

**Part A. Personal Information**

<b>DATE</b>	06/10/2021
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Surname(s)	Corzana López	
Forename	Francisco	
Social Security, Passport, ID number	16570470M	
Sex	Male	
Age	47	
Researcher codes	WoS Researcher ID (*)	B-1310-2015
	SCOPUS Author ID(*)	6602615885
	Open Researcher and Contributor ID (ORCID)	0000-0001-5597-8127

(\*) At least one of these is mandatory

**A.1. Current position**

Post/ Professional Category	Associate Professor	
UNESCO Code	230600 - Organic chemistry	
Key Words	Glycopeptides - Conformational Analysis - Molecular Dynamics Simulations - NMR - Stereoselective Synthesis	
Name of the University/Institution	University of La Rioja	
	Department/Centre	Chemistry
	Full Address	Madre de Dios, 53 26006 Logroño. Spain
	Email Address	francisco.corzana@unirioja.es
	Phone Number	+34941299632
Start date	21/12/2017	

**A.2. Education (title, institution, date)**

Year	University	Degree	Title
1996	La Rioja	First degree	Degree in Chemistry
2001		Masters (if appropriate)	
2001	La Rioja	PhD	PhD in Chemistry

**A.3. Indicators of Quality in Scientific Production (See the instructions)**

Total number of publications: 141
Number of scientific articles in last 10 years (2011-2021): 95
In the last 5 years (2017-2021): 56
Total number of publications in the first quartile (Q1): 100
Total number of publications in the first decile (D1): 50
h-index: 29 (Scopus/Web of Science)
Sum of total cites: 2778
Average number of citations during the last five years (2017-2021): 276.4
<b>Number of periods of six years of research: 4; date of last period granted: 2015-2020</b>
Thesis supervised in the last 10 years (2011-2021): 6

**Part B. Free Summary of CV (Max. of 3.500 characters, including spaces)**

Dr Francisco Corzana obtained his PhD in Chemistry from the University of La Rioja in 2001 with the main aim of preparing enantiomers of quaternary amino acids. He then completed 2 post-doctoral stays; one at the University of Copenhagen with Prof. Engelsen, where he worked on the study of the conformational behaviour of starch-derived carbohydrates through Molecular Dynamics (MD) simulations, and another at the Centro de Investigaciones Biológicas (CSIC) in Madrid under the supervision of Prof. Jesús Jiménez Barbero and Juan Luis Asensio. During this post-doc, he carried out the synthesis of modified aminoglycoside

antibiotics and analysed their conformation in solution, combining NMR experiments and MD simulations.

In 2005, he returned to the University of La Rioja as a "Ramon y Cajal" researcher and holds a permanent position as associate professor. His research focuses on the synthesis and structure of glycopeptides and their use in clinical applications such as tumour detection and the development of therapeutic vaccines for the treatment of cancer. Dr. Corzana is the PI of a European project at the University of La Rioja (DIRNANO. Curie ITN (H2020-MSCA-ITN-2020), reference: 956544). The main objective of this project is to develop a new generation of therapeutic vaccines. He was also PI at the University of La Rioja for the ProteinCojungates project (MSCA-ITN-2015-ETN. Reference: 675007). The main objective of this project was to develop a new generation of antibody-drug conjugates for the selective treatment of tumours. He has completed three short stays, one in 2012 at the University of Oxford with Prof. Ben Davis, to synthesise antifreeze-like glycopeptides and two stays at the University of Cambridge in 2014 and 2016 with Dr Bernardes, to work on selective chemical modifications of proteins. He has published more than 140 papers including one Chem. Soc. Rev, 21 JACS, 9 ACIE, 4 Nat. Commun., 5 Chem. Sci. and 2 Nat. Chem. Biol. and one Chem., among others. Dr Corzana has given more than 20 invited talks at national and international conferences. He is currently a visiting professor at the University of Cambridge.

He has 4 research periods of six years and has supervised 6 Thesis dissertations in the last 10 years. At present he is supervising 3 Thesis.

He was the administrator of Chemical Biology group of Spanish Royal Society of Chemistry (2016-2019).

Recently, he was awarded as 'New Investigator in Glycoscience' in the journal Carbohydrate Research (*Carbohydrate Research* **2017**, 445, 117-122.).

He is CTQ QMC Area Director of Science and Technical Coordination, Evaluation and Monitoring Division (2020-2023).

## Part C. Relevant accomplishments

### C.1. Publications

1. T. A. Hakala, E. V. Yates, P. K. Challa, Z. Toprakcioglu, K. Nadendla, D. Matak-Vinkovic, C. M. Dobson, R. Martínez, **F. Corzana**,\* T. P. J. Knowles, G. J. L. Bernardes. Accelerating Reaction Rates of Biomolecules by Using Shear Stress 2 in Artificial Capillary Systems. *J. Am. Chem. Soc.* **2021**, in press. DOI: 10.1021/jacs.1c03681.

