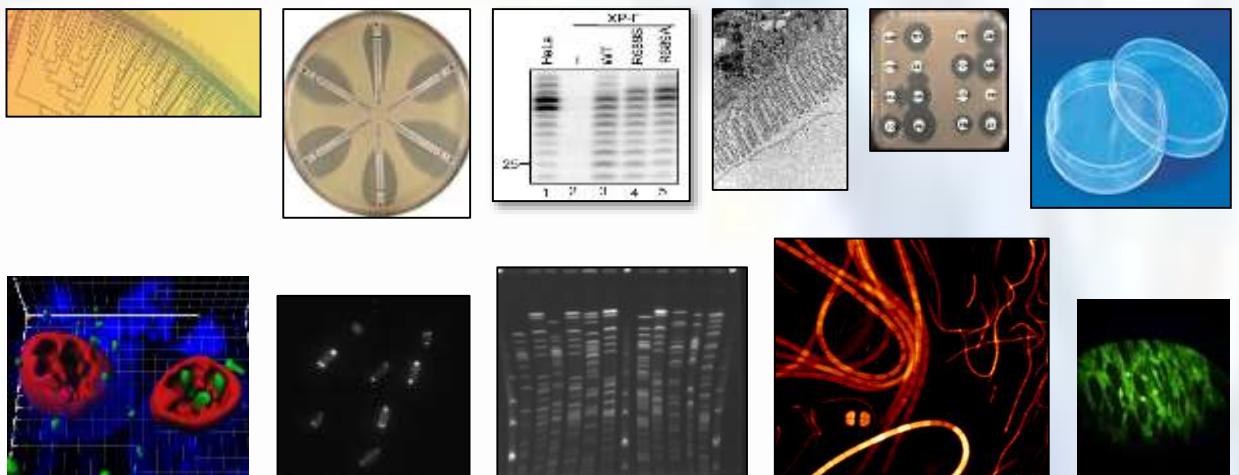


---

**Department of Genetics and Microbiology**  
**Universitat Autònoma de Barcelona**



**2018**  
**ANNUAL SCIENTIFIC REPORT**



# **Index**

---

|                                   |    |
|-----------------------------------|----|
| Introduction                      | 3  |
| The Department                    | 4  |
| Analysis of Scientific Production | 5  |
| Research Groups Performance       | 6  |
| PhD Thesis                        | 34 |



# Introducció / Introduction

---



Aquest és l'últim any que, com a Director, presento la l'informe anual de recerca del Departament, corresponent a l'any 2018. Ha estat per a mi un honor i un plaer haver dirigit el Departament durant aquests darrers tres anys i vull donar-vos les gràcies a totes les persones que formeu part del Departament per la vostra inestimable col·laboració.

Tal com podeu veure en aquest informe, el Departament continua mantenint un alt nivell d'excel·lència científica. Tot i que el nombre de publicacions indexades (178) ha disminuït lleugerament, mantenim un factor d'impacte mitjà elevat d'aquestes publicacions (4,46 per a totes les publicacions i 13,61 per a les que corresponen al 10% de les millors). Aquest alt nivell d'excel·lència es posa de manifest, també, en el nombre de tesis defensades al 2018 (19).

També podem comprovar que els ingressos per projectes i conveni segueix una pauta d'alternança entre anys parells i senars. Aquest any assolim els ingressos totals majors dels darrers 9 anys (1.377.478€).

Finalment, doncs, donar-vos les gràcies i la enhorabona a tots els membres del Departament que heu fet possible el manteniment del aquest alt nivell d'excel·lència.

This is the last year that, as Director, I am presenting the annual Department's Research Report, corresponding to the year 2018. It has been an honour and a pleasure to have directed the Department during the last three years and I want to thank all the people who form part of the Department for their invaluable collaboration.

As it can be seen in this report, the Department continue maintaining a high level of scientific excellence. Even though the total number of indexed publications (178) has decreased slightly, we maintain an averaged high impact factor for these publications (4.46 for all publications, and 13.61 for those corresponding to the 10% of the best). The number of PhD thesis defended during 2018 (19) also demonstrates this high level of excellence.

We have also verified that the total budget for projects and agreements with different industries and institutions, present significant variations between odd and even years. This year we have achieved the highest budget from the last 9 years (€ 1,377,478).

Finally, I wish to thank all members of the Department who has made possible the maintenance of the high level of excellence of our Department.

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

---

# 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 Taulí).

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/>

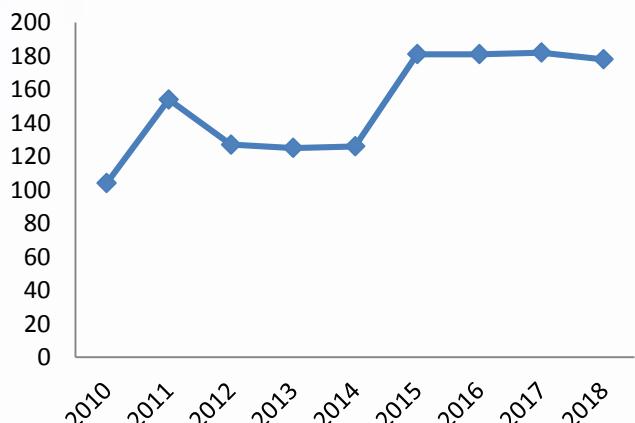
The screenshot shows the official website of the UAB Department of Genetics and Microbiology. The header features the UAB logo, the text 'DEPARTAMENT DE GENÈTICA I MICROBIOLOGIA', and a large red background image of a microorganism. Below the header, there's a navigation bar with links for 'El departament', 'La docència', and 'La recerca'. The main content area has sections for 'NOTÍCIES' (with a thumbnail of a group of people), 'DESTACATS' (with a grid of small images), and 'ENLLAÇOS DIRECTES' (with links to various UAB services like 'UABDivulgació', 'Ajuts, Requis i Convocatòries', etc.). A banner at the bottom left mentions the '30a edició Asperges Somers i d'Investigació'.

# Analysis of Scientific Production (2018)

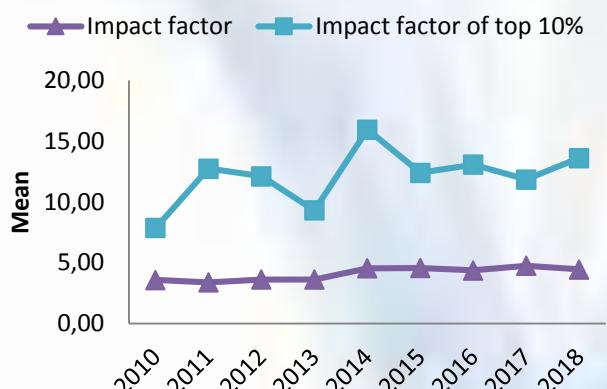


|  | 2010      | 2011    | 2012      | 2013    | 2014      | 2015    | 2016      | 2017   | 2018      |
|--|-----------|---------|-----------|---------|-----------|---------|-----------|--------|-----------|
| Number of publication with impact factor | 104       | 154     | 127       | 125     | 126       | 181     | 181       | 182    | 178       |
| Total impact factor                      | 372,43    | 521,38  | 460,76    | 454,33  | 569,71    | 826,80  | 793,69    | 866,43 | 793,46    |
| Mean impact factor                       | 3,58      | 3,39    | 3,63      | 3,63    | 4,55      | 4,57    | 4,38      | 4,76   | 4,46      |
| Mean impact factor of top 10%            | 7,86      | 12,73   | 12,11     | 9,31    | 15,94     | 12,39   | 13,06     | 11,84  | 13,61     |
| PhD thesis defended                      | 21        | 20      | 17        | 17      | 12        | 24      | 24        | 15     | 19        |
| Competitive income (grants) in euros     | 940.412   | 781.163 | 962.260   | 382.874 | 931.469   | 133.100 | 1.054.491 | 33.960 | 1.209.899 |
| Non-competitive income in euros          | 82.912    | 184.065 | 247.820   | 84.358  | 80.198    | 357.958 | 199.611   | 27.788 | 167.579   |
| Total income in euros                    | 1.023.324 | 965.229 | 1.210.081 | 467.232 | 1.011.667 | 491.058 | 1.254.102 | 61.748 | 1.377.478 |

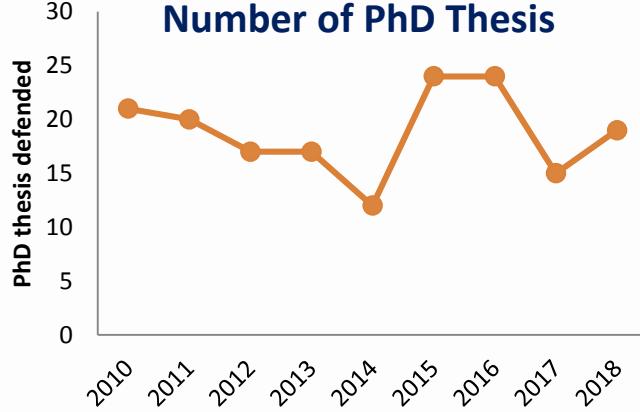
**Number of indexed publications**



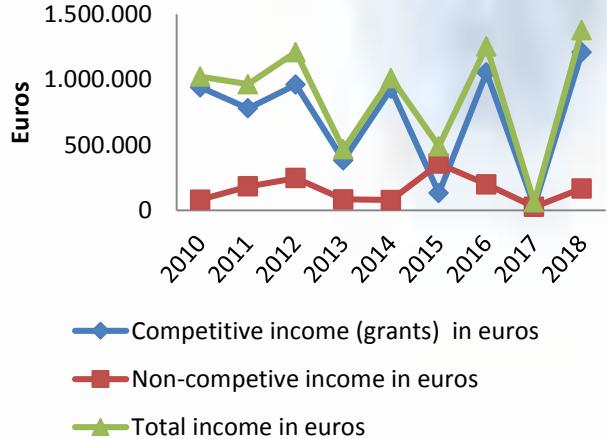
**Impact Factors (SCI)**



**Number of PhD Thesis**



**Financial research incomes**



## Research Groups Performance

---

# 2018



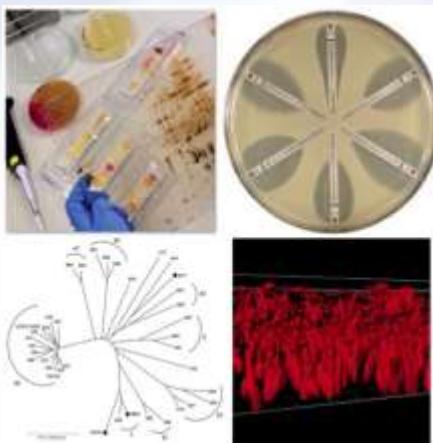
# Bacterial Pathogenesis and Antimicrobials Group

## Members

Dr. Isidre Gibert (PI)  
Dr. Xavier Daura (PI)  
Dr. Daniel Yero  
Dr. Pol Huedo  
Dra. Celeste Gómez  
Oscar Conchillo  
Xavier Coves  
Meissiner Gomes-Fernandes  
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 fight 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:

- Study of the mechanisms of quorum sensing and phenotypic resistance in nosocomial bacterial pathogens.
- Comparative genomic and bioinformatics approaches for the identification of novel antimicrobial-drug targets, virulence factors and antigens in pathogenic bacteria.
- Experimental validation and characterization of identified virulence and resistance determinants.
- Target-based virtual screening for antimicrobial-drug discovery and experimental validation of hit compounds.
- Preclinical animal model testing of antibacterial formulations.

