

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Royce Ellen Clifford	POSITION TITLE Research Fellow
eRA COMMONS USER NAME (credential, e.g., agency login) rclifford	

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 Illinois, Urbana, Ill	BS	1971	Biology
University of Illinois Medical School	MD	1976	Medicine
Kaiser Hospitals, San Francisco, Ca.	Internship- surgery	1977 1977-	Surgery
Kaiser Hospitals, Oakland, Ca.	Board Certification	1981 2006	Otolaryngology – Head and Neck Surgery
Harvard School of Public Health, Boston, MA	MPH		Occupational Health
Navy Aeromedical Institute, Pensacola, Fl.	Board Certification	2006-2008	Preventive Medicine – Aerospace Medicine

Positions and Honors

2015	Fellowship in Research at Center for Excellence for Stress and Mental Health, research in noise-induced hearing loss and tinnitus at Veteran’s Administration Hospital, La Jolla, Ca.
2011 – present	Board Member, Hearing Center for Excellence, federally mandated 2009 Center of Excellence with the Mission of heightening readiness and continuous improvement in the health and quality of life of Service Members and Veterans. Membership on Committees include Pharmaceutical Interventions for Hearing Loss, and Auditory Fitness for Duty working group.
2013	Harvard School of Public Health 2013 Innovator Award for “significant and innovative contribution to the public health aspects of noise toxicity.”
2009 – present	Visiting Research Scientist Harvard School of Public Health, Boston, MA. Member, Noise-Induced Hearing Loss Group.
2009-2014	Officer-in-charge, Marine Air Group 39 Medical Clinic, Camp Pendleton, Ca. 2013 Air Combat Element Surgeon, Marine Air Group 50 Medical Department, Middle East. Forward deployed in support of operations in the Persian Gulf, Yemen, and Jordan.
2007-2009	Senior Medical Officer, USS GEORGE WASHINGTON (CVN-73) in charge of a 65-bed hospital, six providers, and 5000 Sailors. Arranged medical evacuations on voyage from the East Coast around South America to Japan.
2003-2005	Flight Surgeon HMLA 775. Deployed to Al Taqqadum Air Base, Air Combat Element Surgeon during Fallujah Campaign. Performed emergency stabilizing head and neck surgery in Forward Resuscitative Surgery Service. Consultant in Otolaryngology to 31 st Combat Support Hospital, Baghdad, triaged Marines and Soldiers exposed to explosive devices.
2000-2002	Flight surgeon and otolaryngology consulting physician at Branch Medical Clinic Miramar Marine Corps Air Station. Flight Surgeon Marine Air Group 46 and Marine Fighter Aviation Squadron 134 at MCAS Miramar. Staff in Dept of Otolaryngology at Naval Medical Center San Diego and Naval Hospital Lemoore.

- 1996-1999 Commissioned Lieutenant Commander, US Naval Reserves. Attending physician in Department of Otolaryngology at Balboa Hospital, San Diego. Performed General Medical Officer duties at Branch Medical Clinic, 32nd Street, San Diego, California.
- 1981-1996 Private practice in otolaryngology. Attending physician at Scripps Memorial Hospitals, Encinitas, and La Jolla, Ca.; Children's Memorial Hospital, San Diego, Ca.; Mission Bay Hospital, San Diego, Ca.

AFFILIATIONS AND ON-GOING PROJECTS

- 2013 –present. Project on tinnitus and Traumatic Brain Injury with VA Hospital, La Jolla, Ca. Paper in press. On-going research relating magnetoencephalography and tinnitus.
- 2009 - present. Visiting Research Scientist, Harvard School of Public Health. Investigations regarding noise and hearing loss compound delivery to cochlea, research papers published and generated. Research on genomics of sensitivity to acoustic trauma, ongoing genomics research and paper submitted.
- 2011 - 2013. Research Scientist, Naval Medical Center San Diego in Clinical Investigation Department. Ongoing investigation on hearing loss in Marine range instructors.
- 2011 – present. Hearing Center for Excellence – member of Committee on Audiologic Research Working Group for medication for hearing loss, hearing and fitness for duty, genomics of hearing loss. Point paper submitted. Other research – US Marine Corps Basic Training Permanent Threshold Shift versus Temporary Threshold Shift Determination Study. Statistical analysis in progress.
- 2012 NATO AVT - 198. Physician advisor for Committee on Jet Noise Reduction. Point paper published.

