

BIOGRAPHICAL SKETCH

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NAME RECOBER, Ana	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME (credential, e.g., agency login) ARECOBER			
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
Universidad de Malaga (Malaga, Spain) University of Iowa Hospitals and Clinics (Iowa City, IA) University of Iowa Hospitals and Clinics (Iowa City, IA)	MD Neurology Residency Headache Fellowship	1991-1997 2000-2004 2005-2007	Medicine Neurology Headache and Facial Pain

A. Personal Statement

The focus of my laboratory is the study of the biological mechanisms underlying the progression from episodic to chronic migraine, a poorly understood phenomenon we frequently observe in the clinic. Multiple culprits have been implicated in this process, but little is known about the relevant cellular and molecular changes involved in this progression. Clarifying these links is crucial to discovering novel therapeutic targets aimed to preventing chronic migraines. We are using behavioral, pharmacological, molecular and cellular techniques to elucidate the molecular mechanisms responsible for the link between migraine and two common conditions that are associated with chronic migraine, obesity and sleep disorders. My central hypothesis is that these conditions lead to chronic migraine by enhancing central sensitization in the trigeminal nucleus caudalis. We are using animal models of these conditions to determine the role of the calcitonin gene-related peptide (CGRP) and several cytokines in the trigeminovascular pathway.

B. Positions and Honors

Professional Positions:

- 1999-2000 Research Assistant, Department of Neurology, University of Iowa, Iowa City, IA.
- 2000-2004 Resident, Department of Neurology, University of Iowa, Iowa City, IA.
- 2005-2007 Postdoctoral Fellow, Department of Neurology, University of Iowa, Iowa City, IA.
- 2007-2009 Associate Faculty, Department of Neurology, University of Iowa, Iowa City, IA.
- 2009- Assistant Professor, Department of Neurology, University of Iowa, Iowa City, IA.

Certification:

- Educational Commission for Foreign Medical Graduates (1998)
- American Board of Psychiatry and Neurology (2005)
- Iowa Board of Medical Examiners (2005)
- Iowa Controlled Substance DEA (2005)

Awards and other Professional Activities:

- 1994 International Federation of Medical Students Associations Scholarship. Nijemegen, The Netherlands
- 1995-1997 Medical Student Research Scholarship. University of Malaga Medical School.
- 1996 Visiting Medical Student Scholarship. Cleveland Clinic Foundation. Cleveland, OH
- 2004 Richard W Fincham Award. Department of Neurology. University of Iowa.
- 2007 Junior Investigator Award. 6th International Symposium on the CGRP family. La Jolla, CA
- 2007-2009 Training Grant in Pain Research. University of Iowa, Iowa City, IA.

2010 Harold Wolff-John Graham Award. American Academy of Neurology, Toronto, Canada.

B. PEER-REVIEWED PUBLICATIONS (in chronological order):

Tietjen GE, Brandes JL, Digre KB, Baggaley S, Martin V, **Recober A**, Geweke LO, Hafeez F, Aurora SK, Herial NA, Utley C, Khuder SA. High prevalence of somatic symptoms and depression in women with disabling chronic headache. *Neurology*. 2007 Jan 9;68(2):134-40. (PMID: 17210894)

Tietjen GE, Brandes JL, Digre KB, Baggaley S, Martin V, **Recober A**, Geweke LO, Hafeez F, Aurora SK, Herial NA, Utley C, Khuder SA. History of childhood maltreatment is associated with comorbid depression in women with migraine. *Neurology*. 2007 Sep 4;69(10):959-68. (PMID: 17785664)

Recober A, Kuburas A, Zhang Z, Wemmie JA, Anderson MG, Russo AF. Role of calcitonin gene-related peptide in light aversive behavior: implications for migraine. *J Neurosci*. 2009 Jul 8;29(27):8798-804. (PMID: 19587287) <http://f1000medicine.com/article/id/1166316>

Tietjen GE, Brandes JL, Peterlin BL, Eloff A, Dafer RM, Stein MR, Drexler E, Martin VT, Hutchinson S, Aurora SK, **Recober A**, Herial NA, Utley C, White L, Khuder SA. Allodynia in migraine: association with comorbid pain conditions. *Headache*. 2009 Oct;49(9):1333-44. (PMID: 19788473)

Recober A, Kaiser E, Kuburas A, Russo AF. Induction of multiple photophobic behaviors in a transgenic mouse sensitized to CGRP. *Neuropharmacology*. 2010 Jan;58(1):156-65. [Epub 2009 Jul]. (PMID: 19607849)

Tietjen GE, Brandes JL, Peterlin BL, Eloff A, Dafer RM, Stein MR, Drexler E, Martin VT, Hutchinson S, Aurora SK, **Recober A**, Herial NA, Utley C, White L, Khuder SA. Childhood maltreatment and migraine (Part I). Prevalence and adult revictimization. A multicenter headache clinic survey. *Headache*. 2010 Jan;50:20-31. [Epub 2009 Oct] (PMID: 19845782)

Tietjen GE, Brandes JL, Peterlin BL, Eloff A, Dafer RM, Stein MR, Drexler E, Martin VT, Hutchinson S, Aurora SK, **Recober A**, Herial NA, Utley C, White L, Khuder SA. Childhood maltreatment and migraine (Part II). Emotional abuse as a risk factor for headache chronification and transformed migraine. *Headache*. 2010 Jan;50:32-41. [Epub 2009 Oct] (PMID: 19845781)

