

Part A. PERSONAL INFORMATION		CV date	09/09/2019
First and Family name	MIRIAM GRANADO GARCÍA		
Social Security, Passport, ID number	46852604V	Age	41
Researcher numbers	Researcher ID	http://www.researcherid.com/rid/B-8978-2017	
	Orcid code	http://orcid.org/0000-0001-9178-8822	

A.1. Current position

Name of University/Institution	Universidad Autónoma de Madrid		
Department	Physiology		
Address and Country	Arzobispo Morcillo St.		
Phone number	+34914976974	E-mail	miriam.granado@uam.es
Current position	Associate Professor	From	21/12/2017
Espec. cód. UNESCO	241010		
Palabras clave	Aging, metabolic síndrome, cardiovascular, insulin sensitivity, nutraceuticals, functional foods		

A.2. Education

	University	Year
PhD in Physiology	Universidad Complutense de Madrid	2007
BSc in Pharmacy	Universidad Complutense de Madrid	2001

A.3. General indicators of the quality of scientific production

- ❑ **Direction of Doctoral Theses in the last 10 years:** 2
- ❑ **Total number of publications:** 51 (34 in Q1)
- ❑ **Publications in the last 5 years:** 20 (16 in Q1)
- ❑ **Publications as first author:** 21
- ❑ **Publications as last author:** 5
- ❑ **Total citations:** 1223 (Google Scholar); 805 (JCR)
- ❑ **Citations in the last 5 years:** 694 (Google Scholar); 453 (JCR)
- ❑ **Average number of citations per year:** 50.31
- ❑ **H Index:** 20 (Google Scholar); 18 (JCR)
- ❑ **I10 Index:** 30

Part B. CV SUMMARY (*max. 3500 characters, including spaces*)

I started my research career in 2002 with my incorporation to the Department of Physiology of the Faculty of Medicine of the Complutense University of Madrid. In 2004 I was awarded with a FPU grant from the Ministry of Education and Science, which satisfied my strong desire to initiate my Doctoral Thesis in the field of inflammatory cachexia under the direction of Drs. Asunción López-Calderón and Angeles Villanúa. During my predoctoral period I participated in 10 research projects, and I published 16 scientific articles (8 of them as first author) in international journals of recognized prestige, most of them in the first quartile of their area. In the year 2006 I did a 4-month stay in the "Research Institute for Sport and Exercise Sciences" of the John Moores University of Liverpool (UK). In 2007, I presented my Doctoral Thesis for scientific papers entitled "Role of the GH-IGF-I, TNF α and COX-2 in cachexia induced by experimental arthritis". The Thesis was qualified with Outstanding Cum Laude and obtained the European Doctorate Mention and the Extraordinary Doctorate Award. In 2008 I joined the Pediatrics Department of the Faculty of Medicine of the Autonomous University of Madrid with a post-doctoral fellowship Juan de la Cierva, in the group of Dr. Jesus Argente which belongs to the CIBER of Physiopathology of Obesity and Nutrition. During my stay in this group my interest was focused on the study of leptin and ghrelin in metabolic diseases such as obesity and diabetes. I participated in 6 research

projects and published 14 scientific articles in journals with a high impact index, 7 of them as first author. Note that one of the papers published with this group was accepted in the prestigious “Journal of Clinical Investigation” (impact index = 13,069). In 2011 I received the “Young Investigator Award in Basic Sciences” from the European Association for the Study of Obesity (EASO). This scientific excellence award was granted for my research in the field of modifications of leptin levels during the perinatal period. In October 2010, I joined the Department of Physiology of the Faculty of Medicine of the Autonomous University of Madrid (UAM) with a contract of Assistant Professor. Within this Department, I started my teaching career and established my own line of research focused on the study of metabolic and cardiovascular alterations associated with obesity and aging and its possible treatment/prevention through nutraceutical products and functional foods. Within this group I have participated in 7 competitive research projects financed with public funds, two of them as PI, and in three research contracts with companies, in all of them as PI. Since my incorporation to the Department of Physiology of the UAM in 2010 I have published 30 articles (11 of them as the first author and six as last author) in prestigious journals, most of them in the first quartile of their area. In addition, as a result of my collaboration with the company Pharmactive Biotech Products I am part of the group of inventors of a patent that is currently in an international phase. Throughout this period I have directed two Doctoral Theses, 5 TFMs and 10 TFGs, and I have done three postdoctoral stays, one at the Pennington Biomedical Research Center in Baton Rouge (Louisiana, USA) in 2012, another one at the Langone Medical Center of the New York University in 2013 and another one in the School of Biomedical Sciences, Chinese University of Hong Kong in 2015.

