



ANA ARDA FREIRE

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Date of document: 22/09/2020

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Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

EDUCATION

July 2000. Undergraduate Studies (BsC) in Chemistry. University of A Coruña.

July 2002. Master Diploma Thesis (MsC) in Chemistry. University of A Coruña.

March 2006. PhD in Chemistry from the University of A Coruña.

RESEARCH

Oct2000-March2006. **University of A Coruña, PhD**. Topic: Natural Products Synthesis and Structure Determination by NMR. Supervisors: Dr. C. Jimenez and Dr. J. Rodríguez. Sept - Dec2003. **Università degli Studi di Salerno (IT)**. Short term research scholar at Facoltà di Farmacia. Topic: determination of heteronuclear coupling constants by NMR. Supervisor: Dr. L. Gomez-Paloma.

Nov2006-Oct 2008. **Bijvoet Centre for Biomolecular Research, Utrecht (NL)**. Postdoctoral position. Topic: NMR of carbohydrates, within the EU project EurocabDB for the creation of a database on carbohydrates. Supervisors: J. P. Kamerling, B. Leeflang.

Oct2008-Nov2014. **Centro de Investigaciones Biológicas (CIB-CSIC), Madrid**. Postdoctoral research associate. Topic: study of host-receptor interactions by NMR. Research advisor: J. Jiménez-Barbero. From December 2009 - November 2012 as **Juan de la Cierva Fellow**.

Nov2014- today. **CICbioGUNE, Bilbao**. Postdoctoral research associate. Since November 2015 as **Ramón y Cajal Fellow**.

SUMMARY

I carried out my doctoral studies at the Marine Natural Products Chemistry group at the University of A Coruña, for which I got two competitive fellowships (Xunta de Galicia and Diputación de A Coruña). During this period I did a short period research stay at the Università degli Studi di Salerno (Italia), for a collaboration with the group of Prof. Luigi Gomez-Paloma, that resulted in two publications. The results from my PhD were published in 5 papers.

With the aim of steering my research towards the field of chemical biology, I then joined the group of Bioorganic Chemistry at the Bijvoet Center for Biomolecular Research in Utrecht, a world leading group in the field of carbohydrates. Within the EU project EUROCarbDB, I had the opportunity to redirect my research interests into the field carbohydrates, with a special focus on their structure and the relation with biological significance.

After a fruitful collaboration during my posdoc with the group of Prof Jiménez-Barbero, at that time at CIB-CSIC, Madrid, I joined his group at the end of 2008, with the aim of deepen and strengthen my expertise in the characterization of molecular recognition processes by NMR. From the period 2009-2012 I got the competitive Juan de la Cierva Fellowship. In this period I had the opportunity to get involved in a wide range of research projects, most of them through international collaborations. The scientific productivity of this period involved more than 20



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publications in first quartile, including two JACS, Acc. Chem. Res., Chem. Commun., Chem. Sci., and 15 Chemistry, among others. In 2014 I moved with the group of Prof. Jiménez-Barbero to CIC bioGUNE in Bilbao. In 2015 I got the competitive Ramón y Cajal Fellow position, which permitted me focusing my career in Chemical Glycobiology, in particular in deciphering the factors that modulate glycan recognition in Nature, with special emphasis in processes of proven biological or biomedical relevance. Along these years, my responsibilities in the group have been progressively grown, from the supervision of students and co-directions of Master thesis and PhD projects, as well as the direct implication in the management of the laboratory and research lines.

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

The research activity of Ana Ardá is focused on the development and application of NMR methods to study molecular recognition processes of biomedical interest from a chemical perspective. Chronologically, my activity can be divided into four periods: a PhD training period at the University of A Coruña (Spain), with a research focused on Natural Products Chemistry, a first post-doc period at University of Utrecht (Netherlands) where I changed my interest towards Carbohydrates Chemistry, a third period at the CIB-CSIC in Madrid, focusing on carbohydrate-protein interactions, and a fourth period at CIC bioGUNE (Bilbao, Spain), where I became Ramón y Cajal Fellow. This last period has represented an opportunity to consolidate my research career, on the one hand due to the relative stability of the contractual situation and to my incorporation into a top research institute. Indeed, CIC bioGUNE has been recently (July 2019) recognized by the Nature Index to be within the 100 best international centers in biomedicine, and awarded in 2017 as “Centro de Excelencia Severo Ochoa” by the Spanish Ministry of Science. During these last years I have taken the responsibilities of leading different research projects within the Chemical Glycobiology group, and indeed I am currently co-PI (together with Prof. Jiménez-Barbero) of a project from the Spanish Ministry of Science. In the last two years I have also been co-director of two Master Thesis, and have started to co-supervised several PhD projects. I have also participated in different research projects from diverse funding agencies (including private companies and EU).

