

Date of the CVA	15/01/2021
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Section A. PERSONAL DATA

Name and Surname	Annalaura Mastrangelo		
DNI/NIE/Passport		Age	
Researcher's identification number	Researcher ID	K-2753-2015	
	Scopus Author ID	56581690900	
	ORCID	0000-0003-2650-0444	

* Obligatorio

A.1. Current professional situation

Institution	FUNDACION CENTRO NACIONAL DE INVESTIGACIONES CARDIOVASCULARES CARLOS III		
Dpt. / Centre	Fisiopatología del Miocardio / Centro Nacional de Investigaciones Cardiovasculares		
Address			
Phone		Email	
Professional category	Postdoctoral researcher	Start date	2017
Keywords	Other analytical techniques; Statistical methods; Clinical medicine and epidemiology; Molecular mechanism of disease; Clinical biology		

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Programa Oficial de Doctorado en Química Médica	Universidad San Pablo CEU	2017
Five-year Degree in Pharmacy (equivalent to BSc and Master's degree)	Università degli studi di Modena e Reggio Emilia	2011

A.3. General quality indicators of scientific production

- First author publications: 4 original research articles, 2 reviews by invitation, 1 book chapter
- h-index: 10, 12 total publications (5 in Q1, 2 in D1), 364 citations from 2014 (source Google scholar, 14/01/2021). Most cited paper is first author publication resulting from PhD work (Mastrangelo et al. 2015 Analytica chimica acta) with 92 citations.
- 2 BSc (Fin de grado) thesis co-directed in 2013 and 2014 and 1 summer student supervised in 2019.
- Currently directing 1 BSc (Fin de grado), co-directing 2 master thesis (Fin de Master) and 1 PhD thesis (Universidad Autónoma de Madrid).
- Participation in international conferences: 3 oral presentations and 3 poster presentations.

Section B. SUMMARY OF THE CURRICULUM

I aim to investigate the role of microbial metabolites on the development of atherosclerosis in the context of low-grade systemic inflammation while providing mechanistic insights into the role of the identified metabolites and trained immunity in atherosclerosis. Advances in this field can lead to the development of novel and more accurate diagnostic/prognostic tools as well as to the discovery of innovative targets for the prevention or treatment of atherosclerosis. This translational project will benefit from my multidisciplinary profile as shown by my track record. Over the last years, I gained experience in managing research as leading scientist and supervising (PhD and Master Thesis) students. Moreover, I achieved in depth scientific and technical skills in cutting-edge technologies such as metabolomics using both targeted and untargeted approaches as well as in innovative approaches including mathematical modelling, machine learning and data integration from different omics techniques. Regarding my academic background, I studied Pharmacy at the University of Modena e Reggio e Emilia (University Award for excellent qualification). I did my Master's thesis - funded by the Research grant award in the ambit of LLP/Erasmus Project- on metabolomics and diabetes at the Centre for

Metabolomics and Bioanalysis (CEMBIO, San Pablo-CEU University) in Madrid. In 2011, I graduated in Pharmacy with the highest honors and moved to Spain where, in 2012, I was awarded the Scholarship Research Personnel Training (FPI) of the San Pablo CEU University to start my PhD at the CEMBIO under the supervision of Dr. Coral Barbas and Dr. Antonia Garcia. In 2013, I obtained the competitive PhD fellowship of the Scholarship Program Teacher Training University (FPU) funded by the Spanish Ministry of Education to continue my PhD. In 2015, I was awarded the Grant to conduct research abroad funded by San Pablo CEU University in collaboration with Banco Santander that allowed me to carry out an international stay at the Sanford Burnham Prebys Medical Discovery Institute (Orlando, Florida, USA). During the internship, I trained in the field of shotgun lipidomics under the mentorship of Dr. Xianlin Han, the founder of this discipline. Then, in 2017, I obtained the international PhD degree in Medical Chemistry (Sobresaliente cum laude) and the extraordinary thesis award the same year. As a PhD student, I trained in the field of metabolomics and lipidomics by deepening into the biology underlying chronic diseases, mainly obesity and its complications. Finally, in 2017 I joined Dr. Sancho's immunology group at the Spanish National Cardiovascular Research Centre (CNIC) in Madrid as a postdoctoral fellow where I am leading a project aimed at deciphering the role of microbial metabolites in the progression of atherosclerosis. Moreover, at CNIC, I have established various collaborations with other members of the lab in the field of immunometabolism as well as with the CNIC metabolomics unit. My work results in 11 original articles, six of which as first author, that are published in high impact journal (5 in Q1, 2 in D1), a book chapter and the participation in international meetings (oral and poster presenter). I see my future in the field of metabolomics to highlight new diagnostic tools and innovative therapeutic targets to tackle chronic metabolic diseases.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores

- 1 **Scientific paper.** Martínez-López M; Iborra S; Conde-Garrosa R; et al; Mastrangelo A; Sancho D. (4/23). 2019. Microbiota Sensing by Mincle-Syk Axis in Dendritic Cells Regulates Interleukin-17 and -22 Production and Promotes Intestinal Barrier Integrity. *Immunity*. 50-2, pp.446-461. ISSN 1074-7613.
- 2 **Scientific paper.** Mastrangelo A; Martos-Moreno GA; Ruperez FJ; Chowen JA; Barbas C; Argente J. (1/6). 2018. Metabolomics changes in patients with PAPP-A2 deficiency in response to rhIGF1 treatment. *Growth Hormone & IGF Research*. 42-43, pp.28-31. ISSN 1096-6374.
- 3 **Scientific paper.** Samczuk P; Luba M; Godzien J; et al; Mastrangelo A; Kretowski AC. (4/9). 2018. "Gear mechanism" of bariatric interventions revealed by untargeted metabolomics. *J Pharm Biomed Anal*. 151, pp.219-226. ISSN 0731-7085.
- 4 **Scientific paper.** Ferrarini A; Righetti L; Martínez MP; et al; Mastrangelo A; Ruperez FJ. (5/15). 2017. Discriminant biomarkers of acute respiratory distress syndrome associated to H1N1 influenza identified by metabolomics HPLC-QTOF-MS/MS platform. *Electrophoresis*. 38-18, pp.2341-2348. ISSN 0173-0835.
- 5 **Scientific paper.** Martos-Moreno GA; Mastrangelo A; Barrios V; Garcia A; Chowen JA; Ruperez FJ; Barbas C; Argente J. (2/8). 2017. Metabolomics allows the discrimination of the pathophysiological relevance of hyperinsulinism in obese prepubertal children. *Int J Obes*. 41-10, pp.1473-1480. ISSN 0307-0565.
- 6 **Scientific paper.** Mastrangelo A; Martos-Moreno GA; Garcia A; Barrios V; Ruperez FJ; Chowen JA; Barbas C; Argente J. (1/8). 2016. Insulin resistance in prepubertal obese children correlates with sex-dependent early onset metabolomic alterations. *Int J Obes*. 40-10, pp.1494-1502. ISSN 0307-0565.
- 7 **Scientific paper.** Mastrangelo A; Panadero MI; Perez LM; Galvez BG; Garcia A; Barbas C; Ruperez FJ. (1/7). 2016. New insight on obesity and adipose-derived stem cells using comprehensive metabolomics. *Biochem J*. 473-14, pp.2187-2203. ISSN 0264-6021.

- 8 **Scientific paper.** Mastrangelo A; Ferrarini A; Rey-Stolle F; Garcia A; Barbas C. (1/5). 2015. From sample treatment to biomarker discovery: A tutorial for untargeted metabolomics based on GC-(EI)-Q-MS. *Anal Chim Acta*. 900, pp.21-35. ISSN 0003-2670.
- 9 **Scientific paper.** Perez LM; Bernal A; de Lucas B; San Martin N; Mastrangelo A; Garcia A; Barbas C; Gálvez BG. (5/8). 2015. Altered metabolic and stemness capacity of adipose tissue-derived stem cells from obese mouse and human. *PLoS One*. 10-4, pp.e0123397. ISSN 1932-6203.
- 10 **Scientific paper.** Mastrangelo A; Armitage EG; Garcia A; Barbas C. (1/4). 2014. Metabolomics as a tool for drug discovery and personalised medicine. A review. *Curr Top Med Chem*. 14-23, pp.2627-2636. ISSN 1568-0266.
- 11 **Scientific paper.** Navarrete A; Armitage EG; Musteanu M; et al; Barbas C. 2014. Metabolomic evaluation of Mitomycin C and rapamycin in a personalized treatment of pancreatic cancer *Pharmacol Res Perspect*. 2-6, pp.e00067.
- 12 **Book chapter.** Mastrangelo A; Barbas C. (1/2). 2017. Chronic Diseases and Lifestyle Biomarkers Identification by Metabolomics. *Metabolomics: From Fundamentals to Clinical Applications. Advances in Experimental Medicine and Biology*. New York: Springer International Publishing. Sussulini A. 965, pp.235-263.

C.2. Participation in R&D and Innovation projects

- 1 Regulación molecular de la función de los macrófagos y las células dendríticas- Acrónimo: MORE MF&DC. PID2019-108157RB-I00 Ministerio de Economía, Industria y Competitividad.. David Sancho Madrid. (Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III). 01/06/2020-31/05/2023. 435.600 €.
- 2 Functional characterisation of mitochondrial metabolic adaptations to innate sensing in dendritic cell subsets. H2020-ERC-2016-CONSOLIDATOR GRANT 725091-MITOMAD. European Commission, H2020. David Sancho Madrid. (Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III). 01/12/2017-30/11/2022. 1.995.000 €.
- 3 Inmunidad Tumoral e Inmunoterapia del Cáncer (IMMUNOTHERCAN-CM); Ref: B2017/BMD-3733. Ayudas para la realización de Programas de Actividades de I+D entre Grupos de Investigación de la Comunidad de Madrid en Tecnologías y en Biomedicina, cofinanciado con Fondos Estructurales. Comunidad. David Sancho Madrid. (Consortium with node in the Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III.). 01/01/2018-31/12/2021. 952.472,28 €.
- 4 Brain-gut cross-talk in stroke: targeting gut barrier dysfunction and immune responses to improve stroke outcome (Exp: 130/C/2017) Ayudas a la investigación en ictus y lesiones medulares y cerebrales traumáticas. Fundación La Marató de TV3.. David Sancho Madrid. (Collaborative project with the Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III.). 2018-2021. 86.250 €.
- 5 The gut microbiome and its related metabolites in the progression of atherosclerosis. Ref10-2016 IGP Intramural Grants Program-Severo Ochoa (IGP-SO). David Sancho Madrid. (Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III.). 01/06/2017-31/12/2020. 300.000 €.
- 6 Caracterización Funcional de la Regulación de la Inmunidad Innata y Adaptativa por las Células Dendríticas. SAF2016-79040-R Ministerio de Economía, Industria y Competitividad.. David Sancho Madrid. (Centro Nacional de Investigaciones Cardiovasculares III (F.S.P.) Carlos III). 01/12/2016-31/12/2020. 290.000 €.

C.3. Participation in R&D and Innovation contracts

C.4. Patents