MINISTERIO DE CIENCIA E INNOVACIÓN

CURRICULUM VITAE (maximum 4 pages)

AGENCIA ESTATAL DE INVESTIGACIÓN

CV date	Dec-2021

Part A. PERSONAL INFORMATION

First and Family name	Nieves Olmo López		
Social Security, Passport, ID number	51342887X	Age	62
Researcher codes	ORCID(**)	0000-0002-8013-5313	
	SCOPUS Author ID (*)		
	WoS Researcher ID (*)	K-5266-2014	

(*) Optional
(**) Mandatory

A.1. Current position

Name of University/Institution	Universidad Complutense de Madrid			
Department	Biochemistry and Molecular Biology			
Address and Country	Faculty of Chemistry, Madrid, Spain			
Phone number	913944256	E-mail	nolmo@ucm.es	
Current position	Full Professor		From	16-06-2011
Key words	Annexins; Apoptosis; Biomaterials; Butyrate; Cell death and differentiation; Colon adenocarcinoma; Extracellular matrix; Structural and functional characterization of proteins			

A.2. Education

PhD, Licensed, Graduate	University	Year
Doctor in Chemistry (Biochemistry)	Universidad Complutense de Madrid	1986
Graduate in Chemistry (Biochemistry)	Universidad Complutense de Madrid	1981

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

Positively evaluated six-years research terms: 6 (1982-2017)
Number of PhD Thesis supervised in the last 10 years: 2 (with “Doctor Europaeus” Mention)
Total number of citations (Google Scholar): 3094
Average number of citations/year (2015-2019): 175
Total number of publications in the first quartile: 38
h-index: 33 (Google Scholar); i10-index: 63 (Google Scholar)

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

Dr. Olmo-López graduated in Chemistry (specialization in Biochemistry) in June 1981 and obtained her PhD in Chemistry (Biochemistry) in 1986, obtaining the Extraordinary Award and several other awards. In parallel, she began her academic duties; in 1988 she became Associate Professor and, finally in 2011, Full Professor in Biochemistry and Molecular Biology. She has obtained positive evaluation in seven “five-years” terms of academic activity.

Research activity has been carried out mainly at the department of Biochemistry and Molecular Biology of the Complutense University of Madrid, apart from a post-doctoral stay at the Max-Planck Institute of Biochemistry in Munich. In both centers she worked on the structure and function of extracellular matrix components (ECM), which derived in two main research lines. First, the design and in vivo and in vitro biocompatibility of biomaterials. It is worth to mention the characterization of sepiolite-collagen complexes as biomaterials, the effect of ECM-coating in the biocompatibility and functionality of vascular prostheses, or the use of different chemical treatments to regulate the stability and biodegradation of collagen-based biomaterials and to study the role of matrix metalloproteinases in these processes.

In parallel, the role of ECM components in the tumorigenic potential of colon adenocarcinoma cells was studied, which allowed the identification of collagen metabolism alterations as well as to establish cell lines with different differentiation degree, tumorigenicity and/or metastatic potential. This model has been useful to study different aspects of tumor biology, as the cellular receptors involved in the interaction with the ECM, or the role of tetraspanin CD9 in tumorigenicity and its activation via interaction with the active form of integrin β1.

This cellular model has been used in order to study the effects of butyrate and other compounds present in the colon lumen, as bile acids. Butyrate treatment induces differentiation and finally apoptosis of colon adenocarcinoma derived cells, but a stable butyrate-resistant cell subline was established that was also resistant to other types of stress. Resistance is associated to changes in the expression of genes involved in the induction of, or protection against, apoptosis, as shown using cDNA microarrays. In relation with apoptosis-induction, the mechanism by which the fungal ribotoxin α-sarcin enters the cell and induces cell death was analyzed.
In addition, the structural and functional characterization of annexins and their involvement in colon adenocarcinoma cell differentiation was studied, as well as the influence of butyrate treatment in their expression. Basal expression of annexin A1 was found to depend on transcription factors p53 and NF-Y; butyrate induced a transcriptional p38-MAPK-dependent activation.
These studies have been financed via several competitive grants/projects and have resulted in close to 90 indexed publications which allowed the positive evaluation of six “six-years” research terms. This research has been accompanied by the supervision of PhD students, yielding 6 defended Doctoral Thesis and numerous Graduation or Master Thesis, all of them with the highest marks.

