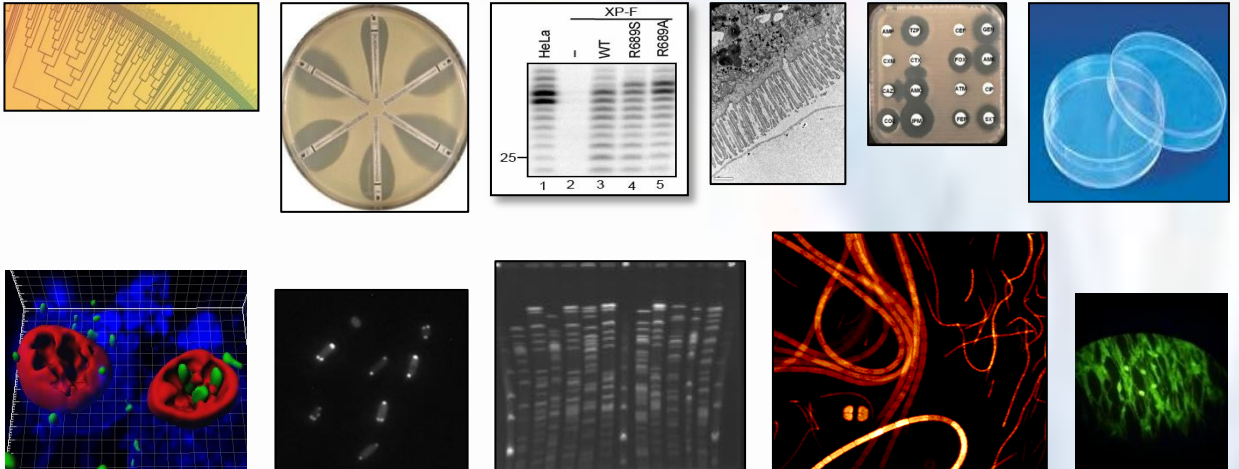


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Department of Genetics and Microbiology  
Universitat Autònoma de Barcelona



2016  
ANNUAL SCIENTIFIC REPORT



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## Introducció / Introduction

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És per mi un plaer escriure aquestes línies d'introducció de la memòria de recerca del 2016. Aquest és el meu primer any com a Director del Departament i voldria agrair, en primer lloc, la confiança que han depositat en mi els seus membres i, en segon lloc, la excel·lent tasca feta per l'anterior Director: el Dr. Jordi Surrallés.

Com ja deia l'anterior Director en la Introducció de la memòria del 2015, aquests últims anys el Departament no ha estat aliè a la crisi econòmica del nostre país que ha afectat de forma directe i continuada al sector públic. Hem sofert una important reducció del nostre pressupost i hem perdut capacitat de contractació de professorat no permanent, fent que la càrrega docent del professorat augmenti. Malgrat tot, tots els indicadors de recerca indiquen que el nivell d'excel·lència científica del nostre Departament es manté i, inclús en alguns paràmetres, augmenta. S'ha mantingut el nombre de publicacions indexades de l'any passat, el nombre més alt d'aquests darrers sis anys, amb un índex d'impacte mitjà de 13,6 corresponent al 10% de les publicacions de major valor. El mateix passa amb el nombre de tesis dirigides que, junt a l'any anterior, es manté en 24, el valor més alt d'aquest darrers 6 anys. Així mateix, cal indicar que s'ha assolit el major ingrés d'aquest darrers 6 anys en quant a projectes competitius: 1.254.102 €.

Únicament resta donar les gràcies a tots els membres del Departament que han fet possible al manteniment del nivell d'excel·lència del nostre Departament.

It is a pleasure for me to write these introductory words for this 2016 Research Report. This is my first year as Director of the Department and I would like to thank, first of all, the trust that my colleagues have placed in me and, in addition, I would also like to acknowledge the excellent work of the outgoing Director, Dr. Jordi Surrallés.

As the previous Director stated in the introduction of the 2015's report, in the last years, the Department has not escape from the economic crisis suffered by our country that has directly and continuously affected the public sector. We have undergone a significant reduction in our budget and we have lost potential to hiring non-permanent teachers, increasing the teaching load of the remaining staff. However, all the research indicators show that the level of scientific excellence of our Department is maintained and, even in some parameters, increases. The number of indexed publications reach the same value than last year, that was the highest in the last six years. The average impact index of the 10% of publications with higher value reach a value of 13.6. The same occur with the number of doctoral theses that, together with the previous year, remain at 24, the highest value in the last 6 years. Likewise, it should be noted that the highest income in the last 6 years has been achieved in terms of competitive projects: € 1,254,102.

To finish, I wish to thank all the members of the Department who have made it possible to maintain the level of excellence of our Department.

***Prof. Noel Xamena***  
*Director del Departament*

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# The Department

The Department of Genetics and Microbiology (DGM) is in charge of organizing and developing research and teaching in the disciplines included in the areas of Genetics and Microbiology. It is an Interfaculty Department, formed by three Units, two located in the Campus at the Faculty of BioSciences (Genetics Unit and Microbiology Unit Campus) and the third (Medical Microbiology Unit) for integrated teaching and research in the area Clinical Microbiology at the five UAB Hospitals (Sant Pau, Vall d'Hebron, Hospital del Mar, Germans Trias i Pujol and Parc Tauli).

The activity of DGM is fully committed to participate in the unprecedented intellectual adventure of Biology in the XXI century. We work hard to (i) contribute with our ability and commitment to scientific excellence in the research areas of Genetics and Microbiology; (ii) provide quality teaching and education to our students, future researchers, teachers and professionals in these areas; and (iii) contribute to increase the wellbeing of our society through the practical application of our expertise in biomedicine and other industrial sectors such as biotechnology, food, pharmacy and environment, among others

Further info at:

<http://www.uab.cat/departament/genetica-microbiologia/>

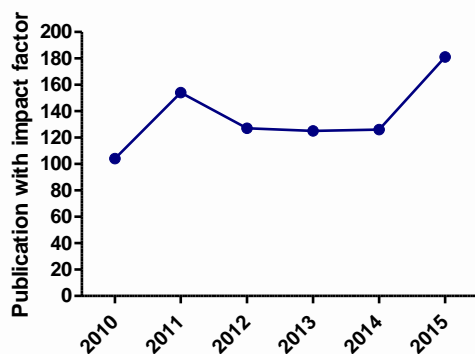
The screenshot shows the website for the Department of Genetics and Microbiology at the University of Barcelona. The header includes the UAB logo, the department name 'DEPARTAMENT DE GENÈTICA I MICROBIOLOGIA', and a search bar. Below the header, there are navigation tabs for 'El departament', 'La docència', and 'La recerca'. The main content area features a large image of a fly, a news section with a headline about genomic recombination, a 'DESTACATS' section with a link to the 'ANNUAL SCIENTIFIC REPORT - 2014', and a 'ENLLAÇOS DIRECTES' sidebar with links to 'UABDivulga', 'Ajuts, Beques i Convocatòries', 'UABCercador', 'Publicacions científiques', 'Parc de la Recerca', 'Tesis en xarxa', 'Grups de recerca', and 'Mobilitat i intercanvi'. A footer section mentions '30a. Edició Aspectes Generals i d'investigació' and 'Els seminaris de càncer de mama celebren la 30a edició amb un programa especial'.