Part C. RELEVANT MERITS

C.1. Most relevant international publications in the last 5 years. (The ones underlined are related to the present project)

2019. Daniel Jaque, Dirk Ortgies, Angel Luis villalon, **Miriam Granado**, Emma Martin, Harrison D.A Santos, Jorge Rubio-Retama. “Infrared fluorescence imaging of infarcted heart with Ag2S nanodots”. Nano Research. Volume 12, Issue 4, pp 749–757.

2019. Amor S, González-Hedström D, Martín-Carro B, Inarejos-García AM, Almodóvar P, Prodanov M, García-Villalón AL, **Granado M**. Beneficial effects of an aged black garlic extract in the metabolic and vascular alterations induced by a high fat/sucrose diet in male rats. Nutrients. 2019 Jan 12;11(1). pii: E153. doi: 10.3390/nu11010153.

2019. **Miriam Granado**, Sara Amor, Beatriz Martín-Carro, Lucía Guerra-Menéndez, Daniel Gonzalez-Hedström, Carmen Rubio, Jose M^a Carrascosa, Ángel Luis García-Villalón. Caloric restriction attenuates aging-induced cardiac insulin resistance in male Wistar rats through activation of PI3K/Akt pathway. Nutrition, Metabolism and Cardiovascular Diseases. Jan;29(1):97-105. doi: 10.1016/j.numecd.2018.09.005

2018. Jie Hu, Dirk H. Ortgies, Emma Martín Rodríguez, Fernando Rivero, Rio Aguilar Torres, Fernando Alfonso, Nuria Fernández, Gonzalo Carreño-Tarragona, Luis Monge, Francisco Sanz-Rodríguez, Maria del Carmen Iglesias, **Miriam Granado**, Angel Luis Villalon, José Garcia Solé and Daniel Jaque. Optical nanoparticles for cardiovascular imaging. Advanced Optical Materials. In press.

2018. Amor S, Martín-Carro B, Rubio C, Carrascosa JM, Hu W, Huang Y, García-Villalón AL, **Granado M**. Study of insulin vascular sensitivity in aortic rings and endothelial cells from aged rats subjected to caloric restriction: Role of perivascular adipose tissue. Experimental Gerontology pii: S0531-5565(17)30591-0. doi: 10.1016/j.exger.2017.10.017. (Q1)

2017. González-Guerra JL, Castilla-Cortazar I, Aguirre GA, Muñoz Ú, Martín-Estal I, Ávila-Gallego E, **Granado M**, Puche JE, García-Villalón ÁL. Partial IGF-1 deficiency is sufficient to reduce heart contractibility, angiotensin II sensibility, and alter gene expression of structural and functional cardiac proteins. PLoS One. 14;12(8):e0181760. (Q1)

2017. **Granado M**, Amor S, Fernández N, Carreño-Tarragona G, Martín-Carro B, Monge L, García-Villalón AL. Effects of early overnutrition on the renal response to Angiotensin II and expression of RAAS components in rat renal tissue. Nutrition, Metabolism and Cardiovascular Diseases. 2017 Oct;27(10):930-937. doi: 10.1016/j.numecd.2017.06.019 (Q1)

2017. Amor S, García-Villalón AL, Rubio C, Carrascosa JM, Monge L, Fernández N, **Granado M**. Effects of age and caloric restriction in the vascular response of renal arteries to

