BIOGRAPHICAL SKETCH

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NAME: Baker, Dewleen G.

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POSITION TITLE: Director of Research, VA Center of Excellence for Stress and Mental Health, Professor, Department of Psychiatry, University of California San Diego and Director of Research

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Stanford University Palo Alto, CA	B.A.	1968	Psychology
Columbia University College of Physicians and Surgeons New York, NY	M.D.	1981	Medicine

A. Personal Statement

Dr. Baker is Professor, Department of Psychiatry, University of California San Diego, Director of Neuroscience Research, VA Center of Excellence for Stress and Mental Health (CESAMH) and Clinician and Research Scientist at VA San Diego Healthcare System (VASDHS). Her prior experience includes over two decades of clinical care, teaching and research in PTSD and stress-related disorders. Her research focus has been single or multi-site treatment outcome studies in PTSD and co-occurring disorders, as principal or site investigator, and the neurobiology of PTSD and mTBI. Dr. Baker has extensive experience in longitudinal designs of mental health symptom trajectory and risk factors including the Marine Resiliency Study (MRS/MRSII), as study PI, funded by VA and DoD.. Having completed a Child Psychiatry Fellowship, she is experienced in early-life adversity, and its effects on adult mental health. She has worked with Dr. Risbrough for over 10 years, collaborating on 4 funded projects, the administration of the Neuroscience Research Unit for the Center of Excellence for Stress and Mental Health, and publication of over 20 articles and book chapters. Dr. Baker's role as Multi-PI in this study includes collaborating with Dr. Risbrough (corresponding PI) on research design, recruitment, training and oversight of mental health assessments, data interpretation and analysis, manuscript preparation and dissemination of findings. Dr. Baker's Percent Time Distribution: 70% research; 15% clinical: 10% teaching/mentoring, and 5% administration. Dr. Baker has a dual appointment with the University of California, San Diego (Professor) and the VA San Diego Healthcare System (VA Attending Physician). Her effort among these two appointments is non-overlapping and fully within the policies agreed to by VA San Diego Healthcare System, the Department of Veterans, and the UC San Diego.

1. Huang MX, Nichols S, Robb-Swan A, Angeles-Quinto A, Harrington DL, Drake A, Huang CW, Song T, Diwakar M, Risbrough VB, Matthews S, Clifford R, Cheng CK, Huang JW, Sinha A, Yurgil KA, Ji Z, Lerman I, Lee RR, Baker DG. MEG Working Memory N-Back Task Reveals Functional Deficits in Combat-Related Mild Traumatic Brain Injury. *Cereb Cortex*. 2018;. [Epub ahead of print] PMID: 29668852. PMC in process
2. Moore TM, Risbrough VB, Baker DG, Larson GE, Glenn DE, Nievergelt CM, Maihofer A, Port AM, Jackson CT, Ruparel K, Gur RC. Effects of military service and deployment on clinical symptomatology: The role of trauma exposure and social support. *J Psychiatr Res*. 2017: 95:121-128. PMC5653464.
3. Deslauriers J, Acheson DT, Maihofer AX, Nievergelt CM, Baker DG, Geyer MA, Risbrough VB; Marine Resiliency Study Team. COMT val158met polymorphism links to altered fear conditioning and extinction are modulated by PTSD and childhood trauma. *Depress Anxiety*. 2018; 35(1):32-42. PMC5760328

4. Thomas ML, Brown GC, Gur R, Moore TM, Patt VM, Risbrough VB, Baker DG. A Signal Detection-Item Response Theory Model for Evaluating Neuropsychological Measures. *Journal of Clinical and Experimental Neuropsychology*. 2018; 5:1-16. PMID: 29402152. PMC in process.