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

C.1. Publications *(last ten years)*

- Lizarbe MA, Calle-Espinosa J, Fernández-Lizarbe E, Fernández-Lizarbe S, **Olmo N,** Turnay, J (2017) Colorectal cancer: from the genetic model to post-transcriptional regulation by non-coding RNAs. *BioMed Res Int* 2017:7354260 (38 páginas).
- Fernández-Lizarbe S, Lecona E, Santiago-Gómez A, **Olmo N**, Lizarbe MA, Turnay, J (2016) Structural and lipid-binding characterization of human annexin A13a reveals strong differences with its long A13b isoform. *Biol Chem* 398:359-371.
- Santiago-Gómez A, Barrasa JI, **Olmo N**, Lecona E, Burghardt H, Palacín M, Lizarbe MA, Turnay J (2013) 4F2hc-silencing impairs tumorigenicity of HeLa cells via modulation of galectin-3 and β-catenin signaling, and MMP-2 expression. *BBA-Mol Cell Res* 1833: 2045-2056.
- Lizarbe MA, Barrasa JI, **Olmo N**, Gavilanes F, Turnay J (2013) Annexin-phospholipid interactions. Functional implications. *Int J Mol Sci* 14:2652-2683.
- Barrasa JI, **Olmo N**, Lizarbe MA, Turnay J (2013) Bile acids in the colon, from healthy to cytotoxic molecules. *Toxicol In Vitro* 27:964-977.
- Barrasa JI, Santiago-Gómez A, **Olmo N**, Lizarbe MA, Turnay J (2012) Resistance to butyrate impairs bile acid-induced apoptosis in human colon adenocarcinoma cells via up-regulation of Bcl-2 and inactivation of Bax. *BBA-Mol Cell Res* 1823: 2201-2209.
- Barrasa JI, **Olmo N**, Santiago-Gómez A, Lecona E, Anglard P, Turnay J, Lizarbe MA (2012) Histone deacetylase inhibitors upregulate MMP11 gene expression through Sp1/Smad complexes in human colon adenocarcinoma cells. *BBA-Mol Cell Res* 1823: 570-581.
- Barrasa JI, **Olmo N**, Pérez-Ramos P, Santiago-Gómez A, Lecona E, Turnay J, Lizarbe MA (2011) Deoxycholic and chenodeoxycholic bile acids induce apoptosis via oxidative stress in human colon adenocarcinoma cells. *Apoptosis* 16: 1054-1067.

C.2. Research projects *(last ten years)*

1. CM-REACT ANTICIPA-UCM. Anticipation and prevention of COVID-19 in the Community of Madrid (ANTICIPA-UCM). Expressions of interest for the realization of R&D projects on COVID-19 response funded by the FEDER - REACT-EU resources. Total amount funded: 8.5 million €. Duration: 2022. PI: José Manuel Bautista (UCM). The

UCM-ESFUNPROT group, to which **Dr. Nieves Olmo** belongs, participates as a collaborating group in subproject 5, with the main objective of producing protein immunogens and antibodies, and has been allocated 155,000.00 € of funding.

2. PID2020-116692RB-I00, Allergens and the gut-lung axis: New approaches to allergy diagnosis and therapy (ALLERGLA). Ministerio de Ciencia e Innovación. coIPs: Dra. Mª Teresa Villalba and Dr. Javier Turnay (UCM). 1/09/2021 – 31/08/2024. 217.800€. Participation as researcher.
3. PR75/18-21610: "Tumorigenicity and apoptosis-resistance in colorectal cancer cells; response to chemotherapeutic agents and/or radiation. MicroRNA involvement". Banco Santander. Proyectos de Investigación Santander-Complutense. Principal Investigator: Javier Turnay Abad. 01/01/2018- 27/12/2020. 9.000 €. Participation as researcher.
4. PR26/16-20323: "Role of microRNAs in apoptosis resistance in colorrectal cancer cells". Banco Santander. Proyectos de Investigación Santander-Complutense. Principal Investigator: Javier Turnay Abad. 01/01/2017- 30/04/2018. 9.000 €. Participation as researcher.
5. BFU2008-04758: "Role of intestinal lumen components in tumorigenesis, differentiation and apoptosis of human colon adenocarcinoma cells: molecular mechanisms of gene transcription modulation by butyrate". Ministerio de Ciencia e Innovación. Proyectos de Investigación Fundamental no orientada. Principal Investigator: Mª Antonia Lizarbe Iracheta. 01/01/2009- 30/07/2012. 110.000 €. Participation as researcher.