# Analysis of Scientific Production (2016)

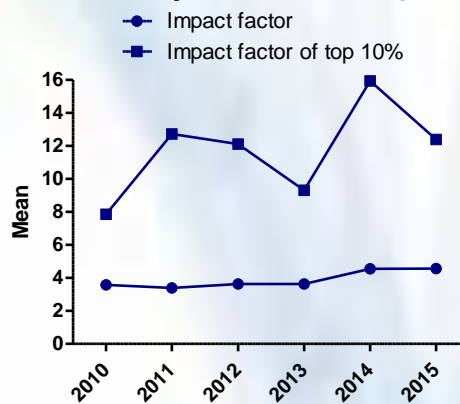


	2010	2011	2012	2013	2014	2015	2016
Number of publication with impact factor	104	154	127	125	126	181	181
Total impact factor	372,43	521,38	460,76	454,33	569,71	826,80	793,69
Mean impact factor	3,58	3,39	3,63	3,63	4,55	4,57	4,38
Mean impact factor of top 10%	7,86	12,73	12,11	9,31	15,94	12,39	13,06
PhD thesis defended	21	20	17	17	12	24	24
Competitive income (grants) in euros	940.412	781.163	962.260	382.874	931.469	133.100	1.054.491
Non-competitive income in euros	82.912	184.065	247.820	84.358	80.198	357.958	199.611
Total income in euros	1.023.324	965.229	1.210.081	467.232	1.011.667	491.058	1.254.102

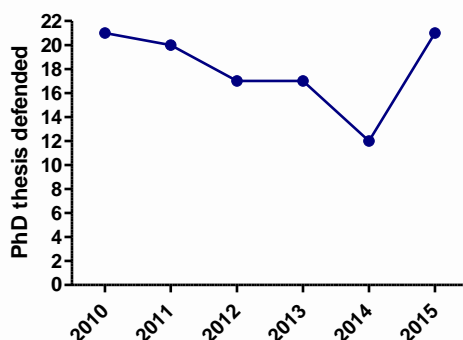
## Number of indexed publications



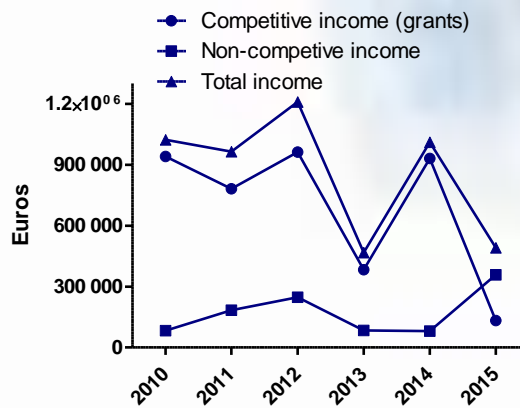
## Impact Factors (SCI)



## Number of PhD Thesis



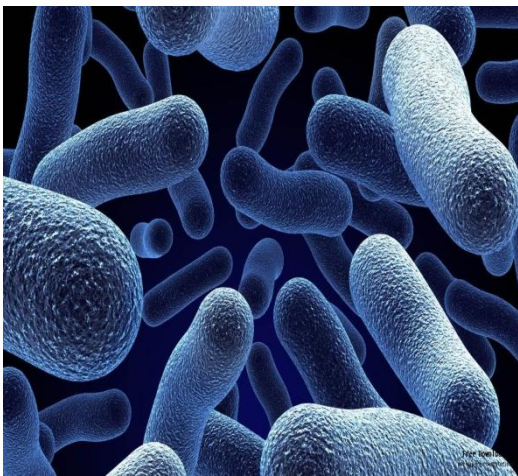
## Financial research incomes



# Research Groups Performance

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# 2016



# Bacterial Pathogenesis and Antimicrobials Group

## Members

**Dr. Isidre Gibert (PI)**  
**Dr. Xavier Daura (PI)**  
Dr. Daniel Yero  
Dra. Celeste Gómez  
Marta Calvet  
Oscar Conchillo  
Xavi Coves  
Messiner Gomes  
Sònia Martínez-Servat  
Pablo Rodríguez



**Web:** <http://ibb.uab.cat>

## Research

The main objective of our research group is the development of new strategies to combat infections by multidrug-resistant (MDR) bacteria. Our team combines a range of experimental and computational techniques for the identification of antimicrobial-target and vaccine-antigen candidates with new modes of action. Specifically, we are engaged in the following types of activities:

- Development of bioinformatic methods for the identification of novel antimicrobial-drug targets, antigens and their epitopes in pathogenic bacteria.
- Experimental validation and characterisation of identified antigens and antimicrobial-drug targets.
- Biomolecular modelling and simulation for the design of synthetic vaccines.
- Target-based virtual screening for antimicrobial-drug discovery.
- Experimental validation of hit antimicrobial compounds.



## Publications 2016

- ✓ Torrealba D, Parra D, Seras-Franzoso J, Vallejos-Vidal E, Yero D, Gibert I, Villaverde A, Garcia-Fruitós E, Roher N. Nanostructured recombinant cytokines: A highly stable alternative to short-lived prophylactics. *Biomaterials*. **2016**;107:102-14. DOI 10.1016/j.biomaterials.2016.08.043
- ✓ Ferrer-Navarro M, Torrent G, Mongiardini E, Conchillo-Solé O, Gibert I, Daura X. Proteomic analysis of outer membrane proteins and vesicles of a clinical isolate and a collection strain of *Stenotrophomonas maltophilia*. *J Proteomics*. **2016**;142:122-9. DOI 10.1016/j.jprot.2016.05.001
- ✓ Gomez A, Andreu N, Ferrer-Navarro M, Yero D, Gibert I. Triclosan-induced genes Rv1686c-Rv1687c and Rv3161c are not involved in triclosan resistance in *Mycobacterium tuberculosis*. *Sci Rep*. **2016**;6:26221. DOI 10.1088/1758-5090/8/2/025001
- ✓ Pesarrodonna M, Fernández Y, Foradada L, Sánchez-Chardi A, Conchillo-Solé O, Unzueta U, Xu Z, Roldán M, Villegas S, Ferrer-Miralles N, Schwartz S Jr, Rinas U, Daura X, Abasolo I, Vázquez E, Villaverde A. Conformational and functional variants of CD44-targeted protein nanoparticles bio-produced in bacteria. *Biofabrication*. **2016**;8(2):025001. DOI 10.1088/1758-5090/8/2/025001

# Basic and Applied Microbiology Group

## Members

### Dr. Antonio Villaverde (PI)

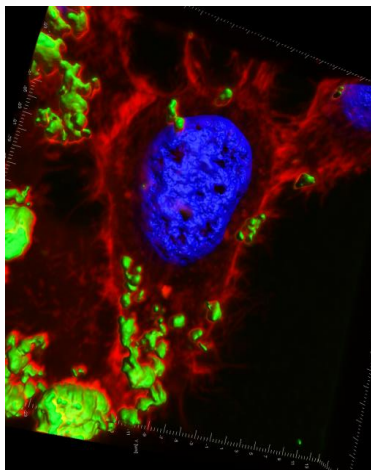
Dr. Marina Luquín  
Dr. Neus Ferrer-Miralles  
Dr. Esther Julián  
Dr. José Luis Corchero  
Dr. Esther Vázquez  
Dr. Paolo Saccardo  
Dr. Estela Noguera  
Rosa Mendoza  
Mercedes Márquez  
Cristina Sosa  
Mireia Pesarrodonà  
Marta Llorens  
Jose Vicente Carratalá  
Olivia Cano  
Naroa Serna  
Laura Sánchez  
Sandra Guallar  
Marc Bach  
Marianna Favaro  
Fabián Rueda  
Esther Martínez



**Web:** [http://ibb.uab.cat/ibb/index.php?option=com\\_wrapper&Itemid=127&lang=english](http://ibb.uab.cat/ibb/index.php?option=com_wrapper&Itemid=127&lang=english)  
<https://sites.google.com/site/mycobacteriaresearchlabuab/publications>

## Research

We generate nanostructured protein materials for biomedical applications, namely drug delivery, gene therapy, protein replacement and tissue engineering. In this context, we exploit diverse prokaryotic and eukaryotic cell factories for the design and bioproduction of self-assembling proteins. These engineered polypeptides are the basis for the design of smart functional materials displaying mechanical stability, regular geometry and refined properties such as specific cell binding, receptor-mediated internalization, intracellular trafficking and drug delivery. Most of our current collaborative projects are devoted to new nanosized drugs for the treatment of colorectal cancer. In another research line we focus on the study of environmental mycobacteria species as immunostimulatory and immunotherapeutic agents for the treatment of tuberculosis and cancer.