- endothelin-1 in rats. Experimental Gerontology. Feb;88:32-41. doi: 10.1016/j.exger.2016.12.020. (Q1)
- 2016.** García-Villalón AL, Amor S, Monge L, Fernández N, Prodanov M, Muñoz M, Inarejos-García AM, **Granado M**. In vitro studies of an aged black garlic extract enriched in S-allyl cysteine and polyphenols with cardio protective effects. Journal of Functional Foods. Volume 27, December 2016, Pages 189–200 (Q1)
- 2016.** Esther Fuente-Martín, Cristina García-Cáceres, Pilar Argente-Arizón, Francisca Díaz, Alejandra Freire-Regatillo, **Miriam Granado**, David Castro-González, Laura M. Frago, María L. Ceballos, Suzanne Dickson, Jesús Argente, and Julie Chowen. Ghrelin Regulates Glucose and Glutamate Transporters in Hypothalamic Astrocytes. Scientific Reports. 30;6:23673. doi: 10.1038/srep23673.. (Q1)
- 2015.** Amor S, Iglesias-de la Cruz MC, Ferrero E, García-Villar O, Barrios V, Fernandez N, Monge L, García-Villalón AL, **Granado M**. Peri-tumoral adipose tissue as a source of inflammatory and angiogenic factors in colorectal cancer. International Journal of Colorectal Disease. Int J Colorectal Dis. 2016 Feb;31(2):365-75. (Q2)
- 2015.** **Miriam Granado**, Sara Amor, Juan José Montoya, Luis Monge, Nuria Fernández, Ángel Luis García-Villalón. Altered expression of P2Y2 and P2X7 purinergic receptors in the isolated rat heart mediates ischemia-reperfusion injury. Vascular Pharmacology 73:96-103. doi: 10.1016/j.vph.2015.06.003 (Q1).
- 2014.** **Granado M**, Rubio C, Amor S, Monge L, Fernández N, Carreño-Tarragona G, Carrascosa JM, García-Villalón AL. Effects of age and caloric restriction on the cardiac and coronary response to endothelin-1 in rats. Experimental Gerontology. 2014 Dec;60:183-9. doi: 10.1016/j.exger.2014.10.018. (Q1)
- 2014.** Ángel Luis García-Villalón, **Miriam Granado**, Luis Monge, Nuria Fernández, Gonzalo Carreño-Tarragona, Sara Amor. Purinergic Component in the Coronary Vasodilatation to Acetylcholine after Ischemia-Reperfusion in Perfused Rat Hearts. Journal of Vascular Research. 2014;51:283-289 (DOI: 10.1159/000365928). (Q2)
- 2014.** García-Cáceres C, Fuente-Martín E, Díaz F, **Granado M**, Argente-Arizón P, Frago LM, Freire-Regatillo A, Barrios V, Argente J, Chowen JA. The opposing effects of ghrelin on hypothalamic and systemic inflammatory processes are modulated by its acylation status and food intake in male rats. Endocrinology 2014 155(8):2868-80. (Q1).
- 2014.** **Granado M**, Díaz F, Fuente-Martín E, García-Cáceres C, Argente J, Chowen JA. The metabolic response to postnatal leptin in rats varies with age and may be litter dependent. Hormone and Metabolic Research. 2014 Jun;46(7):462-70. doi: 10.1055/s-0033-1363226. (Q2)

C.2. Research projects and grants (last 5 years)

- 2019.** Daniel Jaque, Dirk Ortgies, Angel Luis villalon, **Miriam Granado**, Emma Martin, Harrisson D.A Santos, Jorge Rubio-Retama. "Infrared fluorescence imaging of infarcted heart with Ag2S nanodots". Nano Research. In press.
- 2019.** Amor S, González-Hedström D, Martín-Carro B1, Pernas-Pleite C, Mayoral-Campos C, Inarejos-García AM, Almodóvar P, Prodanov M, García-Villalón AL, **Granado M**. Beneficial effects of an aged black garlic extract in the metabolic and vascular alterations induced by a high fat/sucrose diet in male rats. Nutrients. 12;11(1). pii: E153. doi: 10.3390/nu11010153
- 2019.** **Miriam Granado**, Sara Amor, Beatriz Martín-Carro, Lucía Guerra-Menéndez, Daniel Gonzalez-Hedström, Carmen Rubio, Jose M^a Carrascosa, Ángel Luis García-Villalón. Caloric restriction attenuates aging-induced cardiac insulin resistance in male Wistar rats through activation of PI3K/Akt pathway. Nutrition, Metabolism and Cardiovascular Diseases. 29(1):97-105. doi: 10.1016/j.numecd.2018.09.005.
- 2018.** **Project title:** "Effect of omega-3 fatty acids from algae on the cardiometabolic alterations associated with aging: Development of a new functional ingredient." Financing entity: Community of Madrid; Doctorado Industrial Ref IND2017 / BIO-7701. Duration: February 2018 to February 2021. PI: Miriam Granado García Amount: 74700 euros
- 2017.** **Project title:** "Nanoparticles and speckle laser for tissue diagnosis in vivo". Financing entity: UAM-Banco Santander. 1st Call for Inter-University Cooperation Projects UAM-Banco Santander (Yurem). Duration: July 2017-December 2018 PI: Nuria Fernández Monsalve Amount: 15000 euros

