

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 5 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Miguel		
Family name	Garzón García		
Gender (*)	Male	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	miguel.garzon@uam.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-0438-5158	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	30/01/2012		
Institution	Universidad Autónoma de Madrid (UAM)		
Department/Center	Anatomy, Histology and Neuroscience	Medical School	
Country	Spain	Teleph. number	
Key words	Sleep, narcolepsy, receptor, hypocretin, brainstem, REM, behavior		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2000-2012	Associate Professor (P. Titular) / UAM / Spain
1997-1999	Postdoctoral Fellow / Cornell University / USA
1994-1997	Assistant Professor (Ayudante LRU) / UAM / Spain
1993-1996	FPU Graduate Fellow / UAM / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Medicine and Surgery (Neuroscience Program)	Universidad Autónoma de Madrid / Spain	1996
Medical Degree	Universidad Autónoma de Madrid / Spain	1992

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Miguel Garzón obtained both his MD degree (1992) and Neuroscience PhD degree (1996) in UAM with honors (extraordinary awards of undergraduate and graduate levels). He also got the “López Sánchez Foundation Award” from the Real Academia Nacional de Medicina to the best Doctoral Thesis in 1997 and was postdoctoral fellow in Cornell Medical College (New York, USA; 1997-1999) as the recipient of a fellowship from “Ministerio de Educación y Ciencia” for postdoctoral research stays abroad. Dr. Garzón has received the Award from European Sleep Research Society for Young Researchers (2000), the "Javier Espinar Sierra" Award from Vigilia-Sueño Foundation (2003), the "Ramón y Cajal" Basic Research Award from Asociación Madrileña de Neurología (2010) and Award from "Instituto de Investigación del Hospital La Paz (IDIPAZ)" to best publications in the Neuroscience Area (2012). He has been Academic Registrar of Medical School UAM (2011-2015) and Chairman of “Anatomía, Histología y Neurociencia” Department UAM (2017-2025).

During his academic career, Dr. Garzón has studied the neurobiological substrates for 1) opiate actions in the central nervous system in acute and chronic administration, especially those regarding cortical electroencephalographic synchronization and sleep states, 2) ultrastructural bases for opiate- and cholinergic- reinforcement in the mesocorticolimbic system within the mammalian brain, and 3) hypocretin regulation of sleep-wake states, mainly focused on brainstem-mediated arousing actions,

neural connections and chemical architecture. He is the author of 47 original research papers, 9 book chapters and 8 review articles, with an h-index of 22. He has also been the principal investigator of 9 research projects funded by competitive national calls and has participated in many others. He is author of thirty-five research papers published in recognized neuroscience international journals and twelve in national journals on neuroscience research field. Dr. Garzón has attended numerous international and national scientific meetings in the Sleep Neurobiology field as participant, invited speaker or organizer (over 55 presentations in international research meetings and over 25 presentations in national research meetings). He has been referee or review editor for numerous international journals in Sleep and Neuroscience research fields and evaluation agencies (e.g. AEI, ANEP, DGI de la Comunidad de Madrid, ACSUCYL, ANECA).

Miguel Garzón has been teaching Anatomy and Neurobiology more than 30 years to medical students. He has also been teacher and director of postgraduate courses in Neuroscience for the last 29 years and has extensive experience in the formation of pre- and post-graduate students as a director of PhD and Master theses in the Neuroscience field. He has mentored five PhD students who succeeded in their research careers and now have positions in Spain and abroad. He has enrolled in international collaborative research with other neuroscientists from his PhD completion until now and keeps several lines of research open with his international partners. He has been the representative of UAM Neuroscience Posgraduate Program in the Network of European Neuroscience Schools (NENS) from 2006 to 2014. Additionally, he has also mentored 4 Erasmus+ internship students leading to end-of-degree theses at other European universities and 3 more Erasmus undergraduate students.

The main research interest of Dr. Garzón has always been the study of the neurobiological bases of sleep-wake cycle regulation. His contributions to this field have been highly valued among his colleagues. In fact, on numerous occasions he is asked to give keynote lectures at national and international meetings. He has been also very involved in diffusion of results of his research not only to partner scientist but also to final users and society in general. And thus, he has been invited repeatedly as sleep specialist by press and radio media for dissemination of general information to the public about sleep, and also been requested by industry to test or double-check some hypnotic drugs in animal models.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications

Fernández-Sánchez M., C. Barros-García and **M. Garzón**. Non-invasive wireless electroencephalographic recording of the sleep-wake cycle in freely moving reptiles, birds, and mammals: A novel methodology compatible with animal welfare. *Front. Vet. Sci.* 2026. *In press*.

