

CURRICULUM VITAE

ALAN BREIER, M.D.

CURRENT POSITION: Indiana University Mental Health Research and Education
Senior Professor of Psychiatry
Vice-Chair for Clinical Research
Chief, IU Psychotic Disorders Program
Director, Prevention and Recovery Center (PARC)
Indiana University School of Medicine

BUSINESS ADDRESS: Department of Psychiatry
Indiana University School of Medicine
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FAMILY: Married: Diane Breier
Two children: Michael Andrew Breier, Matthew Edward Breier

EDUCATION:

1971-1975 B.A. University of Toledo, Toledo, Ohio (Summa cum laude)
1976-1980 M.D. University of Cincinnati College of Medicine, Cincinnati, Ohio

POSTDOCTORAL TRAINING:

1980-1981 Intern, Saint Raphael Hospital, Yale University School of Medicine, New Haven, Connecticut
1981-1984 Resident in Psychiatry, Department of Psychiatry, Yale University School of Medicine, New Haven, Connecticut
1983-1984 Chief Resident in Psychiatry, Clinical Research Unit, Yale University School of Medicine, New Haven, Connecticut
1984-1986 Medical Staff Fellow, Clinical Neuroscience Branch, NIMH, Bethesda, Maryland
1986-1987 Senior Staff Fellow, Clinical Research Unit, Clinical Neuroscience Branch, NIMH, Bethesda, Maryland

BOARD CERTIFICATION:

1981 Diplomate, National Board of Medical Examiners
1985 Diplomate, American Board of Psychiatry and Neurology

LICENSURE:

1982 State of Connecticut
1984 State of Maryland
1990 District of Columbia
1997-Present State of Indiana

PROFESSIONAL APPOINTMENTS:

1987-1993 Chief, Outpatient Department, Maryland Psychiatric Research Center, University of Maryland School of Medicine, Baltimore, Maryland
1987-1994 Research Associate Professor, Department of Psychiatry, University of Maryland School of Medicine, Baltimore, Maryland
1991-1993 Guest Scientist, Laboratory of Cerebral Metabolism, National Institute of Mental Health, Bethesda, Maryland
1993-1995 Chief, Unit of Pathophysiology and Treatment, Experimental Therapeutics Branch, NIMH, NIH, Bethesda, Maryland
1993-1997 Scientific Tenure (GS-14), Intramural Research Program, NIH, NIMH
1995-1997 Chief, Section on Clinical Studies, Experimental Therapeutics Branch, NIMH, NIH, Bethesda, Maryland
1997-2003 Lilly Research Fellow, Lilly Research Laboratories, Eli Lilly and Co., Indianapolis, Indiana
1998-2003 Team Leader, Zyprexa Product Team, Eli Lilly and Co., Indianapolis, Indiana
2001-2003 Vice President, Pharmaceutical Products, Lilly Research Laboratories, Eli Lilly and Co., Indianapolis, Indiana
2003-2008 Chief Medical Officer and Vice President of Medical, Eli Lilly and Co., Indianapolis, Indiana
2008- Professor of Psychiatry (with tenure), Indiana University School of Medicine
2008- Chief, Psychotic Disorders Program, Indiana University School of Medicine
2008- Director of Research, Larue Carter Hospital, IU School of Medicine
2010- Indiana University Mental Health Research and Education Senior Professor of Psychiatry, Indiana University School of Medicine
2010- Vice-Chair for Clinical Research

ADJUNCT PROFESSORSHIPS:

1997-2008 Adjunct Professor of Psychiatry, Indiana University School of Medicine, Indianapolis, Indiana
2000- Adjunct Professor of Psychiatry, University of Maryland School of Medicine, Baltimore, Maryland
2003- Clinical Professor of Psychiatry, Wright State University School of Medicine, Dayton, Ohio

AWARDS, HONORS, AND FELLOWSHIPS:

- 1975 Phi Kappa Phi National Honor Society, University of Toledo
- 1978 Hyndman Fellowship for Overseas Study, University of Cincinnati College of Medicine (Research site: Hong Kong and Peoples Republic of China) Project: Psychiatric rehabilitation of patients in Hong Kong with schizophrenia
- 1979 Rock-Slyster Psychiatry Scholarship, American Medical Association
- 1980 Neurology Elective, Institute of Neurology, Queen's Square, London, England
- 1980 Sandoz Award for Excellence in Psychiatry, University of Cincinnati College of Medicine
- 1982-1984 Falk Fellowship, American Psychiatric Association
- 1982-1984 Lustman Research Award (1st place 1982/1984; 2nd place 1983), Department of Psychiatry, Yale University School of Medicine
- 1983-1984 Fellow in National Institute of Mental Health (NIMH) Biological Scientist Training Program, National Institutes of Health
- 1987 Young Investigator Award, International Congress on Schizophrenia Research
- 1988 A.E. Bennett Award in Clinical Research, Society of Biological Psychiatry
- 1991-1997 Inclusion in The Best Doctors in America, Woodward/White, Inc., Aiken, SC
- 1997 Joel Elkes International Award for Outstanding Contributions to Psychopharmacology, from the American College of Neuropsychopharmacology
- 2001 Appreciation Award for Psychiatric Services, Homeless Initiative Program, Indianapolis, Indiana
- 2007 Nancy C.A. Roeske, MD, Certificate of Recognition for Excellence in Medical Student Education, awarded by the American Psychiatric Association

PROFESSIONAL SOCIETIES:

American Psychiatric Association
 Society of Biological Psychiatry
 American College of Neuropsychopharmacology (Associate Member-1992, Member-1996, Fellow-2006)
 Collegium Internationale Neuro-Psychopharmacologicum

COMMITTEES (selected):

- 1991-1993 Member, Psychopharmacology Committee, Maryland Psychiatric Society.
- 1990-1993 Member, Clozapine Review Panel, Mental Hygiene Administration, Department of Health and Mental Hygiene, Baltimore, Maryland.
- 1992-1996 Member, Data Monitoring Board for the Cooperative Studies in Health Service #17 "The Clinical and Economic Impact of Clozapine on Refractory Schizophrenia," Department of Veterans Affairs; 1992-1996; \$5,233,945 total budget.
- 1995 Member, Reinventing Government (REGO) II Options Team to examine the future of the Clinical Center, National Institutes of Health.

- 1995-1996 Chair, National Institute of Mental Health, Intramural Research Program, Fellowship, Education and Training Committee.
- 1996 Chair, Search Committee for Director of Fellowship Education and Training, Intramural Research Program, National Institute of Mental Health.
- 1999-2001 Advocacy Committee, American College of Neuropsychopharmacology
- 2002 -2008 Senior Management Council, Eli Lilly and Company
- 2003-2010 Bioethics Committee (member 2003-2007; chair 2007-2008, member 2008-2010), Eli Lilly and Company
- 2003 -2008 Lilly Research Laboratories Policy Committee, Eli Lilly and Company (Policy Committee was responsible for governing R&D at Lilly)
- 2004 - 2006 Pharmaceutical Operations Committee, Eli Lilly and Company (major leadership group for the Company)
- 2004 - 2007 Credentials Committee, American College of Neuropsychopharmacology
- 2005 - 2007 Chair, Product Development Committee, Eli Lilly and Company (PDC governed all Phase III development programs)
- 2006 Clinical Trial Registry Committee, Institute of Medicine
- 2006 -2009 Liaison Committee, American College of Neuropsychopharmacology
- 2006 -2008 Scientific Advisory Committee, Clinical Trial Registry, World Health Organization
- 2007 -2008 Neuroscience Forum for Biomarker Development, Institute of Medicine
- 2010- 2011 Steering Committee Member, Neuroscience Center of Excellence, IUSM
- 2010- Department of Psychiatry monthly Chairs meeting
- 2010- 2012 Scientific Program Committee, NCDEU annual meeting
- 2011 Search Committee for NIMH Associate Director of Clinical Research
- 2012- NIMH study sections including R61/R33 for drug development applications