The five most relevant publications in the last two years are:

1. Gimeno A., Delgado S., Valverde P., Bertuzzi S., Berbís M. A., Echavarren J., Lacetera A., Martín-Santamaría S., Surolia A., Cañada F. J., Jiménez-Barbero J.*, Ardá A.* *Angew. Chem. Int. Ed. Engl.*, **2019**, 58(22), 7268-7272.
2. Valverde P., Delgado S., Martínez J. D., Vendeville J. B., Malassis J., Linclau B., Reichardt N. C., Cañada F. J., Jiménez-Barbero J.*, Ardá A.* *ACS Chem. Biol.* **2019**, 14(7), 1660-1671.
3. Unione L., Lenza M. P., Ardá A., Urquiza P., Laín A., Falcón-Pérez J. M., Jiménez-Barbero J., Millet O. *ACS Cent. Sci.* **2019**, 5(9), 1554-1561.
5. Bertuzzi, S., Gimeno, A., Nuñez, R., Bernardo-Seisdedos, G., Delgado, S., Jimenez-Oses, G., Millet, O., Jimenez-Barbero, J.* and Arda, A.* (2020), . *Chem. Eur. J.* Accepted.
6. Lenza, M.P., Oyenarte, I., Diercks, T., Quintana, J.I., Gimeno, A., Bosch, A., Coelho, H., Diniz, A., Peccati, F., Delgado, S., Valle, M., Millet, O., Abrescia, N.G.A., Palazón, A., Marcelo, F., Jimenez-Oses, G., Jimenez-Barbero, J.*, Arda, A.* and Ereño-Orbea, J.* (2020), *Angew. Chem. Int. Ed.*. Accepted.



From the bibliometric perspective, the scientific production and quality indicators, to date, are: participation in 70 publications, most of them (more than 95% in the first quartile). The total number of citations is 1358. H-index: 20.

ANA ARDA FREIRE

Surname(s): **ARDA FREIRE**
Name: **ANA**
ORCID: **0000-0003-3027-7417**

Current professional situation

Employing entity: CICbioGUNE **Type of entity:** Innovation and Technology Centres
Professional category: Investigadora Ramón y Cajal
Start date: 01/11/2015
Type of contract: Temporary employment contract

Previous positions and activities

	Employing entity	Professional category	Start date
1	CICbioGUNE	Investigadora posdoctoral	11/11/2014
2	Centro de Investigaciones Biológicas	Titulado superior de actividades técnicas y profesionales	19/04/2013
3	Centro de Investigaciones Biológicas	Doctor	01/12/2012
4	Centro de Investigaciones Biológicas	Investigador en prácticas Juan de la Cierva	01/12/2009
5	Centro de Investigaciones Biológicas	Titulado superior de actividades técnicas y profesionales	16/10/2008
6	Universiteit Utrecht	Scientific Staff as Junior UD	01/11/2006

- 1** **Employing entity:** CICbioGUNE
Professional category: Investigadora posdoctoral
Start-End date: 11/11/2014 - 31/10/2015 **Duration:** 1 year
- 2** **Employing entity:** Centro de Investigaciones Biológicas
Type of entity: State agency
Professional category: Titulado superior de actividades técnicas y profesionales
Start-End date: 19/04/2013 - 18/10/2013 **Duration:** 6 months
- 3** **Employing entity:** Centro de Investigaciones Biológicas
Type of entity: State agency
Professional category: Doctor
Start-End date: 01/12/2012 - 31/03/2013 **Duration:** 81 days
- 4** **Employing entity:** Centro de Investigaciones Biológicas
Type of entity: State agency
Professional category: Investigador en prácticas Juan de la Cierva
Start-End date: 01/12/2009 - 30/11/2012 **Duration:** 1096 days



- 5** **Employing entity:** Centro de Investigaciones Biológicas **Type of entity:** State agency
Professional category: Titulado superior de actividades técnicas y profesionales
Start-End date: 16/10/2008 - 30/11/2009 **Duration:** 411 days
- 6** **Employing entity:** Universiteit Utrecht **Type of entity:** University
Professional category: Scientific Staff as Junior UD
Start-End date: 01/11/2006 - 01/11/2008 **Duration:** 2 years



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

University degree: Higher degree

Name of qualification: Licenciado en Química

City degree awarding entity: La Coruña, Galicia, Spain

Degree awarding entity: Universidad de La Coruña **Type of entity:** University

Date of qualification: 31/08/2000

Prize: Special award for degree

Doctorates

Doctorate programme: Programa Oficial de Doctorado en Química Ambiental y Fundamental

Degree awarding entity: Universidad de La Coruña **Type of entity:** University

City degree awarding entity: La Coruña, Galicia, Spain

Date of degree: 18/04/2006

DEA awarding entity: Universidad de La Coruña

Date DEA was awarded: 24/07/2002

European doctorate: No

Thesis title: Aplicación de las constantes de acoplamiento a la determinación de la configuración relativa de sistemas acíclicos 1,3-nitrogenados. Estructura y síntesis de sysitiazolamida

Thesis director: Jaime Rodríguez González

Thesis co-director: Carlos Jiménez González

Obtained qualification: sobresaliente cum laude

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
French		B1	A1	A1	B1
German		B1	B1	B1	B1
Italian		C1	B1	B1	B1
English		C1	C1	C1	C1



Teaching experience

Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** MASTER THESIS: The conformation of galactosaminogalactans related to aspergillus fumigatus. A 3D view by NMR.
Entity: Universidad del País Vasco **Type of entity:** University
Student: Marcos García Redondo
Date of reading: 18/09/2019
- 2 Project title:** MASTER THESIS: NMR and modelling studies on the interaction between group b streptococcus type III antibody and antigenic fragments of the GBSIII capsular polysaccharide
Entity: Universidad del País Vasco **Type of entity:** University
Student: Jon Imanol Quintana
Date of reading: 20/09/2018

