Logan J, Volkow ND, Shumay E, McCall-Perez F, Jayne M, Wang GJ,

- Alexoff DL, Apelskog-Torres K, Hubbard B, Carter P, King P, Fahn S, Telang F, Shea C, Xu Y, Muench L. Evidence that formulations of the selective MAO-B inhibitor, Selegiline, which bypass first-pass metabolism, also inhibit MAO-A in the human brain. *Neuropsychopharmacology*. **40(3)**, 650-657 2015.
598. Du C, Volkow ND, Koretsky AP, Pan Y. Low-frequency calcium oscillations accompany deoxyhemoglobin oscillations in rat somatosensory cortex. *Proc Natl Acad Sci*. **111(43)**, E4677-4686 2014.
599. You J, Du C, Volkow ND, Pan Y. Optical coherence Doppler tomography for quantitative cerebral blood flow imaging. *Biomed Opt Express*. **28;5(9)**, 3217-3230 2014.
600. Tomasi D, Wang GJ, Studentsova Y, Volkow ND. Dissecting neural responses to temporal prediction, attention, and memory: effects of reward learning and interoception on time perception. *Cereb Cortex*. Oct;**25(10)**, 3856-3867 2015.
601. Roux A, Muller LM, Jackson SN, Baldwin K, Womack V, Pagiazitis JG, O'Rourke JR, Thanos PK, Balaban C, Schultz JA, Volkow ND, Woods AS. Chronic ethanol consumption profoundly alters regional brain ceramide and sphingomyelin content in rodents. *ACS Chem Neurosci*. **6(2)**, 247-259 2015.
602. Vanicek T, Spies M, Rami-Mark C, Savli M, Höflich A, Kranz GS, Hahn A, Kutzelnigg A, Traub-Weidinger T, Mitterhauser M, Wadsak W, Hacker M, Volkow ND, Kasper S, Lanzenberger R. The norepinephrine transporter in attention-deficit/hyperactivity disorder investigated with positron emission tomography. *JAMA Psychiatry*. **71(12)**, 1340-1349 2014.
603. Kuwabara H, Heishman SJ, Brasic JR, Contoreggi C, Cascella N, Mackowick KM, Taylor R, Rousset O, Willis W, Huestis MA, Concheiro M, Wand G, Wong DF, Volkow ND. Mu opioid receptor binding correlates with nicotine dependence and reward in smokers. *PLoS One*. **9(12)**, e113694 2014.
604. Lopez AD, Williams TN, Levin A, Tonelli M, Singh JA, Burney P, Rehm J, Volkow ND, Koob G, Ferri CP. Remembering the forgotten non-communicable diseases. *BMC Med*. **12(1)**, 200 2014.
605. Azim S, Nicholson J, Rebecchi MJ, Galbavy W, Feng T, Reinsel R, Volkow ND, Benveniste H, Kaczocha M. Endocannabinoids and acute pain after total knee arthroplasty. *Pain*. **156(2)**, 341-347 2015.
606. Thanos PK, Robison LS, Steier J, Hwang YF, Cooper T, Swanson JM, Komatsu DE, Hadjiargyrou M, Volkow ND. A pharmacokinetic model of oral methylphenidate in the rat and effects on behavior. *Pharmacol Biochem Behav*. **131**, 143-153 2015.
607. Volkow ND, Baler R. Beliefs modulate the effects of drugs on the human brain. *Proc Natl Acad Sci*. **112(8)**, 2301-2302 2015.



608. Fowler JS, Logan J, Shumay E, Alia-Klein N, Wang GJ, Volkow ND. Monoamine oxidase: radiotracer chemistry and human studies. *J Labelled Comp Radiopharm.* **58(3)**, 51-64 2015.
609. Volkow ND, Wang GJ, Shokri Kojori E, Fowler JS, Benveniste H, Tomasi D. Alcohol decreases baseline brain glucose metabolism more in heavy drinkers than controls but has no effect on stimulation-induced metabolic increases. *J Neurosci.* **35(7)**, 3248-55 2015.
610. Volkow ND, Koob G, Baler R. Biomarkers in substance use disorders. *ACS Chem Neurosci.* **6(4)**, 522-525 2015.
611. Kravitz AV, Tomasi D, LeBlanc KH, Baler R, Volkow ND, Bonci A, Ferré S. Cortico-striatal circuits: Novel therapeutic targets for substance use disorders. *Brain Res.* Dec 2;**1628(Pt A)**,186-198 2015.
612. Volkow ND, Wang GJ, Logan J, Alexoff D, Fowler JS, Thanos PK, Wong C, Casado V, Ferre S, Tomasi D. Caffeine increases striatal dopamine D2/D3 receptor availability in the human brain. *Transl Psychiatry.* **5**:e549 2015.
613. Volkow ND, Baler RD. NOW vs LATER brain circuits: implications for obesity and addiction. *Trends Neurosci.* **38(6)**, 345-352 2015.
614. Thanos PK, Michaelides M, Subrizi M, Miller ML, Bellezza R, Cooney RN, Leggio L, Wang GJ, Rogers AM, Volkow ND, Hajnal A. Roux-en-Y gastric bypass alters brain activity in regions that underlie reward and taste perception. *PLoS One.* **10(6)**, e0125570 2015.
615. Delis F, Rombola C, Bellezza R, Rosko L, Grandy DK, Volkow ND, Thanos PK. Regulation of ethanol intake under chronic mild stress: roles of dopamine receptors and transporters. *Front Behav Neurosci.* **9**:118. 2015.
616. Bonaventura J, Navarro G, Casadó-Anguera V, Azdad K, Rea W, Moreno E, Brugarolas M, Mallol J, Canela EI, Lluís C, Cortés A, Volkow ND, Schiffmann SN, Ferré S, Casadó V. Allosteric interactions between agonists and antagonists within the adenosine A2A receptor-dopamine D2 receptor heterotetramer. *Proc Natl Acad Sci U S A.* **112(27)**, E3609-618 2015.
617. Tomasi D, Wang GJ, Volkow ND. Balanced modulation of striatal activation from D2 /D3 receptors in caudate and ventral striatum: Disruption in cannabis abusers. *Hum Brain Mapp.* **36(8)**, 3154-3166 2015.
618. Ferré S, Bonaventura J, Tomasi D, Navarro G, Moreno E, Cortés A, Lluís C, Casadó V, Volkow ND. Allosteric mechanisms within the adenosine A2A-dopamine D2 receptor heterotetramer. *Neuropharmacology.* S0028-3908 (15)00209-9 2015.
619. Volkow ND, Wang GJ, Smith L, Fowler JS, Telang F, Logan J, Tomasi D. Recovery of dopamine transporters with methamphetamine detoxification is not linked to changes in dopamine release. *Neuroimage.* Nov 1;**121**, 20-28 2015.