## Research projects

- ✓ AMB Advanced Therapeutics: Potentiating current antibiotics against life-threatening resistant hospital-acquired infections; Fundació "la Caixa" i Caixa Capital Risk (CaixaImpulse, ref. CI17-00021); 01.07.2017 - 31.06.2019
- ✓ Non-essential biological processes in *Stenotrophomonas maltophilia* as targets for the design of new antimicrobial strategies; Ministerio de Ciencia e Innovación (Ref. BIO2015-66674-R); 01.01.2016 - 31.12.2019

## Publications 2018

- ✓ Martínez-Servat S, Yero D, Huedo P, Marquez R, Molina G, Daura X, Gibert I. Heterogeneous Colistin-Resistance Phenotypes Coexisting in *Stenotrophomonas maltophilia* Isolates Influence Colistin Susceptibility Testing. *Front Microbiol.* 2018 Nov 22;9:2871. doi: 10.3389/fmicb.2018.02871.
- ✓ Huedo P, Coves X, Daura X, Gibert I, Yero D. Quorum Sensing Signaling and Quenching in the Multidrug-Resistant Pathogen *Stenotrophomonas maltophilia*. *Front Cell Infect Microbiol.* 2018 Apr 24;8:122. doi: 10.3389/fcimb.2018.00122.
- ✓ Capelli P, Peri C, Villa R, Nithichanon A, Conchillo-Solé O, Yero D, Gagni P, Chiari M, Lertmemongkolchai G, Cretich M, Daura X, Bolognesi M, Colombo G, Gourlay LJ. BPSL1626: Reverse and Structural Vaccinology Reveal a Novel Candidate for Vaccine Design against *Burkholderia pseudomallei*. *Antibodies* 2018, 7(3), 26. doi: 10.3390/antib7030026

## Members

# Basic and Applied Microbiology Group

### Dr. Antonio Villaverde (PI)

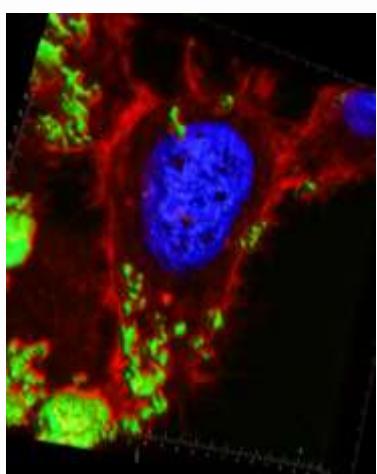
Dra. Marina Luquin  
Dra. Neus Ferrer-Miralles  
Dra. Esther Julián  
Dr. José Luis Corchero  
Dra. Esther Vázquez  
Dr. Paolo Saccardo  
Dra. Olivia Cano  
Dra. Julieta M. Sánchez  
Dra. Ana Obando  
Rosa Mendoza  
Dra. Mercedes Márquez  
Cristina Sosa  
Marta Llorens  
José Vicente Carratalá  
Naroa Serna  
Laura Sánchez  
Sandra Guallar  
Marc Bach  
Paula Herrero  
Victor Campo  
Farmers Almiñana  
Raquel Díaz  
Hèctor López  
Esther Martínez  
Eric Voltà  
Andrés Cisneros  
Amanda Muñoz  
Aida Carreño



Web: [https://ibb.uab.cat/wp-content/themes/viral/modules/ibb\\_membres/view\\_grup.php?CodiGrup=33](https://ibb.uab.cat/wp-content/themes/viral/modules/ibb_membres/view_grup.php?CodiGrup=33)  
<https://sites.google.com/view/mycobacteriaresearchlabuab/publications>

## Research

We generate nanostructured protein materials for biomedical applications, for which we exploit diverse prokaryotic and eukaryotic cell factories. These engineered polypeptides are the basis for the design of smart functional materials displaying mechanical stability, regular geometry and properties such as specific cell binding, receptor-mediated internalization, intracellular trafficking and drug delivery. Most of our current collaborative projects are devoted to nanosized drugs for the treatment of colorectal cancer. We are also working in two research lines in the mycobacteriology field. The first one is focused on the study of the role of the lipids of the mycobacteria cell wall as virulence factors in non-tuberculous mycobacteria that are opportunistic pathogens such as *M. abscessus*. In particular, we work to understand the cording phenomenon showed by many pathogenic mycobacteria. The second research line is focused on the role of mycobacteria as immunotherapeutic agents for cancer treatment. The main aim is to understand the immunomodulatory and antitumor capacity of different species of non-pathogenic mycobacteria and BCG, both in the treatment and prevention of bladder cancer progression and in other types of cancers.



## Publications 2018

2017 Impact factors are indicated (in bold) when it applies.

- ✓ Marianna Teixeira de Pinho Favaro, Ugutz Unzueta, Martí de Cabo, Antonio Villaverde, Neus Ferrer-Miralles, Adriano Rodrigues Azzoni. 2018. Intracellular trafficking of a dynein-based nanoparticle designed for gene delivery. European Journal of Pharmaceutical Sciences. 112: 71-78. **3.81**
- ✓ Naroa Serna, Laura Sánchez-García, Ugutz Unzueta, Raquel Díaz, Esther Vázquez, Ramón Mangues and Antonio Villaverde. 2018. Protein-based therapeutic killing for cancer therapies. Trends in Biotechnology, 36: 318-335 **13.578**
- ✓ Marianna Teixeira de Pinho Favaro, Laura Sánchez-García, Alejandro Sánchez-Chardi, Mónica Roldán, Ugutz Unzueta, Naroa Serna, Olivia Cano-Garrido, Adriano Rodrigues Azzoni, Neus Ferrer-Miralles, Antonio Villaverde, Esther Vázquez. 2018. Protein nanoparticles are non-toxic, tuneable cell stressors. Nanomedicine (Lond), 13:255-268 **5.005**

## Publications 2018 (cont)

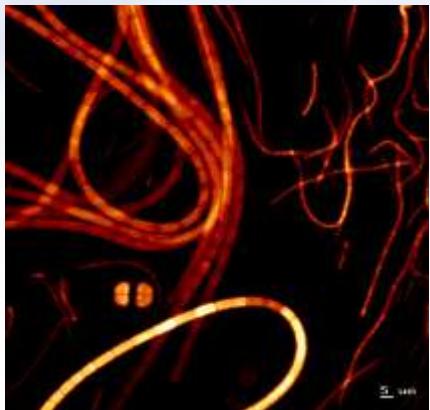
- ✓ Olivia Cano-Garrido, Elena Garcia-Fruitós, Antonio Villaverde, Alejandro Sánchez-Chardi. 2018. Improving biomaterials imaging for nanotechnology: rapid methods for protein localization at ultrastructural level. *Biotechnology Journal*, 13, 1700388. **3.507**
- ✓ Laura Sánchez-García, Naroa Serna, Patricia Álamo, Rita Sala, María V Céspedes, Mònica Roldan, Alejandro Sánchez-Chardi, Ugutz Unzueta, Isolda Casanova, Ramon Mangues, Esther Vázquez, Antonio Villaverde. 2018. Self-assembling toxin-based nanoparticles as self-delivered antitumoral drugs. *Journal of Controlled Release*, 274: 81-92. **7.877**
- ✓ Ugutz Unzueta, Mª Virtudes Cespedes, Rita Sala, Patricia Alamo, Alejandro Sánchez-Chardi, Mireia Pesarrodona, Laura Sánchez-García, Olivia Cano-Garrido, Antonio Villaverde, Esther Vázquez, Ramón Mangues, Joaquin Seras-Franzoso. 2018. Release of targeted protein nanoparticles from functional bacterial amyloids: A Death Star-like approach. *Journal of Controlled Release*, 279, 29–39. **7.877**
- ✓ Raquel Díaz, Victor Pallarès, Olivia Cano-Garrido, Naroa Serna, Laura Sánchez-García, Aïda Falgàs, Mireia Pesarrodona, Ugutz Unzueta, Alejandro Sánchez-Chardi, Julieta M. Sánchez, Isolda Casanova, Dr Esther Vázquez, Ramón Mangues, Antonio Villaverde. 2018. Selective CXCR4+ cancer cell targeting and potent antineoplastic effect by a nanostructured version of recombinant ricin. *Small*, 14: 1800665. **9.590**
- ✓ Marianna Teixeira de Pinho Favaro, Naroa Serna, Laura Sánchez-García, Rafael Cubarsi, Mónica Roldán, Alejandro Sánchez-Chardi, Ugutz Unzueta, Ramón Mangues, Neus Ferrer-Miralles, Adriano Rodrigues Azzoni, Esther Vázquez, Antonio Villaverde. 2018. Switching cell penetrating and CXCR4-binding activities of nanoscale-organized arginine-rich peptides. *Nanomedicine: Nanotechnology, Biology, and Medicine*, 14, 1777-1786. **6.500**
- ✓ Rosemary Thwaite, Jie Ji, Debora Torrealba, Julio Coll, Manel Sabés, Antonio Villaverde, Nerea Roher. 2018. Nanopellets of recombinant viral antigens as a new approach for fish oral vaccines. *Frontiers in Immunology*, 9: 1652. **6.429**
- ✓ Tatkiewicz, Witold; Seras-Franzoso, Joaquín; García Fruitos, Elena; Vazquez, Esther; Kyvik, Adriana R.; Guasch, Judith; Villaverde, Antonio; Veciana, Jaume; Ratera, Imma. 2018. Surface-Bound Gradient Deposition of Protein Nanoparticles for Cell Motility Studies. *ACS Applied Materials & Interfaces*, 10: 25779-25786. **8.090**
- ✓ Julieta M Sánchez, Laura Sánchez-García, Mireia Pesarrodona, Naroa Serna, Alejandro Sánchez-Chardi, Ugutz Unzueta, Ramón Mangues, Esther Vazquez, and Antonio Villaverde. 2018. Conformational conversion during controlled oligomerization into non-amylogenic protein nanoparticles. *Biomacromolecules*, 19: 3788-3797. **5.738**
- ✓ María Virtudes Céspedes, Ugutz Unzueta. Anna Avinyó, Alberto Gallardo, Patricia Alamo, Rita Sala, Alejandro Sanchez-Chardi, Isolda Casanova, María Antonia Mangues, Antonio Lopez-Pousa, Ramón Eritja, Antonio Villaverde, Esther Vazquez, Ramon Mangues. 2018. Selective depletion of metastatic stem cells as therapy for human colorectal cancer. *EMBO Molecular Medicine*, e8772. **10.293**
- ✓ Laia Gifre-Renom, Olivia Cano-Garrido, Francesc Fàbregas, Ramon Roca-Pinilla, Joaquin Seras-Franzoso, Neus Ferrer-Miralles, Antonio Villaverde, Alex Bach, Maria Devant, Anna Aris, Elena Garcia-Fruitós. 2018. A new approach to obtain pure and active proteins from *Lactococcus lactis* protein aggregates. *Scientific Reports*, 8:13917. **4.122**
- ✓ Miret-Casals L., Baelo A., Julián E., Astola J., Lobo-Ruiz A., Albericio F., Torrents E. Hydroxylamine derivatives as a new paradigm in the search of antibacterial agents. *ACS Omega* 2018, 3, 17057–17069. DOI: 10.1021/acsomega.8b01384
- ✓ Pujol E., Blanco-Cabra N., Julián E., Leiva R., Torrents E., Vázquez S. Pentafluorosulfanyl-containing triclocarban analogs with potent antimicrobial activity. *Molecules*. 2018 Nov 2;23(11). pii: E2853. doi: 10.3390/molecules23112853. **IF: 3.098**
- ✓ Noguera-Ortega E., Rabanal RM., Gómez-Mora E., Cabrera C., Luquin M., and Julián E. (2018) Intravesical *Mycobacterium brumae* triggers both local and systemic immunotherapeutic response against bladder cancer in mice. *Scientific Reports*. Oct 10;8(1):15102. doi: 10.1038/s41598-018-33253-w. **IF: 4.122**
- ✓ Alvarez-Arguedas S., Uranga S., Martín M., Elizalde J., Gomez AB., Julián E., Nardelli-Haefliger D., Martín C., and Aguiló N. Therapeutic efficacy of the live-attenuated *Mycobacterium tuberculosis* vaccine, MTBVAC, in a preclinical model of bladder cancer. (2018) *Translational Research*. 197:32-42. doi: 10.1016/j.trsl.2018.03.00. **IF: 4.880**
- ✓ Llorens-Fons M., Julián E., Luquin M., Pérez-Trujillo M. (2018) Molecule confirmation and structure characterization of pentatriacontatrienyl mycolate in *Mycobacterium smegmatis*. *Chemistry and Physics of Lipids* 212, 138-143. <https://doi.org/10.1016/j.chemphyslip.2017.12.006>. **IF: 2.766**
- ✓ Noguera-Ortega E., and Julián E. (2018). Mycobacteria-derived agents for the treatment of urological and renal cancers. In "Mycobacterium – Research and Development". InTechOpen. DOI: 10.5772/intechopen.69659.

# Environmental Microbiology Group

## Members

### Dr. Antoni Solé (PI)

Dr. Olga Sánchez  
Dr. Isabel Esteve  
Dr. Núria Gaju  
Dr. Marc Llirós  
Dr. Maira Martínez  
Dr. Jordi Mas  
Marc Carrasquilla  
Anahita Hosseini  
Josune Jimenez  
Martí Pla  
Denis Rajnovic  
Carlota Ruiz  
Cristina Sosa  
Núria Tomás  
Núria Vigués  
Eduard Villagrasa



## 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 2018

- ✓ Hijosa-Valsero M, Sidrach-Cardona R, Pedescoll A, Sánchez O, Bécares E (2018) Role of bacterial diversity on PPCPs removal in constructed wetlands. In: Stefanakis A (ed) Constructed wetlands for industrial wastewater treatment, pp 405-426, John Wiley&Sons Ltd
- ✓ Llorens-Blanch G, Parlade E, Martinez-Alonso M, Gaju N, Caminal G, Blanquez P (2018) A comparison between biostimulation and bioaugmentation in a solid treatment of anaerobic sludge: Drug content and microbial evaluation. Waste Management 72: 206-217. DOI 10.1016/j.wasman.2017.10.048
- ✓ Parlade E, Hom-Díaz A, Blanquez P, Martinez-Alonso M, Vicent T, Gaju N (2018) Effect of cultivation conditions on beta-estradiol removal in laboratory and pilot-plant photobioreactors by an algal-bacterial consortium treating urban wastewater. Water Research 137: 86-96 DOI 10.1016/j.watres.2018.02.060
- ✓ Pujol-Vila F, Dietvorst J, Gall-Mas L, Díaz-González M, Vigués N, Mas J, Muñoz-Berbel X (2018) Bioelectrochromic hydrogel for fast antibiotic-susceptibility testing. Journal of Colloid and Interface Science 511:251-258. DOI: 10.1016/j.jcis.2017.09.004
- ✓ Sánchez O (2018) Microbial diversity in biofilms from reverse osmosis membranes: a short review. Journal of Membrane Science 545:240-249. DOI: 10.1016/j.memsci.2017.09.082
- ✓ Sanz-Sáez I, Bravo AG, Acinas SG, Sánchez O (2018) Bacterias marinas detoxificadoras de mercurio: caracterización mediante aislamiento y técnicas -ómicas. SEM@foro. Especial biodeterioro, biodegradación y biorremediación 66:61-62
- ✓ Solé A, Esteve I, Millach L, Villagrasa E, Bahavar N, Puyen ZM, Burgos A (2018) Grupo ecología microbiana de la Universidad Autónoma de Barcelona. SEM@foro. Especial biodeterioro, biodegradación y biorremediación 66:43-44

