

## CURRICULUM VITAE

### MARTIN PETER PAULUS, MD

#### PRESENT TITLE AND AFFILIATION

Scientific Director and President  
Laureate Institute for Brain Research  
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BIRTHDATE: 06/20/1961

CITIZENSHIP: U.S., German

BOARD CERTIFICATION: American Board of Psychiatry and  
Neurology, valid March 2009 – December 2019

LICENSE: California A053845, valid until June 2019

Oklahoma 30434, valid until April 2019



#### TRAINING

Medical School	Johannes Gutenberg University Mainz, Germany October, 1979 - September, 1986
Postgraduate Fellowship German Federation of Research (DFG)	UC San Diego October, 1986 - September, 1987
Postdoctoral Fellow	UC San Diego October, 1987 - July, 1990
Assistant Research Psychobiologist	UC San Diego July, 1990 - June, 1993
Internship	Long Island Jewish Medical Center Hillside Hospital July, 1993 - June, 1994
Residency in Psychiatry	UC San Diego July, 1994 - June, 1996
Fellowship in Biological Psychiatry and Neuroscience	UC San Diego July, 1996 - June, 1997

#### FACULTY POSITIONS

Assistant Professor in Residence	UC San Diego July, 1997 - June, 2000
Staff Psychiatrist	Veterans Affairs San Diego Health Care System July, 1997 – June, 2018
Associate Professor in Residence	UC San Diego July, 1997 - June, 2005
Associate Chief of Psychiatry	Veterans Affairs San Diego Health Care System July, 1999 - Dec, 2011
Acting Chief of Psychiatry	Veterans Affairs San Diego Health Care System 2011
Director of Telemental Health	Veterans Affairs San Diego Health Care System Dec, 2011 - May, 2014

Professor in Residence	UC San Diego Jul, 2005 - May, 2014
Training Director T32 Fellowship in Biological Psychiatry & Neuroscience	UC San Diego Jul, 2009 - May, 2014
<b>Scientific Director and President</b>	Laureate Institute for Brain Research May, 2014 - Present
<b>Adjunct Professor of Psychiatry</b>	UC San Diego May, 2014 - Present
<b>Professor of Psychiatry</b>	University of Oklahoma Health Sciences, Tulsa Campus January, 2015 - Present
<b>Research Professor</b>	University of Tulsa, College of Community Medicine May, 2015 - Present

### **HONORS AND AWARDS**

- 1996 NIMH Outstanding Resident Award
- 1997 Lewis Judd Resident Research Award
- 1997 Society for Biological Psychiatry Outstanding Resident Award
- 2000 National Alliance for the Mentally Ill Young Investigator Award

### **PROFESSIONAL ORGANIZATIONS**

- American Medical Association
- Society for Neuroscience
- European Behavioral Pharmacology Society
- American College for Neuropsychopharmacology
- Society for Biological Psychiatry
- Anxiety Disorders Association of America

### **EDITORIAL AND REVIEW WORK**

#### **Reviewing Editor / Editorial Board:**

- Progress in Neuro-Psychopharmacology & Biological Psychiatry
- Neuroscience & Biobehavioral Reviews
- Frontiers in Neuroscience
- Biological Psychiatry
- Biological Psychiatry: Cognitive Neuroscience and Neuroimaging
- Social Neuroscience
- Depression and Anxiety
- JAMA Psychiatry

#### **Reviewer for:**

- American Journal of Geriatric Psychiatry
- American Journal of Psychiatry
- Archives of General Psychiatry
- Behavioral Brain Research
- Behavioral Neuroscience
- Biological Psychiatry
- Biological Psychology
- Brain Imaging and Behavior
- Brain Research
- Brain Structure and Function
- Cerebral Cortex
- Cognitive, Affective, and Behavioral Neuroscience
- Drug and Alcohol Dependence
- Human Brain Mapping

- Journal of Affective Disorder
- Journal of Cognitive Neuroscience
- Journal of Neuroscience
- Journal of Neuroscience, Psychology, and Economics
- Journal of Psychopharmacology
- Journal of Studies on Alcohol
- Journal of the American Academy of Child and Adolescent Psychiatry
- Nature Neuroscience
- Neuroimage
- Neuron
- Neuropsychologia
- Neuropsychopharmacology
- Pharmacology Biochemistry and Behavior
- Physical Review Letters
- PLOS one
- Proceedings of the National Academy of Science of the U.S.A.
- Psychiatry Research
- Psychiatry Research: Neuroimaging
- Psychological Medicine
- Psychological Science
- Psychopharmacology
- Science
- Trends in Cognitive Science