## Publications 2016

**2015 Impact factors are indicated in all cases.**

- ✓ María Virtudes Céspedes, Yolanda Fernández, Ugutz Unzueta, Rosa Mendoza, Joaquin Seras-Franzoso, Alejandro Sánchez-Chardi, Patricia Álamo, Verónica Toledo-Rubio, Neus Ferrer-Miralles, Esther Vázquez Simó Schwartz Jr, Ibane Abasolo, José Luis Corchero, Ramon Mangues, Antonio Villaverde. 2016. Bacterial mimetics of endocrine secretory granules as implantable depot materials for functional protein drugs. *Scientific Reports* 6:35765. **5.228**
- ✓ Ingrid Cabrera, Ibane Abasolo, Jose L. Corchero, Elisa Elizondo, Pilar Rivera, Evelyn Moreno, Jordi Farauo, Santi Sala, Dolores Bueno, Elisabet Gonzalez-Mira, 'Merche Rivas, Marta Melgarejo, Daniel Pulido, Fernando Albericio, Miriam Royo, Antonio Villaverde, Maria F. García-Parajo, Simo Schwartz Jr., Nora Ventosa and Jaume Veciana. 2016.  $\alpha$ -Galactosidase Loaded Nanoliposomes with Enhanced Enzymatic Activity and Intracellular Penetration. *Advanced Healthcare Materials*, 5: 829-840. **5.760**
- ✓ Laura Sanchez-Garcia; Lucas Martín; Ramon Mangues; Neus Ferrer-Miralles; Esther Vazquez; Antonio Villaverde. 2016. Recombinant pharmaceuticals from microbial cells; a 2015 update. *Microbial Cell Factories* 15:33. **3.744**
- ✓ Corchero JL. 2016. Eukaryotic aggresomes: from a model of conformational diseases to an emerging type of immobilized biocatalyzers. *Applied Microbiology and Biotechnology* 100: 559-569. **3.30**



## Publications 2016 (cont)

- ✓ Naroa Serna, María Virtudes Céspedes, Paolo Saccardo, Zhikun Xu, Ugutz Unzueta, Patricia Álamo, Mireia Pesarrodona, Alejandro Sánchez-Chardi, Mónica Roldán, Ramón Mangues, Esther Vázquez, Antonio Villaverde, Neus Ferrer-Miralles. 2016. Rational engineering of single-chain polypeptides into protein-only, BBB-targeted nanoparticles. *Nanomedicine: Nanotechnology, Biology, and Medicine* 12: 1241–1251. **5.671**
- ✓ Saccardo P, Corchero JL, Ferrer-Miralles, N. 2016. Tools to cope with difficult-to-express proteins. *Applied Microbiology and Biotechnology* 100(10): 4347-4355. **3.30**
- ✓ Ramon Mangues, Esther Vazquez, Antonio Villaverde. 2016. Targeting in cancer therapies. *Medical Sciences* 4: 6.
- ✓ Joaquin Seras-Franzoso, Alejandro Sánchez-Chardi, Elena Garcia-Fruitós, Esther Vázquez and Antonio Villaverde. 2016. Cellular uptake and intracellular fate of protein releasing bacterial amyloids in mammalian cells. *Soft Matter* 12, 3451. **3.798**
- ✓ Mireia Pesarrodona, Yolanda Fernández, Laia Foradada, Alejandro Sánchez-Chardi, Oscar Conchillo-Solé, Ugutz Unzueta, Zhikun Xu, Mónica Roldán, Sandra Villegas; Neus Ferrer-Miralles, Simó Schwartz, Ursula Rinas, Xavier Daura, Ibane Abasolo, Esther Vázquez, and Antonio Villaverde. 2016. Conformational and functional variants of CD44-targeted protein nanoparticles bio-produced in bacteria. *Biofabrication* 8: 025001. **4.702**
- ✓ Fabián Rueda, María Virtudes Céspedes, Alejandro Sánchez-Chardi, Joaquin Seras-Franzoso, Mireia Pesarrodona, Neus Ferrer-Miralles, Esther Vázquez, Ursula Rinas, Ugutz Unzueta, Uwe Mamat, Ramón Mangues, Elena García-Fruitós, Antonio Villaverde. 2016. Structural and functional features of self-assembling protein nanoparticles produced in endotoxin-free *Escherichia coli*. *Microbial Cell Factories* 15:59. **3.744**
- ✓ Esther Vazquez, Ramon Mangues and Antonio Villaverde. 2016. Functional cooperativity in drug delivery through protein-based nanotechnologies. *Nanomedicine (Lond)*. 1, 1333-1336. **4.889**
- ✓ María Virtudes Céspedes, Ugutz Unzueta, Patricia Álamo, Alberto Gallardo, Rita Sala, Isolda Casanova, Miguel Angel Pavón, María Antonia Mangues, Manuel Trías, Antonio Lopez-Pousa, Antonio Villaverde, Esther Vazquez, Ramon Mangues. 2016. Cancer-specific uptake of a liganded protein nanocarrier targeting aggressive CXCR4+ colorectal cancer models. *Nanomedicine: Nanotechnology, Biology, and Medicine*. 12: 1987–1996. **5.671**
- ✓ Olivia Cano-Garrido, María Virtudes Céspedes, Ugutz Unzueta, Paolo Saccardo, Mónica Roldán, Alejandro Sánchez-Chardi, Rafael Cubarsi, Esther Vázquez, Ramon Mangues, Elena García-Fruitós, Antonio Villaverde. 2016. CXCR4+ targeted protein nanoparticles produced in the food-grade bacterium *Lactococcus lactis*. *Nanomedicine (Lond)*. 11:2387-2398. **4.889**
- ✓ Débora Torrealba, Joaquin Seras-Franzoso, Uwe Mamat, Kathleen Wilke, Antonio Villaverde, Nerea Roher and Elena Garcia-Fruitós. 2016. Complex particulate biomaterials as immunostimulant-delivery platforms. *PLOS ONE* 11: e0164073. **3.057**
- ✓ Fabián Rueda; Brigitte Gasser; Alejandro Sánchez-Chardi; Mónica Roldán; Sandra Villegas; Verena Puxbaum; Neus Ferrer-Miralles; Ugutz Unzueta; Esther Vazquez; Elena García-Fruitós; Diethard Mattanovich; Antonio Villaverde. 2016. Functional inclusion bodies produced in the yeast *Pichia pastoris*. *Microbial Cell Factories* 15:166. **3.744**
- ✓ Giannotti MI, Abasolo I, Oliva M, Andrade F, García-Aranda N, Melgarejo M, Pulido D, Corchero JL, Fernández Y, Villaverde A, Royo M, Garcia-Parajo MF, Sanz F, Schwartz S Jr. 2016. Highly versatile polyelectrolyte complexes for improving the enzyme replacement therapy of lysosomal storage disorders. *ACS Applied Materials & Interfaces* 8: 25741-25752. **7.145**
- ✓ Débora Torrealba, David Parra, Joaquin Seras-Franzoso, Eva Vallejos, Daniel Yero, Isidre Gibert, Antonio Villaverde, Elena Garcia-Fruitós and Nerea Roher. 2016. Nanostructured recombinant cytokines: a highly stable alternative to short-lived prophylactics. *Biomaterials* 107, 102–114. **8.387**
- ✓ Olivia Cano-Garrido, Alejandro Sánchez-Chardi, Sílvia Parés, Irene Giró, Witold I. Tatkiewicz, Neus Ferrer-Miralles, Imma Ratera, Antonino Natalello, Rafael Cubarsi, Jaume Veciana, Àlex Bach, Antonio Villaverde, Anna Arís, and Elena Garcia-Fruitós. 2016. Functional protein-based nanomaterial produced in GRAS microorganism: a new platform for biotechnology. *Acta Biomaterialia*. 43: 230-239. **6.008**
- ✓ Cecilia Brambilla, Marta Llorens, Esther Julián, Estela Noguera-Ortega, Cristina Tomàs-Martínez, Miriam Pérez-Trujillo, Thomas F Byrd, Fernando Alcaide, and Marina Luquin M. 2016. Mycobacteria Clumping Increase Their Capacity to Damage Macrophages. *Front. Microbiol.* 7:1562. **4.165**
- ✓ Estela Noguera-Ortega, Núria Blanco-Cabra, Rosa Maria Rabanal, Alejandro Sánchez-Chardi, Mónica Roldán, Sandra Guallar-Garrido, Eduard Torrents, Marina Luquin, and Esther Julián. 2016. Mycobacteria emulsified in olive oil-in-water trigger a robust immune response in bladder cancer treatment. *Scientific Reports. Sci. Rep.* 6, 27232. **5.228**
- ✓ Giuseppe D'Auria, Eduard Torrents, Marina Luquin, Iñaki Comas and Esther Julián. Draft Genome Sequence of *Mycobacterium brumae* ATCC 51384. *Genome Announcements*. March/April 2016 4:e00237-16.
- ✓ Michelle Fernanda Brugnera, Reynaldo Bundalian, Tamara Laube, Esther Julián, Marina Luquin, Maria Valnice Boldrin Zanoni, and Maria Isabel Pividori. 2016. Magneto-actuated immunoassay for the detection of *Mycobacterium fortuitum* in hemodialysis water. *Talanta*. 153: 38–44. **4.035**
- ✓ Estela Noguera-Ortega, Rosa Maria Rabanal, Silvia Secanella-Fandos, Eduard Torrents, Marina Luquin, and Esther 2016. Gamma-irradiated mycobacteria enhance survival in bladder tumor-bearing mice although less efficaciously than live mycobacteria. *The Journal of Urology*. 195(1):198-205. **4.360**
- ✓ Estela Noguera-Ortega, Sílvia Secanella-Fandos, Hasier Eraña, Jofre Gasió, Rosa María Rabanal, Marina Luquin, Eduard Torrents, and Esther Julián. 2016. The non-pathogenic *Mycobacterium brumae* inhibits bladder cancer growth in vitro, ex vivo, and in vivo. *European Urology Focus*. 2 (1): 67–76.
- ✓ Estela Noguera-Ortega, and Esther Julián. 2016. Papel del aceite de oliva en el tratamiento del cáncer de vejiga. *Revista Almazaras*. 5: 70-74.

