

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Antonio		
Family name	Carrillo Vico		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	vico@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-8516-0999		

(*) *Mandatory*

A.1. Current position

Position	Full Professor		
Initial date	31/08/2021		
Institution	Universidad de Sevilla		
Department/Center	Departamento de Bioquímica Médica y Biología Molecular e Inmunología. Fac. Medicina)	Instituto de Biomedicina de Sevilla (IBiS)	
Country	Spain	Teleph. number	955923106
Key words	Inflammation, oxidative stress, peptides hydrolyzed peptides, endocrinology, melatonin, multiple sclerosis, metabolic diseases		

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

Period	Position/Institution/Country/Interruption cause
18/03/2012-30/08/2021	Associate Professor/University of Seville/Spain
01/12/2008-17/03/2012	Lecturer/ University of Seville/Spain
01/12/2006-30/11/2008	Postdoctoral Fellow/University of Edinburgh/UK

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Biological Sciences	Universidad de Sevilla/Spain	1997
PhD in Biology	Universidad de Sevilla/Spain	2005

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

I am a full professor of the Department of Medical Biochemistry and Molecular Biology and Immunology at the Faculty of Medicine (FME) at the University of Seville (US). I graduated in Biology from the US in 1997 and obtained the Ph.D. in 2005 (Extraordinary award). Since 1999 I have held several positions as FEBS postdoctoral fellow, lecturer and associate Professor. I completed my postdoctoral period at the Institute of Immunology and Infection Research at the University of Edinburgh (2006-2008). I lead the Molecular NeuroImmunoEndocrinology (NIEM) research group from 2017 at the Institute of Biomedicine of Seville (IBiS). I have participated in more than 20 competitive research projects from national, local and private agencies in the fields of Biomedicine and Science and Food Technology, as well as in research contracts. I have published 60 JCR articles with more than 3700 citations, with an "h-index" of 30 (WOS, January-2023). In addition, I have collaborated with numerous national and international research groups, such as being part of RETICEF (Network of aging and frailty granted for the Carlos III Health Institute) from 2007 to 2017 or the international collaboration with the Food Chemistry Lab group (Milan University) led by Dra. Lammi that allow us to establish a stable partnership for the joint application of research projects, such as the recently obtained project



“TED2021-131108B-I00”, the research contract “4588/0401” and an exchange program of Ph.D. and postdoctoral students.

The research line focus on the pre-clinical and clinical assessment of bioactive peptides from plant sources, has been uninterrupted funding since 2012 by means of 4 research projects from competitive actions. The first project (AGL2012-40247-C02-02), a joint action with the Plant Proteins (PP) group of the Instituto de la Grasa, allowed us, not only to establish a permanent partnership with the PP group, but also to evaluate the functionality of vegetable protein compounds from lupin in human biological samples *in vitro* and to carry out a clinical trial in healthy volunteers with an experimental drink formulated based on protein hydrolysates from lupine (Lupine-1; ClinicalTrials.gov Identifier: NCT02590887) generated at pilot plant scale. Both groups (NIEM and PP) have continued to collaborate through projects such as PC-0111-2016-0111, which allow us to describe the hypolipidemic, anti-oxidant and immunomodulatory effects of lupin protein hydrolysates in a pre-clinical model of atherogenesis and fatty liver disease associated with metabolic dysfunction (MAFLD) and the project PEMP-0085-2020 aimed to evaluate the effect of lupin protein hydrolysates and melatonin combination on obesity and fatty liver disease associated with metabolism.

I have also led the first clinical trial in Europe to evaluate melatonin safety and efficacy of melatonin in primary progressive MS (study MELATOMS-1), authorized by the Spanish Agency for Medicines and Health Products on February 18, 2019 (identifier 2018-001779-18) in close collaboration with the Unit of Clinical Research and Clinical Trials (UICEC) of the Virgen del Rocío University Hospital (HUVR).

In addition, I am the author of books, book chapters, articles of scientific popularization and more than 50 communications at national and international congresses. I am also director of 5 FPU fellows and 11 doctoral theses (4 ongoing) and two postdoctoral contracts obtained in competitive calls. Furthermore, I have been a member of the editorial board of the Journal of Pineal Research and Sclerosis Journal, editor of two special issues focusing on the health properties of plant bioactive compounds in the International Journal of Molecular Sciences, and reviewer of more than 20 scientific journals.