C.3. Contracts, technological or transfer merits

C.4. Patents

C.5. Other merits

- Scientific evaluator for competitive projects/grants (ANEP, FIS/ISCIII, Proyectos de Investigación Santander/UCM) and occasional reviewer for international scientific journals.
- Member of the Research Comitee of the Faculty of Chemistry, UCM, since 2010.
- Member of the Academic Comitee of the PhD programme in Biology of the Complutense University of Madrid since 2011.
- Member of the Academic Comitee of the PhD programme in Biochemistry, Molecular Biology and Biomedicine (from 2011 until 2020) of the Complutense University of Madrid, and Coordinator of the PhD programme during 2020.
- Member of the Biosafety Committee of the Complutense University of Madrid since 2021.

PhD Thesis supervised:

- Effect of intestinal lumen components on human colon adenocarcinoma cells. Bile acid-induced apoptosis and regulation of gene transcription by butyrate. (*Doctor Europaeus*). PhD fellow: Juan I. Barrasa López. Complutense University of Madrid. Faculty of Chemistry. 2012. Sobresaliente "cum laude" and "Doctor Europaeus" mention.
- Structure and function of annexins. Mechanisms of butyrate-resistance acquisition and transcriptional regulation of annexin A1. PhD fellow: Emilio Lecona Sagrado. Complutense University of Madrid. Faculty of Chemistry. 2006. Sobresaliente "cum laude" and "Doctor Europaeus" mention.
- Effect of nutritional and environmental factors in human colon adenocarcinoma cells. PhD fellow: Pablo Pérez Ramos. Complutense University of Madrid. Faculty of Chemistry. 2004. Sobresaliente "cum laude".
- Effect of butyrate on human colon adenocarcinoma cells. Establishment and characterization of butyrate resistant cells. PhD fellow: Isabel López de Silanes Asenjo.. Complutense University of Madrid. Faculty of Chemistry. 2001. Sobresaliente "cum laude".

- Influence of exracellular matrix components in the behavior of BCS-TC2 human colon adenocarcinoma cells. *In vitro* and *in vivo* studies. PhD fellow: Mª Teresa López Conejo. Complutense University of Madrid. Faculty of Chemistry. 1997. Apto "cum laude"
- Purification and characterization of 5'-nucleotidase from BCS-TC2 cells (human colon adenocarcinoma). Cell differentiation studies. PhD fellow: Juana María Navarro Llorens. Complutense University of Madrid. Faculty of Chemistry. 1996. Apto "cum laude".

Graduation and Master Thesis supervised (all with the highest marks)**:**

- Juan Ignacio Barrasa López. *"Stromelysis-3 (MMP-11) expression in colon adenocarcinoma cells. Effect of histone deacetylase inhibitors"*. Faculty of Biology. Universidad Complutense. Madrid, 2007.
- Emilio Lecona Sagrado. *"Expression and characterization of mouse recombinant annexin A11"*. Faculty of Chemistry. Universidad Complutense. Madrid, 2002.
- Ana Guzmán Aránguez. *"Structure and function of annexin-V: involvement in oligomerization and phospholipid-vesicle aggregation processes"*. Faculty of Chemistry. Universidad Complutense. Madrid, 2001.
- Marta García Díez. *"Expression of heat-shock proteins in human colon adenocarcinoma cells"*. Faculty of Chemistry. Universidad Complutense. Madrid, 2000.
- Isabel López de Silanes Asenjo. *"Involvement of matrix metalloproteinases in the acquisition of a metastatic phenotype in human colon adenocarcinoma BCS-TC2 cells"*. Faculty of Chemistry. Universidad Complutense. Madrid, 1997.
- David Arboledas Brihuega. *"Structural and functional characterization of chicken recombinant annexin V"*. Faculty of Chemistry. Universidad Complutense. Madrid, 1997.
- Mónica Lloréns Ferrero. *"Citotoxicity of α-sarcin: in vitro and in vivo antitumoral activity"*. Faculty of Chemistry. Universidad Complutense. Madrid, 1994.
- Mª Teresa López Conejo. *"Study of the interaction laminin-BCS-TC2 cells: cell receptors"*. Faculty of Chemistry. Universidad Complutense. Madrid, 1992.
- Juana Mª Navarro LLoréns. *"Purificaction and characterization of 5'-nucleotidase from Rugli cells (rat glioblastoma)".* Faculty of Chemistry. Universidad Complutense. Madrid, 1991.
- Alfredo Jiménez Díaz. *"Study of the cytotoxic effects of α-sarcin on human tumoral cells".* Faculty of Chemistry. Universidad Complutense. Madrid, 1991.