- ✓ Vigués N, Pujol-Vila F, Marquez-Maqueda A, Muñoz-Berbel X, Mas J (2018) Electro-addressable conductive alginate hydrogel for bacterial trapping and general toxicity determination, *Analytica Chimica Acta* 1036:115-120. DOI: 10.1016/j.aca.2018.06.062
- ✓ Villagrassa E, Ferrer-Miralles N, Millach L, Obiol A, Creus J, Esteve I, Solé A (2018) Morphological responses to nitrogen stress deficiency of a new heterotrophic isolated strain of Ebro Delta microbial mats. *Protoplasma*. Published online. DOI: 10.1007/s00709-018-1263-8

# Molecular Microbiology Group

## Members

Dr. Jordi Barbé (PI)

Dr. Susana Campoy (PI)

Dr. Montserrat Llagostera

Dr. Jesús Aranda

Dr. Ivan Erill (UBMC)

Dr. M. Pilar Cortés

Jennifer Otero

María Pérez Varela

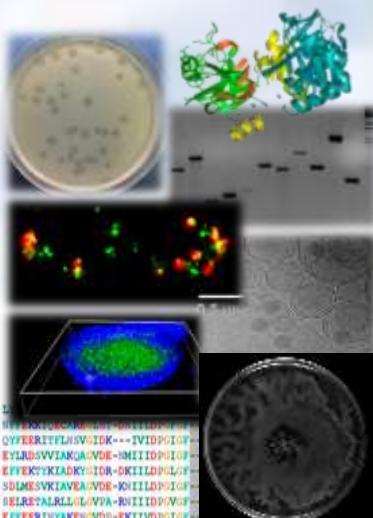
Miquel Sánchez Osuna

Jordi Corral

Elisabeth Frutos

Joan Ruiz

Susana Escribano



## Research

Research is focused in the following four topics: i) DNA repair (SOS system) and mechanisms of bacterial pathogenesis; ii) Identification of bacterial targets for new antimicrobial compounds development; iii) Bacteriophage therapy; iv) High-affinity iron uptake systems as targets for immunotherapy.

## Publications 2018

- ✓ Cortés P, Cano-Sarabia M, Colom J, Otero J, Maspoche D, Llagostera M. 2018. Nano/Micro Formulations for Bacteriophage Delivery. En Azeredo J and Sillankorva S, eds. Methods in Molecular Biology: Bacteriophage Therapy. From Lab to Clinical Practice. Springer Science. New York. pp. 271-283. doi: 10.1007/978-1-4939-7395-8\_20.
- ✓ Pérez-Varela M, Corral J, Aranda J, Barbé J. 2018, Functional Characterization of AbaQ, a novel efflux pump mediating quinolone resistance in *Acinetobacter baumannii*. *Antimicrob Agents Chemother*. 27;62(9).
- ✓ Krin E, Pierlé SA, Sismeiro O, Jagla B, Dillies MA, Varet H, Irazoki O, Campoy S, Rouy Z, Cruveiller S, Médigue C, Coppée JY, Mazel D. 2018. Expansion of the SOS regulon of *Vibrio cholerae* through extensive transcriptome analysis and experimental validation. *BMC Genomics*. 19(1):373.
- ✓ Deveson Lucas D, Crane B, Wright A, Han ML, Moffatt J, Bulach D, Gladman SL, Powell D, Aranda J, Seemann T, Machado D, Pacheco T, Marques T, Viveiros M, Nation R, Li J, Harper M, Boyce JD. 2018. Emergence of high-level colistin resistance in an *Acinetobacter baumannii* clinical isolate mediated by inactivation of the global regulator H-NS. *Antimicrob Agents Chemother*. 62(7).
- ✓ Bernat-Maso E, Gil L, Escrig C, Barbé J, Cortés P. 2018. Effect of *Sporosarcina pasteurii* on the strength properties of compressed earth specimens. *Materiales de construcción*. 68: e143.

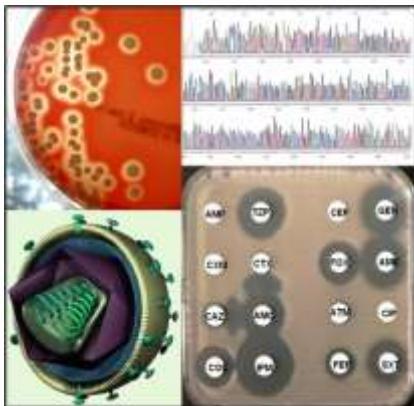
# VHIR Research Group of Microbiology

## Members

**Dr. Tomàs Pumarola Suñé (Group Leader)**  
Dra. Antònia Andreu Domingo  
Dr. Andres Antón Pagarolas  
Dra. Rosa M.Bartolomé Comas  
Dra. Estrella Caballero Requero  
Dra. Gema Codina Grau  
Dra. Juliana Esperalba Esquerre  
Dr. Juan José González López  
Dra. M. Nieves Larrosa Escartín  
Dra. M. Teresa Martín Gómez  
Dra. Mayli Lung Suarez  
Dra. Elena Sulleiro Igual  
Dr. M. Teresa Tórtola Fernández  
Dr. Mateu Espasa Soley  
Dra. Virginia Rodriguez Garrido  
Dra. Judit Serra Pladevall  
Dra. Anna Fàbrega Santamaria  
Laura Gimferrer Arriaga  
Cristina Andrés Vergés  
Maria Piñana Moro  
Alba Mir Cros  
Candela Fernández Naval  
Thais Cornejo Sánchez  
Alberto Moreno Mingorance  
Aroa Silgado Giménez



Web:<http://www.vhir.org/larecerca/grupsrecerca>



## 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.

## Publications 2018

Vicente M, Lung M, Gulin C, Tórtola MT, Corona PS. Septic Nonunion Caused by Mycobacterium canariense: A Case Report. JBJS Case Connect. 2018 Oct-Dec;8(4):e90. FI: 4,583

Pumarola T, Anton A. La pandemia de la gripe de 1918. Una incógnita 100 años después. Rev Enf Emerg 2018;17(2):63-66.

Arístegui Fernández J, González Pérez-Yarza E, Mellado Peña MJ, Rodrigo Gonzalo de Liria C, Hernández Sampelayo T, García García JJ, Ruiz Contreras J, Moreno Pérez D, Garrote Llanos E, Ramos Amador JT, Cilla Eguiluz CG, Méndez Hernández M; en representación del grupo de estudio HOSPIGRIP; Autores del grupo de estudio HOSPIGRIP. [Child hospital admissions associated with influenza virus infection in 6 Spanish cities (2014-2016)]. An Pediatr (Barc). 2019 Feb;90(2):86-93. Epub 2018 Jul 25. FI: 1,318

Gimferrer L, Andrés C, Rando A, Piñana M, Codina MG, Martin MDC, Fuentes F, Rubio S, Alcubilla P, Pumarola T, Antón A. Evaluation of Seegene Allplex Respiratory Panel 1 kit for the detection of influenza virus and human respiratory syncytial virus. J Clin Virol. 2018 Aug;105:31-34. Epub 2018 May 25. FI: 3,101

## Publications 2018 (cont)

Torner N, Martínez A, Basile L, Mosquera M, Antón A, Rius C, Sala MR, Mingueu S, Plasencia E, Carol M, Godoy P, Follia N, Barrabeig I, Marcos MA, Pumarola T, Jané M. Descriptive study of severe hospitalized cases of laboratory-confirmed influenza during five epidemic seasons (2010-2015). *BMC Res Notes*. 2018 Apr 14;11(1):244. FI: 1,15

Andrés C, Vila J, Gimferrer L, Piñana M, Esperalba J, Codina MG, Barnés M, Martín MC, Fuentes F, Rubio S, Alcubilla P, Rodrigo C, Pumarola T, Antón A. Surveillance of enteroviruses from paediatric patients attended at a tertiary hospital in Catalonia from 2014 to 2017. *J Clin Virol*. 2019 Jan;110:29-35. Epub 2018 Nov 30. FI: 3,101

Fernández-Naval C, Arando M, Espasa M, Antón A, Gimferrer L, Piñana M, Fernández-Huerta M, González-López JJ, Serra-Pladevall J, Pumarola T, Vall-Mayans M, Esperalba J. Novel tp0548 sequence-type of *Treponema pallidum* identified in Barcelona, Spain. *Sex Transm Dis*. 2018 Nov 19. FI: 1,981

Godoy P, Romero A, Soldevila N, Torner N, Jané M, Martínez A, Caylà JA, Rius C, Domínguez A; The Working Group On Surveillance Of Severe Influenza Hospitalized Cases In Catalonia. Influenza vaccine effectiveness in reducing severe outcomes over six influenza seasons, a case-case analysis, Spain, 2010/11 to 2015/16. *Euro Surveill*. 2018 Oct;23(43). FI: 7,127

Andrés C, Peremiquel-Trillas P, Gimferrer L, Isern A, Piñana M, Rodrigo-Pendás JÁ, Codina MG, Martín MDC, Fuentes F, Rubio S, Campins-Martí M, Pumarola T, Antón A. Genetic diversity of rhinoviruses detected at a tertiary hospital in Catalonia (Spain) during the 2014-2017 seasons. *Future Microbiol*. 2018 Nov;13:1565-1573. Epub 2018 Nov 12. FI: 3,19

Domínguez A, Romero-Tamarit A, Soldevila N, Godoy P, Jané M, Martínez A, Torner N, Caylà JA, Rius C; Surveillance of Hospitalized Cases of Severe Influenza in Catalonia Working Group. Effectiveness of antiviral treatment in preventing death in severe hospitalised influenza cases over six seasons. *Epidemiol Infect*. 2018 May;146(7):799-808. Epub 2018 Apr 2. FI: 2,044

Knoester M, Helfferich J, Poelman R, Van Leer-Buter C, Brouwer OF, Niesters HGM; 2016 EV-D68 AFM Working Group. Twenty-nine Cases of Enterovirus-D68-associated Acute Flaccid Myelitis in Europe 2016: A Case Series and Epidemiologic Overview. *Pediatr Infect Dis J*. 2019 Jan;38(1):16-21. FI: 2,305

Barberá MJ, Serra-Pladevall J. Gonococcal infection: An unresolved problem. *Enferm Infect Microbiol Clin*. 2019 Feb 4. pii: S0213-005X(19)30002-3. FI: 1,707

Serra-Pladevall J, Barberá MJ, Espasa M, Andreu A. Risk factors for antimicrobial-resistant *Neisseria gonorrhoeae* and characteristics of patients infected with gonorrhea. *Enferm Infect Microbiol Clin*. 2019 Feb;37(2):145-146. Epub 2018 Aug 9. FI: 1,707

Imatge relacionada amb la

Paula Salmerón, Juliana Esperalba, Judit Serra-Pladevall, Mateu Espasa. Técnicas diagnósticas microbiológicas en infecciones de transmisión sexual. DOI: 10.1016/j.piel.2018.08.006.

resolució

Fernández-Huerta M, Serra-Pladevall J, Barberá MJ, Espasa M. *Mycoplasma genitalium* and antibiotic resistance in Spain; the need for an effective response against an emerging problem. *Enferm Infect Microbiol Clin*. 2019 Feb;37(2):144-145. Epub 2018 May 28. English,Spanish. FI: 1,707

Serra-Pladevall J, Gulin Blanco C, Vila Olmo N, Arjona Camacho P, Andreu Domingo A. Preservation of *Neisseria gonorrhoeae*: should swabs be refrigerated or not?: *Neisseria gonorrhoeae* preservation. *J Microbiol Methods*. 2018 Feb;145:37-39. Epub 2017 Dec 29. FI: 2,319

Rando-Segura A, Aznar ML, Moreno MM, Espasa M, Sulleiro E, Bocanegra C, Gil E, Eugénio ANE, Escartin C, Zacarias A, Vegue J, Katimba D, Vivas MC, Gabriel E, Marina MC, Mendioroz J, López MT, Pumarola T, Molina I, Tórtola MT. Drug Resistance of *Mycobacterium tuberculosis* Complex in a Rural Setting, Angola. *Emerg Infect Dis*. 2018 Mar;24(3):569-572. FI: 7,422

Casado I, Domínguez Á, Toledo D, Chamorro J, Astray J, Egurrola M, Fernández-Sierra MA, Martín V, Morales-Suárez-Varela M, Godoy P, Castilla J; Project PI12/02079 Working Group. Repeated influenza vaccination for preventing severe and fatal influenza infection in older adults: a multicentre case-control study. *CMAJ*. 2018 Jan 8;190(1):E3-E12. FI: 6,8

Escolà-Vergé L, Fernández-Hidalgo N, Rodríguez-Pardo D, Pigrau C, González-López JJ, Bartolomé R, Almirante B. Teicoplanin for treating enterococcal infective endocarditis: A retrospective observational study from a referral centre in Spain. *Int Antimicrob Agents*. 2019 Feb;53(2):165-170. Epub 2018 Oct 10. FI: 4,253