# Environmental Microbiology Group

## Members

**Dr. Olga Sánchez (PI)**

Dr. Isabel Esteve

Dr. Núria Gaju

Dr. Marc Llirós

Dr. Maira Martínez

Dr. Jordi Mas

Dr. Antoni Solé

Laia Millach

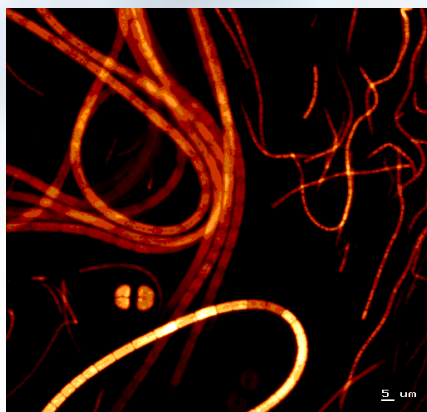
Eloi Parladé

Ferran Pujol

Cristina Sosa

Núria Tomás

Núria Vigués



## Research

The scientific activity of the group relates to applied areas in the field of Environmental Microbiology, which have in common the impact of human activities on ecosystems, such as the study of the response of microbial communities to contaminants, as well as the development of electrochemical sensors for the measurement of toxicity in waters. The group is also specialized in the application of high throughput methodologies to understand the functional potential of microbial communities and the factors that regulate them in natural environments.

## Publications 2016

- ✓ Alonso A, Vigués N, Rodríguez-Rodríguez R, Borrísé X, Muñoz M, Muraviev DN, Mas J, Muñoz-Berbel X. Self-oriented Ag-based polycrystalline cubic nanostructures through polymer stabilization. *Nanotechnology* 2016, 27:425603.
- ✓ Bastos-Arrieta J, Muñoz J, Vigués N, Muraviev DN, Céspedes F, Mas J, Baeza M, Muñoz M. Intermatrix synthesis of Ag, AgAu and Au nanoparticles by the galvanic replacement strategy for bactericidal and electrocatalytically active nanocomposites. *New Journal of Chemistry* 2016, 40:10344-10352.
- ✓ Domenech B, Ziegler K, Vigués N, Olszewski W, Marini C, Mas J, Muñoz M, Muraviev DM, Macanas J. Polyurethane foams doped with stable silver nanoparticles as bactericidal and catalytic materials for the effective treatment of water. *New Journal of Chemistry* 2016, 40:3716.
- ✓ Ferrera I, Sánchez O. Insights into microbial diversity in wastewater treatment systems: How far have we come? *Biotechnology Advances* 2016, 34:790-802.
- ✓ Giné A, Carrasquilla M, Martínez-Alonso M, Gaju N, Sorribas FJ. Characterization of soil suppressiveness to root knot nematodes in organic horticulture in plastic greenhouse. *Frontiers in Plant Science* 2015, 7.
- ✓ Godino N, Dávila D, Vigués N, Ordeig O, Del Campo FJ, Mas J, Muñoz FX. Corrigendum to "Measuring acute toxicity using a solid-state microrespirometer: Part II. A theoretical framework for the elucidation of metabolic parameters" [*Sens. Actuators B: Chemical* 2008, 135:13–20]. *Sensors and Actuators B: Chemical* 2016, 224:944.
- ✓ Mallén-Alberdi M, Vigués N, Mas J, Fernández-Sánchez C, Baldi A. Impedance spectral fingerprint of *E. coli* cells on interdigitated electrodes: A new approach for label free and selective detection. *Sensing and Bio-Sensing Research*. 2016, 7:100-106.

- ✓ Márquez-Maqueda A, Ríos-Gallardo JM, Vigués N, Pujol F, Díaz-González M, Mas J, Jiménez-Jorquera C, Domínguez C, Muñoz-Berbel X. Enzymatic Biosensors Based on Electrodeposited Alginate Hydrogels. *Procedia Engineering* 2016, 168:622 – 625.
- ✓ Otón J, Pereiro E, Pérez-Berná AJ, Millach L, Sorzano COS, Marabini R, Carazo JM. Characterization of transfer function, resolution and depth of field of a soft X-ray microscope applied to tomography enhancement by Wiener deconvolution. *Biomedical Optics Express* 2016, 7:5092-5103.
- ✓ Pujol-Vila F, Giménez-Gómez P, Santamaria N, Antúnez B, Vigués N, Díaz-González M, Jiménez-Jorquera C, Mas J, Sacristán J, Muñoz-Berbel M. Portable and miniaturized optofluidic analysis system with ambient light correction for fast in situ determination of environmental pollution. *Sensors and Actuators B*. 2016, 222:55-62.
- ✓ Pujol-Vila F, Vigués N, Guerrero-Navarro AE, Jiménez S, Gómez D, Fernández M, Bori J, Vallès B, Riba MC, Muñoz-Berbel X, Mas J. Paper-based chromatic toxicity bioassay by analysis of bacterial ferricyanide reduction. *Analytica Chimica Acta*. 2016, 910:60-67.
- ✓ Sánchez O. Constructed wetlands revisited: Microbial diversity in the *-omics* era. *Microbial Ecology* 2016, doi:10.1007/s00248-016-0881-y.
- ✓ Sánchez O (editor). *Environmental engineering and activated sludge processes. Models, methodologies and applications*. Apple Academic Press, 2016. ISBN 978-1-77188-388-7.
- ✓ Trueba-Santiso A, Parladé E, Rosell M, Llorós M, Mortan SH, Martínez-Alonso M, Gaju N, Martín-González L, Vicent T, Marco-Urrea E. Molecular and carbon isotopic characterization of an anaerobic stable enrichment culture containing *Dehalobacterium* sp. during dichloromethane fermentation. *Science of the Total Environment* 2016, in press.

# Molecular Microbiology Group

## Members

### Dr. Jordi Barbé (PI)

Dr. Montserrat Llagostera

Dr. Susana Campoy

Dr. Jesús Aranda

Dr. M. Pilar Cortés

Oihane Irazoki

Jennifer Otero

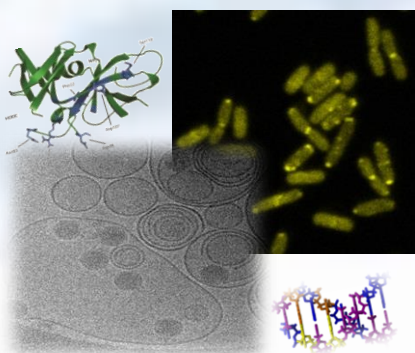
María Pérez Varela

Miquel Sánchez Osuna

Jordi Corral

Joan Ruiz

Susana Escribano



## Research

Research is focused in the following three topics: i) DNA repair (SOS system) and mechanisms of bacterial pathogenesis; ii) Design of vaccine for animal pathogens; iii) Mechanisms of antibiotic resistance and bacteriophage therapy.