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

- 1 Name of the project:** RMN y Reconocimiento molecular de carbohidratos: Lectinas, Enzimas y Acidos Nucleicos
Entity where project took place: CIC bioGUNE, Centro de Investigación Cooperativa en Biociencias **Type of entity:** Innovation and Technology Centres
Name principal investigator (PI, Co-PI...): Ana Ardá Freire; Jesús Jiménez-Barbero
Nº of researchers: 10
Funding entity or bodies: Ministerio de Ciencia e Innovación **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 01/01/2019 - 31/12/2021
Total amount: 378.739 €
- 2 Name of the project:** GLYCOVAX
Entity where project took place: CIC bioGUNE, Centro de Investigación Cooperativa en Biociencias **Type of entity:** Innovation and Technology Centres
Funding entity or bodies: European Union - H2020 **Type of entity:** Public Research Body
Start-End date: 01/11/2015 - 31/10/2019
Total amount: 3.554.499 €



- 3** **Name of the project:** Rompiendo las fronteras del reconocimiento molecular de carbohidratos por RMN
Entity where project took place: CICbioGUNE
City of entity: Derio, Basque Country, Spain
Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero
Nº of researchers: 7
Funding entity or bodies:
Ministerio de Economía y Competitividad **Type of entity:** State agency
Start-End date: 01/01/2016 - 31/12/2018
Total amount: 340.252 €
- 4** **Name of the project:** IMMUNOSHAPE
Entity where project took place: CIC bioGUNE, **Type of entity:** Innovation and Technology Centres
Centro de Investigación Cooperativa en Biociencias
Name principal investigator (PI, Co-PI....): Jesús Jimenez-Barbero
Funding entity or bodies:
European Union - H2020
Start-End date: 01/01/2015 - 31/12/2018
- 5** **Name of the project:** Glycopharm
Entity where project took place: Centro de **Type of entity:** State agency
Investigaciones Biológicas
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Jesús Jlménez-Barbero
Funding entity or bodies:
Unión Europea
Start-End date: 11/2012 - 10/2016
- 6** **Name of the project:** DYNANO—Dynamic interactive nanosystems
Entity where project took place: Centro de **Type of entity:** State agency
Investigaciones Biológicas
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero
Funding entity or bodies:
Unión Europea
Start-End date: 11/2011 - 10/2016
- 7** **Name of the project:** GlycoHIT—Glycomics by High-throughput Integrated Technologies
Entity where project took place: Centro de **Type of entity:** State agency
Investigaciones Biológicas
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): Jesús Jlménez-Barbero
Funding entity or bodies:
European Union. FP7-HEALTH-2010-single-stage
Start-End date: 01/2011 - 12/2014
- 8** **Name of the project:** RMN y reconocimiento molecular. La interacción específica de carbohidratos y análogos con receptores biomoleculares
Entity where project took place: Centro de **Type of entity:** State agency
Investigaciones Biológicas



City of entity: Madrid, Spain

Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero

Code according to the funding entity: CTQ2009-08536

Start-End date: 01/2010 - 12/2012

- 9 Name of the project:** Esteroquímica relativa mediante medidas de constantes acoplamiento a baja temperatura y constantes dipolares residuales (RDC) a sistemas acíclicos con equilibrios conformacionales complejos

Entity where project took place: Universidad de La Coruña **Type of entity:** University

City of entity: La Coruña, Galicia, Spain

Name principal investigator (PI, Co-PI....): Jaime Rodríguez González

Code according to the funding entity: CTQ2008-04024

Start-End date: 01/01/2009 - 31/12/2011

Total amount: 95.590 €

- 10 Name of the project:** EUROCarbDB, Design Studies Related to the Development of Distributed, Web-based European Carbohydrate Database

Entity where project took place: Universiteit Utrecht **Type of entity:** University

City of entity: Utrecht, Holland

Name principal investigator (PI, Co-PI....): Jhannis P Kamerling

Funding entity or bodies:

Unión Europea

Start-End date: 2006 - 2010

- 11 Name of the project:** Estructura, conformación, dinámica y reconocimiento molecular de carbohidratos

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

City of entity: Madrid, Community of Madrid, Spain

Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Ministerio

City funding entity: Madrid, Community of Madrid, Spain

Code according to the funding entity: CTQ2006-10874-C02-01

Start-End date: 12/2006 - 11/2009

- 12 Name of the project:** Diseño y síntesis de nuevos hidroximino-esteroides como potentes agentes antitumorales

Entity where project took place: Universidad de La Coruña **Type of entity:** University

City of entity: La Coruña, Galicia, Spain

Name principal investigator (PI, Co-PI....): Carlos Jiménez Gonzáles

Funding entity or bodies:

XUNTA DE GALICIA

City funding entity: Spain

Code according to the funding entity: PGIDT03PXIC10302PN

Start-End date: 01/12/2002 - 30/11/2004

**R&D non-competitive contracts, agreements or projects with public or private entities**

- 1** **Name of the project:** Estudio de fracciones de heparina de bajo y medio peso molecular
Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero
Participating entity/entities: CIC bioGUNE, Centro de Investigación Cooperativa en Biociencias; ROVI S.A.
Funding entity or bodies:
 ROVI S.A. **Type of entity:** Business
Start date: 2014 **Duration:** 5 years
- 2** **Name of the project:** Estudios de resonancia magnética nuclear (RMN) de nuevos compuestos
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero
Participating entity/entities: Centro de Investigaciones Biológicas; PHARMAMAR S.A.
Funding entity or bodies:
 PHARMAMAR S.A. **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain
Start date: 01/2013 **Duration:** 1 year
- 3** **Name of the project:** Estudio de fracciones de heparina de bajo y medio peso molecular
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Jesús Jiménez-Barbero
Participating entity/entities: Centro de Investigaciones Biológicas; ROVI S.A.
Funding entity or bodies:
 ROVI S.A. **Type of entity:** Business
City funding entity: Madrid, Community of Madrid, Spain
Start date: 01/2012 **Duration:** 2 years