620. Volkow ND, Koob G. Brain disease model of addiction: why is it so controversial? *Lancet Psychiatry*. **8**, 677-679 2015.
621. Tang YY, Posner MI, Rothbart MK, Volkow ND. Circuitry of self-control and its role in reducing addiction. *Trends Cogn Sci*. **19**, 439-444, 2015.
622. Tomasi D, Shokri-Kojori E, Volkow ND. High-resolution functional connectivity density: hub locations, sensitivity, specificity, reproducibility, and reliability. *Cereb Cortex*. 2015 Jul 28. [Epub ahead of print].
623. Chen W, Liu P, Volkow ND, Pan Y, Du C. Cocaine attenuates blood flow but not neuronal responses to stimulation while preserving neurovascular coupling for resting brain activity. *Mol Psychiatry*. 2015 Dec 15. [Epub ahead of print].
624. Wiers CE, Shumay E, Volkow ND, Frieling H, Kotsiari A, Lindenmeyer J, Walter H, Bermpohl F. Effects of depressive symptoms and peripheral DAT methylation on neural reactivity to alcohol cues in alcoholism. *Transl Psychiatry*. **5**, e648 2015.
625. Baumann MH, Volkow ND. Abuse of new psychoactive substances: threats and solutions. *Neuropsychopharmacology*. Feb;**41(3)**, 663-665 2016.
626. Volkow ND, Morales M. The brain on drugs: from reward to addiction. *Cell*. **162(4)**, 712-725 2015.
627. Volkow ND, Swanson JM, Evins AE, DeLisi LE, Meier MH, Gonzalez R, Bloomfield MA, Curran HV, Baler R. Effects of Cannabis Use on Human Behavior, Including Cognition, Motivation, and Psychosis: A Review. *JAMA Psychiatry*. 2016 Feb 3. [Epub ahead of print].
628. Wiers CE, Shokri-Kojori E, Cabrera E, Cunningham S, Wong C, Tomasi D, Wang GJ, Volkow ND. Socioeconomic status is associated with striatal dopamine D2/D3 receptors in healthy volunteers but not in cocaine abusers. *Neurosci Lett*. **S0304-3940(16)**, 30055-30056, 2016.
629. Wiers CE, Cabrera E, Skarda E, Volkow ND, Wang GJ. PET imaging for addiction medicine: From neural mechanisms to clinical considerations. *Prog Brain Res*. **224**, 175-201 2016.
630. Volkow ND, Koob GF, McLellan AT. Neurobiologic Advances from the Brain Disease Model of Addiction. *N Engl J Med*. **374(4)**, 363-71 2016.
631. Volkow ND. Opioids in pregnancy. *BMJ*. 352, i19 2016.
632. Zhang Q, You J, Volkow ND, Choi J, Yin W, Wang W, Pan Y, Du C. Chronic cocaine disrupts neurovascular networks and cerebral function: optical imaging studies in rodents. *J Biomed Opt*. **21(2)**, 26006 2016.

**(2) Edited Books:**

1. Volkow, N.D. and Swann, A. (Eds.) Cocaine in the Brain. Rutgers University Press, New Brunswick, 1990.
2. Volkow, N.D. and Wolf, A.P. (Eds.) Use of PET in Schizophrenia Research American Psychiatric Press, Washington DC, 1991.
3. Biegon A. and Volkow ND. (Eds.) Sites of Drug Action in the Human Brain. CRC Press, Boca Raton, 1995.

**(3) Book Chapters, Papers in Conference Proceedings and Editorials:**

1. Gomez-Mont, F., Volkow, N.: The relevance of systems theory for psychiatry. *In: General System Theory and the Psychological Sciences*, San Diego Intersystems Publications, 1982.
2. Brodie, J.D., Volkow, N.D., Rotrosen, J.: Principles and applications of positron emission tomography in neurosciences. *In: Handbook of Neurochemistry*, Vol. 2, 331-347, 1983.
3. Volkow, N., Brodie, J.: Use of positron emission tomography in psychiatric research. *In: Directions in Psychiatry*, 3:1-7, 1983.
4. Brodie, J.D., Wolf, A.P., Volkow, N.D., Christman, D.R., Defina, P., DeLeon, M., Farkas, T., Ferris, S., Fowler, J., GomezMont, F., Jaeger, J., Russell, J., Stamm, R., Yonekura, Y.: Regional Glucose metabolism using PET in normal and psychiatric population. *In: Positron Emission Tomography of the Brain*. Heinz (Ed.), Berlin: Springer Verlag, pp. 359-370, 1983.
5. Brodie, J., GomezMont, F., Volkow, N. et al: Analyses of Positron Emission Tomography images in psychiatric disorders. *In: Positron Emission Tomography*. Greitz, T., Ingvar, D. and Widen, L. (Eds.) New York: Raven Press, 1985.
6. Volkow, N.D., Brodie, J.D., GomezMont, F.: Positron Emission Tomography in psychiatric research. *In: Positron Emission Tomography*, Reivich, M. and Alavi, A. (Eds.) New York: Alan R. Liss, Inc. 1985.
7. Volkow, N.D.: Effects of alcohol and cocaine on cerebral blood flow as measured with positron Emission Tomography. *In: Cerebral Dynamics, Laterality and Psychopathology*. Takahashi, R., Flor Henry, P., Gruzelier, J., Niwa, S. (Ed.) Elsevier, pp. 463-476, 1987.
8. Brodie, J.D., Wolf, A.P., Volkow, N.D., et al.: PET studies in schizophrenia. *In: Cerebral Dynamics, Laterality and Psychopathology*. Takahashi, R., Flor Henry, P., Gruzelier, J., Niwa, S. (Ed.) Elsevier, pp. 545-554, 1987.