**SERVICE: UC SAN DIEGO**

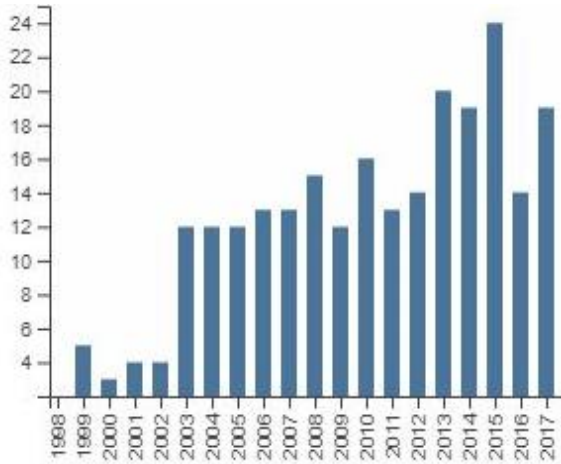
- Member of the Institutional Review Board (2000-2010)
- Member of the Biological Psychiatry Fellowship Committee (1999-2009)
- Member Search Committee for Medicine Chair (2010-2011)

**SERVICE: SCIENTIFIC COMMUNITY**

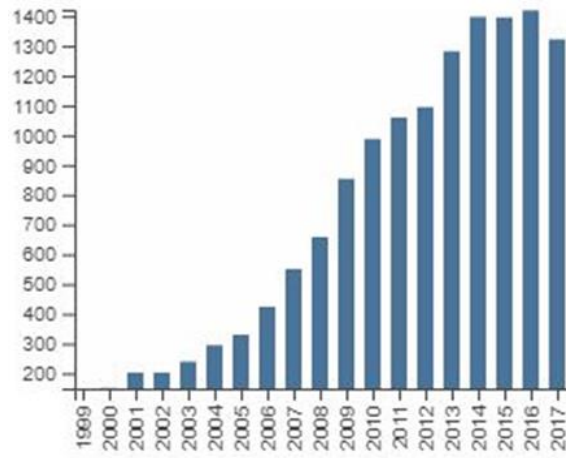
- NIH Center Grant reviewer (2003/2004)
- NIMH adhoc reviewer (2000-present)
- ZRG1-SBIB-H(40) NIH Committee Member
- Special Emphasis Panel/Scientific Review Group 2006/10 ZRG1 RPHB-H
- RPIA Study Section Member (2006-2009)
- Adhoc NIDA Center Review Committee Member (07/2007-present)
- National Academies of Sciences Panel Member: Opportunities in Neuroscience for Future Army Applications (2008)
- DoD Grant Review Committee Member
- NIH Roadmap Reviewer (2007)
- NIDA K-committee regular member (2010- 2012)
- NASA - Behavioral Health & Performance (BHP) - Standing Review Panel (SRP) (2010-present)
- NIDA Intramural Program Review, Adhoc Member (2011)
- Laureate Institute Board of Scientific Advisors (2011)
- CDMRP Reviewer (2012)
- NIH Pioneer Award Reviewer (2012)
- FDA/NIH Tobacco Regulation Research Reviewer (2013)
- NIH Eureka Award Reviewer (2013)
- NIH Interventions Committee for Adult Disorders (ITVA) Ad-hoc Reviewer (2013)
- NIH Special Emphasis Panel/Scientific Review Group 2014/01 ZMH1 ERB-S (2013)
- NIH Special Emphasis Panel/Scientific Review Group 2014/01 ITVA S (2013)
- NIMH RFA Dimensional Approaches to Research Classification in Psychiatric Disorders Special Emphasis Panel (2015)
- NASA Behavioral Science Review Panel (2015)

- VA Merit Behavioral Science Panel (2015)
- CSR NIH APDA Adhoc Reviewer (2015)
- CSR MHBA Study Section (2016)

**Web of Science Report (2/16/2018):**



Total Publications by Year



Sum of Times Cited by Year

Sum of the Times Cited: 14,412  
Sum of Times Cited without self-citations: 13,523  
Citing Articles: 10,597  
Citing Articles without self-citations: 10,376  
Average Citations per Item: 52.22  
h-index: 65

**SHORT NARRATIVE OF RESEARCH INTERESTS:**

My main interest is to determine whether neuroscience approaches can be used to improve mental health. I have three strategic goals at this time:

- (1) Assessment (multi-level): To develop neuroscience-based individually predictive assessments.
- (2) Treatment: To develop novel brain-body based intervention for mood, anxiety, addiction, or eating disorders.
- (3) Experimental Systems (Studies): To use experimental system to quickly test assessments and interventions.