2. A. Bermejo, C. D. Navo, J. Castro-López, A. Guerreiro, E. Jiménez-Moreno, E. M. Sánchez Fernández, F. García-Martín, H. Hinou, S.-I. Nishimura, J. M. García Fernández, C. O. Mellet, A. Avenoza, J. H. Busto, G. J. L. Bernardes, R. Hurtado-Guerrero, J. M. Peregrina, **F. Corzana**\*. Synthesis, conformational analysis and in vivo assays of an anti-cancer vaccine that features an unnatural antigen based on an sp<sup>2</sup>-iminosugar fragment. *Chemical Science*, **2020**, 11, 3996–4006.

3. C. Calabrese, I. Uriarte, A. Insausti, M. Vallejo López, F. J. Basterretxea, S. A. Cochrane, B. G. Davis, **F. Corzana**\*, E. J. Cocinero. Observation of the unbiased conformers of putative DNA-scaffold ribo-sugars. *ACS Central Science*, **2020**, 6, 293–303.

4. M. J. Matos, C. D. Navo, T. Hakala, X. Ferhati, A. Guerreiro, D. Hartmann, B. Bernardim, K. L. Saar, I. Compañón, **F. Corzana**,\* T. P. J. Knowles, J. Jiménez-Osés, G. J. L. Bernardes (13/11). Quaternization of Vinyl/Alkynyl Pyridine Enables Ultrafast Cysteine-Selective Protein Modification and Charge Modulation. *Angewandte Chemie International Edition*, **2019**, 58, 6640–6644.

5. I. Compañón, A. Guerreiro, V. Mangini, J. Castro-López, M. Escudero-Casao, A. Avenoza, J. H. Busto, S. Castillón, J. Jiménez-Barbero, J. L. Asensio, G. Jiménez-Osés, O. Boutureira, J. M. Peregrina, R. Hurtado-Guerrero, R. Fiammengo, G. J. L. Bernardes, **F. Corzana**\* (17/17). Structure-based design of potent tumor-associated antigens: modulation of peptide presentation by single atom O/S or O/Se substitutions at the glycosidic linkage. *Journal of the American Chemical Society*, **2019**, 141, 4063–4072.

6. I.A. Bermejo, I. Usabiaga, I. Compañón, J. Castro-López, A. Insausti, J. A. Fernández, A. Avenoza, J. H. Busto, J. Jiménez-Barbero, J. L. Asensio, J. M. Peregrina, G. Jiménez-Osés, R. Hurtado-Guerrero, E. J. Cocinero, **F. Corzana\***. *Water Sculpts the Distinctive Shapes and Dynamics of the Tn Antigens: Implications for their Molecular Recognition. Journal of the American Chemical Society*, **2018**, *140*, 9952–9960.

Highlighted in JACS Spotlights: *J. Am. Chem. Soc.* 2018, *140*, 10383–10384

7. V.J. Somovilla, I.A. Bermejo, I.S. Albuquerque, N. Martínez-Sáez, J. Castro-López, F. García-Martín, I. Compañón, H. Hinou, S.-I. Nishimura, J. Jiménez-Barbero, J.L. Asensio, A. Avenoza, J.H. Busto, R. Hurtado-Guerrero, J.M. Peregrina, G. J.L. Bernardes, **F. Corzana\*** (17/17). The Use of Fluoroproline in MUC1 Antigen Enables Efficient Detection of Antibodies in Patients with Prostate Cancer. *Journal of the American Chemical Society* **2017**, *139*, 18255–18261

Highlighted in JACS Spotlights: *J. Am. Chem. Soc.* 2018, *140*, 1–1.

8. A. M. Freedy, M. J. Matos, O. Boutureira, **F. Corzana**, A. Guerreiro, P. Akkapeddi, V. J. Somovilla, T. Rodrigues, K. Nicholls, B. Xie, G. Jiménez-Osés, K. M. Brindle, A. A. Neves, G. J. L. Bernardes (**first author**) (14/4). Chemoselective Installation of Amine Bonds on Proteins Through Aza-Michael Ligation. *Journal of the American Chemical Society*, **2017**, *139*, 18365–18375.

9. T. Rodrigues, F. Sieglitz, V. J. Somovilla, P. M. S. D. Cal, A. Galione, **F. Corzana,\*** G. J. L. Bernardes.(7/6). Unveiling (-)-Englerin A as a L-type calcium channel modulator. *Angewandte Chemie International Edition*, **2016**, *55*, 11077–11081.

10. N. Martínez-Sáez, J. Castro-López, J. Valero-González, D. Madariaga, I. Compañón, V. J. Somovilla, M. Salvadó, J. L. Asensio, J. Jiménez-Barbero, A. Avenoza, J. H. Busto, G. J. L. Bernardes, J. M. Peregrina, R. Hurtado-Guerrero, **F. Corzana\*** (15/15). Deciphering the Non-Equivalence of Serine and Threonine O-Glycosylation Points: Implications for Molecular Recognition of the Tn Antigen by an anti-MUC1 Antibody. *Angewandte Chemie International Edition*, **2015**, *54*, 9830–9834.