9. Volkow, N.D., Berman, C.W., Brodie, J.D.: Positron emission tomography in psychiatric research. *In: Psychobiology and Psychopharmacology*. F. Flach (Ed.) New York. Norton I. Company, pp. 242-256, 1988.
10. Brodie, J.D., Fowler, J.S., Wolf, A.P., Dewey, S.L., Wolkin, A., Barouche, F., Volkow, N.D., Rotrosen, J., Angrist, B., MacGregor, R., Schlyer, D.J., Bendriem, B. Imaging receptors and their interactions: Implications for Psychiatry. *In: Proceedings of the VIII World Congress of Psychiatry*, Athens, Greece, Oct. 12-14, pp. 1-5, 1989.
11. Fowler, J.S., Wolf, A.P., Volkow, N.D. New directions in Positron Emission Tomography - Part II *In: Annual Reports in Medicinal Chemistry*. Allen, R.C. (Ed) New Jersey, Academic Press, pp. 261-269, 1990.
12. Volkow, N.D. Imaging techniques in the investigation of the effects of cocaine in the brain. *In: Cocaine in the Brain*. Volkow, N.D., Swann, A. (ed.). New Brunswick, Rutgers University Press, pp. 95-116, 1990.
13. Levy, A.V., Volkow, N.D., Brodie, J.P., Wolf, A.P.: The spectral analyses of brain glucose metabolism. *In: Proceedings of the International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 1299-1301, 1990.
14. Volkow, N.D.: Use of Positron Emission Tomography to investigate the actions of cocaine in the human brain. *In: Proceedings of the International Symposium against Drugs of Abuse in Zurich*, Nov. 19-20, pp. 229-240, 1990.
15. Volkow, N.D. Use of positron emission tomography to investigate the actions of marijuana in the human brain. *In: Proceedings of the International Symposium Against Drugs of Abuse in Zurich*, Nov. 19-20, pp. 143-152, 1990.
16. Volkow, N.D., Brodie, J.D., Bendriem, B.: Positron emission tomography: Basic principles and applications in psychiatric research. *In: Windows on the Brain*. Zapulla, R.A., LeFever, F.F., Jaeger, J., Bilder, R. Eds. New York, Annals of the New York Academy of Sciences, Vol. 620, pp. 128-144, 1991.
17. Volkow, N.D., Fowler, J.S., Wolf, A.P.: Use of positron emission tomography to investigate cocaine. *In: The First International Colloquium on the Psychopathology of Illicit Drugs (Cannabis Opiates and Cocaine)*. G. Nahas (Ed.) Paris, Pergamon Press, pp. 143-150, 1991.
18. Volkow, N.D., Gillespie, H., Mullani, N., Tancredi, L., Grant C., Hollister, L.: Use of positron emission tomography to investigate the action of marijuana in the human brain. *In: The First International Colloquium on the Psychopathology of Illicit Drugs (Cannabis Opiates and Cocaine)*. G. Nahas (Ed.) Paris, Pergamon Press, pp. 3-12, 1991.
19. Volkow, N.D., Fowler, J.S., Wolf, A.P.: Use of PET to study cocaine in the human brain. *In: Emerging Techniques for Drug Abuse Research*. R. Rapaka, M. Kuhar (Eds.). NIDA Monograph Series, pp. 168-179, 1991.

20. Volkow, N.D., Wolf, A.P., Brodie, J.D.: Clinical interpretation of metabolic and neurochemical abnormalities in schizophrenic patients studied with PET. *In: Positron Emission Tomography in schizophrenia research.* Volkow, N.D., Wolf, A.P. (Eds.) American Psychiatric Press, pp. 59-73, 1991.
21. Volkow, N.D., Fowler, J.S., Wolf, A.P., Gillespie, H.: Metabolic studies of drugs of abuse. *In: Problems of Drug Dependence 1990 NIDA Research Monograph Series 105,* pp. 47-53, 1991.
22. Volkow, N.D.: Overview of SPECT brain imaging in psychiatry. *In: Functional Brain Imaging with SPECT in Psychiatry.* American Psychiatric Association Symposium Monograph. Los Angeles, Oct. 19, 1991, pp. 24-25, 1992.
23. Volkow, N.D., Fowler, J.S.: Use of positron emission tomography to study drugs of abuse. *In: Textes et Documents. Colloque Internationale Les Drogues Illicites Academie Nationale de Medicine,* Paris, April 8-9, pp. 33-48, 1992.
24. Volkow, N.D., Fowler, J.S., Wolf, A.P., Schlyer, D., Chyng-Yann, S., Alpert R., Dewey, S.L., Logan, J., Bendriem, B., Christman, D., Hitzeman, R., Henn, F.: Effects of chronic cocaine abuse on postsynaptic dopamine receptors. *In: Ann. Rev. Addictions Res. Treatment,* pp. 97-104, 1992.
25. Volkow, N.D., Fowler, J.S.: Use of positron emission tomography to study drugs of abuse. *In: Cannabis: Physiopathology, Epidemiology Detection.* Nahas, G. (Ed.), CRC Press, Boca Raton, FL, pp. 21-43, 1993.
26. Volkow, N.D., Fowler, J.S.: Use of PET to study addiction in humans. *In: Imaging Drug Action in the Brain.* London, E. (Ed). CRC Press, Boca Raton, FL. pp. 2281-2296, 1993.
27. Volkow, N.D., Fowler, J.S.: Brain imaging of the combined use of cocaine and alcohol and of the pharmacokinetics of cocaethylene. *In: Imaging Techniques and Medication Development: Preclinical and Clinical Aspects.* NIDA Research Monograph Series 138, pp. 41-56, 1994.
28. Volkow, N.D., Fowler, J.S., Wolf, A.P.: Effects of chronic cocaine on dopamine brain function investigated with positron emission tomography. *In: Recent Advances in the Study of Neurotransmitter Interactions.* Dhawan R.N., Srimal R.C., Raghubir R., Rapaka R.S. (Eds.) Central Drug Research Institute, Lucknow, pp. 374-380, 1994.
29. Volkow, N.D., Fowler, J.S.: Chemical and functional changes in the brain of the cocaine addict: studies with positron emission tomography. *In: IIIe Colloque Scientifique International Sur les Drogues Illicits.* Academie Nationale de Medicine, Paris, May 5-6, 1994, pp. 307-316.
30. Hollister, L.E., Nahas, G., Mullani, N., Gillespie, H., Volkow, N., Gould, L.: Effect of the calcium channel blocker nimodipine, on cerebral metabolism following chronic cocaine use. *In:*