I have also been interested in understanding how the body and brain work together to make decisions that fundamentally affect the well-being of the individual. To that end, I have been studying interoception, i.e. the processing and integration of information from inside the body, which contributes to how we feel. In particular, the insular cortex and its connections are critical in processing and integrating body-relevant information to make appropriate decisions, engage cognitive processes such as inhibition, attention, and working memory to adapt to a changing environment. Most recently, I have been collaborating with computational cognitive scientist to begin to develop computational models to better parse these processes and their dysfunctions.

Prior to my new position I had been a Professor in Residence in the Department of Psychiatry at the UC San Diego (UCSD) and the Director of Telemental Health at the Veterans Affairs San Diego Health Care System (VASDHS). I have maintained NIH funding since 1990 and have participated in numerous collaborative research efforts at UCSD and beyond.

**Collaborations:**

I collaborate with several investigators at UCSD and other institutions to study the neural basis of psychiatric disorders. Specifically, with Drs. Susan Tapert and Gerhard Schulteis, we recently completed a NIDA supported P20 Center Grant examining the role of interoception for drug addiction. Interoception consists of the afferent information the brain processes coming from the inside of the body, which is

integrated in the insula cortex to provide “a general state of the body” contributing to how an individual feels at any given moment in time. The goal of this center was to determine whether modulation of interoceptive processing can be used to develop novel treatments for drug addiction.

In collaboration with the Naval Health Research Center (NHRC), the NAVY SEAL psychologist, and the Olympic Training Center, we examined the neural basis of optimal performance. The goal of these studies was to identify the brain systems that are important for optimal performance so as to be able to train these systems in the future.

In collaboration with Dr. Walt Kaye, we have established various neuroimaging approaches to determine dysfunctions in reward processing and decision-making in recovered anorectic and bulimic individuals. In particular, we examined whether there is a dysfunction of interoceptive processing in these individuals that contributes to the altered reward processing of primary reinforcers.

In ongoing collaboration with Dr. Murray Stein, I have been working on determining whether fMRI can be used as a biomarker in the development of novel anxiolytic drugs. We also utilize fMRI as a tool to elucidate basic affective processing dysfunctions in individuals with different types of anxiety disorders. In particular, we are focusing on dysfunctions of affective processing in social phobia and the effect of both pharmacological and behavioral treatment on these processes.

Over the past years, I have focused on helping young academic investigators to establish a program of research in psychiatry. As part of these efforts, I have worked in the areas of pain and depression, time perception and drug abuse, anticipatory processing dysfunctions in anxiety disorders, novel models for stop signal behavior, and social science methods to quantify interactions between individuals at risk for drug addiction.

As a consequence of my interest in fostering young academics, I was the director of the NIMH supported T32 Fellowship on Biological Psychiatry and Neuroscience at UCSD, which provides 5 post-doctoral fellow positions. As part of this position I have mentored young postdoctoral fellows to navigate their careers and to help establish independent research programs.

### **SHORT NARRATIVE OF CLINICAL INTERESTS:**







My main clinical focus over the past 20 years has been to develop novel ways of providing mental health care to Veterans. Specifically, during my tenure as a VA Psychiatrist, the VA San Diego Healthcare System (VASDHS) was awarded special funds from the Department of Veterans Affairs to establish evidence-based psychotherapy for individuals with post-traumatic stress disorder. More recently, the VASDHS has been identified as a Regional Center of Excellence for Telemental Health. As the Director of this Center, I was able to utilize these additional funds to determine whether novel treatment delivery using tablet computers and video interface can be useful for both psychotherapy and medication management of psychiatric disorders in Veterans.