B. Positions and Honors

Position and Employment

1981-1982	Medical Internship – Christ Hospital , Cincinnati, Ohio
1982-1984	Psychiatric Residency, University of Cincinnati Medical Center
1984-1986	Fellowship – Division of Child and Adolescent Psychiatry, University of Cincinnati Medical Center
1986-1989	Assistant Professor of Child Psychiatry, University of Cincinnati College of Medicine Medical Director – Millcreek Psychiatric Center For Children, Cincinnati, Ohio
1989-1992	Assistant Professor of Psychiatry, University of Cincinnati College of Medicine Attending Psychiatrist, Inpatient Acute Psychiatry Cincinnati, Department of Veterans Affairs Medical Center
1992-2003	Director: PTSD/Postdeployment Unit, Cincinnati, Department of Veterans Affairs
1992-2004	Associate Professor of Psychiatry, University of Cincinnati College of Medicine
2000-2004	Associate Director for Research, Mental Health Care Line Cincinnati, Department of Veterans Affairs Medical Center
2003-2004	Director: PTSD Research Unit and Gulf War Screening Clinic, Cincinnati VA
2004-2012	Associate Professor of Psychiatry, University of California San Deigo
2012-Present	Professor of Psychiatry, University of California San Deigo
2004-2007	Director: PTSD/Stress Disorders Program, VA San Deigo Healthcare System
2007-2008	Associate Director of Clinical Affairs: VA Center of Excellence for Stress and Mental Health
2008-Present	Director of Neuroscience/Research: VA Center of Excellence for Stress and Mental Health

Honors

Ohio Psychiatric Association President's Recognition Award, May 1990
Cincinnati VAMC Recognition Award for Leadership & Service in Support of the VA and Operation Desert Storm, April 1991
Mental Health & Behavioral Science Director's Award, PTSD Program, September 1994
American College of Military Public Health, Lifetime Fellow, March 2016
American Psychiatric Association, Distinguished Life Fellow, May 2017

C. Contribution to Science

1. My primary line of research in the last 10 years has involved design and implementation of a prospective longitudinal study of active duty Marines deploying to combat, the cohort that will be utilized to probe CC-specific hypothesis in the current application. The study, entitled Marine Resiliency Study (MRSI/MRSII), is designed to address the limitations inherent in cross-sectional studies, and is focused on a broad array of psychosocial, physiological and biological factors potentially predictive of risk and resilience for PTSD. We have had a number of major findings published in high impact journals (*JAMA Psychiatry*) that identified highly predictive factors in the development of PTSD (e.g. TBI, heart rate variability, childhood adversity) and garnered considerable media attention. The research was funded by jointly VA HSR&D and DoD (Marine Corps, Navy BUMED) with MRS-II, in Multi-PI with Dr. Risbrough, administered by NIMH. Selected papers.
   a. Baker DG, Nash WP, Litz BT, Geyer MA, Risbrough VB, Nievergelt CM, O'Connor DT, Larson GE, Schork NJ, Vasterling JJ, Hammer PS, Webb-Murphy JA; MRS Team. Predictors of risk and resilience for posttraumatic stress disorder among ground combat Marines: methods of the Marine Resiliency Study. *Prev Chronic Dis*. 2012; 9:E97. PMC3431952
   b. Yurgil KA, Barkauskas, DA, Vasterling, JJ, Nievergelt, CM, Larson, GE, Schork, NJ, Litz, BT, Nash WP, MRS Team, and Baker DG. Association between traumatic brain injury and risk of posttraumatic stress disorder in active-duty Marines. *JAMA Psychiatry*. 2014; 71(2):149-57. PMID: 24337530
   c. Minassian A, Maihofer A, , Baker DG, Nievergelt CM, Geyer MA, Risbrough VB, Marine

Resiliency Study Team. Association of Predeployment Heart Rate Variability With Risk of Postdeployment Posttraumatic Stress Disorder in Active-Duty Marines. *JAMA Psychiatry*, 2015; 72(10):979-86. PMID: 26353072

d. Agorastos A, Pittman JO, Angkaw AC, Nievergelt CM, Hansen CJ, Aversa LH, Parisi SA, Barkauskas DA; Marine Resiliency Study Team. Baker DG. The cumulative effect of different childhood trauma types on self-reported symptoms of adult male depression and PTSD, substance abuse and health-related quality of life in a large active-duty military cohort. *J Psychiatr Res*. 2014; 58:46-54. PMID: 25139009