Carrera-Cañas C., I. De Andrés, M. Callejo and **M. Garzón**. Hypocretin/orexin peptide release occurs mostly extrasynaptically, is self-controlled, and specifically enhanced in female rats. *Exp. Neurol.* 2025. 394:115438. doi: 10.1016/j.expneurol.2025.115438.

Carrera-Cañas C., I. De Andrés, M. Callejo and **M. Garzón**. Molecular Characterization of a Pharmacological Model with Narcolepsy-like Features in Rats. Role of the Hypocretinergic/Orexinergic Receptor 1 as an Autoreceptor. *Front. Mol. Neurosci.* 2022. 15:1013182. doi: 10.3389/fnmol.2022.1013182. eCollection 2022.

Garzón M., J. Chan, K. Mackie and V.M. Pickel. Prefrontal cortical distribution of muscarinic M2 and cannabinoid-1 (CB1) receptors in adult male mice with or without chronic adolescent exposure to Δ^9 -THC. *Cerebral Cortex* 2022. bhac024. doi: 10.1093/cercor/bhac024.

Garzón M., G. Wang, J. Chan, F. Bourie, K. Mackie and V.M. Pickel. Adolescent administration of Δ^9 -THC decreases the expression and function of muscarinic-1 receptors in prelimbic prefrontal cortical neurons of adult male mice. *IBRO Neurosci. Rep.* 11:144-155. 2021.

Robayo Avendaño O., X. Alvira Botero and **M. Garzón**. Ultrastructural evidence for mu and delta opioid receptors at noradrenergic dendrites and glial profiles in the cat locus coeruleus. *Brain Res* 1762:147443. doi: 10.1016/j.brainres.2021.147443. Epub 2021 Mar 19. 2021.

Carrera-Cañas C., **M. Garzón** and I. De Andrés. The transition between slow-wave sleep and REM sleep constitutes an independent sleep stage organized by cholinergic mechanisms in the rostradorsal pontine tegmentum. *Front. Neurosci.* 13:748. 2019. doi: 10.3389/fnins.2019.00748.

Garzón M. Análisis y reflexión sobre el trastorno de conducta del sueño REM. *Encuentros Multidisciplinares* 53:1-8. 2016.

De Andrés I., **M. Garzón** y F. Reinoso-Suárez. Mecanismos neurobiológicos de los estados del Ciclo Vigilia-Sueño. En: Tratado de Medicina del Sueño. Eds. Sociedad Española de Sueño. Editorial Médica Panamericana, Madrid, pp. 62-75. 2015. ISBN: 9788498358636

Cid-Pellitero E., **M. Garzón**. Hypocretin1/orexinA-immunoreactive axons form few synaptic contacts on rat Ventral Tegmental Area neurons that project to the medial prefrontal cortex. *BMC Neuroscience* 15:1-17 (Article 105). 2014. doi: 10.1186/1471-2202-15-105.

Tortorella S., M.L. Rodrigo-Angulo, A. Núñez and **M. Garzón**. Synaptic interactions between perifornical lateral hypothalamic area, locus coeruleus nucleus and the oral pontine reticular nucleus are implicated in the stage succession during sleep-wakefulness cycle. *Front Neurosci (Neuropharmacology)* 7:1-9 (Article 216). 2013. doi: 10.3389/fnins.2013.00216.

Reinoso-Suárez F., I. de Andrés and **M. Garzón**. Functional Anatomy of the Sleep-Wakefulness Cycle: Wakefulness. In: Advances in Anatomy, Embryology and Cell Biology Vol 208. Ed. H.W. Korf. Springer, Heidelberg, 130 pp. 2011. ISBN: 9783642146268.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

M. Garzón. Neurobiología del Sistema hipocretinérgico/orexinérgico. Invited lecture in Workshop. World Sleep 2023. Río de Janeiro, 2023

C. Carrera-Cañas, I. de Andrés, M. Callejo and **M. Garzón**. Hypocretinergic/Orexinergic transmission: volume versus synaptic neuropeptides release. Differential roles of the hypocretinergic/orexinergic receptors. Oral session. XXVIIth Congress of the European Sleep Research Society. Seville, 2024

M. Rivas, F. Peña, D. Serantes, C. Carrera-Cañas, B. Carrasco, P. Torterolo, I. de Andrés, **M. Garzón** and L. Benedetto. The blockade of hypocretin/orexin receptors promotes sleep and reduces active maternal behaviour in lactating rats. Poster. XXVIIth Congress of the European Sleep Research Society. Seville, 2024

C. Carrera-Cañas, M. Rivas, **M. Garzón**, M. Callejo, P. Torterolo and I. de Andrés. Transitions to REM sleep in the rat. Alterations induced by the acute blockade of Hypocretinergic/Orexinergic transmission. Poster. XXVIIth Congress of the European Sleep Research Society. Seville, 2024