## Publications 2016

- ✓ Bardina C, Colom J, Spricigo DA, Otero J, Sánchez-Osuna M, Cortés P, Llagostera M. 2016. Genomics of Three New Bacteriophages Useful in the Biocontrol of *Salmonella*. *Front Microbiol.* 20;7:545. doi: 10.3389/fmicb.2016.00545. **IF: 4.16.**
- ✓ Erill I, Campoy S, Kılıç S, Barbé J. 2016. The Verrucomicrobia LexA-Binding Motif: Insights into the Evolutionary Dynamics of the SOS Response. *Front Mol Biosci.* 3:33. doi: 10.3389/fmolb.2016.00033. **IF: -**
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# VHIR Research Group of Microbiology

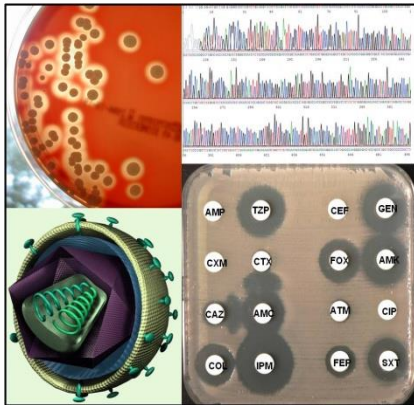
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## Research

The Research Group of Microbiology at Vall d'Hebron Research Institute (VHIR) focuses on the study of the microbiology aspects, at basic, translational and clinical research, that could improve the outcomes of patients with infectious diseases. We work with special interest in studying the mechanisms involved in antimicrobial resistance, sexually transmitted infections, viral respiratory infections, international health infections, and viral and fungal infections in immunocompromised patients.

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Domínguez À, Soldevila N, Toledo D, Godoy P, Castilla J, Force L, Morales M, Mayoral JM, Egurrola M, Tamames S, Martín V, Astray J; Working Group of the Project PI12/02079.. Factors Associated with Influenza Vaccination of Hospitalized Elderly Patients in Spain. *PLoS One*. 2016; 11(1):e0147931. doi: 10.1371/journal.pone.0147931. PubMed PMID: 26824383

# Infectious Diseases and Clinical Microbiology Group

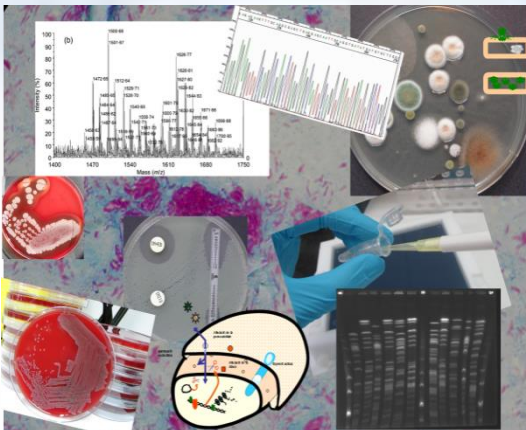
## Members

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Dra. Núria Margall  
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Dra. Merce Gurguí  
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## Research

This is a multi-disciplinary group of researchers from the Department of Microbiology and, the Infectious Diseases Unit at Hospital Santa Creu i Sant Pau. Our research lines focus on two main interrelated areas. The first of these is antimicrobial resistance. This area includes the study of molecular epidemiology (population and clonality studies in bacteria, mycobacteria, fungi and viruses), molecular bases of bacterial resistance to antibiotics, vectors that convey resistance genes (plasmids, transposons, integrons, phages), and the use of molecular techniques in diagnosis of infectious diseases. The second area emphasizes research related to bacteraemia and endocarditis, nosocomial infections, prosthetic joint infections, central nervous system infections, and tuberculosis.

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### Publications in collaboration.

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# Clinical Microbiology and Experimental Infectious Pathology Group

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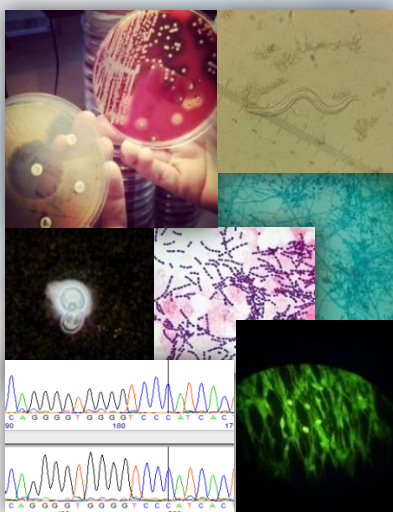
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## Research



Our Group, led by Prof. Vicente Ausina, MD, PhD, Head of the Microbiology Service at Hospital Unversitari Germans Trias i Pujol, is involved in several Spanish research networks including REIPI, RESITRA, CIBERES and CIBERESP and is focused in the development, standardization and clinical evaluation of microbiological, immunological and molecular techniques in the diagnosis of infectious diseases. Part of the Group is also devoted to the development of experimental models in infectious pathology, the study of the molecular mechanisms of antimicrobial resistance, and on the assessment of the antimicrobial activity of new drugs. Our historical focus is on respiratory pathogens, especially *Mycobacterium tuberculosis* and opportunistic mycobacteria. Additionally, other research lines led by different group members, such as molecular virology, pathogenesis of viral infection, immunology of inflammation and new bacterial anti-inflammatory molecules, as well as epidemiology and public health of communicable diseases, have acquired more relevance over the last decade.

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- ✓ Soler-Majoral J., Sánchez-Escuredo A., Prat Aymerich C., Sanchis Vidal E., Marín-Tàpia A., Prats Bardají MS., Pérez-Mir M., Juega Mariño FJ., Cañas Solé L., Lauzurica R. Espudo anaranjado en el contexto de neumonía por *Legionella micdadei* en un paciente trasplantado renal. *Nefrología*. 2016; 36(5): 558-560. **IF:** 1,207
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- ✓ Hernández A. Virus Zika. *Revista del Colegio de Biólogos*. 2016; 26: 12-16



# Retrovirus and zoonosis Study Group

## Members. Dr/es

### Ferran Segura (PI)

MM Nogueras

G Navarro

MJ Amengual

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E Antón

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M Navarro

L Falgueras

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O. Cuevas

O Gasch

D. Fontanals

M Vaqueiro

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I Sanfeliu

B Font

M Cervantes

M Sala

J Castella

A Ortuño



## Research



The WHO defines zoonosis as "any disease naturally transmitted from animals to humans or vice versa." The research team began working on this line in 1980, coinciding with a significant increase of cases of February Bontous Mediterranean FBM (*Rickettsia conorii*). Currently the research team covers all fields: veterinary diagnosis, epidemiological, clinical and therapeutic. The main diagnostic difficulty is that most etiological agents are intracellular. This hampers the diagnosis. We have worked on the application of serological tests and culture technique "shell-vial." Currently we are working on a new line of research on molecular techniques. On the other hand, we also carry out research into HIV/AIDS, particularly immunological studies in HIV+ patients older than 50 years, we collaborate with national and international cohorts and participate in clinical trials.

## Publications 2016

- ✓ 1. Parra E, Segura F, Tijero J, Pons I, Nogueras MM. Development of a real-time PCR for Bartonella spp. detection, a current emerging microorganism. Mol Cell Probes. 2016 Oct 13. pii: S0890-8508(16)30082-2. doi: 10.1016/j.mcp.2016.10.006. [Epub ahead of print] PubMed PMID: 27746242. **IF: 1.565**
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- ✓ 3. Sobrino-Vegas P, Moreno S, Rubio R, Viciano P, Bernardino JI, Blanco JR, Bernal E, Asensi V, Pulido F, del Amo J, Hernando V; Cohorte de la Red de Investigación en Sida, Spain.. Impact of late presentation of HIV infection on short-, mid- and long-term mortality and causes of death in a multicenter national cohort: 2004-2013. J Infect. 2016 May;72(5):587-96. doi: 10.1016/j.jinf.2016.01.017. PubMed PMID: 26920789. **IF: 4.382**
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- ✓ 5. Anton E, Muñoz T, Travería FJ, Navarro G, Font B, Sanfeliu I, Segura F. Randomized Trial of Clarithromycin for Mediterranean Spotted Fever. Antimicrob Agents Chemother. 2016 March 2016 60(3): 1642–1645. doi: 10.1128/AAC.01814-15. PubMed PMID: 26711765; PubMed Central PMCID: PMC4776005. **IP: 4.415**