Scientific and technological activities**Scientific production****Publications, scientific and technical documents**

- 1** Maria Pia Lenza; Iker Oyenarte; Tammo Diercks; Jon Imanol Quintana; Ana Gimeno; Alexandre Bosch; Helena Coelho; Ana Diniz; Francesca Peccati; Sandra Delgado; Mikel Valle; Oscar Millet; Nicola G. A. Abrescia; Asis Palazón; Filipa Marcelo; Gonzalo Jimenez-Oses; Jesus Jimenez-Barbero; Ana Arda; June Ereño-Orbea. Structural characterization of the N-linked glycans in the receptor binding domain of the SARS-CoV-2 spike protein and their interactions with human lectins using NMR spectroscopy. *Angewandte Chemie International Edition*. n/a - n/a, 11/09/2020. Available on-line at: <<https://onlinelibrary.wiley.com/doi/abs/10.1002/anie.202011015>>.
Type of production: Scientific paper **Format:** Journal
- 2** Sara Bertuzzi; Ana Gimeno; Reyes Nuñez; Ganeko Bernardo-Seisdedos; Sandra Delgado; Gonzalo Jimenez-Oses; Oscar Millet; Jesus Jimenez-Barbero; Ana Arda. Unravelling the time scale of conformational plasticity and allostery in glycan recognition by human



galectin-1. *Chemistry – A European Journal*. n/a - n/a, 11/08/2020. Available on-line at: <<https://chemistry-europe.onlinelibrary.wiley.com/doi/abs/10.1002/chem.202003212>>.

Type of production: Scientific paper

Format: Journal

- 3** J. Jiménez-Barbero; B. Linclau; A. Ardá; N.-C. Reichardt; M. Sollogoub; L. Unione; S.P. Vincent. Fluorinated carbohydrates as chemical probes for molecular recognition studies. *Current status and perspectives. Chemical Society Reviews*. 49 - 12, pp. 3863 - 3888. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090333865&doi=10.1039%2fc9cs00099b&partnerID=40&md5=8fc7a09aaec4e1f90f25a95ba450eccb>>.

Type of production: Scientific paper

Format: Journal
- 4** A. Gimeno; P. Valverde; A. Ardá; J. Jiménez-Barbero. Glycan structures and their interactions with proteins. A NMR view. *Current Opinion in Structural Biology*. 62, pp. 22 - 30. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85076020089&doi=10.1016%2fj.sbi.2019.11.004&partnerID=40&md5=47ea6252e2b3f130d20324614b91747e>>.

Type of production: Scientific paper

Format: Journal
- 5** P. Valverde; J.D. Martínez; F.J. Cañada; A. Ardá; J. Jiménez-Barbero. Molecular Recognition in C-Type Lectins: The Cases of DC-SIGN, Langerin, MGL, and L-Sectin. *ChemBioChem*. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087307513&doi=10.1002%2fcbic.202000238&partnerID=40&md5=2c6d5938e1de3d1b97944efbc683149e>>.

Type of production: Scientific paper

Format: Journal
- 6** D. Oldrini; L. del Bino; A. Arda; F. Carboni; P. Henriques; F. Angiolini; J.I. Quintana; I. Calloni; M.R. Romano; F. Berti; J. Jimenez-Barbero; I. Margarit; R. Adamo. Structure-Guided Design of a Group B Streptococcus Type III Synthetic Glycan-Conjugate Vaccine. *Chemistry - A European Journal*. 26 - 31, pp. 7018 - 7025. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082977454&doi=10.1002%2fchem.202000284&partnerID=40&md5=503e4b2a90f44c555527d88e9d6ec730>>.

Type of production: Scientific paper

Format: Journal
- 7** Y. Zhang; M. Gómez-Redondo; G. Jiménez-Osés; A. Arda; H.S. Overkleeft; G.A. van der Marel; J. Jiménez-Barbero; J.D.C. Codée. Synthesis and Structural Analysis of *Aspergillus fumigatus* Galactosaminogalactans Featuring α -Galactose, α -Galactosamine and α -N-Acetyl Galactosamine Linkages. *Angewandte Chemie - International Edition*. 59 - 31, pp. 12746 - 12750. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085013035&doi=10.1002%2fanie.202003951&partnerID=40&md5=9b60d1ba8ffd45bb67879e39c5ecfe78>>.

Type of production: Scientific paper

Format: Journal
- 8** A. Bordes; A. Poveda; T. Troadec; A. Franconetti; A. Ardá; F. Perrin; M. Ménand; M. Sollogoub; J. Guillard; J. Désiré; R. Tripier; J. Jiménez-Barbero; Y. Blériot. Synthesis, Conformational Analysis, and Complexation Study of an Iminosugar-Aza-Crown, a Sweet Chiral Cyclam Analog. *Organic Letters*. 22 - 6, pp. 2344 - 2349. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082045543&doi=10.1021%2facf.orglett.0c00503&partnerID=40&md5=d00c68d6586203917fbc5c7e5c48148f>>.

