

Date of the CVA

13/04/2016

Section A. PERSONAL DATA

Name and Surname	Jaume Veciana Miró		
DNI	46104447C	Age	65
Researcher's identification number	Researcher ID	A-2147-2008	
	Código Orcid	0000-0003-1023-9923	

A.1. Current professional situation

Institution	Instituto de Ciencia de los Materiales de Barcelona (CSIC)		
Dpt. / Centre			
Address	Campus de la UAB, Campus de la UAB, 08006, Cerdanyola		
Phone	(+34) 607850268	Email	vecianaj@icmab.es
Professional category	Research Professor; Department Director.	Start date	1996
UNESCO spec. code	230600 - Organic chemistry; 230700 - Physical chemistry		
Keywords	Organic materials		

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

Bachelor/Master/PhD	University	Year
PhD in Chemistry	Universitat de Barcelona	1977
Bs. Degree in Chemical Sciences	Universitat de Barcelona	1973

A.3. General quality indicators of scientific production

Professor Veciana has **5 six-year research periods** until 31/12/2010 and he has directed **13 PhD theses** in the last ten years. He has published along his whole research trajectory **506 articles** which have been cited **12 328 times (10 459 times when excluding self-citations)** with an average of **24.88 citations per article** and an **H-index of 53**. In the last five years Prof. Veciana has published **107 articles**, which have been cited **1 100 times (954 when excluding self-citations)** with an **average of 10.0 citations per article** and an **H index of 17**. Furthermore, accordingly to ISI Essencial Science Indicators from ISI Web of Knowledge, Prof. Veciana is one of the most cited scientists in the field of **Chemistry (136 articles, 3 480 citations and 25.59 citations/article)** with a total in **All Areas of Science of 201 articles, 4 497 citations and 22.37 citations/article**. Three of his publications appear in the "Top Papers" category, accordingly to ISI Essencial Science Indicators.

More than 52% of Prof. Veciana's original research work has been published in the journals of highest impact in the areas of Chemistry, Physics and Material Science, accordingly to the SCOPUS database.

Generation of economic resources for the NANOMOL group led by Prof. Veciana Competitive research projects financed by national public agencies

Total from NANOMOL's creation (56 projects): 6 585 708.17 €

Currently active (5 projects): 1 489 303.95 €

Competitive research projects financed by European and international agencies

Total from NANOMOL's creation (33 projects): 6 049 621.87 €

Currently active (4 projects): 2 092 021.90 €

Competitive research projects financed by companies and private consortia

Total from NANOMOL's creation (52 projects): 2 152 233.65 €

Currently active (10 projects): 541 482.50 €

Grand total from its creation: 14 787 563.69 € (44.5% national public; 40.9% European public; 14.6% private)

Grand total currently active: 4 122 806 € (36.1% national public; 50.8% European public; 13.1% private)

Section B. SUMMARY OF THE CURRICULUM

Professor Veciana's trajectory in the last ten years has been centered on the disciplines of Nanochemistry, Supramolecular Chemistry and Nanomedicine. These activities have allowed to nanostructure organic molecules and functional polymers and to obtain new materials and supramolecular organizations as well as devices of practical interest in Nanomedicine and Electronics. On the one hand, the research activities have been centered in the development and study of new methods for precipitations/crystallization/encapsulation that allow the micro- and nano- structuration of bioactive molecules –pharmaceutical drugs, peptides, enzymes and so on- and functional –fluorophores, radicals, etc.- in the shape of crystals, particles or vesicles for the controlled/directed release of pharmaceutical drugs and diagnosis by optical microscopy. Furthermore organic radical molecules have also been obtained and structured for their use as polarizing and contrast agents for biomedical NMR techniques. On the other hand, the structuration of particles based in proteins on surfaces has been tackled in order to stimulate the growth/differentiation of mammal cells as well for their application in tissue engineering. Moreover, activities directed to the auto assembly, organization and anchoring of electroactive organic molecules in 1-, 2-, 3- dimensions and as well of composed polymeric films on surfaces with conductive properties have also been carried out. Another important objective developed with these structured systems has been the devices for molecular electronics such as molecular cables, field effect transistors, spin valves, commutable surfaces and deformation and temperature sensors with foreseeable applications as biomedical sensors. Finally, new hybrid metal-organic systems that incorporate receptor molecules for highly polluting metallic ions have also been addressed.