C. Carrera-Cañas, M. Rivas, M. Callejo, I. de Andrés, P. Torterolo and **M. Garzón**. Acute effects of suvorexant on the proportions and architecture of the sleep-wake cycle stages in wild-type rats: induction of narcoleptic traits. Poster. World Sleep 2023. Río de Janeiro, 2023

M. Garzón. Hypocretinergic neurotransmission system in the oral pontine tegmentum: Impact on sleep-wake cycle and narcoleptic traits. Invited lecture in Symposium. World Sleep 2023. Río de Janeiro, 2023

M. Rivas, F. Peña, C. Carrera-Cañas, B. Carrasco, A. Ferreira, P. Torterolo, I. de Andrés, **M. Garzón** and L. Benedetto. Effects of the dual hypocretin/orexin receptor antagonist Suvorexant on sleep and maternal behavior in lactating rats. Poster. World Sleep 2023. Río de Janeiro, 2023

C. Carrera-Cañas, **M. Garzón**, M. Callejo and I. de Andrés. Hypocretinergic/Orexinergic transmission is mostly volumetric and it is self-controlled by hypocretinergic/orexinergic receptors. Poster. XIth World Congress of Neuroscience, International Brain Research Organization. Granada, 2023

M. Garzón. El sistema hipocretinérgico en la patogenia de la narcolepsia: Receptores hipocretinérgicos y mecanismos de plasticidad en el hipotálamo y el tegmento pontino. Conferencia inaugural de Congreso XXX Reunión Anual de la Sociedad Española de Sueño. Pamplona, 2022

C. Carrera-Cañas, **M. Garzón**, M. Callejo and I. de Andrés. Expression of Hypocretinergic/Orexinergic Receptors in Hypothalamus and Pontine REM Sleep-Related Areas. Plasticity in a Pharmacological Model with Narcolepsy-like Features in Rats. Oral session. XXVIth Congress of the European Sleep Research Society. Athens, 2022

M. Garzón. Hypocretin targeting of pontine neural networks governing REM sleep
Invited conference in international Symposium.
8th Conference of the Mediterranean Neuroscience Society. Dubrovnik, 2022

J.J. Navarrete, J. Ojeda, C. Carrera-Cañas, M. Callejo, R. Sanz⁵, **M. Garzón**, I. de Andrés and R. del Río-Villegas. New narcolepsy-ataxia and neuropathy phenotype not associated with DNMT1. Poster. World Sleep 2022. Rome, 2022

C. Carrera-Cañas, **M. Garzón**, M. Callejo and I. de Andrés. Hypocretin Release and Plasticity of Hypocretinergic Receptors in a Pharmacological Model with Narcolepsy-like Features Induced by Suvorexant in Rats. Oral session. World Sleep 2022. Rome, 2022

C. Carrera-Cañas, R. del Río-Villegas, J. Ojeda, M. Callejo, **M. Garzón** and I. de Andrés. Reliability of a Competitive Enzyme-linked Immunosorbent Assay (ELISA) in Detection of Narcolepsy. Poster. World Sleep 2022. Rome, 2022

M. Garzón. Señalización por Hipocretina/Orexina en el tegmento pontino en los mecanismos de sueño REM. Invited lecture in Symposium. XXIX Reunión Annual de la Sociedad Española de Sueño. Online, 2021

C. Carrera-Cañas; **M. Garzón** and I. de Andrés. The perilocus coeruleus α region organizes the gradual transition between slow wave sleep and REM sleep. Oral presentation. 4th Human Brain Project Student Conference on Interdisciplinary Brain Research. Pisa, 2020.

C. Carrera-Cañas, **M. Garzón** and I. de Andrés. Cholinergic mechanisms in the rostradorsal pontine tegmentum organize the transition between slow-wave sleep and REM sleep. Poster. 42nd Congress of the Spanish Society of Biochemistry and Molecular Biology. Madrid, 2019

M. Garzón. Basic neural mechanisms involved in sleep initiation and sleep maintenance. Invited lecture in international Symposium. Sleep Disorders: from neurobiology to systemic consequences (Fund. Ramón Areces). Madrid, 2018

M. Garzón. Review of neuronal pathways implicated in narcolepsy. Invited lecture in international Symposium. 8th European Narcolepsy Day Meeting. International Symposium. European Narcolepsy Association. Palma de Mallorca, 2017.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

Title: *Desarrollo clínico de una nueva terapia para el tratamiento de la narcolepsia (Adenowake)*
Funding Agency: Ministerio de Ciencia, Innovación y Universidades. Ref. CPP2023-010422. 410655€
from: 2024 to: 2027 P.I.: Miguel Garzón