Type of production: Scientific paper

Format: Journal
- 9** S. Bertuzzi; J.I. Quintana; A. Ardá; A. Gimeno; J. Jiménez-Barbero. Targeting Galectins With Glycomimetics. *Frontiers in Chemistry*. 8, 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089846561&doi=10.3389%2ffchem.2020.00593&partnerID=40&md5=b71a9130fd220a7dd34448e4700ee3f6>>.

Type of production: Scientific paper

Format: Journal
- 10** J.D. Martínez; A.S. Infantino; P. Valverde; T. Diercks; S. Delgado; N.-C. Reichardt; A. Ardá; F.J. Cañada; S. Oscarson; J. Jiménez-Barbero. The interaction of fluorinated glycomimetics with dc-sign: Multiple binding modes disentangled by the combination of NMR methods and MD simulations. *Pharmaceuticals*.



13 - 8, pp. 1 - 18. 2020. Available on-line at: <<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85090332256&doi=10.3390%2fph13080179&partnerID=40&md5=71040d9db853febe327cae1c90183076>>.

Type of production: Scientific paper

Format: Journal

- 11** Unione L.; Lenza MP; Ardá A; Urquiza P; Laín A; Falcón-Pérez JM; Jiménez-Barbero J; Millet O.. Glycoprofile Analysis of an Intact Glycoprotein As Inferred by NMR Spectroscopy. ACS Cent. Sci.5 - 9, pp. 1554 - 1561. 09/2019.

Type of production: Scientific paper

Impact source: scijournal.org

Impact index in year of publication: 11.228

- 12** Del Bino L.; Calloni I.; Oldrini D.; Raso M. M.; Cuffaro R.; Arda A.; Codée J.; Jiménez-Barbero J.; Adamo R.. Regioselective strategies for the synthesis of Group Ia and Ib Streptococcus related glycans enable elucidating unique conformations of the capsular polysaccharides. Chemistry- Eur. J. 2019. 09/2019.

DOI: 10.1002/chem.201903527

Type of production: Scientific paper

Impact source: scijournal.org

Impact index in year of publication: 5.16

- 13** Lebedel L.; Ardá A.; Martin A.; Désiré J.; Mingot A.; Aufiero M.; Aiguabella Font N.; Gilmour R.; Jiménez-Barbero J.; Blériot Y.; Thibaudeau S.. Structural and Computational Analysis of 2-Halogeno-Glycosyl Cations in the Presence of a Superacid: An Expansive Platform. Angew. Chem. Int. Ed. Engl.58 - 39, pp. 13758 - 13762. 09/2019.

Type of production: Scientific paper

Impact source: scijournal.org

Impact index in year of publication: 12.102

- 14** Valverde P., Quintana J. I., Santos J. I., Ardá A.*, Jiménez-Barbero J.*. Novel NMR Avenues to Explore the Conformation and Interactions of Glycans. ACS Omega.4 - 9, pp. 13618 - 13630. 08/2019.

Type of production: Scientific paper

- 15** Pablo Valverde; Ana Gimeno; Niels-Christian Reichardt; Jesús Jiménez-Barbero; Ana Arda. Glycans in Drug Discovery. MedChemComm. Royal Society of Chemistry, 07/2019.

DOI: 10.1039/c9md00292h

Type of production: Scientific paper

Format: Journal

Corresponding author: No

Impact source: scijournal.org

Impact index in year of publication: 2.342

- 16** Valverde P.; Delgado S.; Martínez J. D.; Vendeville J. B.; Malassis J.; Linclau B.; Reichardt N. C.; Cañada F. J.; Jiménez-Barbero J.*; Ardá A.*. Molecular Insights into DC-SIGN Binding to Self-Antigens: The Interaction with the Blood Group A/B Antigens. ACS Chem. Biol.14 - 7, pp. 1660 - 671. 07/2019.

Type of production: Scientific paper

Corresponding author: Yes

Impact source: scijournal.org

Impact index in year of publication: 4.592



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- 1** **Title of the work:** MOLECULAR RECOGNITION OF BLOOD GROUP ANTIGENS BY hGALECTIN-1
Name of the conference: XXth European Carbohydrate Symposium, Eurocarb XX
City of event: Leiden, Holland
Date of event: 30/06/2019
End date: 04/07/2019
Organising entity: European Carbohydrate Organization
S. Bertuzzi; A. Gimeno; S. Delgado; J. Jimenez-Barbero; A. Arda.
- 2** **Title of the work:** NMR for disclosing key structural elements in glycan recognition by lectins
Name of the conference: XXXVII Biental RSEQ 2019
City of event: San Sebastián,
Date of event: 27/05/2019
Organising entity: Real Sociedad Española de Química **Type of entity:** -
- 3** **Title of the work:** The role of conformational entropy contribution in carbohydrate-lectin interactions: the A/B histo blood group antigens
Name of the conference: EuCheMS, Carbohydrates-Tools for Synthesis and Analysis Symposium. Lugar: Liverpool (UK)
Date of event: 28/08/2018
Organising entity: European Chemical Society
- 4** **Title of the work:** MOLECULAR INSIGHTS INTO THE INTERACTION BETWEEN DC-SIGN AND THE aGal EPI TOPE THROUGH NMR
Name of the conference: International Conference on Carbohydrates (ICS)
City of event: Lisbon, Portugal
Date of event: 14/07/2018
End date: 20/07/2018
Organising entity: International Carbohydrate Organization
A Arda; P Valverde; S Delgado; JB Vendeville; B Linclau; J Cañada; J. Jimenez-Barbero.
- 5** **Title of the work:** Molecular insights into the recognition of A/B blood group antigens by the lectin DC-SIGN through NMR methods
Name of the conference: IMMUNOSHAPE International Symposium on Glycoimmunology, San Sebastián (ES)
Date of event: 13/07/2018
Organising entity: Immunoshape ITN
- 6** **Title of the work:** DC-SIGN: the paradigm of a promiscuous lectin
Name of the conference: 1st Glycobasque Meeting
City of event: Bilbao,
Date of event: 15/05/2017
Organising entity: CIC bioGUNE, Centro de Investigación Cooperativa en Biociencias **Type of entity:** Innovation and Technology Centres