IIIe Colloque Scientifique International Sur les Drogues Illicites. Academie Nationale de Medicine, Paris, May 5-6, 1994, pp. 403-413.

31. G.J. Wang, N.D. Volkow, P.K. Thanos and J.S. Fowler. Similarity Between Obesity and Drug Addiction as Assessed by Neurofunctional Imaging: A Concept Review. *In: Eating Disorders, Overeating, and Pathological Attachment to Food.* Gold, M.S. (Ed.), Haworth Press, NY, 1994.

32. Volkow, N.D., Fowler, J.S.: Brain imaging studies of the cocaine addict: implications for reinforcement and addiction. *In: The Neurobiology of Cocaine: Cellular and Molecular Mechanisms.* Hammer R. (Ed) CRC Press, Boca Raton, FL. 1995, pp. 65-80.

33. Fowler, J.S., Volkow, N.D., Wolf, A.P.: PET studies of cocaine in human brain. *In: Sites of Drug Action in the Human Brain.* Biegon A., Volkow N.D. (Eds). CRC Press, Boca Raton, FL. 1995, pp. 99-116.

34. Biegon, A., Dillon, K., Volkow, N.D., Fowler, J.S. Quantitative autoradiographic localization and characterization of cocaine binding sites in the human brain postmortem. *In: Sites of Drug Action in the Human Brain.* Biegon A., Volkow N.D. (Eds). CRC Press, Boca Raton, FL. 1995, pp. 87-98.

35. Biegon, A., Volkow, N.D.: Localization and characterization of drug binding sites in the human brain: methodological considerations. *In: Sites of Drug Action in the Human Brain.* Biegon A., Volkow N.D. (Eds). CRC Press, Boca Raton, FL. 1995, pp. 1-8.

36. Volkow, N.D., Gillespie, H., Tancredi, L., Hollister, L.: The effects of marihuana in the human brain measured with regional brain glucose metabolism *In: Sites of Drug Action in the Human Brain.* Biegon A., Volkow N.D. (Eds). CRC Press, Boca Raton, FL. 1995, pp. 75-86.

37. Volkow, N.D., Fowler, J.S., Dewey, S.L., Wolf, A.P.: Pharmacokinetics of cocaine in the living brain and its distribution in the human body. NIDA Research Monograph Series (in press).

38. Hode, Y., Deruyver, A., Bendriem, B., Volkow, N. Temporal image fusion. *In: Proceeding International Conference on Image Processing.* Los Alamos, NM: IEEE Computer Society Press 1995, pp. 472-475.

39. Volkow, N.D., Fowler, J.S., Hitzemann, R., Wang, G.-J. Neurochemical Mechanisms Underlying Responses To Psychostimulants. *In: Individual Differences in the Behavioral Etiology of Drug Abuse.* Gordon H.W., Glantz M.D. NIDA Research Monograph Series, Vol 159, 1996, pp 322-348.

40. De Santi, S., de Leon, M.J., Rusinek, H., Golomb, J., Convit, A., Tarshish, C., Mc Rae, T., Kluger, A., Fowler, J., Volkow, N., Wolf, A.P. Diagnostic Role of PET. *In: Iqbal K., Mortimer J., Winbald H., Wisniewski (Eds). John Wiley & Sons LTD, Sussex, England, 1995.*

