



Parte A. PERSONAL INFORMATION

CV date	13/10/2022
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First and Family name	Fermín Sánchez de Medina López-Huertas		

(*) *Optional*

(**) *Mandatory*

A.1. Current position

Name of University/Institution	Universidad de Granada/ School of Phamracy		
Department	Pharmacology		
Address and Country	Campus de Cartuja s/n, 18071 Granada		
Current position	Catedrático de Universidad / Full professor	From	27/05/2011
Espec. cód. UNESCO			
Keywords	intestinal barrier function, glucocorticoids, inflammatory bowel disease, ionic transport, alkaline phosphatase, natural products, functional foods		

A.2. Education

PhD, Licensed, Graduate	University	Year
Graduate in Pharmacy	Granada	1991
PhD Pharmacy	Granada	1996

A.3. General indicators of quality of scientific production *(see instructions)*

- Six-year productivity, positively evaluated (Sexenios): 4 - (all possible ones, last 2010-2015)
- Doctoral theses directed in the last 10 years: 12
- Total citations: 6582
- Citations/year in the last 5 years: 564
- Publications in the first quartile (Q1): 72
- H index: 43
- Publications with impact factor: 101
- Book chapters: 16

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

My research career begins by the end of my Pharmacy studies, when I got starting fellowships by the Ministry of Education and the University of Granada, and later on with the PhD studies in the Department of Pharmacology. Most of my research work has focused on the pathophysiology and pharmacology of inflammatory bowel disease (IBD), using animal and cellular models. In particular, I started studying the effects of flavonoids, natural products present in the human diet, in animal models of IBD. My doctoral thesis studied the therapeutic effect of the flavonoid quercitrin. Later I changed to the study of the physiology of ion transport in the intestine, and especially its alterations in the inflamed intestine, a field in which I started during postdoctoral work in the Mark Donowitz laboratory at Johns Hopkins University, and previously in my Ph.D. stage in Kim Barrett's lab at the University of



California, San Diego. After my post-doctorate I had the opportunity to return to the University of Granada with the reincorporation contract, then the only possibility of returning to Spain. I became an independent researcher in 2004 with my first projects as a principal investigator. Since then I have directed a total of 10 research projects, including one of the prestigious Ramón Areces Foundation, as well as two CENIT projects and other research contracts with private companies.

In recent years my work has focused on two different, but closely related research lines: physiopathology (ion transport and barrier function, alkaline phosphatase, inflammatory markers) and pharmacology (flavonoids, glycomacropptides, oligosaccharides, bisphosphonates, corticosteroids) of IBD. Intestinal barrier function is currently my greatest interest, because it is a fundamental element of intestinal homeostasis and because its alterations are involved in inflammatory processes such as IBD, but also many other intestinal and systemic diseases, including metabolic syndrome, acute pancreatitis, liver disease, sepsis, etc.

If I have to highlight achievements, these would be: (1) identification of natural compounds with intestinal anti-inflammatory activity, with partial characterization of their mechanism of action; (2) validation of anti-inflammatory activity in the colitis model by lymphocyte transfer; (3) characterization of ion transport alterations in the inflamed intestine; (4) identification of non-tissue-specific alkaline phosphatase as a regulatory factor for intestinal barrier function and as a marker of epithelial stress; (5) study of the detrimental effects of corticosteroids on intestinal barrier function, particularly at the epithelial level.

I am a member of the Center for Biomedical Research in the Liver and Digestive Diseases Network (CIBERehd), which brings together the most prestigious groups active in the research of gastroenterology in Spain (PI of the G0042 group). I have a lot of experience in the management of research, since I have been in charge of my own group for more than 10 years and I have been the director of 16 doctoral theses. Our group collaborates with several national and international groups and companies, and I have also been director of the international projects office at my university for 5 years.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications

- Moles-Aranda C, González-Pérez R, Gallego-Rojo FJ, Martínez-Augustin O, Clares-Naveros B, **Sánchez de Medina F**, Morales-Molina JA (2020). Efficacy and Safety of a Novel Submucosal Injection Solution for Resection of Gastrointestinal Lesions. *Journal of Clinical Medicine* 9:E1162. Impact factor: 5.688 (15/160 D1, Medicine, General & Internal 2018).
- Aranda CJ, Arredondo-Amador M, Ocón B, Lavín JL, Aransay AM, Martínez-Augustin O, **Sánchez de Medina F**. (2019). Intestinal epithelial deletion of the glucocorticoid receptor NR3C1 alters expression of inflammatory mediators and barrier function. *FASEB Journal* 33(12):14067-14082. Impact factor: 5.391 (8/87 D1 Biology, 2018).
- Rivero-Gutiérrez B, Aranda CJ, Ocón B, Arredondo M, Martínez-Augustin O, **Sánchez de Medina F**. (2019). Exogenous leptin reinforces intestinal barrier function and protects from colitis. *Pharmacol Res* 147:104356. Impact factor: 5.574 (18/267 D1 Pharmacology & Pharmacy, 2018).
- Aranda, CJ, Ocón B, Arredondo M, Suárez MD, Zarzuelo A, Chazin W, Martínez Augustin O, **Sánchez de Medina F**. (2018). Calprotectin protects against experimental colonic inflammation in mice. *Br J Pharmacol* 175:3797-3812. Impact factor: 6.810 (12/261 D1 Pharmacology & Pharmacy, 2017).
- Gámez-Belmonte R, Hernández-Chirlaque C, **Sánchez de Medina F**, Martínez-Augustin O. (2018). Experimental acute pancreatitis and acinar cell injury are enhanced in mice with tissue nonspecific alkaline phosphatase haploinsufficiency. *Biochimica et Biophysica Acta – Molecular Basis of Disease* 1864:3769-3779. Impact factor: 5.108 (49/292 Q1 Biochemistry & Molecular Biology, 2017).

- Ocón B., Aranda CJ, Gámez-Belmonte R., Suárez, MD, Zarzuelo A., Martínez Augustin O., **Sánchez de Medina F.** (2016) The glucocorticoid budesonide has protective and deleterious effects in experimental colitis in mice. *Biochemical Pharmacology* 116:73-88. Impact factor: 5.091 (18/253 D1 Pharmacy & Pharmacology 2015).
- Hernández-Chirlaque C, Aranda CJ, Ocón B, Capitán-Cañadas F, Ortega-González M, Carrero JJ, Suárez MD, Zarzuelo A, **Sánchez de Medina F**, Martínez-Augustin O. (2016). Germ-free and antibiotic-treated mice are highly susceptible to epithelial injury in DSS colitis. *Journal of Crohn's and Colitis* 10:1324-1335. Impact factor: 6.234 (8/71 Q1 Gastroenterology & Hepatology, 2014).
- López-Posadas R, Mascaraque C, González R, Suárez, MD, Zarzuelo A, Martínez Augustin O, **Sánchez de Medina F.** (2016). The bisphosphonate pamidronate is an intestinal antiinflammatory agent in rat and mouse experimental colitis. *Inflammatory Bowel Diseases* 22:2549-2561. Impact factor: 4.358 (16/78 Q1 Gastroenterology & Hepatology 2015).
- Mascaraque C, Ocón B, Monte, MJ, Suárez MD, Zarzuelo A, García Marín JJ, Martínez-Augustin O, **Sánchez de Medina F.** (2014). Rutin has intestinal antiinflammatory effects in the CD4+ CD62L+ T cell transfer model of colitis. *Pharmacological Research* 90:48-57. Impact factor: 4.408 (28/254 Q1 Pharmacy & Pharmacology, 2014)
- López-Posadas, R.; González, R.; Ballester, I.; Martínez-Moya, P.; Romero-Calvo, I.; Zarzuelo, A.; Suárez, M.D.; Martínez-Augustin, O.; **Sánchez de Medina, F.** (2011). Tissue nonspecific alkaline phosphatase is induced in stressed enterocytes by changes in glycosylation. *Inflammatory Bowel Diseases* 17:543-556. Impact factor: 4.613 (10/72, Gastroenterology & Hepatology, 2010).