### **TEACHING AND TRAINING**

- Psychiatry Resident Instructor (1997-2014)
- Medical Student Instructor (1997-2014)
- Supervisor to Postgraduate Fellows (1997-present)
- Member of Neuroscience Faculty at UCSD (2000-present)
- Neuroscience 200C Instructor
- T32 Program Director: Fellowship for Biological Psychiatry and Clinical Neuroscience (2010-2014)

### **SUPERVISED STUDENTS, POSTDOCTORAL FELLOWS OR JUNIOR FACULTY**

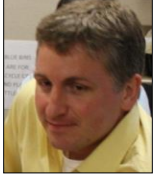





The following table summarizes my mentorship activity in promoting young researchers to establish themselves in various fields.



Faculty/Postdoctoral Fellows	Research Topic	Supervision	Funding Support or Current Position
<b>Scott Matthews, MD</b> 	The use of fMRI to characterize the neural correlates of emotional, behavioral and autonomic control	7/2003-6/2014	Staff Psychiatrist, VA San Diego Healthcare System Aspire Center
<b>Alan Simmons, PhD</b> 	Neural system dysfunctions in combat veterans returning from Iraq and Afghanistan	7/2003-7/2014	Associate Professor, UCSD
<b>Tony Yang, MD, PhD</b> 	Neural systems dysfunction in adolescent depression	7/2004-6/2012	Associate Professor, UCSF
<b>Amanda Grethe, PhD</b> 	Relationship between reward mechanisms and motor control in the basal ganglia.	7/2003-7/2010	Associate Professor, UCSD
<b>Marc Wittmann, PhD</b> 	Neural systems underlying the experience of time.	9/2004-7/2010	Staff Scientist Institute for Frontier Areas of Psychology, Freiburg
<b>Irina Strigo, PhD</b> 	Neural networks of affective processing in depression	9/2004-7/2009	Associate Professor, UCSF School of Medicine

<b>Sara Mednick, PhD</b>	Pharmaco Imaging to determine the neural basis of napping.	7/2007-7/2011	Associate Professor, UC Riverside
			
<b>Estibaliz Arce, PhD</b>	Neural systems underlying resilience	7/2005-7/2009	Director, Clinical, Neuroscience Research Unit at Pfizer
			
<b>David Leland, PhD</b>	Neural system underlying risk-taking in stimulant users	3/2004-3/2008	Associate Professor, University of Wisconsin-Eau Claire
			
<b>Jennifer Aron, PhD</b>	Tactile c-fiber afferents: a system for probing affective processing, anticipation, and models of drug abuse	10/2005-7/2011	Postdoctoral Scholar Research Associate, Keck School of Medicine of USC
			
<b>Justin Feinstein, PhD</b>	Insula Function and Emotion	10/2001-2/2006	Assistant Professor, University of Tulsa, Department of Psychology and Oxley College of Health Sciences
			
<b>Guido Frank, MD</b>	Reward Processing and Eating Disorders	10/2005-6/2007	Associate Professor, University of Colorado, Denver
			
<b>Martina Reske, PhD</b>	Inhibitory Processing in Stimulant Using Individuals	1/2008-1/2010	Staff Scientist, Forschungszentrum Jülich, Computational and Systems Neuroscience (INM-6)
			

<p><b>Dharol Tankersley, PhD</b></p> 	<p>PharmacofMRI: Benzodiazepine effects on emotion processing</p>	<p>7/2008-7/2009</p>	<p>Business Intelligence Analyst, Enerpact LLC</p>
<p><b>Adrienne Moore</b></p> 	<p>Interoception and Empathy</p>	<p>6/2008-7/2009</p>	<p>Clinical Coordinator, UC San Diego, Autism Center of Excellence</p>
<p><b>Sarah Wu</b></p>	<p>Genetics and Neuroimaging in Anxiety</p>	<p>1/2009-7/2009</p>	<p>Graduate Student Researcher, University of Colorado, Denver</p>
<p><b>Jennifer Stewart, PhD</b></p> 	<p>Decision-making and Stimulant use</p>	<p>2/2010-7/2014</p>	<p>Assistant Professor, Queens College, New York</p>
<p><b>Colm Connolly, PhD</b></p> 	<p>Risk-taking and Methamphetamine dependence</p>	<p>1/2010-6/2012</p>	<p>Associate Specialist, UCSF</p>
<p><b>Tali Ball, PhD</b></p> 	<p>Neural processing underlying Anxiety disorders</p>	<p>7/2009-7/2014</p>	<p>Postdoctoral Research Fellow, Stanford University</p>
<p><b>Robin Aupperle, PhD</b></p> 	<p>Approach-Avoidance Conflict in Anxiety disorders</p>	<p>7/2009-7/2011</p>	<p>Assistant Professor, Laureate Institute for Brain Research and University of Tulsa</p>
<p><b>Charlie Taylor, PhD</b></p> 	<p>Neural Basis of Computerized Attention Training</p>	<p>7/2011-12/2012</p>	<p>Assistant Adjunct Professor, UCSD</p>