- ✓ 6. Vallés J, Diaz E, Martín-Loeches I, Bacelar N, Saludes P, Lema J, Gallego M, Fontanals D, Artigas A. [“Evolution over a 15-year period of the clinical characteristics and outcomes of critically ill patients with severe community-acquired pneumonia”](#). Med Intensiva. 2016 May;40(4):238-45. doi: 10.1016/j.medin.2015.07.005. English, Spanish. PMID: 26391738 **IF: 1.193**
- ✓ 7. Aracil-García B, Oteo-Iglesias J, Cuevas-Lobato O, Lara-Fuella N, Pérez-Grajera I, Fernández-Romero S, Pérez-Vázquez M, José Campos J. y Grupo español de la European Antimicrobial Resistance Surveillance network (EARS-Net) (D. Fontanals). “Rápido aumento de la resistencia a cefalosporinas de 3a generación, imipenem y de la coresistencia en 7.140 aislados de Klebsiella pneumoniae en hemocultivos (2010-2014) según datos de EARS-Net en España. Enferm Infecc Microbiol Clin. 2016 (artículo en prensa) **IF: 1.530**
- ✓ 8. Gutiérrez-Gutiérrez B, Salamanca E, de Cueto M, Hsueh PR, Viale P, Paño-Pardo JR, Venditti M, Tumbarello M, Daikos G, Pintado V, Doi Y, Tuon FF, Karaiskos I, Machuca I, Schwaber MJ, Azap ÖK, Souli M, Roilides E, Pournaras S, Akova M, Pérez F, Bermejo J, Oliver A, Almela M, Lowman W, Almirante B, Bonomo RA, Carmeli Y, Paterson DL, Pascual A, Rodríguez-Baño J; Investigators from the REIPI/ESGBIS/INCREMENT Group (D. Fontanals). [“A Predictive Model of Mortality in Patients With Bloodstream Infections due to Carbapenemase-Producing Enterobacteriaceae”](#). Mayo Clin Proc. 2016 Oct;91(10):1362-1371. doi: 10.1016/j.mayocp.2016.06.024. PMID: 27712635. **IF: 5.920**
- ✓ 9. Ortega A, Sáez D, Bautista V, Fernández-Romero S, Lara N, Aracil B, Pérez-Vázquez M, Campos J, Oteo J; Spanish Collaborating Group for the Antibiotic Resistance Surveillance Programme (D. Fontanals). [“Carbapenemase-producing Escherichia coli is becoming more prevalent in Spain mainly because of the polyclonal dissemination of OXA-48”](#). J Antimicrob Chemother. 2016 Aug;71(8):2131-8. doi: 10.1093/jac/dkw148. PMID: 27147304 **IF: 4.919**
- ✓ 10. Gutiérrez-Gutiérrez B, Bonomo RA, Carmeli Y, Paterson DL, Almirante B, Martínez-Martínez L, Oliver A, Calbo E, Peña C, Akova M, Pitout J, Origüen J, Pintado V, García-Vázquez E, Gasch O, Hamprecht A, Prim N, Tumbarello M, Bou G, Viale P, Tacconelli E, Almela M, Pérez F, Giamarellou H, Cisneros JM, Schwaber MJ, Venditti M, Lowman W, Bermejo J, Hsueh PR, Mora-Rillo M, Gracia-Ahufinger I, Pascual A, Rodríguez-Baño J; REIPI/ESGBIS/INCREMENT Group (D. Fontanals). [“Ertapenem for the treatment of bloodstream infections due to ESBL-producing Enterobacteriaceae: a multinational pre-registered cohort study”](#). J Antimicrob Chemother. 2016 Jun;71(6):1672-80. doi: 10.1093/jac/dkv502. PMID: 26907184. **IF: 4.919**
- ✓ 11. Pérez-Vázquez M, Oteo J, García-Cobos S, Aracil B, Harris SR, Ortega A, Fontanals D, Hernández JM, Solís S, Campos J, Dougan G, Kingsley RA. “Phylogeny, resistome and mobile genetic elements of emergent OXA-48 and OXA-245 Klebsiella pneumoniae clones circulating in Spain”. J Antimicrob Chemother. 2016 Apr;71(4):887-96. doi: 10.1093/jac/dkv458. PMID: 26769896. **IF: 4.919**
- ✓ 12. Cuervo G, Gasch O, Shaw E, Camoiez M, Domínguez MÁ, Padilla B, Pintado V, Almirante B, Lepe JA, López-Medrano F, Ruiz de Gopegui E, Martínez JA, Montejo JM, Perez-Nadales E, Arnáiz A, Goenaga MÁ, Benito N, Horcajada JP, Rodríguez-Baño J, Pujol M; REIPI/GEIH study group (D. Fontanals). [“Clinical characteristics, treatment and outcomes of MRSA bacteraemia in the elderly”](#). J Infect. 2016 Mar;72(3):309-16. doi: 10.1016/j.jinf.2015.12.009. PMID: 26723914. **IF: 4.382**
- ✓ 13. Palacios-Baena ZR, Oteo J, Conejo C, Larrosa MN, Bou G, Fernández-Martínez M, González-López JJ, Pintado V, Martínez-Martínez L, Merino M, Pomar V, Mora-Rillo M, Rivera MA, Oliver A, Ruiz-Carrascoso G, Ruiz-Garbajosa P, Zamorano L, Bautista V, Ortega A, Morales I, Pascual Á, Campos J, Rodríguez-Baño J; GEIH-GEMARA (SEIMC) and REIPI Group for CPE (D. Fontanals). [“Comprehensive clinical and epidemiological assessment of colonisation and infection due to carbapenemase-producing Enterobacteriaceae in Spain”](#). J Infect. 2016 Feb;72(2):152-60. doi: 10.1016/j.jinf.2015.10.008. PMID: 26546855. **IF: 4.382**
- ✓ 14. Laura García-Nuñoz, Carlos Villamil, Araceli Gonzalez-Cuevas, David Martí, **Silvia Capilla**, Maria José Vives, Xavier Oncins, Pere Torner, Juan Castellanos, and Lluís Font-Vizcarra. “Usefulness of urinoculture to patients with dementia and femoral neck fracture at admission to hospital: preliminary results”. Geriatric Orthopaedic Surgery & Rehabilitation 2016; 1-4DOI: 10.1177/2151458516681143 journals.sagepub.com/home/gos. **IF: 0**
- ✓ 15. Miguel Gallego, Xavier Pomares, **Silvia Capilla**, Maria Angeles Marcos, David Suárez,, Eduard Monsó, Concepción Montón. “C-reactive protein in outpatients with acute exacerbation of COPD: its relationship with microbial etiology and severity”. International Journal of Chronic Obstructive Pulmonary Disease 2016; downloaded from https://www.dovepress.com/ by 193.144.99.21 on 25-Oct-2016. **IF: 2.160**
- ✓ 16. Fernandez-Encinas A, García-Peiró A, Ribas-Maynou J, Abad C, **Amengual MJ**, Navarro J, Benet J. [“Characterization of nuclease activity in human seminal plasma and its relationship with semen parameters, sperm DNA fragmentation and male infertility”](#). J Urol. 2016 Jan;195(1):213-9. doi: 10.1016/j.juro.2015.07.089. PMID: 26231555. **IF: 4.700**

- ✓ 17. Miriam, Barrio-Muñoz; Carlos, Abad-Gairín; **M. José, Amengual-Guedán**; Joan, Prats-López.. "Diagnosis of prostate cancer by analyzing oxidative stress in human seminal plasma: developing unsophisticated tools for noninvasive prostate cancer diagnosis". *Eur J Cancer Prev.* 2016 Nov;25(6):518-23. doi: 10.1097/CEJ.0000000000000215. PMID: 26633164. **IF: 2.415**
- ✓ 18. Lario S, Ramírez-Lázaro MJ, Montserrat A, Quílez ME, Junquera F, Martínez-Bauer E, **Sanfeliu I**, Brullet E, Campo R, Segura F, Calvet X. "[Diagnostic accuracy of three monoclonal stool tests in a large series of untreated \*Helicobacter pylori\* infected patients](#)". *Clin Biochem.* 2016 Jan 19. pii: S0009-9120(16)00018-7. doi: 10.1016/j.clinbiochem.2016.01.015. [Epub ahead of print] PMID:26794025. **IF: 2.382**



# Genome Instability and DNA Repair Group

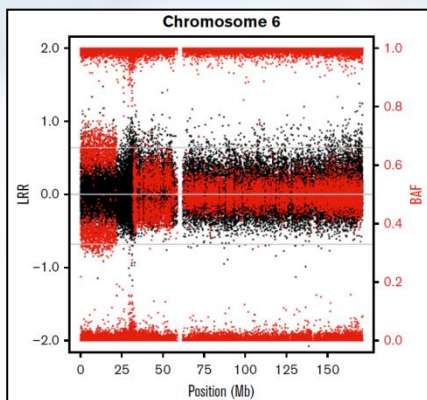
## Members

### Dr. Jordi Surrallés (IP)

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Dra. M<sup>a</sup> José Ramírez  
Dra. Roser Pujol  
Dr. Jordi Minguillón  
Dr. Laia Roca  
Dr. Gonzalo Hernández  
Maria Marín  
Helena Montanuy  
Montse Peiró  
Ana Molina



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## Research

Our research interests are cancer-prone genetic syndromes with defective DNA repair with special focus in Fanconi anemia. We also investigate the genetics of familiar cancer syndromes and perform therapeutic research including gene and cell therapy approaches and cell-based drug screening platforms. A long term goal is to understand the mechanisms that maintain genome stability and protect us from disease, cancer, and ageing.