41. Volkow, N.D., Fowler, J.S., Ding, Y.D. Cardiotoxic Properties Of Cocaine: Studies With Positron Emission Tomography. *In: Neurotoxicity and Neuropathology Associated with Cocaine Abuse*. Majewska M.D. (Ed.) Washington, NIDA Research Monograph Series. Vol 163, 1996, pp 159-174.
42. Gatley, S.J., Volkow, N.D. Studies of the Brain Cannabinoid System Using Positron Emission Tomography. *In: Drug Abuse in the Decade of the Brain*. Nahas G.G., Burks T.F. (Eds.) IOS Press, Amsterdam, The Netherlands; 1997, pp.127-138.
43. Volkow, N.D., Ding, Y-S., Fowler, J.S., Wang, G-J. Cocaine addiction: hypothesis derived from imaging studies with PET. *In: The Neurobiology of Cocaine Addiction*. Joseph J., Stimmel D. (Eds.) Haworth Medical Press, New York, 1996, pp. 55-72.
44. Fowler, J.S., Volkow, N.D. Mapping the human brain. *In: Science Spectra*, 1996, Vol. 6, pp. 20-27.
45. Volkow, N.D., Wang, G-J., Fowler, J.S. Imaging studies of cocaine in the human brain and studies of the cocaine addict. *In: Imaging Brain Structure and Function*. Annals of the New York Academy of Sciences. Lester D.S., Felfer C.C., Lewis E.N. (Eds). Vol 820;1997, pp.41-53.
46. Volkow, N.D. The role of the dopamine system in addiction. *Hospital Practice* (Special reports). **April**, 22-26 1997.
47. Volkow, N.D., Fowler, J.S., Wang, G.J., Logan, J. Measuring dopamine release in the human brain with PET. *In: Neurosciences and Pharmacology Psychiatry and Biology*. Macher J.P., Crocq M.A., Nedelec J.F. Centre Hospitalier Rouffach, France, 1997, pp. 355-361.
48. Fowler, J.S., Volkow, N.D., Wang, G.-J., Pappas, N., Shea, C., MacGregor, R.R., Logan, J. Visualization of monoamine oxidase in human brain. *Advances in Pharmacology* 1998; **42**, 304-307, 1998.
49. Volkow, N.D., Fowler, J.S., Ding, Y-S., Wang, G-J., Gatley, S.J. Positron emission tomography radioligands for dopamine transporters and studies in human and nonhuman primates. *Advances in Pharmacology* **42**, 211-214, 1998.
50. Gatley, S.J., Gifford, A.N., Logan, J., Volkow, N.D., Fowler, J.S. Receptor measurements using PET and SPECT. *In: Receptor Localization: Laboratory Methods and Procedures*. M. A., Arians (Ed). Wiley & Sons, New York, 1998, pp. 220-239.
51. Gatley, S.J., Gifford, A.N., Volkow, M.D., Fowler, J.S.: Pharmacology of Cocaine. *In: Handbook of Substance Abuse, Neurobehavioral Pharmacology*. Tarter R.E., Ammerman, R.T., Ott, P.J. (Eds.). New York: Plenum Press, 1998, pp. 161-185.
52. Volkow, N.D., Fowler, J.S., Wang, G-J., Gatley, S.J., Ding, Y-S. Biological Imaging. *In: Serving Science and Society in the new Millennium*. U.S. Department of Energy National research Council. Washington, DC: National Academy Press, 1998, pp. 35-46.

53. Gatley, S.J., Volkow, N.D., Makriyannis, A. (in press) Studies of the brain cannabinoid receptor using positron and single photon emission computed tomography. In: Marihuana and Medicine. Nahas G (Ed.) Humana Press, New York
54. Fowler, J.S., Volkow, N.D., Malison, R., Gatley, S.J. Neuroimaging studies of substance abuser disorders. In Neurobiology of Mental Illness, edited by DS Charney, EJ Nestler, BS Bunney. Oxford University Press, New York, 1999, pp. 616-626.
55. Volkow, N.D., Fowler, J.S., Wang, G-J. Imaging studies in substance abuse. In: Contemporary Psychiatry. Henn F., Sartorius N., Helmchen H., Lauter H. (Eds.) Springer-Verlag, Berlin, Germany; 2000, Vol. 3, pp. 339-351.
56. Telang F.W, Volkow N.D. "Addiction States" In: Brain Mapping: The Disorders. Mazziotta J, Toga T (Eds.) Academic Press, 2000, Chapter 22 pp. 545-562.
57. Swanson, J., Volkow, N.D. Pharmacokinetic and pharmacodynamic properties of methylphenidate in humans. In: Stimulant Drugs and ADHD. Solanto, M.V., Arnsten, A.F.T., Castellanos, F.X. (Eds.). Oxford University Press, New York, 2001, pp. 259-282.
58. Gatley, S.J., Volkow, N.D., Fowler, J.S., Ding, Y-S,, Logan, J., Wang, G-J., Felder, C., Telang, F.W., Gifford, A.N. Imaging the brain dopamine transporter using PET and SPECT. In: Contemporary Neuroscience: Neurotranmitter Transporters: Structure, Function and Regulation, 2<sup>nd</sup> Edition Reith, M.E.A. (Ed.). Humana Press Inc., Totowa NY, 2002, 433-465.
59. Fowler, J.D., Volkow, N.D. Neuroimaging in substance abuse research. In: Neuropsychopharmacology: the fifth generation of progress. Davis KL, Charney D, Coyle JT, Nemeroff Ch (Eds.) 2002.
60. Swanson, J.M., Volkow, N.D., Newcorn, J., Casey, B.J., Moyzis, R., Grandy, D., Posner, M. Attention Deficit Hyperactivity Disorder. In: Encyclopedia of Cognitive Science. Nadel, L. (Ed.). Nature Publishing Group, London, 2003, pp 226-231.
61. Volkow ND. Blending practice and research: a potent catalyst for progress. *Sci Pract Perspect.* **2(1)**, 2, 2003.
62. G.J. Wang, N.D. Volkow, P.K. Thanos and J.S. Fowler. Similarity Between Obesity and Drug Addiction as Assessed by Neurofunctional Imaging: A Concept Review. In: Eating Disorders, Overeating, and Pathological Attachment to Food. Gold M (Ed.), Haworth Press, NY 2004.
63. Volkow ND. A Note From NIDA's Director. *Sci Pract Perspect.* **2(2)**, 2 2004.
64. Zhang L, Samaras D, Volkow ND, Goldstein RZ. Machine Learning for Clinical Diagnosis from Functional Magnetic Resonance Imaging (#169). In *IEEE Proc. of Computer Vision and Pattern Recognition*, 2005, 1,1211-1217.