- 7** **Title of the work:** NMR and protein - carbohydrate interactions II
Name of the conference: Glycovax Training Event IV, Bilbao (ES)
Date of event: 03/2015
Organising entity: GycoVAX ITN
- 8** **Title of the work:** Glycan epitope presentation to receptors by NMR
Name of the conference: IV Iberian/VI Ibero-American/VII GERMN NMR meeting
Type of event: Conference **Geographical area:** Iberoamericano
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Alcalá de Henares, Community of Madrid, Spain
Date of event: 22/09/2014
End date: 25/09/2014
Organising entity: Real Sociedad Española de Química **Type of entity:** Grupo especializado en RMN
City organizing entity: Alcalá de Henares, Community of Madrid, Spain
- 9** **Title of the work:** GLYCAN EPITOPE PRESENTATION TO LECTINS BY NMR AND MODELING
Name of the conference: XI Jornadas de carbohidratos
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Logroño, La Rioja, Spain
Date of event: 28/05/2014
End date: 30/05/2014
Organising entity: UNIVERSIDAD DE LA RIOJA **Type of entity:** University
City organizing entity: Logroño, La Rioja, Spain
- 10** **Title of the work:** MOLECULAR RECOGNITION OF GALACTOSE CONTAINING OLIGOSACCHARIDES BY GALECTIN-3
Name of the conference: Meeting of the Spanish Chemical Biology Group
Type of event: Workshop **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Bilbao, Basque Country, Spain
Date of event: 04/02/2014
End date: 05/02/2014
Organising entity: Real Sociedad Española de Química **Type of entity:** Sociedad
City organizing entity: Bilbao, Basque Country, Spain
A. Ardá; F.J. Cañada-Vicinay; S.André; H.-J. Gabius; J. Jiménez-Barbero.
- 11** **Title of the work:** Glycoproteins and Glycolipids
Name of the conference: Glycopharm Workshop
Type of event: Seminar **Geographical area:** European Union
Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Upon invitation
City of event: Siena, Toscana, Italy
Date of event: 28/01/2014
End date: 28/01/2014
Organising entity: Glycopharm Project (EU) **Type of entity:** European Union



Ana Ardá Freire.

- 12** **Title of the work:** N-glycan recognition by lectins studied by NMR
Name of the conference: 27th International Carbohydrate Symposium (ICS2013)
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Bangalore, India
Date of event: 12/01/2014
End date: 17/01/2014
Organising entity: International Carbohydrate Organization
- 13** **Title of the work:** Epitope presentation in glycan recognition by NMR studies
Name of the conference: Carbohydrate Research New Investigator Symposium
Type of event: Workshop **Geographical area:** Non EU International
Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Upon invitation
City of event: Bangalore, India
Date of event: 11/01/2014
End date: 2011
Organising entity: Elsevier Publishing
Ana Ardá Freire.
- 14** **Title of the work:** UGM enzymatic inhibitors: enhanced affinity through polyfluorination studied by NMR
Name of the conference: SMASH NMR Conference
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Santiago de Compostela, Galicia, Spain
Date of event: 22/09/2013
End date: 25/09/2013
Organising entity: SMASH NMR Conference **Type of entity:** Business
Ana Ardá Freire.
- 15** **Title of the work:** Chemical Glycobiology: Molecular Recognition Features of Small and Complex Glycan Epitopes are Feasible by NMR
Name of the conference: 5th European Conference of Chemistry in Life Sciences
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 10/06/2013
End date: 12/06/2013
Organising entity: EuCheMS Division of Chemistry in Life Sciences **Type of entity:** Foundation
Ana Ardá Freire.
- 16** **Title of the work:** MOLECULAR RECOGNITION OF THE THOMSEN-FRIEDENREICH ANTIGEN-THREONINE CONJUGATE BY NMR
Name of the conference: IV Ibero-American NMR Meeting
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster



City of event: Aveiro, Norte, Portugal

Date of event: 25/09/2012

End date: 28/09/2012

Organising entity: Sociedade Portuguesa de Química

AnA Ardá Freire.

Reasons for participation: Review before acceptance

Type of entity: Associations and Groups

17 Title of the work: THE INTERACTION OF A DUAL LIGAND WITH GALECTIN3 AND MMP12 BY NMR

Name of the conference: 26th International Carbohydrate Symposium (ICS 2012)

Type of event: Conference

Type of participation: 'Participatory - poster

Geographical area: Non EU International

Reasons for participation: Review before acceptance

City of event: Madrid, Community of Madrid, Spain

Date of event: 22/07/2012

End date: 27/07/2012

Organising entity: International Carbohydrate Organization (ICO)

Ana Ardá Freire.