Piedra-Carrasco N, Miguel L, Fàbrega A, Viñado B, Campany D, Mir A, et al. Effectiveness of a Double-Carbapenem Regimen in a KPC-Producing *Klebsiella pneumoniae* Infection in an Immunocompromised Patient. *Microb Drug Resist*. marzo de 2018;24(2):199-202. FI: 2,344

## Publications 2018 (cont)

Willekens R, Puig-Asensio M, Ruiz-Camps I, Larrosa MN, González-López JJ, Rodríguez-Pardo D, et al. Early Oral Switch to Linezolid for Low-risk Patients With *Staphylococcus aureus* Bloodstream Infections: A Propensity-matched Cohort Study. *Clinical Infectious Diseases*. 23 de octubre de 2018. FI: 9,117

Dey P, Fabri-Faja N, Calvo-Lozano O, Terborg R, Belushkin A, Yesilköy F, et al. Label-free bacteria quantification in blood plasma by a bioprinted microarray based interferometric point-of-care device. *ACS Sensors*. 7 de diciembre de 2018. FI: 5,711

Brown-Jaque M, Rodriguez Oyarzun L, Cornejo-Sánchez T, Martín-Gómez MT, Gartner S, de Gracia J, et al. Detection of Bacteriophage Particles Containing Antibiotic Resistance Genes in the Sputum of Cystic Fibrosis Patients. *Front Microbiol*. 2018;9. FI: 4,019

Brown-Jaque M, Calero-Cáceres W, Espinal P, Rodríguez-Navarro J, Miró E, González-López JJ, et al. Antibiotic resistance genes in phage particles isolated from human faeces and induced from clinical bacterial isolates. *International Journal of Antimicrobial Agents*. marzo de 2018;51(3):434-42. FI: 4,253

Carolina González; David Tabernero; Maria Francesca Cortese; Josep Gregori Font; Rosario Casillas Gomez; Mar Riveiro Barciela; Cristina Godoy Cruz; Sara Sopena Santistevé; Ariadna Rando Segura; Marçal Yll; Rosa Lopez Martinez; Josep Quer Sivila; Rafael Esteban; Maria Buti; Francisco Rodríguez Frías. Detection of hyper-conserved regions in hepatitis B virus X gene potentially useful for gene therapy. *World J Gastroenterol*. 24 - 19, pp. 2095 - 2107. 2018. FI: 3,3

Escolà-Vergé L; Salvador F; Sánchez-Montalvá A; Escudero-Fernández JM; Elena Sulleiro Igual; Ariadna Rando Segura; Bilbao I; Lázaro JL; Serres X; Salvador J; Molina I. Retrospective Study of Cystic Echinococcosis in a Recent Cohort of a Referral Center for Liver Surgery. *J Gastrointest Surg*. 2018. FI: 2,813

Adrián Sánchez Montalvá; Diana Pou; Elena Sulleiro; Fernando Salvador; Cristina Bocanegra; Begoña Treviño; Ariadna Rando; Núria Serre; Tomàs Pumarola; Benito Almirante; Israel Molina. Zika virus dynamics in body fluids and risk of sexual transmission in a non-endemic area. *Trop Med Int Heal*. 23 - 1, pp. 92 - 100. 2018. FI: 2,541

Larrosa MN, Benito N, Cantón R, Canut A, Cercenado E, Fernández-Cuenca F, Guinea J, López-Navas A, Moreno MÁ, Oliver A, Martínez-Martínez L. From CLSI to EUCAST, a necessary step in Spanish laboratories. *Enferm Infect Microbiol Clin*. 2018 Nov 5. pii: S0213-005X(18)30278-7. Review. English, Spanish. FI: 1,707

Fernández-Hidalgo N, Ribera A, Larrosa MN, Viedma E, Origüen J, de Alarcón A, Fariñas MC, Sáez C, Peña C, Muñoz E, García López MV, Gavaldà J, Pérez-Montarelo D, Chaves F, Almirante B. Impact of *Staphylococcus aureus* phenotype and genotype on the clinical characteristics and outcome of infective endocarditis. A multicentre, longitudinal, prospective, observational study. *Clin Microbiol Infect*. 2018 Sep;24(9):985-991. Epub 2017 Dec 18. FI: 5,394

Pérez-Montarelo D, Viedma E, Larrosa N, Gómez-González C, Ruiz de Gopegui E, Muñoz-Gallego I, San Juan R, Fernández-Hidalgo N, Almirante B, Chaves F. Molecular Epidemiology of *Staphylococcus aureus* Bacteremia: Association of Molecular Factors With the Source of Infection. *Front Microbiol*. 2018 Sep 25;9:2210. eCollection 2018. FI: 4,019

Viedma E, Pérez-Montarelo D, Villa J, Muñoz-Gallego I, Larrosa N, Fernández-Hidalgo N, Gavaldà J, Almirante B, Chaves F. Sub-inhibitory concentrations of oxacillin modify the expression of agr locus in *Staphylococcus aureus* clinical strains belonging to different clonal complexes. *BMC Infect Dis*. 2018 Apr 16;18(1):177. FI: 2,62

Escolà-Vergé L, Pigrau C, Los-Arcos I, Arévalo Á, Viñado B, Campany D, Larrosa N, Nuvials X, Ferrer R, Len O, Almirante B. Ceftolozane/tazobactam for the treatment of XDR *Pseudomonas aeruginosa* infections. *Infection*. 2018 Aug;46(4):461-468. Epub 2018 Mar 28. FI: 2,468

Guna Serrano MR, Larrosa Escartín N, Marín Arriaza M, Rodríguez Díaz JC. Microbiological diagnosis of bacteraemia and fungaemia: Blood cultures and molecular methods. *Enferm Infect Microbiol Clin*. 2018 Apr 21. pii: S0213-005X(18)30080-6. FI: 1,707

Muñoz L, Santin M, Alcaide F, Ruíz-Serrano MJ, Gijón P, Bermúdez E, Domínguez-Castellano A, Navarro MD, Ramírez E, Pérez-Escalona E, López-Prieto MD, Gutiérrez-Rodríguez J, Anibarre L, Calviño L, Trigo M, Cifuentes C, García-Gasalla M, Payeras A, Gasch O, Espasa M, Agüero R, Ferrer D, Casas X, González-Cuevas A, García-Zamalloa A, Bikuña E, Lecuona M, Galindo R, Ramírez-Lapausa M, Carrillo R; OPTIMIST Study Team . Quantiferon-TB Gold In-Tube as a Confirmatory Test for Tuberculin Skin Test in Tuberculosis Contact Tracing: A Noninferiority Clinical Trial. *Clin Infect Dis*. 2018 Jan 18;66(3):396-403. FI: 9,117

## Publications 2018 (cont)

Pappolla A, Midaglia L, Boix Rodríguez CP, Puig AA, Lung M, Camps IR, Castilló J, Mulero P, Vidal-Jordana A, Arrambide G, Rodriguez-Acevedo B, Sastre-Garriga J, Río J, Comabella M, Galán I, Tintoré M, Montalbán X. Simultaneous CMV and Listeria infection following alemtuzumab treatment for multiple sclerosis. *Neurology*. 2019 Feb 5;92(6):296-298. Epub 2018 Dec 26. FI: 8,055

Papadopoulos A, Ribera A, Mavrogenis AF, Rodriguez-Pardo D, Bonnet E, Salles MJ, Dolores Del Toro M, Nguyen S, Blanco-García A, Skaliczki G, Soriano A, Benito N, Petersdorf S, Pasticci MB, Tattevin P, Tufan ZK, Chan M, O'Connell N, Pantazis N, Kyprianou A, Pigras C, Megaloikonomos PD, Senneville E, Ariza J, Papagelopoulos PJ, Giannitsioti E; ESCMID Study Group for Implant-Associated Infections (ESGIAI). Multidrug-resistant and extensively drug-resistant Gram-negative prosthetic joint infections: Role of surgery and impact of colistin administration. *Int J Antimicrob Agents*. 2019 Mar;53(3):294-301. Epub 2018 Nov 3. FI: 4,253

Aguilar-Company J, Pigras C, Fernández-Hidalgo N, Rodríguez-Pardo D, Falcó V, Lung M, Pellisé F, Almirante B. Native vertebral osteomyelitis in aged patients: distinctive features. An observational cohort study. *Infection*. 2018 Oct;46(5):679-686. Epub 2018 Jul 12. FI: 2,773

Corona PS, Lung M, Rodriguez-Pardo D, Pigras C, Soldado F, Amat C, Carrera L. Acute periprosthetic joint infection due to *Fusobacterium nucleatum* in a non-immunocompromised patient. Failure using a Debridement, Antibiotics + Implant retention approach. *Anaerobe*. 2018 Feb;49:116-120. Epub 2018 Jan 5. FI: 2,742

Ferrández-Pulido C, Martín-Gómez MT, Repiso T, Juárez C, Ferrer B, López-Lerma I, Aparicio G, González-Cruz C, Moreso F, Román A, García-Patos V. Cutaneous infections by dematiaceous opportunistic fungi: diagnosis and management in 11 solid organ transplant recipients. *Mycoses*. 2018 Sep 19. FI: 2,793

Martín-Gómez MT, Valenzuela-López N, Cano-Lira JF. Knuffia epidermidis: A rare finding in a paediatric dermatological sample. *Clin Microbiol Infect*. 2018 Aug 13. pii: S1198-743X(18)30578-0. FI: 5,394

Alastruey-Izquierdo A, Alcazar-Fuoli L, Rivero-Menéndez O, Ayats J, Castro C, García-Rodríguez J, Goterris-Bonet L, Ibáñez-Martínez E, Linares-Sicilia MJ, Martín-Gómez MT, Martín-Mazuelos E, Pelaez T, Peman J, Rezusta A, Rojo S, Tejero R, Vicente Anza D, Viñuelas J, Zapico MS, Cuenca-Estrella M; members of the FILPOP2 Project from GEMICOMED (SEIMC) and REIPI. Molecular identification and susceptibility testing of molds isolated in a Prospective Surveillance of Triazole Resistance in Spain (FILPOP2 study). *Antimicrob Agents Chemother*. 2018 Jun 25. pii: AAC.00358-18. FI: 4,256

Los-Arcos I, Len O, Martín-Gómez MT, Baroja A, Berastegui C, Deu M, Sacanell J, Román A, Gavaldà J. Clinical Characteristics and Outcome of Lung Transplant Recipients with Respiratory Isolation of *Corynebacterium* spp. *J Clin Microbiol*. 2018 Jul 26;56(8). pii: e00142-18. FI: 4,054

Royuela M, Jaramillo J, Martín MT, Len O. Skin infection in a renal transplant recipient. *Med Clin (Barc)*. 2018 Jun 8;150(11):454. Epub 2017 Oct 18. English, Spanish. FI: 1,168

Burgos J, Garcia-Pérez JN, di Lauro SG, Falcó V, Pumarola T, Almirante B, Teresa Martín Gomez M. Usefulness of Sofia Pneumococcal FIA® test in comparison with BinaxNOW® Pneumococcal test in urine samples for the diagnosis of pneumococcal pneumonia. *Eur J Clin Microbiol Infect Dis*. 2018 Apr 13. FI: 2,537

A Ramirez-Garcia, A Pellon, A Rementeria, I Buldain, E Barreto-Bergter, R Rollin-Pinheiro, J Vieira de Meirelles, M I D S Xisto, S Ranque, V Havlicek, P Vandepitte, Y Le Govic, JP Bouchara, S Giraud, S Chen, J Rainer, A Alastruey-Izquierdo, M T Martin-Gómez, L M López-Soria, J Peman, C Schwarz, A Bernhardt, K Tintelnot, J Capilla, A Martin-Vicente, J Cano-Lira, M Nagl, M Lackner, L Irinyi, W Meyer, S de Hoog, F L Hernando. Scedosporium and Lomentospora: an updated overview of underrated opportunists Medical Mycology, Volume 56, Issue suppl\_1, 1 April 2018, Pages 102–125. FI: 2,799

Serre-Delcor N, Treviño-Maruri B, Tórtola MT, Fernández-Quevedo M, Soriano-Arandes A, Oliveira-Souto I, Espasa M, Molina I, Ascaso C. Sequential strategy for the LTBI screening of newly-arrived immigrants in vulnerable social situations. *Enferm Infect Microbiol Clin*. 2018 Nov;36(9):550-554. Epub 2017 Dec 7. FI: 1,707

## Publications 2018 (cont)

C Schwarz, P Vandeputte, A Rougeron, S Giraud, T Dugé de Bernonville, L Duvaux, A Gastebois, A Alastruey-Izquierdo, M T Martín-Gómez, E Martin Mazuelos, A Sole, J Cano, J Pemán, G Quindos, F Botterel , M E Bougnou, S Chen, L Delhaès, L Favenne, S Ranque, L Sedlacek, J Steinmann, J Vazquez, C Williams, W Meyer, S Le Gal, G Nevez, M Fleury, N Papon, F Symoens, J P Boucharathe. ECMM/ISHAM working group Fungal respiratory infections in Cystic Fibrosis (Fri-CF). Developing collaborative works for faster progress on fungal respiratory infections in cystic fibrosis. *Medical Mycology*, Volume 56, Issue suppl\_1, 1 April 2018, Pages 42–59. FI: 2,799

Basas J, Palau M, Ratia C, Del Pozo JL, Martín-Gómez MT, Gomis X, Torrents E, Almirante B, Gavaldà J. High-Dose Daptomycin Is Effective as an Antibiotic Lock Therapy in a Rabbit Model of *Staphylococcus epidermidis* Catheter-Related Infection. *Antimicrob Agents Chemother*. 2018 Jan 25;62(2). pii: e01777-17. Print 2018 Feb. FI: 4,256

Zoran T, Sartori B, Sappl L, Aigner M, Sánchez-Reus F, Rezusta A, Chowdhary A, Taj-Aldeen SJ, Arendrup MC, Oliveri S, Kontoyiannis DP, Alastruey-Izquierdo A, Lagrou K, Cascio GL, Meis JF, Buzina W, Farina C, Drogari-Apiranthitou M, Grancini A, Tortorano AM, Willinger B, Hamprecht A, Johnson E, Klingspor L, Arsic-Arsenijevic V, Cornely OA, Meletiadis J, Prammer W, Tullio V, Vehreschild JJ, Trovato L, Lewis RE, Segal E, Rath PM, Hamal P, Rodriguez-Iglesias M, Roilides E, Arikan-Akdagli S, Chakrabarti A, Colombo AL, Fernández MS, Martin-Gómez MT, Badali H, Petrikos G, Klimko N, Heimann SM, Uzun O, Roudbary M, de la Fuente S, Houbraken J, Risslegger B, Lass-Flörl C, Lackner M. Azole-Resistance in *Aspergillus terreus* and Related Species: An Emerging Problem or a Rare Phenomenon? *Front Microbiol*. 2018 Mar 28;9:516. eCollection 2018.