65. Zhang L, Samaras D, Tomasi D, Alia-Klein N, Cottone LA, Leskovjan LC, Volkow ND, Goldstein RZ (2005). Exploiting Temporal Information in Functional Magnetic Resonance Imaging Brain Data. In *Proc Medical Image Computing and Computer Assisted Intervention*, **8(1)**, 679-687 2005.
66. Volkow ND. A Note From NIDA's Director. *Sci Pract Perspect.* **3(1)**, 2, 2005.
67. Swanson, J.M., Volkow, N.D., Newcorn, J., Casey, B.J., Moyzis, R., Grandy, D., Posner, M. Dopamine and Attention Deficit Hyperactivity Disorder. In: Dopamine and Glutamate in Psychiatric Disorders. Schmidt and Reith (Eds.)
68. Volkow, N.D., Wang, G-J., Fowler, J.S., Goldstein, R.Z. Imaging the Addicted Brain. In: Cell Biology of Addiction. Madras, B.K., Colvis, C.M., Pollock, J.D., Rutter, J.L, Shurtleff, D. and von Zastrow, M. (Eds.) Cold Spring Harbor, New York: Cold Spring Harbor Laboratory Press, 2006, pp. 93-109.
69. Goldstein RZ, Alia-Klein N, Cottone LA, Volkow ND. Addiction and the Orbitofrontal Cortex. In: The Orbitofrontal Cortex. D Zald & S Rauch (Eds.), Oxford University Press, 2006, pp. 481-522.
70. Zhang L, Samaras D, Alia-Klein N, Volkow ND, Goldstein RZ. Modeling Neuronal Interactivity using Dynamic Bayesian Networks. In: Advances in Neural Information Processing Systems 18, Y. Weiss, B. Scholkopf, and J. Platt, (Eds.) MIT Press, Cambridge, MA 2006.
71. Volkow N. Imaging the addicted human brain: from molecules to behavior. *Conf Proc IEEE Eng Med Biol Soc.* **1**, nil13-4 2006.
72. Goldstein RZ, Alia-Klein N, Volkow ND. Drugs of Addiction: Neuroimaging in drug addiction. In The New Encyclopedia of Neuroscience. L Squire, T Albright, F Bloom, F Gage & N Spitzer (Eds.), Oxford University Press. *In press*
73. Volkow ND. A note from NIDA's director. Images and interventions. *Sci Pract Perspect.* **3**, 2-3 2007.
74. Volkow ND. This is your brain on food. Interview by Kristin Leutwyler-Ozelli. *Sci Am.* **297**, 84-85 2007.
75. Volkow N, Swanson J. Basic Neuropsychopharmacology. In: Rutter's Child and Adolescent Psychiatry. Fifth Edition. M Rutter, D Bishop, D Pine, S Scott, J Stevenson, E Taylor, & A Thapar (Eds.), Blackwell Publishing Limited, Massachusetts 2008 pp 212-233.
76. Volkow ND. Introduction. *Ann N Y Acad Sci. Addiction Reviews.* **1141**, xi-xii 2008.
77. Fowler JS, Volkow ND. PET and SPECT Imaging in Substance Abuse Research. In: *Neurobiology of Mental Illness*. Third Edition. D.S. Charney, E.J. Nestler (Eds.), Oxford University Press, New York 2008 pp 828-845.

78. Goldstein RZ, Alia-Klein N, Volkow ND. Drug addiction: neuroimaging. In: *Encyclopedia of Neuroscience*, volume 3. L.R. Squire (Ed.), Academic Press, Oxford 2008 pp 688-7111.
79. Volkow ND. Teen prescription drug abuse a major health concern. *Tenn Med* **102**, 28-29 2009.
80. Volkow ND, Li T-K. Drug addiction: the neurobiology of behavior gone awry. In: *Principles of Addiction Medicine*. R.K. Ries, D.A. Fiellin, S.A. Miller, R. Saitz (Eds), Wolters Kluwer/Lippincott Williams & Wilkins, Philadelphia 2009 pp. 3-12.
81. Volkow ND, Fowler JS, Wang G-J, Telang F, Baler R. Imaging dopamine's role in drug abuse and addiction. In: *Dopamine Handbook*. L.L. Iversen, S.D. Iversen, S.B. Dunnett S.B, A Bjorklund (Eds.), Oxford University Press New York 2009 pp. 407-417.
82. Wang GJ, Volkow ND, Fowler JS. Reply to Burgard: Gender differences in eating behaviors and obesity *Proc. Natl. Acad. Sci.* 106(15), E37 2009.
83. Volkow N. Celebrating the history of NIDA (2003-present). *Drug Alcohol Depend.* **107(1)**, 106-107 2010.
84. Volkow ND, Baler R, Fowler JS, Wang G-J, Telang F. Brain imaging and addiction. In: *Encyclopedia of Behavioral Neuroscience*, volume 1. G.G. Koob, M. Le Moal, R.F. Thompson. (Eds.), Academic Press, Oxford 2010 pp 194-202.
85. Lambert, E.Y., Normand, J.L., Volkow, N.D., Prevention and treatment of HIV/AIDS among drug-using populations: a global perspective. *J Acquir Immune Defic Syndr.* **55**, Suppl 1:S1-4 2010.
86. Tomasi D, Volkow ND. Ultrafast method for mapping local functional connectivity hubs in the human brain. *Conf Proc IEEE Eng Med Biol Soc.* **1**, 4274-4277 2010.
87. Volkow ND. Toward individualized treatment for substance abuse. *Addict Sci Clin Pract.* **5(2)**, 2 2010.
88. Wang G-J., Volkow N.D., Fowler J.S., Thanos P.K. Neuroimaging of obesity. In: Understanding Neuropsychiatric Disorders: Insights from Neuroimaging. Shenton M.E., Turetsky B.I. (Eds.), Cambridge University Press, New York pp 487-509 2011.
89. Swanson JM., Wigal T., Lakes K., Volkow ND. Attention deficit hyperactivity disorder: defining a spectrum disorder and considering neuroethical implications. In: *The Oxford Handbook of Neuroethics*. J. Illes, B.J. Sahakian. (Eds.), Oxford University Press, New York, pp. 309-342 2011.
90. Volkow ND, Tomasi D., Vaska P. Cell Phone Activation and Brain Glucose Metabolism—Reply. *JAMA.* 305(20), 2067-2068 2011.