2. There are strong biological underpinnings for participation of the immune system in the pathogenesis of Posttraumatic Stress Disorder (PTSD), including evidence for cross-talk between the stress and immune systems, as well as roles for immune system mediators in core behavioral functions, e.g. processes that underlay synaptic plasticity, such as learning and memory. A major line of inquiry in my work has been investigation of the role of the immune system in PTSD. The body of research has focused on whether the immune system is involved in PTSD risk following a trauma event, and both whether and how persistent inflammation might contribute to the physical conditions co-occurring with chronic PTSD, e.g. atherosclerotic heart disease, autoimmune disorders, and dementia. Again these contributions have made a major impact on the field and have been published in high impact journals (*JAMA Psychiatry*).

a. Baker DG, Nievergelt CM, O'Connor DT. Biomarkers of PTSD: Neuropeptides and immune signaling. *Neuropharmacology.* 2012; 62(2):663-73. PMID: 21392516

b. Eraly SA, Nievergelt CM, Maihofer AX, Barkauskas DA, Biswas N, Agorastos A, O'Connor DT, Baker DG; for the Marine Resiliency Study Team. Assessment of Plasma C-Reactive Protein as a Biomarker of Posttraumatic Stress Disorder Risk. *JAMA Psychiatry*. 2014; 71(4):423-31. PMC4032578

c. Glatt SJ(1), Tylee DS, Chandler SD, Pazol J, Nievergelt CM, Woelk CH, Baker DG, Lohr JB, Kremen WS, Litz BT, Tsuang MT; Marine Resiliency Study Investigators. Blood-based gene-expression predictors of PTSD risk and resilience among deployed marines: a pilot study. *Am J Med Genet B Neuropsychiatr Genet*. 2013; 162B(4):313-26. PMID: 23650250

d. Breen MS, Maihofer AX, Glatt SJ, Tylee DS, Chandler SD, Tsuang MT, Risbrough VB, Baker DG, O'Connor DT, Nievergelt CM, Woelk CH. Gene networks specific for innate immunity define post-traumatic stress disorder. *Mol Psychiatry*. 2015; 20(12):1538-45. PMC4565790

3. In the past 10 years, with the large number of blast-exposed patients in my clinics, I became concerned about accurate diagnosis of mTBI, especially in individuals with co-occurring PTSD, since the symptoms are often similar or overlapping. While PTSD is relatively easy to diagnose, co-occurring mild TBI is not. Consequently, I joined a colleague, Mingxiong Huang Ph.D., who has developed advanced algorithms for magnetoencephalogram (MEG) scans to carry out research with a aim to identify an accurate diagnostic marker and improved treatments for mTBI and PTSD.

a. Huang MX, Huang CW, Robb A, Angeles A, Nichols SL, Baker DG, Song T, Harrington DL, Theilmann RJ, Srinivasan R, Heister D, Diwakar M, Canive JM, Edgar JC, Chen YH, Ji Z, Shen M, El-Gabalawy F, Levy M, McLay R, Webb-Murphy J, Liu TT, Drake A, Lee RR. MEG source imaging method using fast L1 minimum-norm and its applications to signals with brain noise and human resting-state source amplitude images. *Neuroimage*. 2014;84:585-604. PMC4096863.

b. Huang MX, Yurgil KA, Robb A, Angeles A, Diwakar M, Risbrough VB, Nichols SL, McLay R, Theilmann RJ, Song T, Huang CW, Lee RR, Baker DG. Voxel-wise resting-state MEG source magnitude imaging study reveals neurocircuitry abnormality in active-duty service members and veterans with PTSD. *Neuroimage Clin.* 2014; 5:408-19. PMC4145534

c. Huang MX, Nichols S, Baker DG, Robb A, Angeles A, Yurgil KA, Drake A, Levy M, Song T, McLay R, Theilmann RJ, Diwakar M, Risbrough VB, Ji Z, Huang CW, Chang DG, Harrington DL, Muzzatti L, Canive JM, Christopher Edgar J, Chen YH, Lee RR. Single-subject-based whole-brain MEG slow-wave imaging approach for detecting abnormality in patients with mild traumatic brain injury. *Neuroimage Clin.* 2014; 5:109-19. PMC4087185

d. Huang M, Risling M, Baker DG. The role of biomarkers and MEG-based imaging markers in the diagnosis of post-traumatic stress disorder and blast-induced mild traumatic brain injury. *Psychoneuroendocrinology*. 2016; 63:398-409. PMID: 25769625

