

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
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NAME Eric S. Underbakke	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME (credential, e.g., agency login) eunderbakke			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Iowa State University – Ames	BS	05/01	Agricultural Biochemistry
University of Wisconsin – Madison	PhD	12/08	Biochemistry

Professional Experience

2009-2011 – University of California Berkeley, post-doctoral fellow in the lab of Michael Marletta
 2011-2013 – The Scripps Research Institute, post-doctoral fellow in the lab of Michael Marletta (cont)
 2014-present – Iowa State University, Assistant Professor, Roy J Carver Dept of Biochemistry, Biophysics, and Molecular Biology

Peer-reviewed Publications

Underbakke ES, Iavarone AT, Chalmers MJ, Pascal BD, Novick S, Griffin PR, Marletta, MA. Nitric oxide-induced conformational changes in soluble guanylate cyclase. *Structure* (2014) [in press]

Campbell MG, **Underbakke ES**, Potter CS, Carragher B, Marletta MA. Single particle EM reveals the higher order domain architecture of soluble guanylate cyclase. *Proc. Natl. Acad. Sci USA*. (2014) [in press]

Smith BC, **Underbakke ES**, Kulp DW, Schief W, Marletta MA. Nitric oxide synthase domain interfaces regulate electron transfer and calmodulin activation. *Proc. Natl. Acad. Sci USA*. (2013) 110:E3577-86.

Underbakke ES, Iavarone AT, Marletta MA. Higher-order interactions bridge the nitric oxide receptor and catalytic domains of soluble guanylate cyclase. *Proc. Natl. Acad. Sci USA*. (2013) 110: 6777-82.

Fernhoff NB, Derbyshire ER, **Underbakke ES**, Marletta MA. Heme-assisted S-nitrosation desensitizes ferric soluble guanylate cyclase (sGC) to nitric oxide. *J. Biol. Chem.* (2012) 287: 43053-62.

Underbakke ES, Zhu Y, Kiessling LL. Protein footprinting in a complex milieu: identifying the interaction surfaces of the chemotaxis adapter protein CheW. *J. Mol. Biol.* (2011) 409: 483-495. (Featured Article, cover, see Crane, BR. 2011 for highlight article)

Underbakke ES, Zhu Y, Kiessling LL. Isotope-coded Affinity Tags with Tunable Reactivities for Protein Footprinting. *Angew. Chem. Int. Ed.* (2008) 47: 9677-80.

Pontrello JK, Allen MJ, **Underbakke ES**, Kiessling LL. Solid-phase synthesis of polymers using the ring-opening metathesis polymerization. *J. Am. Chem. Soc.* (2005) 127: 14536-7

Gorrell A, Wang W, **Underbakke E**, Hou Z, Honzatko RB, Fromm HJ. Determinants of L-aspartate and IMP recognition in Escherichia coli adenylosuccinate synthetase. *J. Biol. Chem.* (2002) 277: 8817-21

Research Support

2010-2013 – NIH Post-doctoral Fellowship: Ruth L. Kirschstein National Research Service Award

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
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NAME Hunt, Morgan Casey	POSITION TITLE Associate Professor of Psychology		
eRA COMMONS USER NAME (credential, e.g., agency login) huntmc			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
University of California, Berkeley	B.S.	05/90	Psychology
University of Vermont	Ph.D.	05/96	Experimental Psychology
University of California, Berkeley	Postdoctoral	08/98	Public Health and Epidemiology

A. Personal Statement

The goal of the proposed research is to investigate the interaction between drug abuse and normal aging processes. Specifically, we plan to measure changes in cognitive ability and mental and physical health across a five-year period in a group of older drug users and matched controls. I have the expertise, leadership and motivation necessary to successfully carry out the proposed work. I have a broad background in psychology, with specific training and expertise in key research areas for this application. As a postdoctoral fellow at Berkeley, I carried out ethnographic and survey research and secondary data analysis on psychological aspects of drug addiction. At the Division of Intramural Research at the National Institute on Drug Abuse (NIDA), I expanded my research to include neuropsychological changes associated with addiction. As PI or co-Investigator on several university- and NIH-funded grants, I laid the groundwork for the proposed research by developing effective measures of disability, depression, and other psychosocial factors relevant to the aging substance abuser, and by establishing strong ties with community providers that will make it possible to recruit and track participants over time. In addition, I successfully administered the projects (e.g. staffing, research protections, budget), collaborated with other researchers, and produced several peer-reviewed publications from each project. As a result of these previous experiences, I am aware of the importance of frequent communication among project members and of constructing a realistic research plan, timeline, and budget. The current application builds logically on my prior work, and I have chosen co-investigators (Drs. Gryczynski and Newlin) who provide additional expertise in cognition, gerontology and geriatrics. During 2005-2006 my career was disrupted due to family obligations. However, upon returning to the field I immediately resumed my research projects and collaborations and successfully competed for NIH support. In summary, I have a demonstrated record of accomplished and productive research projects in an area of high relevance for our aging population, and my expertise and experience have prepared me to lead the proposed project.