## Publications 2016

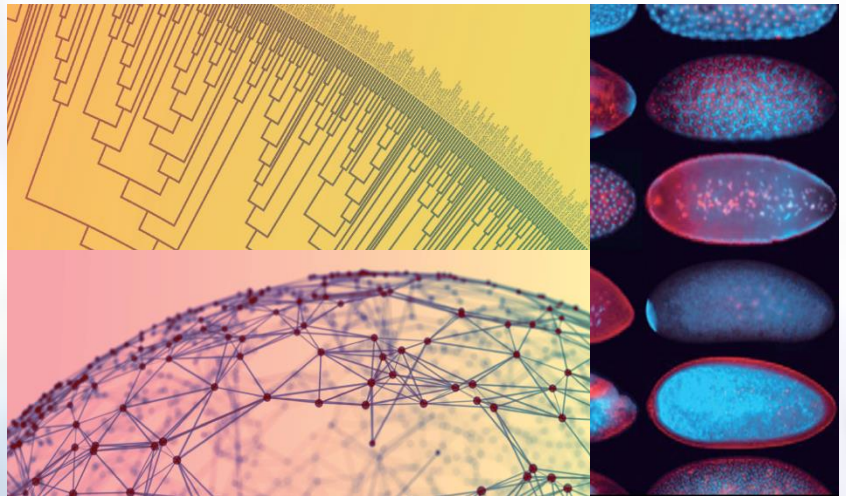
- ✓ Judith Reina-Castillón, Roser Pujol, Marcos López-Sánchez, Benjamín Rodríguez-Santiago, Miriam Aza-Carmona, Juan Ramón González, José Antonio Casado, Juan Antonio Bueren, Julián Sevilla, Isabel Badell, Albert Català, Cristina Beléndez, María Ángeles Dasí, Cristina Díaz de Heredia, Jean Soulier, DetlevSchindler, Luis Alberto Pérez-Jurado, Jordi Surrallés (2016) Detectable clonal mosaicism in blood as biomarker of cancer risk in Fanconi anemia. Blood Advances (in press).

# Genomics, Bioinformatics and Evolutionary Biology Group (GBBE)

## Members

### Dr. Alfredo Ruiz (PI)

Dr. Mauro Santos  
Dr. Antonio Barbadilla  
Dr. Antonio Fontdevila  
Dr. Mario Cáceres  
Dr. Isaac Salazar-Ciudad  
Dra. M. Pilar García Guerreiro  
Dr. Francisco Rodríguez-Trelles  
Dra. Rosa Tarrío  
Dra. Alejandra Delprat  
Dra. Raquel Egea  
Dra. Sònia Casillas  
Dra. Marta Puig  
Dra. Magdalena Gayà  
Nuria Rius  
Andrea Acurio  
Valèria Romero  
Marta Puig  
David Vicente  
Carla Giner  
David Castellano  
Sergio Villatoro  
David Izquierdo  
Miguel Brun-Usan  
Miquel Marin-Riera  
Sergi Hervás  
Isaac Noguera



## Research

Our research field is Evolutionary Biology, a complex historical process that accounts for the current Biodiversity on earth. We seek to understand the mechanisms that generate diversity patterns at several levels: geographical, phenotypical, chromosomal and nucleotide level. Our multidisciplinary team includes researchers with diverse expertise that use different but complementary approaches: from experimental and field work to bioinformatics and modelization. Besides, our experimental work makes use of two different species as model systems: *Drosophila* and humans. We are engaged in projects of comparative genomics in *Drosophila*, adaptation of *Drosophila* populations to global climate change, genome-wide analyses of nucleotide and structural variability in a large set of *Drosophila* lines, modelization of the genotype-phenotype map, and functional and evolutionary impact of inversions in the human genome.

## Publications 2016

Castellano D, Coronado-Zamora M, Campos JL, Barbadilla A, Eyre-Walker A. 2016. Adaptive Evolution Is Substantially Impeded by Hill-Robertson Interference in *Drosophila*. *Mol Biol Evol* 33(2):442-55.

Fragata I, Lopes-Cunha M, Bárbaro M, Kellen B, Lima M, Faria GS, Seabra SG, Santos M, Simões P, Matos M. 2016. Keeping your options open: Maintenance of thermal plasticity during adaptation to a stable environment. *Evolution* 70(1):195-206.

Marin-Riera M, Brun-Usan M, Zimm R, Välikangas T, Salazar-Ciudad I. 2016. Computational modeling of development by epithelia, mesenchyme and their interactions: a unified model. *Bioinformatics*. 32(2):219-25.

Pavlidou E, Daponte A, Egea R, Dardiotis E, Hadjigeorgiou GM, Barbadilla A, Agorastos T. 2016. Genetic polymorphisms of FAS and EVER genes in a Greek population and their susceptibility to cervical cancer: a case control study. *BMC Cancer* 16(1):923.

## Publications 2016 (cont.)

Rius N, Guillén Y, Delprat A, Kapusta A, Feschotte C, Ruiz A. 2016. Exploration of the *Drosophila buzzatii* transposable element content suggests underestimation of repeats in *Drosophila* genomes. *BMC Genomics* 17:344.

Romero-Soriano V, Burlet N, Vela D, Fontdevila A, Vieira C, García Guerreiro MP. 2016. *Drosophila* Females Undergo Genome Expansion after Interspecific Hybridization. *Genome Biol Evol.* 8(3):556-61.

Romero-Soriano V, Garcia Guerreiro MP. 2016. Expression of the Retrotransposon Helena Reveals a Complex Pattern of TE Dereglulation in *Drosophila* Hybrids. *PLoS One* 11(1):e0147903.

Vicente-Salvador D, Puig M, Gayà-Vidal M, Pacheco S, Giner-Delgado C, Noguera I, Izquierdo D, Martínez-Fundichely A, Ruiz-Herrera A, Estivill X, Aguado C, Lucas-Lledó JI, Cáceres M. 2016. Detailed analysis of inversions predicted between two human genomes: errors, real polymorphisms, and their origin and population distribution. *Hum Mol Genet.* 2016 Dec 26. pii: ddw415. doi: 10.1093/hmg/ddw415. [Epub ahead of print]

# Mutagenesis Group

## Members

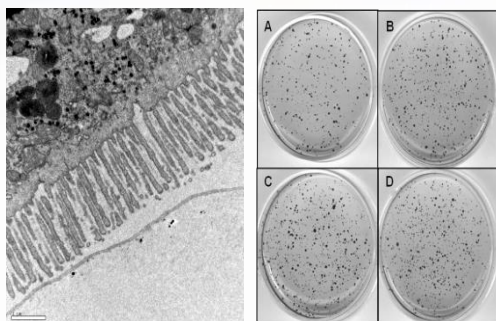
### Dr. Ricard Marcos (IP)

Dr. Amadeu Creus  
Dr. Noel Xamena  
Dra. M<sup>a</sup> Antonia Velázquez  
Dra. Susana Pastor  
Dra. Alba Hernández  
Dra. Constanza Cortés  
Alicia Marsa  
Jana Peremarti  
Laura Rubio  
Zuray Corredor  
Mohamed Alaraby  
Laura Vila  
Alba García



Web: <http://grupsderecerca.uab.cat/mutagenesi/>

## Research



Our team works on the following topics: (i) molecular mechanisms involved in the genotoxicity/carcinogenicity of arsenic, using long-term exposures and environmental relevant doses; (ii) In vitro and in vivo models to determine the genotoxic/carcinogenic risk of nanomaterial exposures and their uptake through intestinal barriers; (iii) Genomic instability in patients suffering from chronic renal pathologies, and procedures to ameliorate genotoxic risk; and (iv) Genetic basis of thyroid cancer and molecular description of candidate genes .