<p><b>M. Scott Mackey, PhD</b></p> 	<p>Structural Brain Changes associated with stimulant use</p>	<p>8/2011-7/2014</p>	<p>Assistant Professor, University of Vermont</p>
<p><b>Joshua Gowin, PhD</b></p> 	<p>Behavioral and neuroimaging of Risk-taking</p>	<p>2/2012-8/2013</p>	<p>Assistant Professor, University of Denver</p>
<p><b>Katia M. Harle, PhD</b></p> 	<p>Neural systems underlying emotion regulation in stimulant dependence</p>	<p>7/2012-9/2016</p>	<p>Assistant Clinical Professor, UC San Diego</p>
<p><b>Lori Hasse, PhD</b></p> 	<p>Neural systems underlying optimal performance and stress-resilience</p>	<p>7/2012-7/2014</p>	<p>Assistant Clinical Professor of Psychiatry, UC San Diego</p>
<p><b>Max Schiff MD, PhD</b></p> 	<p>Bayesian Models of Decision-making in Psychiatry</p>	<p>07/2013-7/2014</p>	<p>Instructor in Psychiatry, Vanderbilt University</p>
<p><b>He Crane Huang, PhD</b></p> 	<p>Inverse Optimization Models of Reward in Depression</p>	<p>07/2013-11/2016</p>	<p>Machine Learning Researcher, Apple, Inc.</p>

<p><b>Jonathon Howlett, MD</b></p> 	<p>The influence of counterfactual comparisons on decision making in depression</p>	<p>07/2012-Present</p>	<p>Associate Physician, UCSD</p>
<p><b>Hamed Ekhtiari, MD, PhD</b></p> 	<p>Precision Addiction Medicine</p>	<p>11/2015-Present</p>	<p>Visiting Scientist, Postdoctoral Researcher, Laureate Institute for Brain Research (LIBR)</p>

**PUBLICATIONS**

1. **Paulus** MP, Gass SF, Mandell AJ (1989). A realistic, minimal 'middle layer' for neural networks. *Physica D* 40:135-155.
2. **Paulus** MP, Geyer MA, Gold LH, Mandell AJ (1990). Application of entropy measures derived from the ergodic theory of dynamical systems to rat locomotor behavior. *Proc Natl Acad Sci USA* 87: 723-727.
3. **Paulus** MP, Geyer MA (1991). A scaling approach to find order parameters quantifying the effects of dopaminergic agents on unconditioned motor activity in rats. *Prog Neuropsychopharmacol Biol Psychiatry* 15: 903-919.
4. **Paulus** MP, Geyer MA (1991). A temporal and spatial scaling hypothesis for the behavioral effects of psychostimulants. *Psychopharmacology (Berl)* 104: 6-16.
5. **Paulus** MP, Geyer MA, Mandell AJ (1991). Statistical mechanics of a neurobiological dynamical system: the spectrum of local entropies ( $S(\alpha)$ ) applied to cocaine-perturbed behavior. *Physica A* 174: 567-577.
6. Geyer MA, **Paulus** MP (1992). Multivariate and nonlinear approaches to characterizing drug effects on the locomotor and investigatory behavior of rats. *NIDA Res Monogr* 124: 203-235.
7. **Paulus** MP, Geyer MA (1992). The effects of MDMA and other methylenedioxy-substituted phenylalkylamines on the structure of rat locomotor activity. *Neuropsychopharmacology* 7: 15-31.
8. Weiss F, **Paulus** MP, Lorang MT, Koob GF (1992). Increases in extracellular dopamine in the nucleus accumbens by cocaine are inversely related to basal levels: effects of acute and repeated administration. *J Neurosci* 12: 4372-4380.
9. **Paulus** MP, Callaway CW, Geyer MA (1993). Quantitative assessment of the microstructure of rat behavior: II. Distinctive effects of dopamine releasers and uptake inhibitors. *Psychopharmacology (Berl)* 113: 187-198.
10. **Paulus** MP, Geyer MA (1993). Three independent factors characterize spontaneous rat motor activity. *Behav Brain Res* 53: 11-20.
11. **Paulus** MP, Geyer MA (1993). Quantitative assessment of the microstructure of rat behavior: I,  $f(d)$ , the extension of the scaling hypothesis. *Psychopharmacology (Berl)* 113: 177-186.
12. **Paulus** MP, Kadtko JB, Menkello FV (1993). Statistical mechanics of biological and other complex experimental time series: assessing geometrical and dynamical properties. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering* 3: 717-727.
13. Judd LL, Rapaport MH, **Paulus** MP, Brown JL (1994). Subsyndromal symptomatic depression: a new mood disorder? *J Clin Psychiatry* 55 Suppl: 18-28.
14. **Paulus** MP, Geyer MA, Braff DL (1994). The assessment of sequential response organization in