GRANTS:**Current Funding:**

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| 1U01MH109977-01 (PIs: Breier A, Shenton M)
Human Connectome Project for Early Psychosis | 5/17/16-5/17/20 |
| UH2 TR000955-01 (PI: Breier)
NIH-NCATS
The Efficacy and Safety of a Selective Estrogen Receptor Beta agonist (LY500307) for Negative Symptoms and Cognitive Impairment Associated with Schizophrenia (If year 1 milestones are met, UH3 portion of the study will commence to years 2 and 3) | 6/18/2013-8/31/2014
\$793,744 annual direct costs |
| UH3 TR000956 (PI: Breier)
NIH NCATS
The Efficacy and Safety of a Selective Estrogen Receptor Beta agonist (LY500307) for Negative Symptoms and Cognitive Impairment Associated with Schizophrenia | 9/1/14-6/1/16
\$1,100,000 annual direct costs |
| 10T-002 (PI: Breier)
Stanley Medical Research Institute
The Effect of N-Acetyl Cysteine on Cortical Erosion in Early Stage Schizophrenia | 09/01/2010 – 08/31/2014
\$150,000 annual direct costs |

11T-001 (PI: Breier) 01/01/2013 – 6/31/2014
 Stanley Medical Research Institute \$224,712 annual direct costs
 The Effects of Fingolimod on White Matter Density and Clinical Outcomes in Schizophrenia

SMRI PI: Breier) 10/01/2013 – 06/30/2016
 Stanley Medical Research Institute \$275,000 annual direct costs
 Coordinating center for the study titled “A Double-Blind Trial of Adjunctive Valacyclovir to Improve Cognition in Early Phase Schizophrenia”

SMRI (PI: Breier) 01/01/2014 – 06/30/2016
 Stanley Medical Research Institute \$135,000 annual direct costs
 A Double-Blind Trial of Adjunctive Valacyclovir to Improve Cognition in Early Phase Schizophrenia

A55-3-49-13-WA-0203 (PI: Breier) 07/01/2010 – 06/30/2014
 2.40 calendar
 IFSSA \$208,000 annual direct costs
 Assessment and Treatment Center for prevention and recovery of early psychosis (PARC)

W81XWH-12-1-0005 (PI: Kubek) 04/12/2012-04/11/2015
 1.20 calendar
 Department of Defense \$2,386,026 annual direct costs

Intranasal delivery of neuropeptide nanoparticles in the treatment of combat-related physical and psychological CNS co-morbidities

R01 MH074983 (PI: Hetrick) 09/01/2012-05/31/2014
 0.07 calendar
 NIH-NIMH \$250,000 annual direct costs

Cerebellar dysfunction in schizophrenia

WN25305 (Breier) 01/24/2011 - 12/31/14
 Quintiles, Inc./ Roche \$235,056 annual direct costs
 A phase III, multi center randomized 12 week double blind parallel group placebo controlled study to evaluate the efficacy and safety of R04917838 in patients with suboptimally controlled symptoms of schizophrenia treated with antipsychotics followed

WN25308 (PI Breier) 5/23/2011 - 12/31/14
 Quintiles, Inc. / Roche \$242,475 annual direct costs
 A phase III multicenter, randomized, 24 week double blind parallel group placebo controlled study to evaluate the efficacy and safety of R04917838 in stable patients with persistent, predominant negative symptoms of schizophrenia treated with antipsychotics

Past Funding:

Indiana University Psychotic Disorders Program Genetic Repository IUSM CTSI pre-pilot grant 09/30/09 – 09/29/10 \$2,885 (PI: Alan Breier)

MRI assessment of early stage schizophrenia: Comparison to healthy volunteers. CTSI imaging pilot funds. 8/1/11 – 8/30/12; \$20,000 total budget; (PI: Alan Breier)

Cognitive remediation of neurobehavioral abnormalities in schizophrenia. IUSM Indiana Clinical and Translational Science Institute (CTSI) pilot grant; 2/09-2/010; \$75,000 total costs (PI: Brian F. O'Donnell; Co-PI Alan Breier).