Type of entity: International Organization

18 Title of the work: The interaction of a dual ligand with Galectin3 and MMP12 by NMR

Name of the conference: 1st Biennial Meeting of the Chemical Biology Group (RSEQ)

Type of event: Conference

Type of participation: 'Participatory - poster

Geographical area: National

Reasons for participation: Review before acceptance

City of event: Santiago de Compostela, Galicia, Spain

Date of event: 08/03/2012

End date: 09/03/2012

Organising entity: Real Sociedad Española de Química

Ana Ardá Freire.

Type of entity: RSEQ

19 Title of the work: NMR investigations of protein – carbohydrate interactions: the recognition of N-glycans by plant lectins

Name of the conference: 9th Spanish-Italian Symposium on Organic Chemistry (SISOC 9)

Type of event: Conference

Type of participation: Participatory - invited/keynote talk

Geographical area: European Union

Reasons for participation: Upon invitation

City of event: Tenerife, Canary Islands, Spain

Date of event: 10/02/2012

End date: 14/02/2012

Organising entity: FUNDACION EMPRESA-UNIVERSIDAD DE LA LAGUNA

Ana Ardá Freire.

20 Title of the work: A lactose derivative as double ligand for Galectin3 and MMP12. Study of the interaction by NMR and modeling

Name of the conference: Glycosciences in the International Year of Chemistry, Applications to Human Health and Disease

Type of event: Seminar

Type of participation: Participatory - oral communication

Geographical area: European Union

Reasons for participation: Review before acceptance



City of event: Lisboa, Lisboa, Portugal

Date of event: 08/09/2011

End date: 10/09/2011

Organising entity: European Science Foundation
Ana Ardá Freire.

Type of entity: Public Research Body

21 Title of the work: A lactose derivative as double ligand for Galectin3 and MMP12. Study of the interaction by NMR and modeling

Name of the conference: 16th Eurocarb

Type of event: Conference

Type of participation: 'Participatory - poster

Geographical area: European Union

Reasons for participation: Review before acceptance

City of event: Sorrento, Campania, Italy

Date of event: 03/07/2011

End date: 07/07/2011

Organising entity: University of Naples Federico II

Type of entity: University

City organizing entity: Naples, Campania, Italy

Ana Ardá Freire; Blanca Dominguez; Marco Bartolini; F. Javier Cañada; Sabine André; H.-J. Gabius; Cristina Nativi; Jesús Jiménez-Barbero.

22 Title of the work: Structural studies on dual ligands: targeting MMP12 and Galectin3

Name of the conference: CAC-PCI Workshop

Type of event: Workshop

Type of participation: Participatory - oral communication

Geographical area: European Union

Reasons for participation: Review before acceptance

City of event: Naples, Campania, Italy

Date of event: 07/2011

End date: 07/2011

Organising entity: University of Naples- Federico II

Type of entity: University

Ana Ardá Freire.

23 Title of the work: New synthetic mannose selective receptors: structural studies by NMR and modeling

Name of the conference: XXIII Reunión Bienal de la RSEQ

Geographical area: National

Type of participation: Participatory - oral communication

Reasons for participation: Review before acceptance

City of event: Valencia, Valencian Community, Spain

Date of event: 07/2011

End date: 07/2011

Organising entity: Real Sociedad Española de Química

Type of entity: RSEQ

24 Title of the work: Structural studies on new synthetic mannose selective receptors by NMR and modeling

Name of the conference: European Young Investigator Workshop

Type of event: Conference

Type of participation: Participatory - invited/keynote talk

Geographical area: European Union

Reasons for participation: Upon invitation

City of event: Lyon, Rhône-Alpes, France

Date of event: 11/04/2011

End date: 15/11/2011

Organising entity: European Science Foundation

Type of entity: Foundation

Ana Ardá Freire.



- 25** **Title of the work:** Recognition of carbohydrates and mimetics by target receptors of therapeutic interest. A combined approach by using NMR and molecular modelling
Name of the conference: 7th ERA-Flash Conference: Bioinspired Chemistry
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Santiago de Compostela, Galicia, Spain
Date of event: 24/10/2010
End date: 27/10/2010
Organising entity: Universiad de Santiago de Compostela **Type of entity:** University
Ana Ardá Freire; F. Javier Cañada; Jesús Jiménez-Barbero.
- 26** **Title of the work:** Structural studies on new synthetic mannose selective receptors by NMR and modeling
Name of the conference: Reunión Bienal del GERMN-II Reunión Ibérica de RMN
Type of event: Conference **Geographical area:** National
Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Upon invitation
City of event: Bilbao, Basque Country, Spain
Date of event: 26/09/2010
End date: 29/09/2010
Organising entity: Real Sociedad Española de Química **Type of entity:** GERMN
Ana Ardá Freire.
- 27** **Title of the work:** Lectin mimetics: Selective recognition of carbohydrates by synthetic receptors studied by NMR and modeling
Name of the conference: X Jornadas de Carbohidratos
Type of event: Conference **Geographical area:** National
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Granada, Andalusia, Spain
Date of event: 15/09/2010
End date: 18/09/2010
Organising entity: Universidad de Granada **Type of entity:** University
City organizing entity: Granada, Andalusia, Spain
- 28** **Title of the work:** Structural Studies on New Synthetic Carbohydrate Receptors by NMR and Molecular Modeling
Name of the conference: 25th International Carbohydrate Symposium (ICS 2010)
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Tokyo, Japan
Date of event: 01/08/2010
End date: 06/08/2010
Organising entity: International Carbohydrate Symposium (ICO)
Ana Ardá Freire.