- schizophrenic and control subjects. *Prog Neuropsychopharmacol Biol Psychiatry* 18: 1169-1185.
15. Weinger MB, Herndon OW, Zornow MH, **Paulus** MP, Gaba DM, Dallen LT (1994). An objective methodology for task analysis and workload assessment in anesthesia providers. *Anesthesiology* 80: 77-92.
  16. Zisook S, Shuchter SR, Sledge PA, **Paulus** M, Judd LL (1994). The spectrum of depressive phenomena after spousal bereavement. *J Clin Psychiatry* 55 Suppl:29-36.
  17. Judd LL, **Paulus** MP, Wells KB, Rapaport MH (1996). Socioeconomic burden of subsyndromal depressive symptoms and major depression in a sample of the general population. *Am J Psychiatry* 153:1411-1417.
  18. **Paulus** MP, Geyer MA (1996). Assessing the organization of motor behavior: New approaches based on the behavior of complex physical systems. In: Ossenkopp KP, Kavaliers M, Sanberg PR, editors. *Measuring Movement and Locomotion: From Invertebrates to Humans*: R.G. Landes Co, pp 273-295.
  19. **Paulus** MP, Geyer MA, Braff DL (1996). Use of methods from chaos theory to quantify a fundamental dysfunction in the behavioral organization of schizophrenic patients. *Am J Psychiatry* 153: 714-717.
  20. **Paulus** MP (1996). Models and predictability of biological systemsA realistic, minimal 'middle layer' for neural networks. In: Kravtsov YA, Kadtko JB, editors. *Models and predictability of biological systems*. Karlsruhe: Springer-Verlag, pp 153-168.
  21. Judd LL, Akiskal HS, **Paulus** MP (1997). The role and clinical significance of subsyndromal depressive symptoms (SSD) in unipolar major depressive disorder. *J Affect Disord* 45:5-17; discussion 17-18.
  22. **Paulus** MP (1997). Long-range interactions in sequences of human behavior. *Physical Review E* 55: 3249-3256.
  23. **Paulus** MP, Geyer MA (1997). Environment and unconditioned motor behavior: Influences of drugs and environmental geometry on behavioral organization in rats. *Psychobiology* 25 :327-337.
  24. Zisook S, **Paulus** M, Shuchter SR, Judd LL (1997). The many faces of depression following spousal bereavement. *J Affect Disord* 45:85-94; discussion 94-85.
  25. Judd LL, Akiskal HS, Maser JD, Zeller PJ, Endicott J, Coryell W, **Paulus** MP, Kunovac JL, Leon AC, Mueller TI, Rice JA, Keller MB (1998). Major depressive disorder: a prospective study of residual subthreshold depressive symptoms as predictor of rapid relapse. *J Affect Disord* 50: 97-108.
  26. Judd LL, Akiskal HS, Maser JD, Zeller PJ, Endicott J, Coryell W, **Paulus** MP, Kunovac JL, Leon AC, Mueller TI, Rice JA, Keller MB (1998). A prospective 12-year study of subsyndromal and syndromal depressive symptoms in unipolar major depressive disorders. *Arch Gen Psychiatry* 55: 694-700.
  27. Judd LL, Kessler RC, **Paulus** MP, Zeller PV, Wittchen HU, Kunovac JL (1998). Comorbidity as a fundamental feature of generalized anxiety disorders: results from the National Comorbidity Study (NCS). *Acta Psychiatr Scand Suppl* 393: 6-11.
  28. Krebs-Thomson K, Lehmann-Masten V, Naiem S, **Paulus** MP, Geyer MA (1998). Modulation of phencyclidine-induced changes in locomotor activity and patterns in rats by serotonin. *Eur J Pharmacol* 343: 135-143.
  29. Krebs-Thomson K, **Paulus** MP, Geyer MA (1998). Effects of hallucinogens on locomotor and investigatory activity and patterns: influence of 5-HT<sub>2A</sub> and 5-HT<sub>2C</sub> receptors. *Neuropsychopharmacology* 18: 339-351.
  30. **Paulus** MP, Bakshi VP, Geyer MA (1998). Isolation rearing affects sequential organization of motor behavior in post-pubertal but not pre-pubertal Lister and Sprague-Dawley rats. *Behavioural Brain Research* 94: 271-280.
  31. **Paulus** MP, Geyer MA, Sternberg E (1998). Differential movement patterns but not amount of activity in unconditioned motor behavior of Fischer, Lewis, and Sprague-Dawley rats. *Physiology &*