Effects of Paliperidone Palmitate vs Oral Atypicals on Clinical Outcome and sMR Measures in First Episode Patients: A Randomized Clinical Trial (Two site study: University Iowa and Indiana University) Johnson & Johnson, Independent Investigator Grant 8/1/11 – 1/1/13; Breier site budget: \$1,178,726 (PI: Nancy Andreasen, Co-PI and IUSM site PI: Alan Breier)

Clozapine treatment of schizophrenic outpatients. NIMH R01 MH45074; 4/1/90-3/31/95; \$1,014,719 total direct costs (PI: [1990-1993] Alan Breier).

Outpatient treatment: Targeted versus maintenance medication. NIMH R01 MH35996; 7/1/87-6/30/97; \$1,411,509 total direct costs (PI: W.T. Carpenter; Co-PI: [7/87-4/93] Alan Breier).

Clinical Research Center: Classification and course of the schizophrenias. NIMH P50 MH40279; 2/15/86-7/31/93; \$2,781,009 total direct costs (PI: W.T. Carpenter; [7/87-4/93] Alan Breier: Investigator and Steering Committee Member)

Glucose deprivation paradigms for PET studies of schizophrenia. NARSAD Established Investigator Award: 1994-1995; \$100,000 (Joint PIs: Alan Breier and Louis Sokoloff).

Stress, dopamine and schizophrenia. Scottish Rite Schizophrenia Research Program, N.M.J., USA; 8/1/88-7/31/90; \$57,500 total award (PI: Alan Breier).

The effects of benzodiazepines on stress-induced dopamine and HPA activity in healthy volunteers. Upjohn Pharmaceutical Company, McLean, Virginia; 11/1/89-10/31/90; \$15,000 (PI: Alan Breier).

Schizophrenia clinical research training. MH18914; 7/1/88-6/30/93; \$287,689 total direct costs (PI: J. Levine; Mentor: Alan Breier). Neural basis of the deficit syndrome of schizophrenia. NIMH MH48225; 4/1/93-3/31/98; \$523,575 total direct costs (PI: Robert W. Buchanan; Investigator: Alan Breier).

A 24-week, multicenter, double-blind, randomized, parallel-group, dose ranging study of the efficacy and safety of oral doses of AVE 1625 5, 10, and 30 mg and placebo on top of an established treatment regimen of either olanzapine, risperidone/paliperidone, quetiapine or aripiprazole monotherapy in the treatment of cognitive impairment in schizophrenia. 2008 – 2010, sponsor: Sanofi Aventis (IUSM site PI: Alan Breier)

A randomized double-blind, placebo controlled, parallel group study to evaluate the cognitive enhancing effect of GSK239512 in stable patients with schizophrenia. Glaxo Smith Kline – TENETS 03/12/09 – 7/1/11 (\$50,000 Annual direct costs) (IUSM site PI: Breier, Alan)

Preceptor/Sponsor:

NIMH supplement awarded for underrepresented minorities in biochemical and behavioral research. Supplement added to MH45074 "Clozapine treatment of schizophrenic outpatients;" (04/01/90-03/31/94; \$200,000; P.I. (4/90-4/93) Alan Breier, M.D). Recipient: Orlando R. Davis, M.D. Sponsor: Alan Breier, M.D.

APA "Mini-fellow" Travel Award. Recipient: Orlando R. Davis, M.D. Sponsor: Alan Breier, M.D.

Program for Minority Research Training in Psychiatry (PMRTP); 6/30/92-6/29/94, \$33,371. Recipient: Nancy L. Bryant, M.D. Mentor: Alan Breier, M.D.

Cerebellar dysfunction as an early predictor of schizophrenia. American Academy of Neurology Medical Student Summer Research Scholarship; summer 2009; \$3,000. Recipient: Victoria Fahrenbach, Preceptor: Alan Breier

Indiana University School of Medicine Department of Psychiatry – Eli Lilly Neuroscience Joint Fellowship. 7/09 to 6/10, full salary support, Recipient: Alexander Radnovich, M.D., Ph.D. Supervisor: Alan Breier

JOURNAL REVIEWER (selected, ad hoc):