2016. Project title: “Resistance to the cardiovascular effects of insulin in overweight.” Financing entity: CEU-Banco Santander. Call for Pre-competitive projects San Pablo University CEU-Banco Santander. Duration: July 2016- August 2018. PI: Lucía Guerra Menéndez Amount: 12000 euros

2015. Project title: “Effects of aging and caloric restriction on insulin resistance in the cardiovascular system.” Financing entity: UAM-Banco Santander. 3rd Call for Inter-University Cooperation Projects UAM-Banco Santander with Asia. Duration: July 2015 to December 2016. PI: Miriam Granado García. Amount: 12000 euros

2013. Project title: “Effects of aging and caloric restriction on the response of the myocardium and the coronary and renal arteries to endothelin-1. Financing entity: 2nd Call for Inter-University Cooperation Projects UAM-Banco Santander with EEUU. Duration, from: July 2013 to: December 2014. PI: Angel Luis García-Villalón. Amount: 10000 euros

C.3. Contracts

2018. “Effects of fiber from carob tree on the cardiometabolic alterations associated with obesity. Research contract funded by the company Pharmactive Biotech Products S.L. Duration: March 2018-December 2019. Principal Investigator: Miriam Granado García. Amount: 23000 euros.

2016. “Effects of two dietary components on the cardiovascular alterations induced by a diet rich in fats: Possible benefits on cardiovascular resistance to insulin.” Research contract funded by the company Pharmactive Biotech Products S.L. Duration: June 2016- November 2017. Principal Investigator: Miriam Granado García. Amount: 16000 euros.

2015. “In vitro study of the effects of concentrated extract of aged black garlic ABG10 + ® on cardiac and endothelial function in rats.” Research contract with the company Pharmactive Biotech Products S.L. Duration: May 29 - October 31, 2015. Principal Investigator: Miriam Granado García. Amount: 3000 euros

C.4. Patents

2018. Inventor of the PCT/EP2018/075325 “Dietary fiber composition for protection bioactive compounds during the physiological digestion process” . Pharmactive Biotech Products S.L.

C.5. Awards

2013. XII Frederik Paulsen Prize 2013 sponsored by the Ferring Laboratories and delivered at the XXXIV Congress of the Spanish Society of Pediatric Endocrinology for the work “Early Postnatal overnutrition increases adipose tissue accrual in response to a sucrose-enriched diet”

2013. Accesit 2013 Award sponsored by the Merck Serono laboratories and delivered at the XXXIV Congress of the Spanish Society of Pediatric Endocrinology for the work “Leptin regulates glutamate and glucose transporters in hypothalamic astrocytes”

2011. Young Investigator Award 2011 for Scientific Excellence awarded by the European Society for the Study of Obesity (EASO).

2008. Extraordinary Doctorate Award (Basic Sciences). Faculty of Medicine, Complutense University of Madrid.

2007. Prize for the best oral communication of the 2nd Iberoamerican Congress on Neuroimmunomodulation entitled “Cyclooxygenase-2 (COX-2) activation mediates muscle wasting in arthritic rats”.

C.6. Additional Merits

- ✓ Accreditation to “Profesor Titular de Universidad” (since 2015)
- ✓ Grade A (Excellent) in the DOCENTIA program (years 2015 and 2018)
- ✓ Member of the Spanish Society for the Study of Obesity (SEEDO), Spanish Society of Physiological Sciences (SECF) and CIBER of Physiopathology of Obesity and Nutrition
- ✓ Reviewer of the journals Endocrinology, Plos One and Molecular Nutrition and Food Research (among others)
- ✓ Academic Secretary of the Physiology Department (2012-2016)