FI: 4,019

Jané M, Vidal MJ, Camps N, Campins M, Martínez A, Balcells J, Martin-Gómez MT, Bassets G, Herrera-León S, Foguet A, Maresma M, Follia N, Uriona S, Pumarola T. A case of respiratory toxigenic diphtheria: contact tracing results and considerations following a 30-year disease-free interval, Catalonia, Spain, 2015. *Euro Surveill*. 2018 Mar;23(13). FI: 7,127

Arévalo Bernabé AG, Puig Asensio M, Martín Gómez MT, Larrosa García M, Campany Herrero D. Directed antifungal treatment in patients with candidemia: factors that influence drug selection. *European Journal of Clinical Pharmacy* 2018; 20:107-112. FI: 2,679

Los-Arcos I, Len O, Martín-Gómez MT, González-López JJ, Saéz-Giménez B, Deu M, Nuvials X, Ferrer R, Román A, Gavaldà J. Lung transplantation in two cystic fibrosis patients infected with previously pandrug-resistant *Burkholderia cepacia* complex treated with ceftazidime-avibactam. *Infection*. 2018 Dec 19. FI: 2,773

Arando M, Fernandez-Naval C, Mota-Foix M, Alvarez A, Armegol P, Barberá MJ, Esperalba J, Vall-Mayans M. The Jarisch-Herxheimer reaction in syphilis: could molecular typing help to understand it better? *J Eur Acad Dermatol Venereol*. 2018 Oct;32(10):1791-1795. FI: 4,287

Miguel L, Salvador F, Sulleiro E, Sánchez-Montalvá A, Molina-Morant D, López I, Molina I. Clinical and Epidemiological Characteristics of Patients with *Dientamoeba fragilis* Infection. *Am J Trop Med Hyg*. 2018 Nov;99(5):1170-1173. FI: 2,564

Larrañzar-Coghen T, Rodríguez-Pardo D, Fernández-Hidalgo N, Puig-Asensio M, Pigrau C, Ferrer C, Rodríguez V, Bartolomé R, Campany D, Almirante B. Secular trends in the epidemiology of *Clostridium difficile* infection (CDI) at a tertiary care hospital in Barcelona, 2006-2015: A prospective observational study. *Anaerobe*. 2018 Jun;51:54-60. Epub 2018 Apr 12. FI: 2,742

Gasch O, Meije Y, Espasa M, Font B, Jiménez S, Fernández-Hidalgo N. Disseminated Infection Due to *Mycobacterium chimaera* After Aortic Valve Replacement. *Rev Esp Cardiol (Engl Ed)*. 2018 Jul 18. pii: S1885-5857(18)30274-3. FI: 5,166

Gandasegui J, Fernández-Soto P, Dacal E, Rodríguez E, Saugar JM, Yépes E, Aznar-Ruiz-de-Alegría ML, Espasa M, Ninda A, Bocanegra C, Salvador F, Sulleiro E, Moreno M, Vicente B, López-Abán J, Muro A. Field and laboratory comparative evaluation of a LAMP assay for the diagnosis of urogenital schistosomiasis in Cubal, Central Angola. *Trop Med Int Health*. 2018 Sep;23(9):992-1001. Epub 2018 Jul 5. FI: 2,541

Dacal E, Saugar JM, de Lucio A, Hernández-de-Mingo M, Robinson E, Köster PC, Aznar-Ruiz-de-Alegría ML, Espasa M, Ninda A, Gandasegui J, Sulleiro E, Moreno M, Salvador F, Molina I, Rodríguez E, Carmena D. Prevalence and molecular characterization of *Strongyloides stercoralis*, *Giardia duodenalis*, *Cryptosporidium* spp., and *Blastocystis* spp. isolates in school children in Cubal, Western Angola. *Parasit Vectors*. 2018 Jan 29;11(1):67. FI: 3,163

## Publications 2018 (cont)

Serre-Delcor N, Ascaso C, Soriano-Arandes A, Collazos-Sánchez F, Treviño-Maruri B, Sulleiro E, Pou-Ciruelo D, Bocanegra-Garcia C, Molina-Romero I. Health Status of Asylum Seekers, Spain. *Am J Trop Med Hyg.* 2018 Jan;98(1):300-307. doi: 10.4269/ajtmh.17-0438. Epub 2018 Jan 1. Fl: 2,56

Chotirmall SH, Martin-Gomez MT. Aspergillus Species in Bronchiectasis: Challenges in the Cystic Fibrosis and Non-cystic Fibrosis Airways. *Mycopathologia.* 2018 Feb;183(1):45-59. doi: 10.1007/s11046-017-0143-7. Epub 2017 May 17. Review. Fl: 1,48

Salvador F, Sánchez-Montalvá A, Sulleiro E, Moreso F, Berastegui C, Caralt M, Pinazo MJ, Moure Z, Los-Arcos I, Len O, Gavaldà J, Molina I. Prevalence of Chagas Disease among Solid Organ-Transplanted Patients in a Nonendemic Country. *Am J Trop Med Hyg.* 2018 Mar;98(3):742-746. doi: 10.4269/ajtmh.17-0735. Epub 2018 Feb 1. Fl: 2,56

Harvala H, Broberg E, Benschop K, Berginc N, Ladhani S, Susi P, Christiansen C, McKenna J, Allen D, Makiello P, McAllister G, Carmen M, Zakikhany K, Dyrdak R, Nielsen X, Madsen T, Paul J, Moore C, von Eije K, Piralla A, Carlier M, Vanoverschelde L, Poelman R, Anton A, López-Labrador FX, Pellegrinelli L, Keeren K, Maier M, Cassidy H, Derdas S, Savolainen-Kopra C, Diedrich S, Nordbø S, Buesa J, Bailly JL, Baldanti F, MacAdam A, Mirand A, Dudman S, Schuffenecker I, Kadambari S, Neyts J, Griffiths MJ, Richter J, Margaretto C, Govind S, Morley U, Adams O, Kroksstad S, Dean J, Pons-Salort M, Prochazka B, Cabrerizo M, Majumdar M, Nebbia G, Wiewel M, Cottrell S, Coyle P, Martin J, Moore C, Midgley S, Horby P, Wolthers K, Simmonds P, Nieters H, Fischer TK. Recommendations for enterovirus diagnostics and characterisation within and beyond Europe. *J Clin Virol.* 2018 Apr;101:11-17. doi: 10.1016/j.jcv.2018.01.008. Epub 2018 Feb 6. Review. Fl: 3,10

Rodó C, Suy A, Sulleiro E, Soriano-Arandes A, Antón A, García-Ruiz I, Arévalo S, Vázquez É, Vázquez A, de Ory F, Sánchez-Seco MP, Rodrigo C, Pumarola T, Carreras E. In utero negativization of Zika virus in a foetus with serious central nervous system abnormalities. *Clin Microbiol Infect.* 2018 May;24(5):549.e1-549.e3. doi: 10.1016/j.cmi.2017.09.022. Epub 2017 Oct 10. Fl: 5,39

Moure Z, Rando-Segura A, Gimferrer L, Roig G, Pumarola T, Rodriguez-Garrido V. Evaluation of the novel DiaSorin LIAISON®Campylobacter assay for the rapid detection of *Campylobacter* spp. *Enferm Infect Microbiol Clin.* 2018 May;36(5):293-295. doi: 10.1016/j.eimc.2017.03.009. Epub 2017 Apr 29. Fl: 1,71

Moure Z, Sulleiro E, Iniesta L, Guillen C, Molina I, Alcover MM, Riera C, Pumarola T, Fisa R. The challenge of discordant serology in Chagas disease: The role of two confirmatory techniques in inconclusive cases. *Acta Trop.* 2018 Sep;185:144-148. doi: 10.1016/j.actatropica.2018.05.010. Epub 2018 May 15. Fl: 2,51

Molina Romero I, Sulleiro Igual E. Who currently benefits from the aetiological treatment for Chagas disease? *Enferm Infect Microbiol Clin.* 2018 Aug- Sep;36(7):395-396. Fl: 1,71

De Ory F, Sánchez-Seco MP, Vázquez A, Montero MD, Sulleiro E, Martínez MJ, Matas L, Merino FJ; Working Group for the Study of Zika Virus Infections. Comparative Evaluation of Indirect Immunofluorescence and NS-1-Based ELISA to Determine Zika Virus-Specific IgM. *Viruses.* 2018 Jul 19;10(7). Fl: 3,76

Larraínzar-Coghen T, Rodríguez-Pardo D, Barba P, Aguilar-Company J, Rodríguez V, Roig G, Ferrer C, Ruiz-Camps I, Almirante B. Prognosis of *Clostridium difficile* infection in adult oncohaematological patients: experience from a large prospective observational study. *Eur J Clin Microbiol Infect Dis.* 2018 Nov;37(11):2075-2082. Fl: 2,54

Vives-Oñós I, Codina-Grau MG, Noguera-Julian A, Blázquez-Gamero D, Fortuny C, Baquero-Artigao F, Frick MA, Saavedra-Lozano J, Goycochea-Valdivia W, Rives-Ferreiro MT, Montesdeoca-Melián A, Calavia-Garsaball O, Ferreras-Antolín L, Marín-Soria JL, Dulín-Íñiguez E, Soler-Palacín P; and the REDICCMV Study Group\*. Is Polymerase Chain Reaction in Neonatal Dried Blood Spots Reliable for the Diagnosis of Congenital Cytomegalovirus Infection? *Pediatr Infect Dis J.* 2018 Sep 7. Fl: 2,31

López Y, Parra E, Cepas V, Sanfeliú I, Juncosa T, Andreu A, Xercavins M, Pérez J, Sanz S, Vergara A, Bosch J, Soto SM. Serotype, virulence profile, antimicrobial resistance and macrolide-resistance determinants in *Streptococcus agalactiae* isolates in pregnant women and neonates in Catalonia, Spain. *Enferm Infect Microbiol Clin.* 2018 Oct;36(8):472-477. Fl: 1,71

Peghin M, Los-Arcos I, Hirsch HH, Codina G, Monforte V, Bravo C, Berastegui C, Jauregui A, Romero L, Cabral E, Ferrer R, Sacanell J, Román A, Len O, Gavaldà J. Community-acquired respiratory viruses are a risk factor for chronic lung allograft dysfunction. *Clin Infect Dis.* 2018 Dec 17. Fl: 9,12

# Infectious Diseases and Clinical Microbiology Group

## Members

**Dr. Pere Coll (PI)**

Dra. Beatriz Mirelis

Dra. Núria Rabella

Dra. Carmen Muñoz

Dra. Núria Margall

Dr. Ferran Sánchez

Dr. Ferran Navarro

Dra. Elisenda Miró

Dra. Paula Espinal

Laura Gómez

Montserrat Español

Dra. Merce Gurguí

Dra. Natividad de

Benito

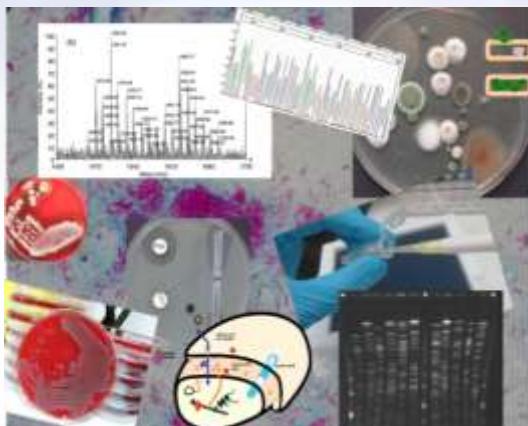
Dr. Joaquín López

Contreras

Dra. Virginia Pomar



**Web:** <http://www.santpau.es/santpau/activitats/inicioMicrobiologia.htm>



## 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.

## Publications 2018

- ✓ Brown-Jaque M., W. Calero-Caceres, P. Espinal, J. Rodríguez-Navarro, E. Miró, J.J. Gonzalez-Lopez, T. Cornejo, J.C. Hurtado, F. Navarro, M. Muniesa. (2018). "Antibiotic resistance genes in phage particles isolated from human faeces and induced from clinical bacterial isolates". International Journal of Antimicrobial Agents.51(3):434-42.
- ✓ Clotet S., L. Matas, V. Pomar, J. Casademont. (2018). "Acute mediastinitis as a rare complication of an infectious mononucleosis". Enferm Infecc Microbiol Clin.36(9):601-2.
- ✓ Coll P., D. Garcia de Viedma. (2018). "Molecular epidemiology of tuberculosis". Enfermedades Infecciosas y Microbiología Clínica.36(4):233-40.
- ✓ Escola-Verge L., D. Rodriguez-Pardo, J. Lora-Tamayo, L. Morata, O. Murillo, H. Vilchez, L. Sorli, L.G. Carrion, J.M. Barbero, J. Palomino-Nicas, A. Bahamonde, A. Jover-Saenz, N. Benito, R. Escudero, M.F. Sampedro, R.P. Vidal, L. Gomez, P.S. Corona, B. Almirante, J. Ariza, C. Pigrau. (2018). "Candida periprosthetic joint infection: A rare and difficult-to-treat infection". J Infect.77(2):151-7.
- ✓ Espinal P., E. Miró, C. Segura, L. Gomez, V. Plasencia, P. Coll, F. Navarro. (2018). "First description of blaNDM-7 carried on an IncX4 plasmid in Escherichia coli ST679 isolated in Spain". Microb Drug Resist.24(2):113-9.