Am J Psychiatry	Journal of Nervous and Mental Disease
Anxiety	Journal of Psychiatry and Neuroscience
Archives of General Psychiatry	Molecular Psychiatry
Harvard Review of Psychiatry	Neuropsychopharmacology
Hospital Community Psychiatry	New England Journal of Medicine
International Clinical Psychopharmacology	Psychiatry Research
International Journal of	Psychoneuroendocrinology
Neuropsychopharmacology	Psychosomatics
Journal of Biological Psychiatry	Schizophrenia Bulletin
Journal of Clinical Psychiatry	Schizophrenia Research
Science	

GRAND ROUNDS, University Departments of Psychiatry (selected):

- University of Vermont
- Duke University
- State Univ. of New York at Brooklyn
- University of Kansas
- University of Maryland
- State University of New York at Buffalo
- University of Missouri-Columbia
- University of Rochester
- Mercer University School of Medicine
- University of Medicine/Dentistry of NJ
- University of Cincinnati
- Case Western Reserve University
- Ohio State University
- Johns Hopkins University
(Psychopharmacology)
- University of Minnesota
- University of California at San Francisco (Fresno)
- University of Washington, Seattle, Washington
- University of Florida
- Institute of Living, Hartford, Connecticut
- University of New Mexico
- University of Alberta, Edmonton, Canada
- Wayne State University, Detroit, Michigan
- University of West Virginia (Morgantown)
- University of Naples, Naples, Italy
- Albert Einstein School of Medicine, New York
- University of South Florida, Tampa, Florida
- Louisiana State University
- University of Vienna, Vienna, Austria
- University of California at Los Angeles/
Brentwood VA
- University of Massachusetts

LEADERSHIP TRAINING:

- | | |
|------|---|
| 1999 | Business Leadership Intensive – Focus on personal leadership development |
| 2000 | Leadership V – Focus on e-Business, virtual R&D, novel approaches for R&D |
| 2002 | Aspen Institute, Aspen, Colorado – Leading Change |
| 2003 | Harvard School of Public Health – Building Trust in Medical Organization |
| 2007 | Harvard Business School, Transforming Pharmaceutical R&D |

BOOKS:

Yearbook of Psychiatry and Applied Mental Health (Editor: Talbott JA) (Psychopharmacology Section Breier A) Mosby-Year Book, Inc., St. Louis, MO. (1994).

The New Pharmacotherapy of Schizophrenia. (Editor: Breier A) American Psychiatric Press, Inc., Washington, DC. Clinical Practice number 36 (1996).

Olanzapine (Zyprexa): A Novel Antipsychotic. (Editors: Tran PV, Bymaster FP, Tye N, Herrera JM, Breier A, Tollefson GD), Lippincott Wilkins & Wilkins Healthcare, Philadelphia, PA (2000).

Current Issues in the Psychopharmacology of Schizophrenia. (Editors: Breier A, Tran PV, Herrera JM, Tollefson GD, Bymaster FP. Lippincott Wilkins & Wilkins, Philadelphia, PA (2001).

EDITORIAL BOARDS:

Neuropsychopharmacology (1994-1999)

Schizophrenia Bulletin (1994-2002)
Biological Psychiatry (1999-2002)

PUBLICATIONS:

1. Breier A: A survey of psychiatric rehabilitation in Hong Kong. *Journal of Rehabilitation in Asia* 21:8-17, 1981.
2. Breier A, Hitzemann RJ, Hirschowitz J, Garver DL: Kinetic analysis of platelet monoamine oxidase in chronic schizophrenia. *Life Sciences* 28(17):1947-51, 1981.
3. Breier A and Strauss JS: Self control in psychotic disorders. *Arch Gen Psychiatry* 40(10):1141-45, 1983.
4. Breier A, Astrachan BM: Characterization of schizophrenic patients who commit suicide. *Am J Psychiatry* 141(2):206-9, 1984.
5. Breier A, Ginsberg EM, Charney DS: Seminal emission induced by tricyclic antidepressant. (Letter). *Am J Psychiatry* 141(4):610-11, 1984.
6. Breier A, Charney DS, Heninger DR: Major depression in patients with agoraphobia and panic disorder. *Arch Gen Psychiatry* 41(12):1129-35, 1984.
7. Breier A, Charney DS, Nelson JC: Seizures induced by abrupt discontinuation of alprazolam. *Am J Psychiatry* 141(12):1606-7, 1984.
8. Breier A, Strauss JS: The role of social relationships in the recovery of psychotic disorders. *Am J Psychiatry* 141(8):949-55, 1984.
9. Charney DS, Heninger GR, Breier A: Noradrenergic function in panic anxiety. Effects of yohimbine in healthy subjects and patients with agoraphobia and panic disorder. *Arch Gen Psychiatry* 41(8):751-63, 1984.
10. Breier A, Charney DS, Heninger GR: The diagnostic validity of anxiety disorders and their relationship to depressive illness. *Am J Psychiatry* 142(7):787-97, 1985.
11. Doran AR, Narang PK, Meigs CY, Wolkowitz OM, Roy A, Breier A, Pickar D: Verapamil concentrations in cerebrospinal fluid after oral administration. *N Engl J Med* 312(19):1261-2, 1985.
12. Pickar D, Doran AR, Wolkowitz OM, Labarca R, Breier A and Paul SM: Studies of plasma homovanillic acid in schizophrenia: effects of neuroleptic treatment and evidence for a diurnal rhythm. *New Trends in Exp Clin Psychiatry* 1(2):187-200, 1985.
13. Roy A, Breier A, Doran AR, Pickar D: Life events in depression. Relationship to subtypes. *J Affect Disord* 9(2):143-8, 1985.
14. Breier A, Charney DS, Heninger GR: Agoraphobia with panic attacks. Development, diagnostic stability and course of illness. *Arch Gen Psychiatry* 43(11):1029-36, 1986.

15. Breier A, Charney DS, Heninger GR: Intravenous diazepam fails to change growth hormone and cortisol secretion in humans. *Psychiatry Res* 18(4):293-9, 1986.
16. Charney DS, Breier A, Jatlow PI, Heninger GR: Behavioral, biochemical, and blood pressure responses to alprazolam in healthy subjects: interactions with yohimbine. *Psychopharmacology* 88(2):133-40, 1986.
17. Charney DS, Heninger GR, Price LH, Breier A: Major depression and panic disorder: diagnostic and neurobiological relationships. *Psychopharmacol Bull* 22(2):503-11, 1986.
18. Pickar D, Labarca R, Doran AR, Wolkowitz OM, Roy A, Breier A, Linnoila M and Paul SM: Longitudinal measurement of plasma homovanillic acid levels in schizophrenic patients. Correlation with psychosis and response to neuroleptic treatment. *Arch Gen Psychiatry* 43(7):669-76, 1986.
19. Pickar D, Roy A, Breier A, Doran AR, Wolkowitz O, Colison J and Agren H: Suicide and aggression in schizophrenia: neurobiological correlates. *Ann N Y Acad Sci* 487:189-96, 1986.
20. Wolkowitz OM, Doran AR, Breier A, Cohen MR and Pickar D: Endogenous opioid regulation of hypothalamo-pituitary-adrenal axis activity in schizophrenia. *Biol Psychiatry* 21(4):366-73, 1986.
21. Wolkowitz OM, Pickar D, Doran AR, Breier A, Tarell J, Paul SM: Combination alprazolam-neuroleptic treatment of the positive and negative symptoms of schizophrenia. *Am J Psychiatry* 143(1):85-7, 1986.
22. Doran AR, Breier A, Roy A: Differential diagnosis and diagnostic systems in schizophrenia. *Psychiatr Clin North Am* 9(1):17-33, 1986.
23. Pickar D, Wolkowitz OM, Labarca R, Doran A, Breier A, Paul SM: Biochemical alterations produced by neuroleptics in man: studies of plasma homovanillic acid in schizophrenic patients. In: Dahl SG, Gram LF, Paul SM, Potter WZ (eds), *Clinical Pharmacology in Psychiatry, Selectivity in Psychotropic Drug Action-Promises or Problems (Vol 3)*. New York, Springer-Verlag pp 248-54, 1986.
24. Pickar D, Breier A, Wolkowitz OM, Kelsoe J, Doran AR, Paul SM: Time-dependent effects of neuroleptic treatment on positive and negative symptoms - relationship to levels of plasma homovanillic-acid (HVA). *Clin Neuropharmacology* 9(4):412-14, 1986.
25. Breier A, Albus M, Pickar D, Zahn TP, Wolkowitz OM, Paul SM: Controllable and uncontrollable stress in humans: alterations in mood, neuroendocrine and psychophysiological function. *Am J Psychiatry* 144(11):1419-25, 1987.
26. Breier A, Arora PK, Wolkowitz OM, Pickar D, Paul SM: Metabolic stress produces rapid immunosuppression in humans. (Letter). *Arch Gen Psychiatry* 44(12):1108-9, 1987.