91. Volkow ND., A Note From NIDA's Director. *Addict Sci Clin Pract.* **6(1)**, 2 2011.
92. Wang G-J, Volkow ND, Fowler JS. Dopamine Deficiency, Eating and Body Weight. In Food and Addiction. K.D. Brownell and M.S. Gold. (Eds.), Oxford University Press, New York, pp. 185-193 2011.
93. Volkow ND., Wang GJ., Fowler JS., Tomasi D., Baler R. Food and drug reward: overlapping circuits in human obesity and addiction. In: Brain Imaging in Behavioral Neuroscience. C.S Carter , J.W. Dalley, (Eds.), Springer, Heidelberg, pp 1-24 2012.
94. Volkow ND, Warren KR. Advancing american indian/alaska native substance abuse research. *Am J Drug Alcohol Abuse.* **38(5)**, 371 2012.
95. Swanson JM, Lakes KD, Wigal TL, Volkow ND. Multiple origins of sex differences in attention deficit hyperactivity disorder. In: Multiple Origins of Sex Differences in Brain. D.W. Pfaff, Y. Christen. (Eds.), Springer-Verlag, Berlin Heidelberg, pp103-122 2013.
96. Boncci A., Volkow N.D. Substance Use Disorders. In: Neurobiology of Mental Illness. D.S. Charney, J.D. Buchsbaum, P. Sklar, E.J. Nestler. (Eds.), Oxford University Press, New York, pp. 673-674 2013.
97. Kunos G, Volkow ND. Preface to the special issue of psychopharmacology: 10 years of the Jacob P. Waletzky Award. *Psychopharmacology* (Berl). 2013 Aug 10, 2013.
98. Volkow ND. Foreword. *J Food Drug Anal.* **21(4)**, S2 2013.
99. Volkow ND, Normand J. Preface. *Drug Alcohol Depend.* **132 Suppl 1**, S1 2013.
100. Volkow ND, Baler RD. Foreword. Substance use and abuse among adolescents. *Adolesc Med State Art Rev.* **25(1)**, xv-xvi 2014.
101. Thomas D, Frascella J, Hall T, Smith W, Compton W, Koroshetz W, Briggs J, Grady P, Somerman M, Volkow N. Reflections on the role of opioids in the treatment of chronic pain: a shared solution for prescription opioid abuse and pain. *J Intern Med.* **278 (1)**, 92–94 2015.
102. Volkow ND, Baler RD. Drug addiction: the neurobiology of behavior gone awry. In The ASAM Essential of Addiction Medicine. A.J., Herron, T. Koheler Brennan. (Eds), Wolters Kluger, Philadelphia, pp 9-14 2015.

### **Selected Recognition Lectures as of 2006**

- 03/20/2006 *Spirit Lecture*. National Institute of Environmental Health Sciences' Research Triangle Park, NC.
- 04/19/2006 *Thomas O'Donohue Memorial Lecture*, Howard University School of Pharmacology, Washington, DC.

- 05/03/2006 *Barrett Lecture* at the University of Michigan, Ann Arbor, MI.
- 05/08/2006 *Open Mind Lecture*, Massachusetts Institute of Technology (MIT) Cambridge, MA.
- 05/10/2006 *Grollman Lecture* at the University of Maryland School of Pharmacy, Baltimore, MD.
- 10/10/2006 *F.E. Bennett Lecture*, American Neurological Association 2006 Chicago, IL.
- 12/13/2006 *NIH Great Teachers Lecture*, NIH, Bethesda, MD.
- 05/25/2007 *Mysell Lecture*, Harvard University, Boston, MA.
- 06/13/2007 *Sterling Lecture*, Tufts University Medical Center, Boston, MA.
- 06/06/2007 *Commencement Speech*, Albert Einstein College of Medicine, New York, NY.
- 11/19/2007 *New York City's 92<sup>nd</sup> Street Y. Drug Addiction. Science and Discovery Discussion Series.* New York, NY.

## **2008**

- 04/25/2008 *Margaret Bidwell Memorial Lecture*, Massachusetts Institute of Technology, Boston, MA.
- 04/29/2008 *Howard P. Rome Lecture*, Department of Psychiatry and Psychology, Mayo Clinic Rochester, MN.
- 05/16/2008 *Keynote Address.* Symposium in honor of Mary Jeanne Kreek. Rockefeller University, NY.
- 06/20/2008 *Centenary Lecture*, Department of Psychiatry University of Toronto, Canada.

## **2009**

- 03/02/2009 *Annual Lecture.* Hippocratic Society, Wellesley College, MA.
- 05/02/2009 *Plenary Lecture.* Netherlands Psychiatric Association, Amsterdam, Netherlands.
- 05/28/2009 *Jerry Wiener Memorial Lecture.* George Washington University Medical Center, Washington, DC.

- 06/03/2009 *Plenary Lecture*. International Congress on Drugs and Families, Caxia, Barcelona, Spain.
- 06/30/2009 *Plenary Lecture*. Addiction and the Neurobiology of Choice and Self-Control. World Congress of Biological Psychiatry, Paris, France.
- 10/19/2009 *Presidential Lecture*. Addiction and Self-Control. Annual Meeting for the Society of Neuroscience. Chicago, IL.

## 2010

- 06/11/2010 *Annual Sackler Lecture*. Quantification of Behavior. Sackler Colloquia, The National Academy of the Sciences, Washington, DC.

## 2011

- 04/05/2011 *Louis Clark Vanuxem Lecture*. “The Neurobiology of Drug Addiction”, Princeton University, Princeton, NJ.
- 04/20/2011 *Lyon-Voorhees Lecture*. “What About Addiction?” Department of Psychiatry, Denver School of Medicine University of Colorado, Aurora, CO.
- 04/27/2011 *Alexander Award Lecture*. “Addiction: Conflict Between Brain Circuits”, Baylor School of Medicine, Houston, TX.
- 04/28/2011 *Allergan Foundation Lecture*. “Addiction and Self Control: Research Discoveries Lead to Novel Treatments for Drug Addiction”, University of California, Irvine, CA.