## Publications 2018 (cont)

- ✓ Espinal P., E. Nucleo, M. Caltagirone, V. Mattioni Marchetti, M.R. Fernandes, V. Biscaro, R. Rigoli, A. Carattoli, R. Migliavacca, L. Villa. (2018). "Genomics of Klebsiella pneumoniae ST16 producing NDM-1, CTX-M-15, and OXA-232". *Clin Microbiol Infect.*
- ✓ Espinel-Ingroff A., J. Turnidge, A. Alastruey-Izquierdo, F. Botterel, E. Cantón, C. Castro, Y.C. Chen, Y. Chen, E. Chryssanthou, E. Dannaoui, G. García-Effron, G.M. Gonzalez, N.P. Govender, J. Guinea, S. Kidd, M. Lackner, C. Lass-Florl, M.J. Linares-Sicilia, L. Lopez-Soria, R. Magobo, T. Pelaez, G. Quindos, M.A. Rodriguez-Iglesia, M.A. Ruiz, F. Sánchez-Reus, M. Sanguinetti, R. Shields, P. Szveda, A. Tortorano, N.L. Wengenack, S. Bramati, C. Cavanna, C. DeLuca, M. Gelmi, A. Grancini, G. Lombardi, J. Meletiadis, C.E. Negri, M. Passera, J. Peman, A. Prigitano, E. Sala, M. Tejada. (2018). "Method-dependent epidemiological cutoff values (ECVs) for detection of triazole resistance in Candida and Aspergillus species for the SYO colorimetric broth and Etest agar diffusion methods". *Antimicrobial Agents Chemotherapy.*
- ✓ Iglesias-Torrens Y., E. Miró, P. Guirado, T. Llovet, C. Muñoz, M. Cerda-Cuellar, C. Madrid, C. Balsalobre, F. Navarro. (2018). "Population Structure, Antimicrobial Resistance, and Virulence-Associated Genes in *Campylobacter jejuni* Isolated From Three Ecological Niches: Gastroenteritis Patients, Broilers, and Wild Birds". *Front Microbiol.*9:1676.
- ✓ Larrosa M.N., N. Benito, R. Canton, A. Canut, E. Cercenado, F. Fernandez-Cuenca, J. Guinea, A. Lopez-Navas, M.A. Moreno, A. Oliver, L. Martinez-Martinez. (2018). "From CLSI to EUCAST, a necessary step in Spanish laboratories". *Enferm Infecc Microbiol Clin.*
- ✓ Martin Del Valle F., C. Calvo, I. Martínez-Rienda, A. Cilla, M.P. Romero, A.I. Menasalvas, L. Reis-Iglesias, D. Roda, M.J. Pena, N. Rabella, M.D.M. Portugues de la Red, G. Megias, A. Moreno-Docon, A. Otero, M. Cabrerizo. (2018). "[Epidemiological and clinical characteristics of infants admitted to hospital due to human parechovirus infections: A prospective study in Spain]". *An Pediatr (Barc).*88(2):82-8.
- ✓ Masa-Calles J., N. Torner, N. López-Perea, M.V. Torres de Mier, B. Fernández-Martínez, M. Cabrerizo, V. Gallardo-Garcia, C. Malo, M. Margolles, M. Portell, N. Abadía, A. Blasco, S. García-Hernandez, H. Marcos, N. Rabella, C. Marin, A. Fuentes, I. Losada, J.G. Gutierrez, A. Nieto, V.G. Ortuzar, M.G. Cenoz, J.M. Arteagoitia, A.B. Martinez, A. Rivas, D. Castrillejo. (2018). "Acute flaccid paralysis (AFP) surveillance: challenges and opportunities from 18 years' experience, Spain, 1998 to 2015". *Euro Surveill.*23(47).
- ✓ Nieto J.C., L. Perea, G. Soriano, C. Zamora, E. Cantó, A. Medina, M. Poca, E. Sánchez, E. Roman, G. Julia, F. Navarro, C. Gely, E.A. Alvarado, C. Guarner, C. Juarez, S. Vidal. (2018). "Ascitic fluid regulates the local innate immune response of patients with cirrhosis". *J Leukoc Biol.*104(4):833-41.
- ✓ Palacios-Baena Z.R., M. Delgado-Valverde, A. Valiente Mendez, B. Almirante, S. Gomez-Zorrilla, N. Borrell, J.E. Corzo, M. Gurgui, C. de la Calle, L. Garcia-Alvarez, L. Ramos, M. Gozalo, M.I. Morosini, J. Molina, M. Causse, A. Pascual, J. Rodriguez-Bano. (2018). "Impact of de-escalation on prognosis of patients with bacteraemia due to Enterobacteriaceae: a post-hoc analysis from a multicenter prospective cohort". *Clin Infect Dis.*
- ✓ Pérez-Llarena F.J., J.C. Vázquez-Ucha, F. Kerff, L. Zamorano, E. Miró, M.P. Cabral, A. Fleites, M. Lantero, L. Martínez-Martínez, A. Oliver, M. Galleni, F. Navarro, A. Beceiro, G. Bou. (2018). "Increased antimicrobial resistance in a novel CMY-54 AmpC-type enzyme with a GluLeu(217-218) insertion in the omega-loop". *Microb Drug Resist.*24(5):527-33.
- ✓ Pintado V., R. Pazos, M.E. Jimenez-Mejias, A. Rodriguez-Guardado, B. Diaz-Pollan, C. Cabellos, J.M. Garcia-Lechuz, J. Lora-Tamayo, P. Domingo, E. Munoz, D. Domingo, F. Gonzalez-Romo, J.A. Lepe-Jimenez, C. Rodriguez-Lucas, A. Gil, I. Pelegrin, F. Chaves, V. Pomar, A. Ramos, T. Alarcon, E. Perez-Cecilia. (2018). "Staphylococcus aureus meningitis in adults: A comparative cohort study of infections caused by meticillin-resistant and meticillin-susceptible strains". *J Hosp Infect.*
- ✓ Prim N., A. Rivera, P. Coll, B. Mirelis. (2018). "Is colistin susceptibility testing finally on the right track?". *Antimicrobial Agents Chemotherapy.*62(4).
- ✓ Rozas-Muñoz E., A. Mozos, J.F. Mir-Bonafe, X. Cubiro, F. Sánchez-Reus, C. Monteagudo, L. Puig. (2018). "Verrucous plaque with unusually large *Candida* Blastocnidia: a unique clinicopathological presentation of systemic mucocutaneous candidiasis". *Am J Dermatopathol.*40(11):846-8.
- ✓ Suarez-Cuartin G., J. Giner, J.L. Merino, A. Rodrigo-Troyano, A. Feliu, L. Perea, F. Sánchez-Reus, D. Castillo, V. Plaza, J.D. Chalmers, O. Sibila. (2018). "Identification of *Pseudomonas aeruginosa* and airway bacterial colonization by an electronic nose in bronchiectasis". *Respir Med.*136:111-7.

## Publications 2018 (cont)

- ✓ Wittekamp B.H., N.L. Plantinga, B.S. Cooper, J. López-Contreras, P. Coll, J. Mancebo, M.P. Wise, M.P.G. Morgan, P. Depuydt, J. Boelens, T. Dugernier, V. Verbelen, P.G. Jorens, W. Verbrugghe, S. Malhotra-Kumar, P. Damas, C. Meex, K. Leleu, A.M. van den Abeele, A.F. Gomes Pimenta de Matos, S. Fernandez Mendez, A. Vergara Gomez, V. Tomic, F. Sifrer, E. Villarreal Tello, J. Ruíz Ramos, I. Aragao, C. Santos, R.H.M. Sperning, P. Coppadoro, G. Nardi, C. Brun-Buisson, M.J.M. Bonten. (2018). "Decontamination strategies and bloodstream infections with antibiotic-resistant microorganisms in ventilated patients: a randomized clinical trial". *JAMA*.320(20):2087-98.
- ✓ Zoran T., B. Sartori, L. Sappl, M. Aigner, F. Sánchez-Reus, A. Rezusta, A. Chowdhary, S.J. Taj-Aldeen, M.C. Arendrup, S. Oliveri, D.P. Kontoyiannis, A. Alastruey-Izquierdo, K. Lagrou, G.L. Cascio, J.F. Meis, W. Buzina, C. Fariña, M. Drogari-Apiranthitou, A. Grancini, A.M. Tortorano, B. Willinger, A. Hamprecht, E. Johnson, L. Klingspor, V. Arsic-Arsenijevic, O.A. Cornely, J. Meletiadis, W. Prammer, V. Tullio, J.J. Vehreschild, L. Trovato, R.E. Lewis, E. Segal, P.M. Rath, P. Hamal, M. Rodriguez-Iglesias, E. Roilides, S. Arikan-Akdagli, A. Chakrabarti, A.L. Colombo, M.S. Fernandez, M.T. Martin-Gomez, H. Badali, G. Petrikos, N. Klimko, S.M. Heimann, O. Uzun, M. Roudbary, S. de la Fuente, J. Houbraken, B. Risslegger, C. Lass-Florl, M. Lackner. (2018). "Azole-resistance in *Aspergillus terreus* and related species: an emerging problem or a rare phenomenon?". *Front Microbiol*.9:516.



# Clinical Microbiology and Experimental Infectious Pathology Group

## Members

Lurdes Matas Andreu, MD PhD

Montserrat Giménez Pérez, MD PhD

Cristina Prat Aymerich, MD PhD

Mª Dolores Quesada Fernández, MD PhD

Sònia Molinos Abès, MD PhD

Gema Fernández Rivas, MD PhD

Águeda Hernández Rodríguez, PhD

Casañ López, Cristina, MSc

José Antonio Domínguez Benítez, PhD

Alicia Lacoma de la Torre, PhD

Bárbara Molina Moya, PhD

Latorre Rueda, Irene , PhD

Raquel Villar Hernández, MSc

Meissiner Gomes Fernandes, MSc

Elisa Martró Català, PhD

Verónica Saludes Montoro, PhD

Pere Joan Cardona Iglesias , MD PhD

Cristina Vilaplana Massaguer, MD PhD

Arch Sisquella, Marta, MSc

Arias de la Cruz, Lilibeth, MSc

Cardona, Paula, BSc

Despuig Busquet, Albert, MSc

Victoria González Soler, PhD

Anabel Fernández Navarro, MD

## Technical Support Members

Elisabet Bascuñana Prieto

Natalia Pagán Maldonado

Georgina Linares Llamas

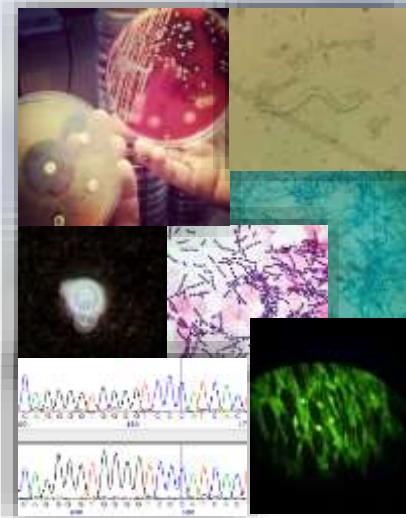
Esther García García

Jorge Díaz Pedroza

Yaiza Rosales Salgado



## Research



Our Group, led by Prof. Lurdes Matas, MD, PhD, Head of the Microbiology Service at Hospital Universitari 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 leaded 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.