Among the main scientific-technical achievements the following should be highlighted:

- **Cellular growth engineering by the nanostructuring of a bacterial protein aggregates on different surfaces.**
- **Development of a new platform for the encapsulation of biomolecules with therapeutic activity in nanovesicles by the use of compressed fluids.**
- **Discovery and development of a new type of non-liposomal vesicles, called quatsomes, that present an unprecedented stability.**
- **Obtainment and study of new radical molecules for their use as contrast and nuclear polarizing agents in magnetic resonance techniques.**
- **Development of non-volatile memory devices and multichannel switches from electro-active radical molecules anchored on a surface with commutability properties.**
- **Development of piezo- and pyro- resistive films as high-sensitivity deformation, temperature and infrared radiation sensors.**
- **Development of a contact lens for the non-invasive monitoring of intraocular pressure through the use of piezo resistive films.**
- **Obtainment of new organic molecules processable in dissolution with which ambipolar field effect transistors can be prepared.**

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

- 1 **Scientific paper.** Ingrid Cabrera Puig. 2016. "Alpha-Galactosidase A Loaded Nanoliposomes with Enhanced Enzymatic Activity and Intracellular Penetration". *Advanced Healthcare Materials*. Wiley VCH. 5, pp.829-840. (20/20)
- 2 **Scientific paper.** Pfattner, Raphael; et al. 2015. "A Highly Sensitive Pyroresistive All-Organic Infrared Bolometer". *ADVANCED ELECTRONIC MATERIALS*. 1-8. ISSN 2199-160X. (12/12)

- 3 **Scientific paper.** Virtudes Cespedes, Maria; et al. 2014. "In Vivo Architectonic Stability of Fully de Novo Designed Protein-Only Nanoparticles". ACS NANO. 8-5, pp.4166-4176. ISBN 1936-0851; 1936-086X. (14/18)
- 4 **Scientific paper.** Sanchez, Guzman; et al. 2014. "Highly sensitive and selective detection of the pyrophosphate anion biomarker under physiological conditions". CHEMICAL SCIENCE. 5-6, pp.2328-2335. ISBN 2041-6520; 2041-6539. (6/7)
- 5 **Scientific paper.** Cabrera, Ingrid; et al. 2013. "Multifunctional Nanovesicle-Bioactive Conjugates Prepared by a One-Step Scalable Method Using CO₂-Expanded Solvents". NANO LETTERS. 13-8, pp.3766-3774. ISSN 1530-6984. (17/17)
- 6 **Scientific paper.** Tatkiewicz, Witold I.; et al. 2013. "Two-Dimensional Microscale Engineering of Protein-Based Nanoparticles for Cell Guidance". ACS NANO. 7-6, pp.4774-4784. ISSN 1936-0851. (9/9)
- 7 **Scientific paper.** Mas-Torrent, M.; Rovira, C.; Veciana, J.2013. "Surface-Confined Electroactive Molecules for Multistate Charge Storage Information". ADVANCED MATERIALS. 25-3, pp.462-468. ISSN 0935-9648. (3/3)
- 8 **Scientific paper.** Elizondo, Elisa; Veciana, Jaume; Ventosa, Nora. 2012. "Nanostructuring molecular materials as particles and vesicles for drug delivery, using compressed and supercritical fluids". NANOMEDICINE. 7-9, pp.1391-1408. ISSN 1743-5889. (2/3)
- 9 **Scientific paper.** Seras-Franzoso, Joaquin; et al. 2012. "Bioadhesiveness and efficient mechanotransduction stimuli synergistically provided by bacterial inclusion bodies as scaffolds for tissue engineering". NANOMEDICINE. 7-1, pp.79-93. ISSN 1743-5889. (7/8)
- 10 **Scientific paper.** Ratera, Imma; Veciana, Jaume. 2012. "Playing with organic radicals as building blocks for functional molecular materials". CHEMICAL SOCIETY REVIEWS. 41-1, pp.303-349. ISSN 0306-0012. (2/2)

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

1. "Development of therapies for the treatment of rare congenital metabolic diseases". (TERARMET). MINECO. Nora Ventosa Rull. (Instituto de Ciencia de los Materiales de Barcelona). 28/01/2014-31/12/2017. 152.417,00 €.
2. 607721, "Nano2Fun. "Nanochemistry of molecular materials for 2-photon functional applications". European Community. Marie-Curie FP7-PEOPLE-2013-ITN. Ana Painelli (coordinator). 01/09/2013-31/08/2017. 475.363,24 €.
3. 305937-2, "BERENICE. Benzimidazol and triazol research group for nanomedicine and innovation on Chagas disease". Comunidad Europea. FP7-HEALTH-2012-INNOVATION-1. Israel Molina (coordinator ICS Hospital Vall de Hebrón). 01/09/2012-31/08/2017.
4. CTQ2013-40480-R, "BE-WELL. Bio- and Electro-active molecule-based materials for improving health and societal WELLbeing". Ministry of Economy and Competitiveness. Jaume Veciana. 01/01/2014-31/12/2016. 454.000 €.
5. RTC-2014-2183-S, "Aplication of Quatsome technology for the development of a new range of perfumed softeners with lower environmental impact". Ministry of Economy and Competitiveness. Collaboration Challenges 2014. Jaume Veciana. 01/12/2014-30/11/2015. 132.244 €.
6. IPT-2011-0754-900000, "ORALBEADS. Development of solid micro/nanostructured dispersions for the oral administration of marine antitumor composes". MICINN. INNPACTO. Pilar Calvo (coordinator Pharmamar-Zeltia). 01/01/2011-31/12/2014.
7. CTQ2010-19501, POMAS, Self-assembly, nanostructuring and processing of functional organic molecules and their applications. General Direction of Research. National Plan. Jaume Veciana Miró. 01/01/2011-31/12/2013. 554.180 €.
8. IPT-010000-2010-22, Proyecto INNPACTO (VITILIGO). Innpacto. Pablo Aranda (coordinator 3P Biopharmaceuticals). 01/01/2010-31/12/2012.
9. FABRY- Development of Nanomedicines for sustitutive enzymatic therapy for Fabry's disease. Health Institute Carlos III. CIBER-Biomaterials, Bioengineering and Nanomedicine. Simo Schwartz (coordinador CIBBIM-Vall d'Hebron). 01/01/2008-31/12/2009.