- 29** **Title of the work:** Selective Recognition of Carbohydrates by Synthetic Receptors Studied by NMR and Modeling
Name of the conference: Italian Spanish Joint Workshop
Type of event: Workshop
Type of participation: Participatory - oral communication
City of event: Milan, Lombardia, Italy
Date of event: 22/04/2010
End date: 22/04/2010
Organising entity: Università degli Studi di Milano-Bicocca
City organizing entity: Milan, Lombardia, Italy
Ana Ardá Freire.
- Geographical area:** European Union
Reasons for participation: Review before acceptance
Type of entity: University
- 30** **Title of the work:** Selective recognition of β -mannosides by synthetic tripodal receptors: A 3D view of the recognition mode by NMR and modeling
Name of the conference: XXXII Reunión Bienal de la RSEQ
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Oviedo, Principality of Asturias, Spain
Date of event: 13/09/2009
End date: 18/09/2009
Organising entity: Real Sociedad Española de Química
Ana Ardá Freire.
- Geographical area:** National
Reasons for participation: Review before acceptance
Type of entity: RSEQ
- 31** **Title of the work:** Carbohydrate-protein interactions: recognition of the N-glycan core by hevein
Name of the conference: 34th FEBS Congress
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Prague, Czech Republic
Date of event: 04/09/2009
End date: 09/09/2009
Organising entity: Federation of European Biochemical Societies (FEBS)
Ana Ardá Freire.
- Geographical area:** European Union
Reasons for participation: Review before acceptance
Type of entity: Associations and Groups
- 32** **Title of the work:** NMR primary experimental data for the EUROCarbDB carbohydrate database
Name of the conference: 24th International Carbohydrate Symposium (ICS 2008)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Oslo, Norway
Date of event: 27/07/2008
End date: 01/08/2008
Organising entity: International Carbohydrate Organization (ICO)
Ana Ardá Freire.
- Geographical area:** European Union
Reasons for participation: Review before acceptance
Type of entity: Foundation



- 33** **Title of the work:** Aproximación a la síntesis diastereoselectiva de Dysitiazolamida
Name of the conference: Reunión Bienal de la Real Sociedad Española de Química
Type of event: Conference **Geographical area:** National
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
- City of event:** Lugo, Galicia, Spain
Date of event: 19/09/2005
End date: 23/09/2005
Organising entity: Real Sociedad Española de Química
Type of entity: RSEQ
AnA Ardá Freire.
- 34** **Title of the work:** NMR J-based analysis configuration of nitrogen-containing moieties and application to dysithiazolamide, a new polychlorinated dipeptide from Dysidea sp
Name of the conference: 4th European Conference of Marine Natural Products
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
- City of event:** Paris, Île de France, France
Date of event: 12/09/2005
End date: 19/09/2005
Organising entity: CNRS-Muséum National d'Histoire Naturelle **Type of entity:** State agency
City organizing entity: París, France
Ana Ardá Freire.
- 35** **Title of the work:** Studies of polichlorinated leucine derivatives: synthesis of (2S, 4S)-5,5-cichloroleucine
Name of the conference: International symposium Chemistry and Biology of Marine Organisms
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
- City of event:** Kolympari, Greece
Date of event: 21/09/2003
End date: 26/09/2003
Organising entity: University of Athens
Ana Ardá Freire.
- 36** **Title of the work:** A lactose derivative as double ligand for Galectin3 and MMP12. Study of the interaction by NMR and modeling
Name of the conference: 5th Iberian Carbohydrate Meeting – GLUPOR 9
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
- City of event:** Vila Real, Norte, Portugal
Organising entity: Sociedade Portuguesa de Química **Type of entity:** Associations and Groups
- 37** **Title of the work:** Molecular recognition of complex-type biantennary N-glycans by lectins: epitope selection through NMR
Name of the conference: 18th ISMAR Meeting (International Conference on Magnetic Resonance)
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster



Reasons for participation: Review before acceptance

City of event: Río de Janeiro, Brazil

Organising entity: ISMAR organization

P. Blasco; D. Varón Silva; V. Schubert; S. André; M. Bruix; F. J. Cañada; H. J. Gabius; C. Unverzagt; J. Jiménez-Barbero; Ana Ardá Freire.

Type of entity: Associations and Groups

Other achievements

Stays in public or private R&D centres

- 1** **Entity:** Centro de Investigaciones Biológicas **Type of entity:** State agency
City of entity: Madrid, Community of Madrid, Spain
Start-End date: 06/01/2009 - 31/01/2009 **Duration:** 1 month
Goals of the stay: Guest
Provable tasks: NMR study of ligand - protein interactions.
- 2** **Entity:** Universiteit Utrecht **Type of entity:** University
Faculty, institute or centre: Bijvoet Centre for Biomolecular Research
City of entity: Utrecht, Holland
Start-End date: 01/11/2006 - 31/10/2008 **Duration:** 2 years
Goals of the stay: Post-doctoral
Provable tasks: NMR characterization of complex glycan structures within the project for the development of a Database for Carbohydrates
- 3** **Entity:** Università degli Studi di Salerno **Type of entity:** University
City of entity: Salerno, Campania, Italy
Start-End date: 01/09/2003 - 23/12/2003 **Duration:** 3 months
Goals of the stay: Doctorate
Provable tasks: Acquisition of specific NMR experiments for the measurement of homo and heteronuclear NMR coupling constants. Measurement, interpretation and application to the determination of relative configurations.