27. Breier A, Wolkowitz OM, Doran AR, Roy A, Boronow J, Hommer D, Pickar D: Neuroleptic responsivity of negative and positive symptoms in schizophrenia. *Am J Psychiatry* 144(12): 1549-55, 1987.
28. Doran AR, Boronow J, Weinberger DR, Wolkowitz OM, Breier A, Pickar D: Structural brain pathology in schizophrenia revisited. Prefrontal cortex pathology is inversely correlated with CSF levels of homovanillic acid. *Neuropsychopharmacology* 1(1):25-32, 1987.
29. Harding CM, Brooks GW, Ashikaga T, Strauss JS, Breier A: The Vermont longitudinal study of persons with severe mental illness. I: Methodology, study sample, and overall status 32 years later. *Am J Psychiatry* 144(6):718-26, 1987.
30. Harding CM, Brooks GW, Ashikaga T, Strauss JS, Breier A: The Vermont longitudinal study of persons with severe mental illness. II. Long-term outcome of subjects who retrospectively met DSM-III criteria for schizophrenia. *Am J Psychiatry* 144(6):727-35, 1987.
31. Pickar D, Breier A, Wolkowitz OM, Pato C: Profiles of the pharmacologic response of positive and negative symptoms in schizophrenia. *Psychiatr & Psychobiol* 11:278-87, 1987.
32. Pickar D, Wolkowitz OM, Doran AR, Labarca R, Roy A, Breier A, Narang PK: Clinical and biochemical effects of verapamil administration to schizophrenic patients. *Arch Gen Psychiatry* 44(2):113-18, 1987.
33. Wolkowitz OM, Doran AR, Breier A, Roy A, Jimerson DC, Sutton ME, Golden RN, Paul SM, Pickar D: The effects of dexamethasone on plasma homovanillic acid and 3-methoxy-4-hydroxyphenylglycol. Evidence for abnormal corticosteroid-catecholamine interactions in major depression. *Arch Gen Psychiatry* 44(9):782-9, 1987.
34. Wolkowitz OM, Rubinow DR, Breier A, Doran AR, Davis C, Pickar D: Prednisone decreases CSF somatostatin in healthy humans: Implications for neuropsychiatric illness. *Life Sci* 41(16):1929-33, 1987.
35. Wolkowitz OM, Rubinow DR, Berrettini W, Coppola R, Gold P, Breier A, Doran A, Weingartner H, Thompson K, Pickar D: Prednisone-induced behavioral and biochemical changes in healthy volunteers. *Neuroendocrinology Letters* 9:189, 1987.
36. Breier A: Suicide and schizophrenia. In: Flach F (ed), *Directions in Psychiatry*, Vol. 5 (Lesson 25). Hatherleigh Inc, New York, pp 1-7, 1987.
37. Charney DS, Breier A: Noradrenergic system. *Encyclopedia of Science and Technology* 12:83-4, 1987.
38. Pickar D, Breier A, Wolkowitz OM, Doran AR: The biochemical basis for the antipsychotic effects of neuroleptics. In, Cazzullo CL, Invernizzi G, Sacchetti E, and Vita