B. Positions and Honors**Positions and Employment**

1998-2000	Fellow, Division of Intramural Research, National Institute of Drug Abuse, Bethesda, MD
2000-2002	Lecturer, Department of Psychology, Middlebury College, Middlebury, VT
2001-	Consultant, Coastal Psychological Services, San Francisco, CA
2002-2005	Assistant Professor, Department of Psychology, Washington University, St. Louis, MO

2007- Associate Professor, Department of Psychology, Washington University, St. Louis, MO

Other Experience and Professional Memberships

1995- Member, American Psychological Association
1998- Member, Gerontological Society of America
1998- Member, American Geriatrics Society
2000- Associate Editor, Psychology and Aging
2003- Board of Advisors, Senior Services of Eastern Missouri
2003-05 NIH Peer Review Committee: Psychobiology of Aging, ad hoc reviewer
2007-11 NIH Risk, Adult Addictions Study Section, member

Honors

2003 Outstanding Young Faculty Award, Washington University, St. Louis, MO
2004 Excellence in Teaching, Washington University, St. Louis, MO
2009 Award for Best in Interdisciplinary Ethnography, International Ethnographic Society

C. Selected Peer-reviewed Publications (Selected from 42 peer-reviewed publications)

Most relevant to the current application

1. Merrylye, R.J. & Hunt, M.C. (2004). Independent living, physical disability and substance abuse among the elderly. *Psychology and Aging*, 23(4), 10-22.
2. Hunt, M.C., Jensen, J.L. & Crenshaw, W. (2007). Substance abuse and mental health among community-dwelling elderly. *International Journal of Geriatric Psychiatry*, 24(9), 1124-1135.
3. Hunt, M.C., Wiechelt, S.A. & Merrylye, R. (2008). Predicting the substance-abuse treatment needs of an aging population. *American Journal of Public Health*, 45(2), 236-245. PMID: PMC9162292
4. Hunt, M.C., Newlin, D.B. & Fishbein, D. (2009). Brain imaging in methamphetamine abusers across the life-span. *Gerontology*, 46(3), 122-145.
5. Hunt, M.C. & Sher, K.A. (2009). Successful intervention models for older drug-abusers: Research across the life-span. *American Psychologist*, in press. NIHMSID: NIHMS99135

Additional recent publications of importance to the field (in chronological order)

1. Gryczynski, J., Shaft, B.M., Merrylye, R., & Hunt, M.C. (2002). Community based participatory research with late-life addicts. *American Journal of Alcohol and Drug Abuse*, 15(3), 222-238.
2. Shaft, B.M., Hunt, M.C., Merrylye, R., & Venturi, R. (2003). Policy implications of genetic transmission of alcohol and drug abuse in female nonusers. *International Journal of Drug Policy*, 30(5), 46-58.
3. Hunt, M.C., Marks, A.E., Shaft, B.M., Merrylye, R., & Jensen, J.L. (2004). Early-life family and community characteristics and late-life substance abuse. *Journal of Applied Gerontology*, 28(2), 26-37.
4. Hunt, M.C., Merrylye, R. & Jensen, J.L. (2005). The effect of social support networks on morbidity among elderly substance abusers. *Journal of the American Geriatrics Society*, 57(4), 15-23.
5. Hunt, M.C., Pour, B., Marks, A.E., Merrylye, R. & Jensen, J.L. (2005). Aging out of methadone treatment. *American Journal of Alcohol and Drug Abuse*, 15(6), 134-149.
6. Hunt, M.C., Marks, A.E., Venturi, R., Crenshaw, W. & Ratonian, A. (2007). Community-based intervention strategies for reducing alcohol and drug abuse in the elderly. *Addiction*, 104(9), 1436-1606. PMID: PMC9000292
7. Merrylye, R. & Hunt, M.C. (2007). Randomized clinical trial of cotinine in older nicotine addicts. *Age and Ageing*, 38(2), 9-23. PMID: PMC9002364
8. Hunt, M.C., Jensen, J.L. & Merrylye, R. (2008). The aging addict: ethnographic profiles of the elderly drug user. NY, NY: W. W. Norton & Company.
9. Hunt, M.C. (2009). Contrasting ethnicity with race in the older alcoholic. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, in press. PMID: PMC Journal – In Process.
10. Hunt, M.C. (2009). Intervening successfully with the older methadone patient. *Journal of Applied Gerontology*, 13(4), 67-79.

D. Research Support

Ongoing Research Support

R01 DA942367-03 Hunt (PI) 09/01/08-08/31/13
Health trajectories and behavioral interventions among older substance abusers
The goal of this study is to compare the effects of two substance abuse interventions on health outcomes in an urban population of older opiate addicts.
Role: PI

R01 MH922731-05	Merryle (PI)	12/15/07-11/30/12
Physical disability, depression and substance abuse in the elderly		
The goal of this study is to identify disability and depression trajectories and demographic factors associated with substance abuse in an independently-living elderly population.		
Role: Co-Investigator		

Faculty Resources Grant, Washington University	08/15/09-08/14/11
Opiate Addiction Database	
The goal of this project is to create an integrated database of demographic, social and biomedical information for homeless opiate abusers in two urban Missouri locations, using a number of state and local data sources.	

Completed Research Support

K02 AG442898	Hunt (PI)	02/01/02-01/31/05
Drug Abuse in the Elderly		
Independent Scientist Award: to develop a drug addiction research program with a focus on substance abuse among the elderly.		
Role: PI		

R21 AA998075	Hunt (PI)	01/01/02-12/31/04
Community-based intervention for alcohol abuse		
The goal of this project was to assess a community-based strategy for reducing alcohol abuse among older individuals.		
Role: PI		