Tietjen GE, Brandes JL, Peterlin BL, Eloff A, Dafer RM, Stein MR, Drexler E, Martin VT, Hutchinson S, Aurora SK, **Recober A**, Herial NA, Utley C, White L, Khuder SA. Childhood maltreatment and migraine (Part III). Association with comorbid pain conditions. *Headache*. 2010 Jan;50:42-51. [Epub 2009 Oct] (PMID: 19845780)

Invited Review Articles (peer-reviewed)

Recober A, Geweke LO. Menstrual migraine. *Curr Neurol Neurosci Rep* 2005 Mar;5(2):93-98. (PMID: 15743545)

Recober A, Russo AF. Olcegepant, a non-peptide CGRP1 antagonist for migraine treatment. *IDrugs*. 2007 Aug;10(8):566-74. (PMID: 17665333)

Recober A, Russo AF. Calcitonin gene-related peptide: an update on the biology. *Current Opinion in Neurology*. 2009 May 1;22:241-246. (PIMD: 19434786)

Russo F, Kuburas A, Kaiser E, Raddant A, **Recober A**. A Potential Preclinical Migraine Model: CGRP-Sensitized Mice. *Mol Cell Pharmacol* 2009;1(5):264-270.

Recober A, Goadsby PJ. Calcitonin gene-related peptide (CGRP): a molecular link between obesity and migraine? *Drug News and Perspective* 2010 (*in press*).

Invited Review Articles (not peer-reviewed)

Gonzalez-Alegre P, **Recober A**, Kelkar P. Idiopathic Brachial Neuritis. Iowa Orthop J 2002;22:81-85. (PMID: 12180618)

Invited Chapters and Educational Supplements

Recober A, Russo A. Anti-Migraine Medications. Handbook of Contemporary Neuropharmacology. (ed. D. Sibley), Wiley and Sons.2007

Russo AF, **Recober A**, Zhang Z, Marquez de Prado B, Kaiser E, Kuburas A. Biological relevance of CGRP in the context of migraine. In Frontiers in Headache Research, vol. 18, Role of calcitonin gene-related peptide (CGRP) and adrenomedullin (AM) in migraine; ed: Jes Olesen. Oxford University Press. (*in press*)

Selected Abstracts

Gonzalez-Alegre T, **Recober A**, Valdivielso P, Garcia-Arias C, Gonzalez-Santos P. Diabetes Mellitus and Coronary Disease. X National Congress of The Spanish Society of Arteriosclerosis. Clinica e Investigacion en Arteriosclerosis 9,Suppl 1 (1997)

Recober A, Rodnitzky RL, Dobson JK. Association between childhood passive exposure to tobacco smoke and Parkinson's disease. XIV International Congress on Parkinson's Disease. Helsinki, Finland (2001)

Recober A, Geweke LO. Bilateral spontaneous carotid cavernous sinus fistulae presenting as migraine headache. 45th Annual Scientific Meeting of the American Headache Society, Chicago, IL (2003)

Recober A, Kuburas A, Zhang Z, Russo AF. Developing a potential migraine mouse model: Photophobia. Society for Neuroscience Abstracts 71.6, San Diego, CA (2007)

Marquez de Prado B*, **Recober A***, Zhang Z, Hammond DL, Russo AF. Mechanical and thermal nociception in a potential migraine mouse model. Society for Neuroscience Abstracs 181.7, San Diego, CA (2007)

Recober A, Kuburas A, Zhang Z, Russo AF. Developing a potential migraine mouse model: hRAMP1 transgenic mice. American Academy of Neurology 60th Annual Meeting, Chicago, IL (2008). Oral platform. *Selected for Scientific Highlights Session*.

Recober A, Kuburas A, Zhang Z, Russo AF. A potential migraine model: hRAMP1 transgenic mouse. Society for Neuroscience Abstract # 369, Washington DC (2008).

Recober A, Kaiser EA, Kuburas A, Wemmie JA, Anderson MG, Russo AF. CGRP-induced photophobia blocked by olcegeptan and rizatriptan in a transgenic migrain model. 14th International Headache Congress, Philadelphia, PA (2009). Oral platform. *Selected for Scientific Highlights Session*.

C. RESEARCH SUPPORT:

Ongoing Research Support

1K08NS066087-01

(PI: **Recober**)

10/2009 to 9/2014

Mentored Clinical Scientist Research Career Development Award

"Role of CGRP in the association between migraine and obesity"

This proposal seeks to study the role of the calcitonin gene-related peptide (CGRP) as a potential molecular link between migraine and obesity, by using molecular biology, immunohistochemistry and behavioral pharmacology.

Completed (in past 3 years)

No number (PI: Recober) 3/2008 to 5/2009
National Headache Foundation Grant
"Development of a Potential Migraine Mouse Model: hRAMP1 transgenic mice"
The goal of this proposal is to study trigeminal nociception in a transgenic mouse that is sensitized to the calcitonin gene-related peptide (CGRP), a central player in the pathophysiology of migraine. This study uses behavioral, pharmacological, molecular and neuroanatomical approaches.