SCIENTIFIC PAPERS AND PRESENTATIONS

Clifford RE, Hoffer M, Rogers RA. The Genomic Basis of Noise-Induced Hearing Loss. *Oto and Neurotol.* In Press.

Clifford RE and Rogers RA. Molecular Genetics and Tinnitus. In: Shulmann A, Hoffer M ed. *Tinnitus: Diagnosis and Treatment.* 2nd ed. New York: Thieme Medical Publishers Inc. In Press.

Yurgil KA, **Clifford RE**, Risbrough VB, Geyer MA, Huang M, Barkauskas DA, Vasterling JJ, MRS Team, Baker DG. Prospective associations between traumatic brain injury and post-deployment tinnitus in Active-Duty Marines. *J Head Trauma Rehabil.* 2015; Feb 19. PMID: 25699623.

Clifford RE, Rogers R, Hoffer M. Epigenetics, Genomics and Noise-Induced Hearing Loss. Point paper for Hearing Center for Excellence, presented at Annapolis, MD, Aug. 2014.

Clifford, RE. Chapter 3 – Physical and Psychological Effects of Noise. NATO AVT-198, RTG-064. Technical Report on “Recent developments in noise reduction technologies applied to military vehicles and platforms.” 2014; 1-46.

Grondin Y, Cotanche D, Manneberg O, Molina R, Treviño-Villarreal JH, Sepulveda R, **Clifford RE**, Bortoni M, Forsberg S, LaBrecque B, Altshul L, Brain JD, Jackson RL, Rogers R. Pulmonary delivery of D-methionine is associated with an increase in ALCAR and glutathione in cochlear fluids. *Hearing Research.* 2013; 298: 93-103.

Clifford RE, Coleman JM, Balough BJ, Liu J, Kopke RD, Jackson RL. Low dose D-methionine and N-acetyl-L-cysteine for Protection from Permanent Noise-induced hearing Loss in Chinchillas. *Otolaryngology – Head and Neck Surgery.* 2011; 145(6), 999-1006.

Grondin Y, Cotanche D, La Brecque B, Forsberg S, Altshul L, Manneberg O, Molina R, Treviño-Villarreal JH, Sepulveda R, **Clifford RE**, Brain JD, Jackson R, Rogers RA. Mass Spectrometric

Analysis of Antioxidants in Cochlear Fluids After Four Differing Routes of Systemic Administration. Poster presented at ARO, 2012; San Diego, Ca.

Jackson R, Coleman J, Liu J, Chen K, **Clifford RE**, Harper E, Hoffer M. "Operationally Relevant Research into Noise and Blast Overpressure-Induced Injury". Poster presented at Office of Naval Research Conference, Washington, DC, November 2011.

Clifford RE, Manneberg O, Trevino-Villareal J, Sepulveda R, Cotanche D, Rogers R. "Noise-Induced Hearing Loss: A Multi-Discipline Approach to a Critical Navy Problem." Poster presentation at Office of Naval Research Conference, Washington DC, November 2011.

Clifford RE and Rogers RA. Impulse noise: theoretical solutions to the quandary of cochlear protection. *Ann Otol Rhinol Laryngol*. 2009;118(6):417-27.

Clifford, RE. "Hearing Loss, Protection, and Standards in the Military." Presentation at conference on "Noise-Induced Hearing Loss, Harvard School of Public Health, March 26-28, 2008.

Clifford, RE. "*Acute and Chronic Noise Exposure: Strategies for Preventing, Diagnosing, and Treating Hearing Loss*", March 29-30, 2007. Presentation, "Histopathology of Noise", Boston MA. Program Director at Conference.

Clifford RE and Moore J. "Hearing Loss in Naval Aviators: The Impact of Flying Hours," poster presentation, Aerospace Medicine Association Conference, New Orleans, LA, May 14-18, 2007.