## Publications 2016

- ✓ Rubio L., B. Annangi, L. Vila, A. Hernández, R. Marcos. Antioxidant and antigenotoxic properties of cerium oxide nanoparticles in a pulmonary-like cell system. *Archives of Toxicology*, 90: 269-278 (2016).
- ✓ Carmona ER., C. Inostroz-Blancheteau, L. Rubio, R. Marcos. Genotoxic and oxidative stress potential of nanosized and bulk zinc oxide in *Drosophila melanogaster*. *Toxicology and Industrial Health*, 32: 1987-2001 (2016).
- ✓ Rodríguez-Ribera L., S. Pastor Z. Corredor, I. Silva, J.M. Diaz, J. Ballarin, R. Marcos, E. Coll. Genetic damage in patients moving from hemodialysis to online hemodiafiltration. *Mutagenesis*, 31: 131-135 (2016).
- ✓ Bach J., J. Peremartí, B. Annangi, R. Marcos, A. Hernández. Oxidative DNA damage enhances the carcinogenic potential of chronic arsenic exposure. *Archives of Toxicology*, 90: 1893-1905 (2016).
- ✓ Vales G., L. Rubio, R. Marcos. Genotoxic and cell-transformation effects of multi-walled carbon nanotubes (MWCNT) following *in vitro* long-term exposures. *Journal of Hazardous Materials*, 306: 193-202 (2016).

## Publications 2016 (cont)

- ✓ Rubio L., N. El-Yamani, M. Dusinska, R. Marcos. Multi-walled carbon nanotubes (NM401) induce ROS mediated HPRT mutations in Chinese hamster lung fibroblasts. *Environmental Research*, 146: 185-190 (2016).
- ✓ Annangi B., S. Bonassi, R. Marcos, A. Hernández. Biomonitoring of humans exposed to arsenic, chromium, nickel, vanadium, and complex mixtures of metals by using the micronucleus test in lymphocytes. *Mutation Research-Reviews in Mutation Research*, 770: 140-161 (2016).
- ✓ Alaraby M., B. Annangi, R. Marcos, A. Hernández. *Drosophila melanogaster* as a suitable *in vivo* model to determine potential side-effects of nanomaterials. A review. *Journal of Toxicology and Environmental Health, Part B*, 19: 65-104 (2016).
- ✓ Corredor Z., L. Rodríguez-Ribera, E. Coll, R. Montañés, J.M. Diaz, J. Ballarin, R. Marcos, S. Pastor. Unfermented grape juice reduces genomic damage on patients undergoing hemodialysis. *Food and Chemical Toxicology*, 92: 1-7 (2016).
- ✓ Collins AR., B. Annangi, L. Rubio, R. Marcos, M. Dorn, C. Merker, I. Estrela-Lopis, MR. Cimpan, M. Ibrahim, E. Cimpan, M. Ostermann, A. Sauter, N. El Yamani, S. Shaposhnikov, S. Chevillard, V. Paget, R. Grall, J. Delic, F. Goni-de-Cerio, B. Suarez-Merino, V. Fessard, KN. Hogeveen, LM. Fjellsbo, ER. Pran, T. Brzicova, J. Topinka, M.J. Silva, P.E. Leite, A.R. Ribeiro, J.M. Granjeiro, R. Grafstrom, A. Prina-Mello, M. Dusinska. High throughput toxicity screening and intracellular detection of nanomaterials. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanotechnology*, 2016, doi: 10.1002/wnan.1413 (2016).
- ✓ Arribas J., T. Cajuso, A. Rodio, R. Marcos, A. Leonardi, A. Velázquez. NF-κB-mediated the expression of TBX15 in cancer cells. *Plos One*, 11: e0157761 (2016).
- ✓ Corredor Z., L. Rodríguez-Ribera, I. Silva, J.M. Diaz, J. Ballarin, R. Marcos, E. Coll, S. Pastor. Levels of DNA damage in peripheral blood lymphocytes of patients undergoing standard hemodialysis vs on-line hemodiafiltration: a comet assay investigation. *Mutation Research (GTEM)*, 808: 1-7 (2016).
- ✓ Recio Sánchez G., C. Lagos Castilla, N. Benito Gómez, A. García, R. Marcos, E.R. Carmona. Leaf extract from the endemic plant *Peumus boldus* as an effective bioproduct for the green synthesis of silver nanoparticles. *Materials Letters*, 183: 255-260 (2016).
- ✓ Annangi B., L. Rubio, M. Alaraby, J. Bach, R. Marcos, A. Hernández. Acute and long-term *in vitro* effects of zinc oxide nanoparticles. *Archives of Toxicology*, 90: 2201-2213 (2016).
- ✓ Alaraby M., A. Hernández, R. Marcos. New insights in the toxic/genotoxic effects of CuO nanoparticles in the *in vivo Drosophila* model. *Nanotoxicology*, 10: 749-760 (2016).





## PhD Thesis 2016

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1. Rius Camps, Núria. "Analysis of Drosophila Buzzatti transposable elements"
2. Castellano Esteve, David. "Estimación de la huella de la selección natural y el efecto Hill-Robertson a lo largo del genoma de Drosophila Melanogaster"
3. Corredor Mancilla, Zuray Fernanda. "Daño genómico como biomarcador de la enfermedad renal crónica"
4. Romero Soriano, Valèria. "Desregulació d'elements transposables en híbrids interespecífics de Drosophila Buzzatti i Drosophila Koepferae"
5. Marín Riera, Miquel. "Studying the genotype-phenotype map through general mathematical models of embryonic development and its application on tooth morphogenesis and evolution"
6. Vila Vecilla, Laura. "Desarrollo de un modelo in vitro de barrera intestinal para la evaluación del riesgo de los nanomateriales"
7. Brun Usan, Miguel. "Computational modeling of early cleavage in metazoans: the case of the spiral pattern"
8. Alaraby Abdalaziz Mohamed, Mohamed. "Biological effects of nanomaterials in Drosophila Melanogaster (diptera, insecta) as in vivo model"
9. Moreno Pujol, Eva. "Participació dels factors de virulència extraintestinal d'Escherichia Coli en la seva acció uropatògena"
10. Quesada Fernández, María Dolores. "Diagnóstico precoz de la sepsis y su implicación en el manejo clínico de los pacientes"
11. Molinos Abós, Sònia. "Noves aproximacions als estudis d'epidemiologia molecular i al diagnòstic de les infeccions causades per Staphylococcus Aureus. Aportacions al coneixement dels factors de virulència i patogenicitat"
12. Colom Comas, Joan. "Studies of the molecular features of three Salmonella phages for use in phage therapy and of encapsulation methodologies to improve oral phage administration"
13. Fernández Rivas, Gema. "Diseño y evaluación de nuevas técnicas de diagnóstico serológico y molecular para el diagnóstico de las infecciones de transmisión sexual"
14. Argente Viñals, Marc. "Epidemiologia de la Carbapenemasa OXA-48 en aïllats de Klebsiella Pneumoniae a Catalunya"
15. Pons Anglada, Lluís. "Processos microbiològics aplicats a les unitats canines de biodetecció"
16. Larrosa Escartín, M<sup>a</sup> Nieves. "Monitorización continua de la colonización por bacterias multiresistentes en una unidad neonatal de cuidados intensivos. Relación entre colonización e infección"
17. Vera García, Rodrigo. "Microbiología del caracol Helix Aspersa Müller. Aplicaciones biotecnológicas para su mejoramiento sanitario con impacto en su comercialización"
18. Molina Moya, Bárbara. "Usefulness of molecular methods for detecting drug resistance and genotyping in mycobacterium tuberculosis"
19. Serra Pladevall, Judit. "Neisseria Gonorrhoeae: monitorització de la sensibilitat antimicrobiana, estudi de la dinàmica poblacional i caracterització molecular de les resistències"
20. Sánchez Huertas, César. "Nanophotonic biosensors for Deciphering cell regulation pathways"
21. Cano Garrido, Olivia. "Production of protein nanomaterials in lactic acid bacteria for human and animal medicine"

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22. Rueda Alfonso, Fabian Leonardo. "Self-structured protein nanomaterials produced in endotoxin-free microbial cells"
23. Mallén Alberdi, Maria. "Dispositius impedimètrics per a la detecció directa de microorganismes"
24. Baptista Pires, Luis Miguel. "From nanoparticles to Graphene: architecting novel (bio)sensing platforms and devices"



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