I have also participated in R+D+i management in the US where I have been Deputy Dean of Research and Postgraduate Studies of the Faculty of Medicine (2010-2018), coordinator of the Master in Medical Sciences: clinical and experimental (2012-2018) and member of the US Research Board and several commissions related to research and postgraduate studies.

General indicators of quality of scientific production

- Direction of doctoral thesis in the last 10 years: 11 (4 ongoing)
- Number of indexed publications: 60
- Total cites (WOS; January 2022): 3707
- Publications in D1-Q1: 20
- Publications in Q1: 22
- h index: 30
- Books: 2; Book chapters: 4
- Communications in international congresses in the last ten years: 12

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (Research articles)

1.- Santos-Sánchez G, Ponce-España E, López JC et al.; **Carrillo-Vico A. (AC)** (12/12). A Lupin (*Lupinus angustifolius*) Protein Hydrolysate Exerts Anxiolytic-Like Effects in Western Diet-Fed ApoE^{-/-} Mice. *Int J Mol Sci.* 2022 Aug 29;23(17):9828. Impact factor (JCR): 6,208 (Q1).

2.- Santos-Sánchez G, Cruz-Chamorro I, Álvarez-Ríos AI et al.; **Carrillo-Vico A (AC)** (13/13). Bioactive Peptides from Lupin (*Lupinus angustifolius*) Prevent the Early Stages of Atherosclerosis in Western Diet-Fed ApoE^{-/-} Mice. *J Agric Food Chem.* 2022 Jul 13;70(27):8243-8253. Impact factor (JCR): 5,895 (D1-Q1).

3.- Santos-Sánchez G, Cruz-Chamorro I, Bollati C, et al. **Carrillo-Vico A, Lammi C. (A/C)** (12/13) A *Lupinus angustifolius* protein hydrolysate exerts hypocholesterolemic effects in Western diet-fed ApoE^{-/-} mice through the modulation of LDLR and PCSK9 pathways. *Food Funct.* 2022 Apr 4;13(7):4158-4170. Impact factor (JCR): 6,317 (D1-Q1).

4.- Cruz-Chamorro, Ivan; Santos-Sánchez, Guillermo; Álvarez-Sánchez, Nuria et al.; **Carrillo-Vico, Antonio; Fernández-Pachón, María Soledad (A/C)** (12/13). Alcoholic fermentation with *Pichia kluyveri* could improve the melatonin bioavailability of orange juice. *Journal of Functional Foods* Volume 99, December 2022, 105325. Impact factor (JCR): 5,223 (Q1).



5.- Santos-Sánchez, Guillermo; Álvarez-López, Ana Isabel; Ponce-España, Eduardo; **Carrillo-Vico, Antonio**; Bollati, Carlotta; Bartolomei, Martina; Lammi, Carmen; Cruz-Chamorro, Ivan (4/8). Hempseed (*Cannabis sativa*) protein hydrolysates: A valuable source of bioactive peptides with pleiotropic health-promoting effects. *Trends in Food Science & Technology* Volume 127, September 2022, Pages 303-318. Impact factor (JCR): 16,002 (Q1-D1).

6.- Santos-Sánchez G; Cruz-Chamorro I; Álvarez-Ríos AI; et al; **Carrillo-Vico A (AC)** (14/14). 2021. Lupinus angustifolius Protein Hydrolysates Reduce Abdominal Adiposity and Ameliorate Metabolic Associated Fatty Liver Disease (MAFLD) in Western Diet Fed-ApoE^{-/-} Mice. *Antioxidants (Basel)*. Jul 29-10(8), pp.1222. 2. Impact factor (JCR): 6,313 (Q1-D1).

7.- Cruz-Chamorro I; Álvarez-Sánchez N; Álvarez-Ríos AI; et al; **Carrillo-Vico A (AC)**. (16/16). 2021. Safety and Efficacy of a Beverage Containing Lupine Protein Hydrolysates on the Immune, Oxidative and Lipid Status in Healthy Subjects: An Intervention Study (the Lupine-1 Trial) *Molecular Nutrition and Food Research*. May-20, pp.1-10. Impact factor (JCR): 5,82 (Q1).

8.- Cruz-Chamorro I, Álvarez-Sánchez N, Santos-Sánchez G, **Carrillo-Vico A (AC)** (11/11). 2020. Immunomodulatory and Antioxidant Properties of Wheat Gluten Protein Hydrolysates in Human Peripheral Blood Mononuclear Cells. *Nutrients*. Jun 4;12(6):1673. Impact factor (JCR): 5,719 (Q1).