## 2012

- 04/10/2012 *NINDS Grand Rounds Lecture*, “The Addicted Brain: Neuronal Circuits Gone Awry”, Bethesda, MD.
- 05/03/2012 *Grand Rounds Lecture*, New York University Langone Medical Center, New York, NY.
- 07/23/2012 *Invited Guest Lecture*, “Drugs in the Human Brain: From reward to Addiction”, British Association for Psychopharmacology (BAP), Harrogate, UK.
- 09/20/2012 *Invited Address*, “Imaging Diseases of Poor Self-Control”, Society for Psychophysiological Research, New Orleans, LA.
- 10/26/2012 *2012 National Hispanic Scientist of the Year Award Lecture*, Museum of Science & Industry’s (MOSI), Tampa, FL.

## 2013

- 01/14/2013 *Invited Lecture*, “Addiction: Brain Circuits in Disarray”, The Commonwealth Club of California, San Francisco, CA.
- 01/16/2013 *Sydney Brenner Lecture*, “Molecular Biology of Psychiatric Disorders”, 7th Annual Salk/Fondation Ipsen/Nature Symposium on Biological Complexity., La Jolla, CA.
- 03/19/2013 *Albert Einstein Memorial Lecture*, “Addiction in the Human Brain: Loss of Balance between Neuronal Circuits” Israel Academy of Science, Jerusalem, Israel.
- 04/03/2013 *Grand Rounds Lecture*, University of Florida School of Medicine. “Addiction: Conflict Between Brain Circuits”, Gainesville, FL.
- 04/27/2013 *American Society of Addiction Medicine’s (ASAM) John P. McGovern Award Lecture*, “Addiction: Conflict Between Brain Circuits”. Chicago, IL.
- 05/20/2013 *Frontiers of Science Lecture*. “Substance Use Disorders: New Scientific Findings and Therapeutic Opportunities” American Psychiatric Association Annual Meeting, San Francisco, CA.
- 06/01/2013 *Storyteller at the Moth Mainstage* in partnership with the World Science Festival, New York, NY.
- 06/26/2013 *NIH CC Grand Rounds*. “Brain Imaging Studies: Understanding Changes in the Brain Associated with Addiction”, Bethesda, MD.
- 07/09/2013 *Invited Lecture*, Lieber Institute for Brain Development at The Johns Hopkins University Medical Center, Baltimore, MD.
- 08/29/2013 *Flexner Discovery Lecture Series*, “Advances in Addiction Science”, Vanderbilt University, Nashville, TN.
- 10/30/2013 *Invited Lecture*. Mind and Life XXVII Craving, Desire, and Addiction Meeting With the Dalai Lama, Dharamsala, Himachal Pradesh, India.

## 2014

- 02/26/2014 *Grand Rounds Lecture*, Department of Psychiatry, Walter Reed Military Medical Center, Bethesda, MD

- 03/11/2014 Presentation on Addiction as a Brain Disorder in the High-level Scientific Meeting - 57th Session of the Commission on Narcotic Drugs. Vienna, Austria.
- 03/13/2014 Commission on Narcotic Drugs Plenary – Presentation of the final statement of the scientific consultation session. Vienna, Austria.
- 03/19/2014 *Distinguished Lecture*, “The Science of Addiction: What Do We Know?”, Florida Hospital Orlando, FL
- 03/21/2014 *Druckenmiller Neuroscience Award Lecture*, PATH Foundation, New York, NY
- 04/25/2014 *Grand Rounds Lecture*, Department of Psychiatry, Duke University, Durham, NC
- 05/03/2014 *Frontiers of Science Lecture*. “Advances in Addiction Research”, American Psychiatric Association Annual Meeting, New York, NY.
- 05/12/2014 *The Dorothy J. Killam Lecture*. Montreal Neurological Institute. “Addiction in the Human Brain”. Montreal, Quebec.
- 05/24/2014 *Sagvolden Memorial Lecture for Eunethydis*, 3rd EUNETHYDIS International Conference on ADHD, Istanbul, Turkey
- 06/01/2014 *The Myth of Willpower Salon*, World Science Festival, New York, NY
- 06/15/2014 *Nathan B. Eddy Award Lecture*, College on Problems of Drug Dependence Annual Meeting, San Juan, Puerto Rico
- 09/11/2014 *TEDMED Presentation*, “Stealing Smart” Session, Washington, DC
- 10/14/2014 *Grand Rounds Lecture*, UCSF Department of Psychiatry, San Francisco, CA
- 11/05/2014 *Distinguished Lecture*, Stony Brook University, Stony Brook, NY

## 2015

- 02/24/2015 *NIH Demystifying Medicine Lecture*, National Institutes of Health, Bethesda, MD.
- 05/13/2015 *Philip Bard Lecture in the Physiological Sciences* “Brain Mechanisms in Addiction”, The Johns Hopkins University, Baltimore, MD.
- 05/18/2015 *William C Menninger Memorial Convocation Lecture*. American Psychiatric Association Annual Meeting, Toronto, Canada.

- 06/27/2015 *Featured Speaker*, “The Biology of Addiction - Why Do We Get Hooked?”, Aspen Ideas Festival, Aspen CO.
- 09/08/2015 *Paykel Lecture for 2015*, “Brain on Drugs: From Reward to Addiction”, University of Cambridge Department of Psychiatry, Cambridge UK.
- 09/10/2015 *Institut Pasteur Lecture Series* on “Neuroscience and Medicine”, Paris, France
- 11/19/2015 *Grand Rounds Lecture*, “Imaging Drug Effects in Human Physiology”, Institute for Living, Hartford, CT

**2016**

- 02/05/2016 *Distinguished Lecture*. 27<sup>th</sup> Annual frontiers in Chemistry Symposium, Scripps Research Institute, La Jolla, CA.