C.2. Research projects

- Optimización de la terapia de enfermedades que comprometen la función de barrera intestinal (sepsis, pancreatitis aguda, COVID19) con glucocorticoides minimizando sus acciones epiteliales (EPICORT). Funded by: Instituto de Investigación Carlos III. Principal investigator: Fermín Sánchez de Medina López-Huertas. Amount: 212,000 euro.
- Tissue nonspecific alkaline phosphatase as a nutritional and pharmacological target in intestinal inflammation and barrier function. Funded by: Junta de Andalucía (R+D+I Projects for Universities and Public Research Entities). Principal investigator: Olga Martínez Augustin (Universidad de Granada). Participation: investigator. Amount: 162,450 euro.
- Tissue nonspecific alkaline phosphatase as nutritional and therapeutic target in metabolic and inflammatory diseases. Funded by: Junta de Andalucía – UGR FEDER. Principal investigator: Fermín Sánchez de Medina López-Huertas, Olga Martínez Augustin (Universidad de Granada). Amount: 35,000 euro.
- Ref. SAF2017-88457-R. Role of the intestinal epithelial glucocorticoid receptor NR3C1 in colonic inflammation and cancer. Funded by: MINECO (State Program for the Research, Development and Innovation Oriented to Society Challenges). Principal investigator: Fermín Sánchez de Medina López-Huertas (Universidad de Granada). Amount: 121,000 euro. Duration: 1/1/2018-30/9/2021. Funded project.
- Ref. BFU2014-57736-P. Regulation of intestinal barrier by corticoids, calprotectin, and the NHE3 exchanger. Funded by: MINECO (State Program for the Promotion of Excellent Scientific and Technical Research). Principal investigator: Fermín Sánchez de Medina López-Huertas (Universidad de Granada). Amount: 121,000 euro. Duration: 1/1/2015-31/12/2018. Funded project.
- (No ref.) SENIFOOD – Industrial investigation of diets and foods with specific characteristics for the elderly. Funded by: CENIT. Principal investigator (of UGR part): Fermín Sánchez de Medina López-Huertas, Olga Martínez Augustin (Universidad de Granada). Amount: 236,060 euro. Duration: 2009-2012. Funded project.



- (No ref.) Biotechnological bases for the development of functional foods in the field of intestinal maturation, inflammatory bowel disease and irritable bowel syndrome. Funded by: Fundación Ramón Areces. Principal investigator: Fermín Sánchez de Medina López-Huertas (Universidad de Granada). Amount: 126,000 euro. Duration: 17/3/2010-16/3/2013. Funded project.

C.3. Contracts, technological or transfer merits

- CONTRACT: IN VIVO ASSAY OF INTESTINAL ANTIINFLAMMATORY ACTIVITY. COMPANY: Biopolis. Duration: 1/6/2021 - 31/12/2021. Principal investigator: Olga Martínez Augustin, Fermín Sánchez de Medina López-Huertas. Amount: 68,750 euro.
- CONTRACT: Immunoregulatory effects of serum protein concentrates from animal origin on different intestinal cell types. COMPANY: APC EUROPE, S.A. DURACIÓN: 15/2/2014 - 14/2/2015. Principal investigator: Olga Martínez Augustin, Fermín Sánchez de Medina López-Huertas. Amount: 17,920 euro.
- SPIN OFF: Novgen (2014-2018)
- Invited talks by: Hospira, Pfizer, Sanofi, STADA, the Association for Generic Medicines of Spain.

C.4. Patents

- TITLE: Use of calprotectin for the treatment of inflammatory bowel disease. Reference: P201630758 (2016). Country of priority: Spain. Date of priority: ES2665019 A1 (2018). FILED BY: Universidad de Granada.

C.5. Evaluation

Member of the editorial board of Pharmacological Research (2009-now), World Journal of Gastroenterology (2013-2018), ISRN Nutrition/ISRN (2010-2013). Reviewer for ANEP (Spanish National Agency for Evaluation and Propective), the International Foundation for Science, the Broad Medical Research Program, the National Agency for Scientific and Technological Promotion of Argentina, the Health Research Board of Ireland, the Executive Agency for Higher Education, Research, Development and Innovation Funding of Romania, the Shota Rustaveli National Science Foundation of Georgia and the Government of the Hong Kong Special Administrative Region (HKSAR). Reviewer for multiple journals: Gut, Nitric Oxide – Biology and Chemistry, FASEB Journal, British Journal of Pharmacology, Biochemical Pharmacology, Inflammatory Bowel Diseases, etc.

C.6. Management

Director of the International Projects Office of the University of Granada. Duration: 18/01/2008 – 21/12/2012).

C.7. Awards

- Extraordinary B.Sc. Award (Premio Extraordinario de Licenciatura), June 1993.
- Extraordinary PhD Award (Premio Extraordinario de Doctorado de la Universidad de Granada), 2001.
- Award of the Pharmaceutics Association of Granada (Ilustre Colegio Oficial de Farmacéuticos de la Provincia de Granada), 1996.
- Award of the Iberoamerican Academy of Pharmacy, 2004.
- Award Merck Sharp and Dohme España S.A. on genomic and proteomic research 2010 for the paper 'Genomic analysis of sulfasalazine effect in experimental colitis is consistent primarily with modulation of NF- κ B but not PPAR- γ signalling', first author Rocío López Posadas.