*Behavior* 65: 601-606.

32. Dulawa SC, Grandy DK, Low MJ, **Paulus** MP, Geyer MA (1999). Dopamine D4 receptor-knock-out mice exhibit reduced exploration of novel stimuli. *J Neurosci* 19: 9550-9556.
33. Judd LL, **Paulus** MP, Zeller P (1999). The role of residual subthreshold depressive symptoms in early episode relapse in unipolar major depressive disorder [letter]. *Arch Gen Psychiatry* 56: 764-765.
34. **Paulus** MP, Bilder RL (1999). Complex dysregulation in sequential organization and dysregulation in dopaminergic modulation in first episode schizophrenia patients. In: Pradhan N, Screenivasan L, Rapp PE, editors. *Nonlinear Dynamics and Brain Functioning*: Nova Science Publishers, Inc.
35. **Paulus** MP, Dulawa SC, Ralph RJ, Mark AG (1999). Behavioral organization is independent of locomotor activity in 129 and C57 mouse strains. *Brain Res* 835: 27-36.
36. **Paulus** MP, Geyer MA, Braff DL (1999). Long-range correlations in choice sequences of schizophrenic patients. *Schizophr Res* 35: 69-75.
37. **Paulus** MP, Perry W, Braff DL (1999). The nonlinear, complex sequential organization of behavior in schizophrenic patients: neurocognitive strategies and clinical correlations. *Biol Psychiatry* 46: 662-670.
38. Judd LL, Akiskal HS, Zeller PJ, **Paulus** M, Leon AC, Maser JD, Endicott J, Coryell W, Kunovac JL, Mueller TI, Rice JP, Keller MB (2000). Psychosocial disability during the long-term course of unipolar major depressive disorder. *Arch Gen Psychiatry* 57: 375-380.
39. Judd LL, **Paulus** MJ, Schettler PJ, Akiskal HS, Endicott J, Leon AC, Maser JD, Mueller T, Solomon DA, Keller MB (2000). Does incomplete recovery from first lifetime major depressive episode herald a chronic course of illness? *Am J Psychiatry* 157: 1501-1504.
40. **Paulus** MP, Varty GB, Geyer MA (2000). The genetic liability to stress and postweaning isolation have a competitive influence on behavioral organization in rats. *Physiol Behav* 68: 389-394.
41. Varty GB, **Paulus** MP, Braff DL, Geyer MA (2000). Environmental enrichment and isolation rearing in the rat: effects on locomotor behavior and startle response plasticity. *Biol Psychiatry* 47: 864-873.
42. **Paulus** MP, Hozack N, Zauscher B, McDowell JE, Frank L, Brown GG, Braff DL (2001). Prefrontal, parietal, and temporal cortex networks underlie decision-making in the presence of uncertainty. *Neuroimage* 13: 91-100.
43. **Paulus** MP, Rapaport MH, Braff DL (2001). Trait contributions of complex dysregulated behavioral organization in schizophrenic patients. *Biol Psychiatry* 49: 71-77.
44. Ralph RJ, **Paulus** MP, Fumagalli F, Caron MG, Geyer MA (2001). Prepulse inhibition deficits and perseverative motor patterns in dopamine transporter knock-out mice: differential effects of D1 and D2 receptor antagonists. *J Neurosci* 21: 305-313.
45. Ralph RJ, **Paulus** MP, Geyer MA (2001). Strain-specific effects of amphetamine on prepulse inhibition and patterns of locomotor behavior in mice. *J Pharmacol Exp Ther* 298: 148-155.
46. Feinstein JS, Goldin PR, Stein MB, Brown GG, **Paulus** MP (2002). Habituation of attentional networks during emotion processing. *Neuroreport* 13: 1255-1258.
47. McDowell JE, Brown GG, **Paulus** M, Martinez A, Stewart SE, Dubowitz DJ, Braff DL (2002). Neural correlates of refixation saccades and antisaccades in normal and schizophrenia subjects. *Biol Psychiatry* 51: 216-223.
48. **Paulus** MP, Hozack N, Frank L, Brown GG (2002). Error rate and outcome predictability affect neural activation in prefrontal cortex and anterior cingulate during decision-making. *Neuroimage* 15: 836-846.
49. **Paulus** MP, Hozack NE, Zauscher BE, Frank L, Brown GG, Braff DL, Schuckit MA (2002). Behavioral and functional neuroimaging evidence for prefrontal dysfunction in methamphetamine-dependent subjects. *Neuropsychopharmacology* 26: 53-63.
50. **Paulus** MP, Hozack NE, Zauscher BE, Frank L, Brown GG, McDowell J, Braff DL (2002). Parietal dysfunction is associated with increased outcome-related decision-making in schizophrenia