## Publications 2018

- ✓ Ciruela P., Izquierdo C., Broner S., Muñoz-Almagro C., Hernández S., Ardanuy C., Pallarés R., Domínguez A., Jané M., Catalan Working Group on Invasive Pneumococcal Disease (Giménez M., Quesada MD.). The changing epidemiology of invasive pneumococcal disease after PCV13 vaccination in a country with intermediate vaccination coverage. *Vaccine*. 2018; 36(59): 7744-7752. **IF: 3,285**
- ✓ De Ory F., Sánchez-Seco MP., Vázquez A., Montero MD., Sulleiro E., Martínez MJ., Matas L., Merino FJ., and Working Group for the Study of Zika Virus Infections. Comparative evaluation of indirect immunofluorescence and NS-1 based ELISA for the determination of Zika Virus-Specific IgM. *Viruses*. 2018; 10(7): 379-387. **IF: 3,761**
- ✓ Rzhepishevska O., Limanska N., Galkin M., Lacoma A., Lundquist M., Sokol D., Hakobyan S., Sjöstedt A., Prat C., Ramstedt M. Characterization of clinically relevant model bacterial strains of *Pseudomonas aeruginosa* for anti-biofilm testing of materials. *Acta Biomaterialia*. 2018; 76: 99-107. **IF: 6,383**
- ✓ Fernández Armenteros JM., Arco Huguet N., Sanmartín Novell V., Vilardell Villellas F., Velasco Sanchez A., Martró Català E., Martí Laborda RM., Soria Gili X. Langerhans cell histiocytosis mimicking molluscum contagiosum: A case series. *Pediatric Blood & Cancer*. 2018; 65(7): e27047. **IF: 2,646**

- ✓ Saludes V., Folch C., Morales-Carmona A., Ferrer L., Fernández-López L., Muñoz R., Jiménez M., Loureiro E., Fernández-Dávila P., Bascuñana E., Casabona J., Martró E. Community-based screening of hepatitis C with a one-step RNA detection algorithm from dried-blood spots: Analysis of key populations in Barcelona, Spain. *Journal of Viral Hepatitis*. 2018; 25(3): 236-244. **IF: 4,237**
- ✓ Puertas MC., Gómez-Mora E., Santos JR., Moltó J., Urrea V., Morón-López S., Hernández-Rodríguez Á., Marfil S., Martínez-Bonet M., Matas L., Muñoz-Fernández MA., Clotet B., Blanco J., Martínez-Picado J. Impact of intensification with raltegravir on HIV-1-infected individuals receiving monotherapy with boosted PIs. *Journal of Antimicrobial Chemotherapy*. 2018; 73: 14940-1948. **IF: 5,217**
- ✓ Richarz NA., Jaka A., Fernández-Rivas G., Bassas J., Bielsa I., Ferrández C. First case of chronic cutaneous chromoblastomycosis by Rhinocladiella similis acquired in Europe. *Clinical and Experimental Dermatology*. 2018; 43(8): 925-927. **IF: 1,484**
- ✓ Carugati M., Aliberti S., Reyes LF., Franco Sadud R., Irfan M., Prat C., Soni NJ., Faverio P., Gori A., Blasi F., Restrepo MI. Microbiological testing of adults hospitalised with community-acquired pneumonia: an international study. *European Respiratory Journal Open Research*. 2018; 4(4). pii: 00096-2018. **IF: 12,44**
- ✓ Schumann DM., Leeming D., Papakonstantinou E., Blasi F., Kostikas K., Boersma W., Louis R., Milenkovic B., Aerts J., Sand JMB., Wouters EFM., Rohde G., Prat C., Torres A., Welte T., Tamm M., Karsdal M., Stoltz D. Collagen Degradation and Formation Are Elevated in Exacerbated COPD Compared With Stable Disease. *Chest*. 2018; 154(4): 798-807. **IF: 7,652**
- ✓ Carmona G., Vilaró M., Ciruela P., Jané M., Giralt L., Ruiz L., Hernández S., Domínguez À.; Working Group of the Epidemiological Surveillance Network of Catalonia ;Working Group of the Microbiological Reporting System of Catalonia (Matas L.). Hepatitis A surveillance: sensitivity of two information sources. *BioMed Central Infectious Diseases*. 2018; 18(1): 633. **IF: 2,62**
- ✓ Salgado M., Kwon M., Gálvez C., Badiola J., Nijhuis M., Bandera A., Balsalobre P., Miralles P., Buño I., Martínez-Laperche C., Vilaplana C.; IciStem Consortium, et al. (Hernández Á., González V., Rivaya B.). Mechanisms that contribute to a profound reduction of the HIV-1 reservoir after allogeneic stem cell transplant. *Annals of Internal Medicine*. 2018; 169(10): 674-683. **IF: 19,384**
- ✓ Aislamiento persistente de *Staphylococcus aureus* en pacientes sometidos a ventilación mecánica: impacto de factores del huésped y del patógeno en la evolución clínica. Lacoma A., Gomes-Fernandes M., Mesalles E., Arméstar F., Prat C. *Archivos de Bronconeumología*. 2018; Jul 3. pii: S0300-2896(18)30200-X. **IF: 2,633**
- ✓ Mòdol Deltell JM., Álvarez Martins M., Méndez Hernández M., Giménez Pérez M. Política de antibióticos: irrupción de los programas de optimización del uso de antimicrobianos (PROA). *Medicina Clínica (Barcelona)*. 2018; 150(11): 443-449. **IF: 1,168**
- ✓ Prat C. 11<sup>a</sup> Jornadas de Formación del Centro de Investigación en Red de Enfermedades Respiratorias (CIBERES). *Archivos Bronconeumología*. 2018; 54 (Supl C3), 1-23. **IF: 2,633**
- ✓ Rodriguez P., Prat C., Dominguez J. Interacción entre contaminación ambiental e infecciones respiratorias. Editorial, *Archivos de Bronconeumología*. 2018 Dec 21. pii: S0300-2896(18)30416-2. [Epub ahead of print]. **IF: 2,633**
- ✓ Nieto-Moragas J., Carrato C., García-Armengol R., Fernández-Rivas G. Hidrocefalia e hipertensión intracraneal en una mujer de Ecuador. *Enfermedades Infecciosas y Microbiología Clínica*. 2018; In press. **IF: 1,707**

# Community and Health-Care Related Infection Study Group

## Members. Dr/es

|                      |              |
|----------------------|--------------|
| <b>O. Gasch (IP)</b> | F. Segura    |
| M. Navarro           | D. Fontanals |
| MJ Amengual          | M. Vaqueiro  |
| I Pons               | C. Pontes    |
| E Antón              | I. Sanfeliu  |
| S. Calzado           | B. Font      |
| L. Falgueras         | M. Cervantes |
| S. Capilla           | J. Castella  |
| J. Oristrell         | A. Ortúñoz   |
| I. Fernández         | A. Mujal     |
| M. Píriz             | M. Espasa    |
|                      | A. Casabella |



Parc Taulí. Hospital Universitari

## Research

Community and Health-Care Related Infection Study Group' is headed by Dr Oriol Gasch since 2016. It is currently accredited as a Consolidated Investigation Group of the Generalitat de Catalunya (Agència de Gestió d'ajuts universitaris I de Recerca – AGAUR; SGR- 2017-677) and has obtained public financial support for years. The group is member of the Spanish network for research in infectious diseases (REIPI) Spanish Network for Research in Infectious Diseases (REIPI) (RD16/0016/0014) and the Network of AIDS research (RIS) (RD16/0025/0033), both funded by the Spanish ministry of economy and competitiveness (ISCIII). Our group has studied the pathogenic mechanisms of several infections since the 80s by a collaborative work between a multidisciplinary team, including physicians, research and clinical nurses, microbiologist, pharmacists, veterinarians, and epidemiologists who work around the Infectious Diseases Service of Parc Taulí Hospital. Most of them also have teaching responsibilities in the Universitat Autònoma de Barcelona. Our research team addresses different infections within a common framework, specifically, diseases related to healthcare, zoonoses, and HIV infection, from an epidemiological, clinical and therapeutic perspective. We summarize the orientation of all three research areas:

1.- Study of healthcare-related infections: Infections in the health field have a great individual and collective impact. The development of bacterial resistance, especially in the hospital environment, is a challenge in terms of handling and an increase in the risk of developing an unfavorable development. The lack of antibiotic treatments to face them make it known by the World Health Organization as one of the problems that will have the greatest impact in the coming years, specifically *Staphylococcus aureus* resistant to methicillin, *Klebsiella pneumoniae* and *Enterobacter* sp. Producers of extended spectrum betalactamases, *Enterococcus* sp. Resistant to vancomycin, *Pseudomonas aeruginosa* resistant to carbapenems, *Acinetobacter baumanii* resistant to carbapenems. Three main programmes guide our research in this area:

Programme 1: Management of multirresistance and difficult-to-treat infections

(1.1) Infections in critical patient

(1.2) Infective endocarditis and bloodstream infection

(1.3) Diagnostic of infectious diseases improving

Programme 2: Prevention of health-care related infections and antimicrobial resistance

(2.1) Education of sanitary staff and patients

(2.2) Epidemiology of HCR infections

(2.3) Innovative strategies for improving infection control

Programme 3: In vitro antimicrobial action and clinical efficacy

(3.1) PK/PD studies

(3.2) OPAT: Outpatient Parenteral Antimicrobial Therapy

(3.3) Appropriate use of antimicrobials

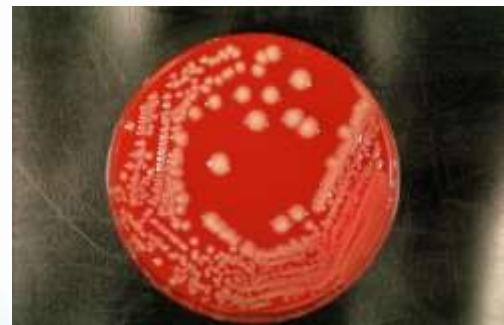
2.- Study of the main zoonoses with impact on health. The World Health Organization defines zoonoses as "any disease transmitted naturally from animals to humans or vice versa". As a consequence of the development of new molecular techniques, as well as changes in the pattern of behavior of the human population, new species have been described in the zoonoses or the re-emergence of ancient species. The research team started working on this line in 1980, coinciding with a remarkable increase in cases of Mediterranean Botonose Fever, (*Rickettsia conorii*). Currently the team's search encompasses all fields: veterinary, diagnostic, epidemiological, clinical, therapeutic ... In recent years, the priority lines are, on the one hand, identify new hosts and vectors and establish their role Epidemiologic in the transmission and maintenance of emerging zoonoses (*R. massiliae-Bar29*, new *Bartonella* species, other emerging zoonotic microorganisms) and confirm and describe their clinical practice in humans as well as in pets (clinical description Epidemiology and determination of risk factors). On the other hand, because the main diagnostic difficulty of these microorganisms is due to its intracellular nature, which does not allow the application of conventional cultivation techniques, one of the main objectives is the optimization of molecular techniques to improve diagnosis (PCR, arrays, ...).

3.- Study of the patient infected by the Human Immunodeficiency Virus (HIV). The HIV infection is one of the current great pandemics, of which there are still unresolved aspects. The group belongs to the RETICS network called RIS (AIDS Research Network) in which it carries out collaborative studies with other centers in the state. One of the objectives of the group is to continue participating in clinical trials that provide new knowledge about treatment with all that entails regarding improvement of quality of life, co-infections and increase in life expectancy. We also have a very high priority in our collaboration, very actively, in different HIV, national and international cohorts, contributing patient data as well as promoting specific studies led by the group (PISCIS, CORIS, COHERE, ART Cohort Collaboration). One of the main lines of the group is the study of the reconstitution of the immune system under HAART therapy and its possible age-dependent differences. Studying the dynamics of the immune system in elderly patients is of major importance. One of the translational objectives of this line is to find therapeutic targets and/or biomarkers that allow a more targeted treatment/monitoring based on the characteristics of the patient. Not only does this subpopulation of patients be studied from an immunological point of view but also from an epidemiological point of view: what risk factors, adherence to treatment, comorbidities, diagnostic retardation are age-dependent. Another of the problems posed at present is also an objective of this line: to address the comorbidities that appear and the co-infection by HCV.



## Publicacions 2018

- ✓ Yuly López, Elena Parra, Virginio Cepas, Isabel Sanfeliu, Teresa Juncosa, Antonia Andreu, Mariona Xercavins, Josefa Pérez, Sergi Sanz, Andrea Vergara, Jordi Bosch, Sara Maria Soto. Serotype, virulence profile, antimicrobial resistance and macrolide-resistance determinants in *Streptococcus agalactiae* isolates in pregnant women and neonates in Catalonia, Spain. *Enferm Infect Microbiol Clin.* 2018;36(8):472–477. IF: 1,707
- ✓ Natàlia Claver Belver, Isabel Sanfeliu Sala, M. Jesús Merino Asensio, Carla Monterde Pedra, Valentí Pineda Solas, Silvia Capilla Rubio. Dionisia Fontanals Aymerich. Infecciones por erythrovirus B19. Seis años de seguimiento en población adulta y pediátrica. *An Pediatr (Barc).* 2018. <https://doi.org/10.1016/j.anpedi.2018.05.016>. IF:1,318
- ✓ Dionisia Fontanals, Alex Larruzea, Isabel Sanfeliu. Direct identification of *Ruminococcus gnavus* by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) on a positive anaerobic blood culture bottle. *Anaerobe*, 2018. Dec;54:264-266. doi: 10.1016/j.anaerobe.2018.07.009. Epub 2018 Aug 1. PMID: 30075206. IF:2,742
- ✓ Anna Ortuño, Isabel Sanfeliu, Mª Mercè Nogueras, Imma Pons, Sonia López-Claessens, Joaquim Castellà, Esperanza Antón, Ferran Segura. Detection of *Rickettsia massiliae*/Bar29 and *Rickettsia conorii* in red foxes (*Vulpes vulpes*) and their *Rhipicephalus sanguineus* complex ticks. *Ticks and Tick-borne Diseases* 9 (2018) 629–631. IF:2,612.
- ✓ Alex Larruzea, Isabel Sanfeliu, Sergio Lario. *Helicobacter pullorum* aislado en heces de paciente inmunosuprimido, con colestasis y diarrea. A propósito de un caso. *Rev Esp Casos Clin Med Intern (RECCMI)*. 2018 (Dic); 3(3): 122-124.
- ✓ Ciruela P, Izquierdo C, Broner S, Muñoz-Almagro C, Hernández S, Ardanuy C, Pallarés R, Domínguez A, Jané M; Catalan Working Group on Invasive Pneumococcal Disease (D. Fontanals). [The changing epidemiology of invasive pneumococcal disease after PCV13 vaccination in a country with intermediate vaccination coverage](#). *Vaccine*. 2018 Nov 29;36(50):7744-7752. doi: 10.1016/j.vaccine.2018.05.026. Epub 2018 Jun 30. PMID: 30473132. IF:3,285
- ✓ Fontanals D, García-Miralles C, Ballester R, Cochs B, Orellana R, Capilla S. *Anaerobe*. [Chorioamnionitis due to Leptotrichia trevisanii](#). 2018 Feb;49:18-20. doi: 10.1016/j.anaerobe.2017.11.001. Epub 2017 Nov 15. PMID: 29155162. IF:2,742.
- ✓ Marian Garcia-Nuñez, Miguel Gallego, Concepcion Monton, Silvia Capilla, Laura Millares, Xavier Pomares, Mateu Espasa, Rafaella Ferrari, Andres Moya, Eduard Monso, Vicente Perez-Brocal. The respiratory virome in chronic obstructive pulmonary disease. *Future Virology*. Accepted for publication:19 April 2018; Published online: 12 June 2018. IF:1,12.