10. Lipidic solid nanoparticles for the subcutaneous administration of marine antitumor composes. (UNDERLIPIDS). MINECO. Nora Ventosa Rull. (Instituto de Ciencia de los Materiales de Barcelona). From 24/02/2015. 312. 432,00 €.

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

1. Contract for the licensing of the patent CU2012-0112 "Vesicles that comprehend epidermic growth factor and components that contain them". Centre of Genetic Engineering and Biotechnology, Cuba. Jaume Veciana Miro. 23/10/2013-23/10/2033. 350.000,00 €
2. "Research and development of methodologies for the processing of the compound NP031112 for precipitation technologies with compressed fluids in the presence of crystalline growth inhibitors" NOSCIRA. Nora Ventosa. 01/10/2009-P2M. 28.500 €.
3. "Viability study to micronize a API to be administer by inhalation". Laboratorios Almirall, S.A.. Nora Ventosa. 01/04/2008-P2M. 14.000 €.
4. "Research and development of processes based on the use of compressed fluids in order to obtain a pharmaceutical active product as a pure particulated solid with particle size between 100-200nm". Neuropharma, S.A. Nora Ventosa. 01/03/2008-P6M. 57.000 €.
5. "Critical formulation of innovative drug delivery systems combining nanotechnology and adsorption modifiers". Uniqema - ICI. Nora Ventosa. 01/05/2003-P1Y. 34.250 €.
6. "Micronization of poloxamers and macrogols by the DELOS methos". Uniqema - ICI. Jaume Veciana. 01/05/2002-P6M. 22.538 €.
7. "Development of the DELOS process in order to obtain nano-sized powders of polymeric composites". MATGAS 2000 A.I.E. Jaume Veciana. 15/11/2001-P1Y. 93.157 €.

C.4. Patents

- 1 Dorothy Silbaugh; Brian A. Korgel; Lidia Priscila Ferrer Tasies; Nora Ventosa Rull. US 62/299,939. "Silicon Nanocrystal Nanovesicle Assemblies. Compositions and Methods of Making and Uses Thereof". United States of America. 03/09/2016. Board of Regents, The University of Texas System, Austin, TX (USA); Consejo Superior de Investigaciones Científicas, Madrid, SPAIN.
- 2 N. Ventosa; I. Cabrera; J. Veciana; H. Santana; E. Martinez; J. A. Berlanga. 2012-0112. "Vesicles that comprehend epidermal growth factor and components that contain them". Cuba. 02/08/2012. CSIC y CIGB.
- 3 N. Ventosa; I. Cabrera; E. Elizondo; J. Veciana; S. Sala; M. Melgarejo; M. Royo; F. Albericio; D. Pulido. 201231020. "Functionalised liposomes useful for the release of bioactive compounds". Spain. 29/06/2012. CSIC / CIBER-BBN / UB / IRB / PCB.
- 4 J. Veciana; I. Ratera; C. Diez-Gil; A. P. Villaverde; E. Vázquez; E. García-Fruitós. 200900045. "Inclusion bodies, bacterial cells and compositions that contain them and their uses". Spain. 30/12/2008. CSIC, UAB y CIBER-BBN. JANUS DEVELOPMENT SL.
- 5 M. Cano-Sarabia; N. Ventosa; S. Sala; J. Veciana. 200803753. "Procedure for the obtainment of solid micro or nanoparticles". Spain. 30/12/2008. CSIC and CIBER-BBN.
- 6 J. Veciana; C. Rovira; M. Mas-Torrent; R. Villa; J. Aguiló; J. C. Pastor; F. Ussa; E. Laukhina; V. Laukhin. 200801722. "Sensor contact lens for the non-invasive monitorization of intraocular pressure and method for its measurement". Spain. 06/06/2008. CSIC, Univ. de Valladolid, ICREA, UAB, CIBER-BBN.
- 7 E. Elizondo; N. Ventosa; S. Sala; J. Veciana; E. Imbuluzqueta; D. Gonzalez; M.J. Blanco-Prieto; C. Gamazo. 200703314. "Gentamicine composition, an anionic surfactant and a copolimer". 07/12/2007. CSIC and Universidad de Navarra.

C.5. Awards

Professor Veciana received in 2001 the "Solvay Award" and in 2004 the award from the "Spanish Royal Chemistry Society" for his contributions to chemistry. In 2005 he was awarded with the "DuPont Award" for his contributions to Nanoscience y Molecular Nanotechnology.