patients. *Biol Psychiatry* 51: 995-1004.

51. Eyler Zorrilla LT, Jeste DV, **Paulus** M, Brown GG (2003). Functional abnormalities of medial temporal cortex during novel picture learning among patients with chronic schizophrenia. *Schizophr Res* 59: 187-198.
52. Ludewig K, **Paulus** MP, Vollenweider FX (2003). Behavioural dysregulation of decision-making in deficit but not nondeficit schizophrenia patients. *Psychiatry Res* 119: 293-306.
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## **RESEARCH SUPPORT**

### Active Support

P20 GM121312 (Paulus) 09/15/2017 - 06/30/2022  
NIH/NIMGS

The Center for Neuroscience-based Mental Health Assessment and Prediction (NEUROMAP)  
The proposed NeuroMAP Center will provide (a) research, (b) mentoring, (c) career-development and (d) operational infrastructure for neuroscience-based research to use individual differences on several biological levels together with sophisticated statistical approaches to generate clinically meaningful predictions for mental health.

Role: PI

U01 DA041089 (Tapert/Paulus) 09/30/2015 - 05/31/2020  
NIH/NIDA

ABCD-USA Consortium: UCSD & LIBR Research Project Site  
The ABCD-USA Consortium will use multimodal brain imaging, cognitive and clinical assessments, bioassays, mobile monitoring, and careful assessment of substance use, environment, psychopathological symptoms, and social functioning in 11,500 adolescents followed over 10 years to determine the effects of substance use on adolescent brain and cognitive development. Our ABCD-USA Consortium: Research Project will recruit and assess 1,400 youth age 9-10 at project entry. In addition to contributions to the overall consortium, our U01 will specifically focus on negative reinforcement mechanisms of substance use disorder, special populations with high SUD prevalence, and illicit drug and prescription medication misuse among adolescents.

Role: MPI

### Completed within the Past 3 Years:

R01 MH101453 (Paulus) 09/01/2013 - 11/30/2017 (NCE)  
NIH/NIMH

Latent Constructs: Negative-Positive Valence Domains in Anxiety and Depression

The aim of this project was to fill this critical gap by validating a battery of measures including brain imaging, psychophysiology, behavior, and self-report that will reliably assess positive and negative valence system functioning in a broad sample of individuals referred for treatment of anxiety and/or depression.

Role: Principal Investigator

R01 DA027797 (Paulus)

09/01/2009 - 07/31/2016

NIH/NIDA

*Negative Reinforcement and Interoceptive Dysfunction in Stimulant Dependence*

This application aimed to determine the relationship between aversive interoceptive experience and decision-making in stimulant dependent individuals.

Role: Principal Investigator

I01 CX000273 (Paulus)

10/01/2011 - 09/30/2015

Department of Veterans Affairs

*Does Amphetamine use Impair Brain Systems in OEF/OIF Veterans with PTSD?*

The goal was to use functional MRI (fMRI) to predict how people with drug use problems do over time. In particular, we were interested in how decision-making and interoception, the way feelings are processed from the inside of the body, is affected by psychostimulants such as amphetamine.

Role: Principal Investigator