#### Review:

N. Martínez-Sáez, J. M. Peregrina, **F. Corzana\***

Principles of mucin structure: implications for the rational design of cancer vaccines derived from MUC1-glycopeptides. *Chemical Society Review* **2017**, *46*, 7154–7175

## C.2. Research Projects and Grants

1. Directing the immune response through designed nanomaterials. DIRNANO. European Commission. Curie ITN (H2020-MSCA-ITN-2020), reference: 956544.

Participating entities: Università Degli Studi Di Padova, University Of Newcastle Upon Tyne, Eidgenossische Materialprüfungs- Und Forschungsanstalt, Fundacion Rioja Salud-Frs, Paris-Lodron-Universität Salzburg, Fondazione Istituto Italiano Di Tecnologia, University Of Lincoln, Stab Vida Investigacao E Servicos Em Ciencias Biologicas Lda, Oslo Universitetssykehus Hf, Susos Ag, Lipocoat Bv, University of La Rioja.

Grant: 2,542,765 € (01/10/2015-01/10/2019)

Euroepan Project coordinator: Emanuele Papini. Francisco Corzana (at University of La Rioja)/Number of researchers: 24

2. A training network for the chemical site-selective modification of proteins: Preparation of the next generation of therapeutic chemically defined protein conjugates. ProteinConjugates.

European Commission. Curie ITN (MSCA-ITN-2015-ETN), reference: 675007.

Participating entities: University of La Rioja, University of Cambridge, University College London, Universität Ulm, Instituto de Medicina Molecular (Lisboa), Faculdade de Farmácia da Universidade de Lisboa, Institut Curie, Universitaet Wien, Philochem AG, Phamamar, Hovione S. A.

Grant: 4,027,501.44 € (01/09/2020-01/09/2024)

European Project coordinator: Gonçalo Bernardes. Francisco Corzana (at University of La Rioja)/Number of researchers: 22

**3.** Exploiting the use of unnatural glycopeptide-based antigens to detect and fight cancer.

Ministerio de Ciencia, Innovación y Universidades. RTI2018-099592-B-C21

Participating entities: University of La Rioja.

Grant: 240.000 € (01/01/2019-31/12/2021)

PI: Francisco Corzana López/Jesús H. Busto Sancirán. Number of researchers: 5

**4.** Structural design of mucin-like glycopeptides incorporating mimicry of the antigen Tn to develop biomarkers and cancer vaccines.

Ministry of Economy and Competitiveness (MINECO)/FEDER. CTQ2015-67727-R

Participating entities: University of La Rioja.

Grant: 168.000 € (01/01/2016-31/12/2018)

PI: Jesús Manuel Peregrina García/Francisco Corzana López. Number of researchers: 5

**5.** Design of new biosensors for early detection of cancer. Spanish Association against Cancer (AECC)

Participating entities: University of La Rioja.

Grant: hiring a person to develop the doctoral thesis in 3 years (15/03/2018-31/01/2021)

PI: Francisco Corzana López. Number of researchers: 2

### **C.3. Contracts**

**1.** PhD student for designing novel biosensors for tumours based on site- selective modification of anti-MUC1-antibodies (ProteinConjugates. MSCA-ITN-2015-ETN. Reference: 675007).

Participating entities: University of La Rioja.

Grant: hiring a person to develop the doctoral thesis in 3 years (01/05/2016-01/05/2019)

Supervisor: Francisco Corzana López

**2.** Post-doc student for designing novel biosensors for tumours based on site- selective modification of anti-MUC1-antibodies

Participating entities: University of La Rioja.

Grant: Postdoc fellowship. University of La Rioja (15/11/2018-15/11/2020)

Supervisor: Francisco Corzana López

### **C.5. Institutional responsibilities**

Member of the faculty meeting at University of La Rioja (July 2008-January 2011).

### **C.6. Memberships of scientific committees**

- Secretary of the Chemical Biology Group of the Spanish Royal Society of Chemistry (since 2016-2019).

- Treasurer of the Carbohydrate Group of the Spanish Royal Society of Chemistry (2014-2016).

- Member of the Specialized Groups of Organic Chemistry, Carbohydrates and Biological Chemistry of the Royal Spanish Chemical Society (GEQO-RSEQ, GEHIC-RSEQ y GEQB-RSEQ).

- Member of the National Evaluation and Foresight Agency –ANEP–.

### **C.7. Organization of events**

- Member of the Organizing and Scientific Committees of the 6th Iberian Carbohydrate Meeting. Viseu, Portugal. September 2015.

- Member of the Organizing Committee and member of the Scientific Committee of the XIII Symposium o Young Researchers of The Spanish Royal Society of Chemistry. Logroño. La Rioja. November 2016.

- Member of the Organizing Committee and member of the Scientific Committee of the XI Carbohydrate Symposium. Logroño. La Rioja. May 2014.