9.- Álvarez-Sánchez N, Cruz-Chamorro I, Álvarez-López AI, **Carrillo-Vico A (AC)** (9/9). 2020. Seasonal Variations in Macrophages/Microglia Underlie Changes in the Mouse Model of Multiple Sclerosis Severity. *Mol Neurobiol*. Oct;57(10):4082-4089. Impact factor (JCR): 5,59 (Q1).

10.- Álvarez-Sánchez, N; Álvarez-Ríos, AI; Guerrero, JM; **Carrillo-Vico, A (AC)** (8/8). Homocysteine and C-reactive protein levels are associated with frailty in older spaniards: the Toledo study for healthy aging. *J Gerontol A Biol Sci Med Sci*. 2020 Jul 13;75(8):1488-1494. Impact factor (JCR): 6,053 (D1-Q1).

11- Cruz-Chamorro I, Álvarez-Sánchez N, Millán-Linares MDC, **Carrillo-Vico A (AC)** (10/10). 2019. Lupine protein hydrolysates decrease the inflammatory response and improve the oxidative status in human peripheral lymphocytes. *Food Res Int*. Dec;126:108585. Impact factor (JCR): 4,972 (D1-Q1).

12.- Millán-Linares, M.C., Lemus-Conejo, A., Yust, M.M., Pedroche, J., **Carrillo-Vico, A.**, Millán, F., Montserrat-de-la-Paz, S. (5/8). 2018. GPETAFLR, a novel bioactive peptide from *Lupinus angustifolius* L. protein hydrolysate, reduces osteoclastogenesis. *J Funct Foods*. 47, 299-303. Impact factor (JCR): 3,470 (D1-Q1).

13.- Álvarez-Sánchez, N., Cruz-Chamorro, I., Díaz-Sánchez, M, **Carrillo-Vico A (AC)** (9/9). 2017. Melatonin reduces inflammatory response in lymphocytes from relapsing-remitting multiple sclerosis patients. *J Pineal Res*. Nov;63(4). Impact factor (JCR): 11,613 (D1-Q1).

14.- Álvarez-Sánchez N, Cruz-Chamorro I, López-González A, **Carrillo-Vico A (AC)** (9/9). 2015. Melatonin controls experimental autoimmune encephalomyelitis by altering the T effector/regulatory balance. *Brain Behav Immun*. Nov;50:101-14. Impact factor (JCR): 5,874 (Q1).

15.- Medrano-Campillo P, Sarmiento-Soto H, Álvarez-Sánchez N, **Carrillo-Vico A (AC)** (9/9). 2015. Evaluation of the immunomodulatory effect of melatonin on the T-cell response in peripheral blood from systemic lupus erythematosus patients. *J Pineal Res*. Mar;58(2):219-26. Impact factor (JCR): 9,314 (D1-Q1).

16.- López-González A, Álvarez-Sánchez N, Lardone PJ, Cruz-Chamorro I, Martínez-López A, Guerrero JM, Reiter RJ, **Carrillo-Vico A. (AC)** (8/8). 2015. Melatonin treatment improves primary progressive multiple sclerosis: a case report. *J Pineal Res*. Mar;58(2):173-7. Impact factor (JCR): 9,314 (D1-Q1).

17.- Lardone PJ, Alvarez-Sanchez SN, Guerrero JM, **Carrillo-Vico A. (AC)** (4/4). 2014. Melatonin and glucose metabolism: clinical relevance. *Curr Pharm Des*. 20(30):4841-53. Impact factor (JCR): 3,452 (Q1).

18.- Lardone, PJ; Guerrero, JM; Fernández-Santos, JM; Rubio, A; Martín-Lacave, I; **Carrillo-Vico, A. (AC)** (6/6) 2011. Melatonin synthesized by T lymphocytes as a ligand of the retinoic acid-related orphan receptor *J Pineal Res*. Nov-51(4), pp.454-462. 31. Impact factor (JCR): 5,794 (D1-Q1).

C.2. Congress

1.- Guillermo Santos-Sánchez, Ivan Cruz-Chamorro, Ana Isabel Álvarez-Ríos et al., **Antonio Carrillo-Vico**. Antiatherogenic role of lupine (*Lupinus angustifolius*) protein hydrolysates in ApoE^{-/-} mice. 17th Iberian Peptide Meeting (5-7 Feb 2020. Madrid). Oral communication.