- A (eds): Etiopathogenic Hypotheses of Schizophrenia Proceedings. Boston/London, MPT Press, 1987.
39. Breier A. Stress isn't always bad. *Hosp Community Psychiatry* 39(6):591, 1988.
 40. Breier A: Small sample-size studies - unique contributions for large sample outcome studies. *Schizophr Bull* 14(4):589-93, 1988.
 41. Breier A, Kelsoe J, Kirwin P, Bellar S, Wolkowitz OM, Pickar D: Early parental loss and the development of adult psychopathology. *Arch Gen Psychiatry* 45(11):987-93, 1988.
 42. Breier A, Wolkowitz OM, Doran AR, Bellar S, Pickar D: Neurobiological effects of lumbar puncture stress in psychiatric patients and healthy volunteers. *Psychiatry Res* 25(2):187-94, 1988.
 43. Breier A, Wolkowitz OM, Rappaport M, Paul SM, Pickar D: Metabolic stress effects in normal volunteers and schizophrenic patients. *Psychopharmacol Bull* 24(3):431-3, 1988.
 44. Pickar D, Breier A, Kelsoe J: Plasma homovanillic acid as an index of central dopaminergic activity: studies in schizophrenic patients. *Ann N Y Acad Sci* 537:339-46, 1988.
 45. Wolkowitz OM, Breier A, Doran AR, Kelsoe J, Lucas P, Paul SM, Pickar D: Alprazolam augmentation of the antipsychotic effects of fluphenazine in schizophrenic patients. Preliminary results. *Arch Gen Psychiatry* 45(7):664-71, 1988.
 46. Wolkowitz OM, Pickar D, Garnett D, Doran AR, Breier A, Mendelson WB: Verapamil and fluphenazine effects on sleep in schizophrenia. *Sleep Research* 5B, 1988.
 47. Breier A, Paul SM: Anxiety and the benzodiazepine-GABA receptor complex. In: Roth M, Noyes R, Burrows GD (eds), *Handbook of Anxiety, Vol. 1: Biological, Clinical and Cultural Perspectives*. Cambridge, Elsevier Science, pp. 193-212, 1988.
 48. Charney DS, Price LH, Breier A: The course of panic attacks and agoraphobia. (Letter). *Arch Gen Psychiatry* 45:502, 1988.
 49. Breier A: Experimental approaches to human stress research: Assessment of neurobiological mechanisms of stress in volunteers and psychiatric patients. (A.E. Bennett award paper). *Biol Psychiatry* 26(5):438-62, 1989.
 50. Doran AR, Rubinow DR, Wolkowitz OM, Roy A, Breier A, Pickar D: Fluphenazine treatment reduces CSF somatostatin in patients with schizophrenia: correlations with CSF HVA. *Biol Psychiatry* 25(4):431-9, 1989.
 51. Wolkowitz OM, Doran A, Breier A, Roy A, Pickar D: Specificity of plasma HVA response to dexamethasone in psychotic depression. *Psychiatry Res* 29(2):177-86, 1989.

52. Carpenter WT Jr, Breier A: Schizophrenic disorders. In: Rakel RE (ed.), *Conn's Current Therapy*, W.B. Saunders Co, pp 1023-7, 1989.
53. Pickar D, Breier A: Clinical and biochemical effects of neuroleptic treatment: Implications for the pathophysiology of schizophrenia. In: Schulz C, Tamminga CA (eds.), *Schizophrenia: Scientific Progress*, New York, Oxford University Press, pp 285-301, 1989.
54. Wolkowitz OM, Breier A, Doran A, Kelsoe J, Paul SM, Pickar D, Lucas P: Alprazolam augmentation of antipsychotic pharmacotherapy (letter). *Arch Gen Psychiatry* 46:1052-53, 1989.
55. Wolkowitz OM, Pickar D, Breier A, Kelsoe Jr, Paul SM, Doran A: Alprazolam augmentation of neuroleptics in schizophrenia (letter). *Am J Psychiatry* 146(2):1087-8, 1989.
56. Breier A, Paul SM: GABAA/benzodiazepine receptor: Implications for the molecular basis of anxiety. *J Psychiatric Res* 24:91-104, 1990.
57. Breier A, Wolkowitz OM, Roy A, Potter WZ, Pickar D: Plasma norepinephrine in chronic schizophrenia. *Am J Psychiatry* 147(11):1467-1470, 1990.
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