4. A primary focus on my work has been a better understanding the neurobiology of PTSD. Both early career and continued work has involved characterization of neuro-endocrine peptides and hormones which, while they have wide brain distribution providing a plausible substrate for their relevance to stress and mental health, often have divergent circadian rhythms, levels and functions across the blood-brain barrier. Thus, this work has focused on measurement of relevant peptides, hormones and cytokines, in cerebrospinal fluid, collected serially over a multi-hour timeframe using an indwelling subarachnoid catheter, and in blood, collecting concurrently via an intravenous catheter. This body of work has provided: 1) information about PTSD symptoms and key central stress neuropeptides, e.g. norepinephrine, neuropeptide Y, corticotropin-releasing factor and HPA-axis hormones; 2) the effect of stress on these same neuropeptides and hormones; and 3) CSF and plasma levels and circadian rhythms of these neuropeptides and cytokines. These studies were funded by VA MERIT grants; I served as primary or co-investigator on these studies. Below is selection from the twenty one published papers from this body of work.

a. Baker DG, West SA, Nicholson WE, Ekhator NN, Kasckow JW, Hill KK, Bruce AB, Orth DN, Geracriot TD. Serial CSF Corticotropin-Releasing Hormone Levels and Adrenocortical Activity in Combat Veterans with Posttraumatic Stress Disorder *Am J Psych*. 1999; 156:585-588. PMID: 10200738
b. Geracioti TD Jr, Baker DG, Kasckow JW, Strawn JR, Jeffrey Mulchahey J, Dashevsky BA, Horn PS, Ekhator NN. Effects of trauma-related audiovisual stimulation on cerebrospinal fluid norepinephrine and corticotropin-releasing hormone concentrations in post-traumatic stress disorder. *Psychoneuroendocrinology.* 2008; 33:416-424. PMID: 18295412
c. Baker DG, Bertram TM, Patel PM, Barkauskas DA, Clopton P, Patel S, Geracioti TD Jr, Haji U, O'Connor DT, Nievergelt CM, Hauger RL. Characterization of cerebrospinal fluid (CSF) and plasma NPY levels in normal volunteers over a 24-h timeframe. *Psychoneuroendocrinology*. 2013; 38(10):2378-82. PMID: 23759334
d. Agorastos A, Hauger RL, Barkauskas DA, Moeller-Bertram T, Clopton PL, Haji U, Lohr JB, Geracioti TD Jr, Patel PM, Chrousos GP, Baker DG. Circadian rhythmicity, variability and correlation of interleukin-6 levels in plasma and cerebrospinal fluid of healthy men. *Psychoneuroendocrinology*. 2014; 44:71-82. PMID: 24767621

5. I have developed, and participated in a number of single and multiple-site pharmaceutical and psychosocial treatment studies, federal and industry funded, throughout my career.

a. Baker DG, Diamond BI, Gillette G, Hamner M, Katzelnick D, Keller T, Mellman TA, Pontius E, Rosenthal M, Tucker P, vander Kolk BA, Katz R. Double-Blind Randomized, Placebo-Controlled Multi-Center Study of Brofaromine in the Treatment of Posttraumatic Stress Disorder. *Psychopharmacology.* 1995; 122:386-389. PMID: 8657838
b. Brady K, Perlstein T, Asnis GM, Baker DG, Rothbaum B, Sikes CR, Farfel GM. Double-Blind, Placebo-controlled study of the efficacy and safety of sertraline treatment of posttraumatic stress disorder. *JAMA.* 2000; 283:1837-1844. PMID:10770145
c. Friedman MJ, Marmar CR, Baker DG, Sikes CR, Farfel GM. Randomized, double-blind comparison of sertraline and placebo for posttraumatic stress disorder in a Department of Veterans Affairs setting. *J Clinical Psychiatry*. 2007; 68:711-720. PMID:17503980
d. McFall M, Saxon AJ, Malte CA, Chow B, Bailey S, Baker DG, Beckham JC, Boardman KD, Carmody TP, Joseph AM, Smith MW, Shih MC, Lu Y, Holodny M, Lavori PW; CSP 519 Study Team. Integrating tobacco cessation into mental health care for posttraumatic stress disorder: a randomized controlled trial. *JAMA*. 2010; 304:2485-2493. PMC4218733