2.- Guillermo Santos-Sánchez, Eduardo Ponce-España, Ivan Cruz-Chamorro et al, **Antonio Carrillo-Vico**. Anxiolytic-like Effects of *Lupinus angustifolius* Protein Hydrolysates in Alzheimer



Model Mice. 1st International Electronic Conference on Food Science and Functional Foods (10-25 Nov 2020). Oral communication.

3.- **A. Carrillo-Vico**, N. Álvarez-Sánchez, A.I. Álvarez-López, I. Cruz-Chamorro, P.J. Lardone, A. Martínez-López, G. Santos-Sánchez, B. Rodríguez-Ortiz. Immunomodulatory effects of melatonin. XXXIX International Congress of Physiological Sciences (18-21 Sep 2018. Cadiz). Invited oral communication

4.- **Carrillo Vico, Antonio**, Álvarez Sánchez, Nuria ;Martínez López, Alicia ;Cruz Chamorro, Ivan ;López González, Antonio ;Lardone, Patricia Judith ;Fernández Santos, José María ;Guerrero Montávez, Juan Miguel. IV FASEB conference on Melatonin Biology: Actions and Therapeutics (19 -24 jul 2015. Lisboa). Invited oral communication

C.3. Research projects

1.- TED2021-131108B-I00. Reusing and revaluation of the alperujo organic fraction through the study of protein hydrolysates bioactivity in the key components of the metabolic syndrome. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 73.600,00. Funding entity: Ministry of Science and Innovation of Spain. 01/12/2022-30/11/2024.

2.- PEMP-0085-2020. Assessment of the combined effects of lupine biopeptides and melatonin on the obesity and fatty liver disease associated with metabolic dysfunction. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 121.885,00. Funding entity: Ministry of Health of the Andalusia Regional Government. 28/10/2021-27/10/2023.

3.- US-1263804. Evaluation of Melatonin Therapy on the Immune Response and Neurodegeneration in Primary Progressive Multiple Sclerosis. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 89.975,00. Funding entity: Ministry of Economy and Knowledge of the Andalusia Regional Government. 17/01/2020-17/02/2022.

4.- PI-0015-2018, Use of Melatonin as a Therapeutic Strategy in Primary Progressive Multiple Sclerosis: Role of the miRNoma and the Microbiome. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 60.450,00. Funding entity: Ministry of Health of the Andalusia Regional Government 28/12/2018-27/12/2021.

5.- PC-0111-2016-0111, Functional Assessment of the Beneficial Effects of Biopeptides of Plant Origin in Atherosclerosis and Metabolic Syndrome. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 96.000,00. Funding entity: Ministry of Health of the Andalusia Regional Government. 21/12/2016-20/12/2019.

6.- AGL2012-40247-C02-02, Assessment of the health effects of plant bioactive peptides: immunomodulatory, antioxidant and metabolic effects. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 87.750,00. Funding entity: Ministry of Economy and Competitiveness of Spain. 01/01/2013-31/12/2015.

7.- PI-0209-2010, Prospective analysis of the immunomodulatory capacity of melatonin on T cell functionality in multiple sclerosis and its use as an advanced therapy product in EAE. Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 52.359,84. Funding entity: Ministry of Health of the Andalusia Regional Government. 01/01/2011-31/12/2013.

C.4. Research contracts.

1.- Evaluation of the lipid-lowering effects of phenolic complex derived from olive oil (4588/0401). Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 5.500,00. Funding entity: University of Milan, Dpto. of Pharmaceutical Sciences. 01-09-2022-31-08-2023.

2.- Analysis of the expression of new markers in cluster cells as descriptors of success in the embryo implantation process. (0904/0401). Principal Investigator: **Antonio Carrillo Vico**. Funding received (in euros): 7.080,00. Funding entity: Fundación Guadalquivir en Investigación Médica (GINEMED). 30/09/2010-29/03/2011.

C.5. Others

Research projects reviewer: The Israel Science Foundation (ISF), 2009, Deutsche Forschungsgemeinschaft (DFG), 2015; Puerto Rico Science, Technology and Research Trust Program, 2018; Fundación Progreso y Salud, Consejería de Salud-Junta de Andalucía 2020.