Title: *La Narcolepsia como enfermedad del sueño REM. Caracterización clínica y mecanismos neurobiológicos*
Funding Agency: Fundación Eugenio Rodríguez Pascual. Ref. FERP2021/08. 25000€
from: 2022 to: 2023 P.I.: Miguel Garzón

Title: *Viral S protein-ACE2 interactions: cell damage, protection and prognosis in the cardiovascular complications of COVID-19 (SPACE2-CV-COVID-CM)*
Funding Agency: Comunidad de Madrid. Ref. Fondo REACT-EU. 1261000€
from: 2020 to: 2022 P.I.: Concepción Peiró / Óscar Lorenzo

Title: *El Sistema Hipocretinérgico en la fisiopatología de la Narcolepsia y de las Hipersomnias Centrales. Claves para el diagnóstico diferencial*
Funding Agency: Fundación FEDER para la Investigación de Enfermedades Raras. Ref. FI19058. 25000€
from: 2019 to: 2021 P.I.: Isabel De Andrés

Title: *Sistema hipocretinérgico y regulación del ciclo vigilia-sueño*
Funding Agency: Universidad Autónoma de Madrid. Ref. UAM/105.



from: 2018 to: 2018

P.I.: Miguel Garzón

Title: *Estudio experimental y clínico de la narcolepsia: Mecanismos mediados por el tegmento pontino. Relaciones con otras hipersomnias centrales*

Funding Agency: Dirección General de Investigación. Ref. BFU2013-43741-P.

from: 2014 to: 2016

P.I.: Miguel Garzón / Isabel de Andrés

C.4. Organization of International Courses for PhD students

- Surgical Anatomy: from Theory to Dissection. CIVIS Alliance Blended Intensive Program. Eberhard Karla Universität. Tübingen, 2025.
- 2nd PhD Research Symposium in Health Sciences and Biomedicine. International Symposium. Universidad Autónoma de Madrid (UAM). Madrid, 2021.
- 1st PhD Research Symposium in Health Sciences and Biomedicine. International Symposium. Universidad Autónoma de Madrid (UAM). Madrid, 2018.

C.5. Lectures in International postgraduate courses

- Surgical Anatomy of the Neck. In: Surgical Anatomy: From Theory to Dissection. BIP Summer Course CIVIS Alliance. University of Tübingen. Tübingen, 2025.
- Neurobiología del Sistema Hipocretinérgico. In: Bases Neurobiológicas del Sueño. Postgraduate Course. Universidad de La República. Montevideo, 2024.
- El registro de la actividad eléctrica en la superficie del cráneo. In: Desafíos tecnológicos de la Neurociencia y su dimensión ética. Summer Course. Universidad Internacional Menéndez Pelayo (UIMP). Santander, 2023.
- Dormir o no dormir, esa es la cuestión. In: IAP Talks. International Academic Program-UAM, 2022.
- Neural circuits involved in REM sleep manifestations in narcolepsy. In: Physiopathology of sleep-wake states. Organizer: Aix-Marseille Université. Marseille, 2020.
- Sistemas ascendentes inespecíficos en el sistema nervioso: ¿cómo de inespecíficos son?; Sistemas de memoria; Sistema dopaminérgico mesocorticolímbico: bases neurales del refuerzo mediado por activación de receptores opioides y colinérgicos. In: Curso Internacional de Neurociencia. Organizer: Universidad Autónoma de Nuevo León (UANL). Monterrey, 2018.
- Neurobiología del Sueño; Regulación hipotalámica del ciclo vigilia-sueño; Modelos experimentales de trastornos del sueño REM; El sueño unihemisférico en mamíferos de vida acuática. In: Avances en Neurociencia. Organizer: Universidad Autónoma de Nuevo León (UANL). Monterrey, 2017.
- Mecanismos Cerebrales del Sueño. In: Sueño: Neurociencia, Salud y Hábitos Sociales. Summer Course. Universidad Internacional Menéndez Pelayo (UIMP). Santander, 2017.

C.6. Committee Appointments

- 2022-2025 Member of the Programs Committee. Sociedad de Neurociencia (SENC).
- 2017-2025 Director of the Department of Anatomy, Histology and Neuroscience, UAM.
- 2015-2024 Permanent Academic Representative. Steering Council, UAM.
- 2012-2016 Security and Health Committee Delegate, UAM.
- 2011-2015 Academic Registrar, UAM Medical School
- 2010-2011 Secretary of Academic Committee of Graduate Neuroscience Program (MSc, PhD), UAM
- 2009-2019 Madrid Chapter Delegate, Society for Neuroscience
- 2007-2011 International Relationships Delegate, UAM Medical School.
- 2006-2014 Network of European Neuroscience Schools (NENS).
- 1999-2010 Secretary of the Neuroscience PhD Program, UAM.