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/1NMHxPwgt_8kw/collections/47848406/public/

D. Research Support

Ongoing Research Support

CDMRP (VA/DoD) Baker (PI) 1/1/18 – 7/1/20

Efficacy and Safety Study of ORG 34517 in Veterans with Co-morbid PTSD/AUD

This is a study of the safety and efficacy of a glucocorticoid antagonist in Co-morbid PTSD/AUD

Role: Principal investigator

CDMRP Baker (PI) 12/30/15 – 12/30/18
Patterns of Tinnitus and Hearing Loss Secondary to Blast Injury
This study involves recall of all Marines from MRS for screening and brief assessment and on-site assessment of 200 Marines for MEG scans and full assessment for PTSD, mTBI and tinnitus
Role: Principal Investigator

Navy SEAL Family Fund Baker (PI) 1/1/15 – 12/31/18
Navy SEAL Breecher Study
This is a pilot study designed to obtain pilot imaging data across two of the most advanced imaging methods, e.g. MEG, which has a very high (nearly 90%) detection rate of brain injury from blast exposure and HDFT, which allows for vivid visualization of nerve fiber damage.
Role: Principal Investigator

RQ239R-BAKER/NAVIAUX Baker/Naviaux (PI) 4/01/17-4/01/18, NCE to 4/01/19
Improving the Sensitivity of Metabolomics for the Diagnosis of Post Traumatic Stress Disorder and Traumatic Brain Injury in Veterans
Compare the metabolomics of PTSD, TBI, and that of Combat controls in both serum and heparinized plasma
Role: Co- Principal Investigator

CDMRP Kosten (PI) 10/1/15 – 10/01/19
DoD Alcohol and Substance Abuse Consortium Award
This is a DoD funded consortium to study effects and treatment of co-occurring PTSD/Alcohol and substance abuse
Role: Site Principal Investigator

VA CSR&D Huang (PI) 10/1/15-1/1/19 (Renewal)
Neuroimaging Investigation of mTBI and its Potentiation of PTSD in Veterans
This project studies the diagnostic value of magnetoencephalography and diffusion tensor imaging for diagnosis of PTSD and mild TBI patients in both veteran and active-duty military populations
Role: Co-Investigator

VA RR&D Huang (PI) 10/01/17-8/31/21
Passive electrical neurofeedback treatment of mTBI: MEG and Behavioral Outcomes
This project studies the diagnostic value of magnetoencephalography and diffusion tensor imaging for diagnosis of PTSD and mild TBI patients in both veteran and active-duty military populations
Role: Co-Investigator

VA CESAMH Baker (Unit Director) 10/06-Current
Neuroscience Research Unit
To conduct research on neurobiological alterations and their relation to health care outcomes of severe (traumatic) and chronic stress

Recently Completed Research Support
VA CSR&D CCTA # 0004 Golier (PI) 10/16/12-01/20/17
Novel Therapeutics in PTSD: A Randomized Clinical Trial of Mifepristone
This is a four-site (VA cooperative study program organized) placebo-controlled double-blind crossover study designed to assess the efficacy of the glucocorticoid antagonist, Mifepristone, in treating chronic PTSD
Role: Site Investigator

Navy BUMED/Administered by NIMH Baker (Multi PI with Dr. Risbrough, Geyer) 9/20/11-3/1/16
Marine Resiliency Study II (original grant: 9/20/11 – 9/20/14; extension 9/20/14-3/1/16)
This aim of this study is to provide a platform for early analysis of predictors of mental health outcomes in Marines and suicidal correlates, in coordination with the Army Study of Risk and Resilience (STARRS) program.
Role: Principal investigator, Corresponding