

**BIOGRAPHICAL SKETCH**

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NAME Carneiro, Ana Marin Dias	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME (credential, e.g., agency login) Carneiam			
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
Federal University of Minas Gerais (Brazil)	B.S.	1999	Biology
Federal University of Minas Gerais (Brazil)	M.S.	2000	Biochemistry
Federal University of Minas Gerais (Brazil)	Ph.D.	2002	Biochemistry
Vanderbilt University Medical Center, Nashville, TN	Postdoc	2003-2007	Pharmacology

**A. Personal Statement**

My laboratory focuses on understanding how conserved protein interactions influence homeostasis of different cells and tissues. I am particularly interested in cell adhesion proteins, which bridge cells with their extracellular matrix, thus coordinating cell shape and migration. In the brain, cell adhesion proteins are of particular interest as they regulate neuronal migration, axonal pathfinding, synapse formation and synaptic plasticity. My general hypothesis is that cell adhesion molecules not only coordinate the formation of synapses, but also the consolidation of successful synapses, by recruiting functional proteins, such as receptors, transporters and ion channels. I am currently studying the role of integrins, particularly of the integrin  $\alpha v \beta 3$ , in the regulation of monoamine signaling. I chose to focus my studies on integrin  $\alpha v \beta 3$  because the gene encoding for the  $\beta 3$  subunit, *ITGB3*, has been associated with autism in combination with the serotonin transporter gene (*SLC6a4*). We utilize combined biochemical, pharmacological and behavioral techniques to study how these macromolecular complexes influence drug response and behavior. Currently we are focusing on integrin  $\alpha v \beta 3$  regulation of serotonin and dopamine transporters through direct protein-protein interactions. A major goal of the lab is to identify novel compounds that specifically dissociate integrin/transporter interactions that modify the function of specific populations of these important targets in neuropsychiatric and neurodevelopmental disorders.

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

2007-2008 Instructor, Pharmacology Department, Vanderbilt University

2008- 2010: Research Assistant Professor, Pharmacology Department, Vanderbilt University

2010: Assistant Professor, Pharmacology Department, Vanderbilt University

**Honors and Awards**

Ministry of Science and Technology Graduate Fellowship (CNPq, Brazil) 1999-00

Ministry of Education (CAPES) Sandwich Fellowship/ Duke University 2001-02

Minority Travel Award, American College of Neuropsychopharmacology (ACNP), 2004

Carl Storm Underrepresented Minority Fellowship/Cell Contact & Adhesion GRC, 2007

The Mental Health Research Association (NARSAD) Young Investigator Award, 2007-08

**Professional Societies**

Society for Neuroscience, 2001-present

American Heart Association, 2007-present

**Patents and Intellectual property rights**

Blakely RD, Carneiro AMD. Integrin regulation of the serotonin transporter. *Pending.*

Blakely RD, Carneiro AMD. Regulation of CNS Iron Homeostasis by Serotonin Transporter Genetic Variation. *Pending*.

### C. Selected Peer-reviewed Publications

1. **Carneiro AMD**, Kushmerick C, Koenen J, Arndt MH, Cordeiro MN, Chavez-Olortegui C, Diniz CR, Gomez MV, Kalapothakis E, Prado MA, Prado VF. Expression of a functional recombinant *Phoneutria nigriventer* toxin active on K<sup>+</sup> channels. *Toxicon*. 2003 Mar 1;41(3):305-13. PMID: 12565753
2. **Carneiro AMD**, Ingram SL, Beaulieu JM, Sweeney A, Amara SG, Thomas SM, Caron MG, Torres GE. The multiple LIM domain-containing adaptor protein Hic-5 synaptically colocalizes and interacts with the dopamine transporter. *J Neurosci*. 2002 Aug 15;22(16):7045-54. PMID: 12177201
3. Torres GE, **Carneiro AMD**, Seamans K, Fiorentini C, Sweeney A, Yao WD, Caron MG. Oligomerization and trafficking of the human dopamine transporter. Mutational analysis identifies critical domains important for the functional expression of the transporter. *J Biol Chem*. 2003 Jan 24;278(4):2731- 2739.
4. Zhu CB, **Carneiro AMD**, Dostmann WR, Hewlett WA, Blakely RD. p38 MAPK activation elevates serotonin transport activity via a trafficking-independent, protein phosphatase 2A-dependent process. *J Biol Chem*. 2005 Apr 22;280(16):15649-58. PMID: 15728187
5. **Carneiro AMD**, Blakely RD. Serotonin, Protein Kinase C and Hic-5 Associated Redistribution of the Platelet Serotonin Transporter. *J Biol Chem*. 2006 Jun 27 PMID: 16803896
6. J Steiner, **AM Carneiro**, Randy D Blakely. Going with the flow: Trafficking-dependent and independent regulation of serotonin transport. *Traffic* 2008 Apr 28. PMCID: PMC2773847
7. **AMD Carneiro**, Edwin H. Cook, Dennis L. Murphy and Randy D. Blakely Interactions between integrin  $\alpha\text{IIb}\beta\text{3}$  and the serotonin transporter regulate serotonin transport and platelet aggregation. *J Clin Invest*. 2008 Apr 1;118(4):1544-1552. PMCID: PMC2260909
8. **Carneiro AMD**, Airey DC, Thompson B, Zhu CB, Lu L, Chesler EL, Erikson KM and Blakely RD. Functional Coding Variation in Recombinant Inbred Mouse Lines Reveals Novel Serotonin Transporter-Associated Phenotypes. *Proc Natl Acad Sci U S A*. 2009 Feb 10;106 (6):2047-52. PMCID: PMC2632716
9. Steiner JA, **Carneiro AM**, Wright J, Matthies HJG, Prasad H, Nickl CK, Dostmann WR, Corbin JD, Francis SH, Blakely RD.. Protein Kinase G Associates with the Antidepressant-Sensitive Serotonin Transporter and Dictates Rapid Modulation of Serotonin Uptake. *Mol Brain*. 2009 Aug 5;2(1):26. PMCID: PMC2731736
10. **Carneiro, A. M.** & Blakely, R. D. SERT. *UCSD-Nature Molecule Pages* (2009). (10.1038/mp.a002762.01).
11. **Carneiro AMD**. The emerging role of integrins in neuropsychiatric disorders. *Neuropsychopharmacology Reviews*. Jan 2010. PMID: 20010705

### D. Research Support

#### Ongoing Research Support

None

#### Completed Research Support

The Mental Health Research Association (NARSAD) Young Investigator Award 01/07-07/09  
Integrin regulation of the serotonin transporter

Regulation of Serotonin Transporters 7/07-6/30/09

Program Director/Principal Investigator (Last, First, Middle):

This project explores the ability of protein-protein interactions, specifically the integrin receptors to regulate serotonin transporter proteins using cell culture models.

Vanderbilt Silvio O. Conte Center Pilot Grant Discovery of serotonin regulatory genes in recombinant inbred mice	2008-09
3 R01 DA007390-17S1 Research Supplements to Promote Diversity in Health-Related Research Program	02/10/07-02/09/09
Ruth L. Kirschstein National Research Service Award Neurogenomics Training Program (MH655215)	2003
Ruth L. Kirschstein National Service Award Neuroscience Scholars Program SFN	2003-2006
Ruth L. Kirschstein National Research Service Award Alliance for Research Training in Neuroscience Program (MH65782)	2004-06.