## Publicacions 2018

- ✓ Del Romero J, García-Pérez JN, **Espasa-Soley M**. Prevention and treatment of sexually transmitted infections in high-risk individuals, including patients with HIV infection. *Enferm Infect Microbiol Clin.* 2019 Feb;37(2):117-126. doi: 10.1016/j.eimc.2018.11.008. Epub 2018 Dec 24. English, Spanish. PubMed PMID: 30591390. IF:1,7
- ✓ Gasch O, Meije Y, **Espasa M**, Font B, Jiménez S, Fernández-Hidalgo N. Disseminated Infection Due to *Mycobacterium chimaera* After Aortic Valve Replacement. *Rev Esp Cardiol (Engl Ed)*. 2018 Jul 18. pii: S1885-5857(18)30274-3. doi: 10.1016/j.rec.2018.06.026. [Epub ahead of print] English, Spanish. PubMed PMID: 30029979. IF:5,166
- ✓ Muñoz L, Santin M, Alcaide F, Ruíz-Serrano MJ, Gijón P, Bermúdez E, Domínguez-Castellano A, Navarro MD, Ramírez E, Pérez-Escalano E, López-Prieto MD, Gutiérrez-Rodríguez J, Anibarre L, Calviño L, Trigo M, Cifuentes C, García-Gasalla M, Payeras A, Gasch O, **Espasa M**, Agüero R, Ferrer D, Casas X, González-Cuevas A, García-Zamalloa A, Bikuña E, Lecuona M, Galindo R, Ramírez-Lapausa M, Carrillo R; OPTIMIST Study Team .. QuantiFERON-TB Gold In-Tube as a Confirmatory Test for Tuberculin Skin Test in Tuberculosis Contact Tracing: A Noninferiority Clinical Trial. *Clin Infect Dis.* 2018 Jan 18;66(3):396-403. doi: 10.1093/cid/cix745. PubMed PMID: 29020191. IF:9,117
- ✓ Anna S. Conway, Anna Esteve, Manuel Fernández-Quevedo, Jordi Casabona, PISCIS Study Group. Determinants and Outcomes of Late Presentation of HIV Infection in Migrants in Catalonia, Spain: PISCIS Cohort 2004–2016. *J Immig Min Health* 2018. <https://doi.org/10.1007/s10903-018-0834-2>. IF:1,284.
- ✓ Russo A, Falcone M, Gutiérrez-Gutiérrez B, Calbo E, Almirante B, Viale PL, Oliver A, Ruiz-Garbajosa P, Gasch O, Gozalo M, Pitout J, Akova M, Peña C, Cisneros JM, Hernández-Torres A, Farcomeni A, Prim N, Origüen J, Bou G, Tacconelli E, Tumbarello M, Hamprecht A, Karaiskos I, de la Calle C, Pérez F, Schwaber MJ, Bermejo J, Lowman W, Hsueh PR, Mora-Rillo M, Rodriguez-Gomez J, Souli M, Bonomo RA, Paterson DL, Carmeli Y, Pascual A, Rodríguez-Baño J, Venditti M; REIPI/ESGBIS/INCREMENT investigators. Predictors of outcome in patients with severe sepsis or septic shock due to extended-spectrum β-lactamase-producing Enterobacteriaceae. *Int J Antimicrob Agents.* 2018 Nov;52(5):577-585. doi: 10.1016/j.ijantimicag.2018.06.018. Epub 2018 Jun 30. PubMed PMID: 2996969. IF:4,253.
- ✓ Scheuereman O, Schechner V, Carmeli Y, Gutiérrez-Gutiérrez B, Calbo E, Almirante B, Viale PL, Oliver A, Ruiz-Garbajosa P, Gasch O, Gozalo M, Pitout J, Akova M, Peña C, Molina J, Hernández-Torres A, Venditti M, Prim N, Origüen J, Bou G, Tacconelli E, Tumbarello M, Hamprecht A, Karaiskos I, de la Calle C, Pérez F, Schwaber MJ, Bermejo J, Lowman W, Hsueh PR, Navarro-San Francisco C, Bonomo RA, Paterson DL, Pascual A, Rodríguez-Baño J; REIPI/ESGBIS/INCREMENT investigators. Comparison of Predictors and Mortality Between Bloodstream Infections Caused by ESBL-Producing *Escherichia coli* and ESBL-Producing *Klebsiella pneumoniae*. *Infect Control Hosp Epidemiol.* 2018 Jun;39(6):660-667. doi: 10.1017/ice.2018.63. Epub 2018 Apr 5. PubMed PMID: 29618394. IF: 1,85



## Publicacions 2018

- ✓ Pericàs JM, Moreno A, Almela M, García-de-la-Mària C, Marco F, Muñoz P, Peña C, de Alarcón A, Del Río A, Eworo A, Cruceta A, Paré JC, Mestres CA, Miró JM; FOSIMI Investigators. Efficacy and safety of fosfomycin plus imipenem versus vancomycin for complicated bacteraemia and endocarditis due to methicillin-resistant *Staphylococcus aureus*: a randomized clinical trial. *Clin Microbiol Infect.* 2018 Jun;24(6):673-676. doi: 10.1016/j.cmi.2018.01.010. Epub 2018 Feb 3. PubMed PMID: 29408610. IF:5,394

# Genome Instability and DNA Repair Syndromes Group

## Members

### Dr. Jordi Surrallés (IP)

Dr. Massimo Bogliolo

Dra. Mª José Ramírez

Dra. Roser Pujol

Dr. Jordi Mingüllón

Dr. Laia Roca

Montse Peiró (TSR)

Ana Molina (TSR)

Daniela Steigerwald (Doctoranda)

Cristina Camps (Doctoranda)

María Marín (Doctoranda)

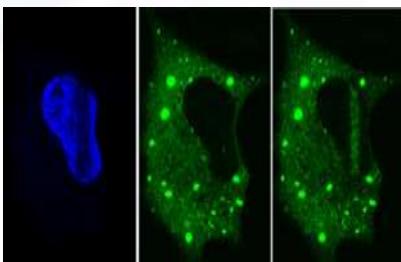
Isabel Quirós (Màster)

Sandra Viz(Màster)

Llorenç Rovirosa (Màster)



## 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 2018

Hernandez G, Ramirez MJ, Mingüllón J, Quiles P, Ruiz de Garibay G, Aza-Carmona M, Bogliolo M, Pujol R, Prados-Carvajal R, Fernández J, García N, López A, Gutiérrez-Enríquez S, Diez O, Benítez J, Salinas M, Teulé A, Brunet J, Radice P, Peterlongo P, Schindler D, Huertas P, Puente XP, Lázaro C, Pujana MA and **Surrallés J** (2018) Decapping protein EDC4 regulates DNA repair and phenocopies BRCA1. *Nature Communications*. DOI: 10.1038/s41467-018-03433-3. FI 12,35

Bogliolo M, Bluteau D, Lespinasse J, Pujol R, Vasquez N, d'Enghien CD, Stoppa-Lyonnet D, Leblanc T, Soulier J, Surrallés J. Biallelic truncating FANCM mutations cause early-onset cancer but not Fanconi anemia. *Genet Med*. 2018 Apr;20(4):458-463. IF: 9,93

Catucci I, Osorio A, Arver B, Neidhardt G, Bogliolo M, Zanardi F, Riboni M, Minardi S, Pujol R, Azzollini J, Peissel B, Manoukian S, De Vecchi G, Casola S, Hauke J, Richters L, Rhiem K, Schmutzler RK, Wallander K, Törngren T, Borg Å, Radice P, Surrallés J, Hahnen E, Ehrencrona H, Kvist A, Benitez J, Peterlongo P. Individuals with FANCM biallelic mutations do not develop Fanconi anemia, but show risk for breast cancer, chemotherapy toxicity and may display chromosome fragility. *Genet Med*. 2018 Apr;20(4):452-457. doi: 10.1038/gim.2017.123. Epub 2017 Aug 24. IF: 9,93

Krausz C, Riera-Escamilla A, Chianese C, Moreno-Mendoza D, Rajmil O, Pujol P, Bogliolo M, Blanco I, Rodríguez I, Ars E, Ruiz-Castañé E, and **Surrallés\* J** (2018) From exome analysis in idiopathic azoospermia to the identification of a high-risk subgroup for occult Fanconi anemia. *Genetics in Medicine Genet Med*. 2018 Jun 14. doi: 10.1038/s41436-018-0037-1. FI 9,93

Carol-Anne Martin, Kata Sarlo, Clare V. Logan, Roshan Singh Thakur, David A. Parry, Anna H. Bizard, Andrea Leitch, Louise Cleal, Nadia Shaukat Ali, Mohammed A. Al-Owain, William Allen, Janine Altmuller, Miriam Aza-Carmona, Bushra A.Y. Barakat, Jimena Barraza-Garcia, Amber Begtrup, Massimo Bogliolo, Megan T. Cho, Jaime Cruz-Rojo, Hassan Ali Mundi Dhahrabi, Nursel H. Elcioglu, GOSgene, Grainne S. Gorman, Rebekah Jobling, Ian Kesterton, Yoshihito Kishita, Masakazu Kohda, Polona Le Quesne Stabej, Asam Jassim Malallah, Peter Nurnberg, Akira Otake, Yasushi Okazaki, Roser Pujol, Maria Jose Ramirez, Anya Revah Polit, Masaru Shimura, Paul Stevens, Robert W. Taylor, Lesley Turner, Hywel Williams, Carolyn Wilson, Gokhan Yigit, Laura Zahavich, Fowzan S. Alkuraya, Jordi Surrallés, Alejandro Iglesais, Kei Murayama, Bernd Wollnik, Mehul Dattani, Karen E. Heath, Ian D. Hickson, and Andrew P. Jackson. Mutations in TOP3A Cause a Bloom Syndrome-like Disorder. *The American Journal of Human Genetics* 103, 1–11, August 2, (2018). FI 8,85

Minguillón J. and Surrallés. Therapeutic research in the crystal chromosome disease Fanconi anemia. *Mutat Res Gen Tox En.* 836 (2018) 104–108. FI 1,99

Balajee AS, Palitti F, Surrallés J, Hande MP. [In Memory of Professor Adayapalam T Natarajan](#). *Mutat Res.* 2018 Dec;836(Pt A):1-2. FI 1,99.

Toptan T, Brusadelli MG, Turpin B, Witte DP, Surrallés J, Velleuer E, Schramm M, Dietrich R, Brakenhoff RH, Moore PS, Chang Y, Wells SI. Limited detection of human polyomaviruses in Fanconi anemia related squamous cell carcinoma. *PLoS One.* 2018 Dec 27;13(12):e0209235. doi: 10.1371/journal.pone.0209235. eCollection 2018. IF: 2,77

# 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. Marina Laplana  
Carla Giner  
Sergi Hervás  
Marta Coronado  
Victor Gámez  
Ion Lerga  
Esteve Sanz  
Charikleia Karageorgiou  
Jesus Murga  
Ruth Gómez  
Elena Campoy  
Alejandra Bodelón de Frutos



## 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, impact of interspecific hybridization on transposable element deregulation, 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 2018

Casillas S, Mulet R, Villegas-Mirón P, Hervas S, Sanz E, Velasco D, Bertranpetti J, Laayouni H, Barbadilla A. 2018. PopHuman: the human population genomics browser. Nucleic Acids Res. 46(D1):D1003-D1010.

Delprat A, Guillén Y, Ruiz A. 2018. Computational Sequence Analysis of Inversion breakpoint Regions in the Cactophilic *Drosophila mojavensis* Lineage. Journal of Heredity 110 (1), 102-117. doi: 10.1093/jhered/esy057.

Guillén Y, Casillas S, Ruiz A. 2018. Genome-Wide Patterns of Sequence Divergence of Protein-Coding Genes Between *Drosophila buzzatii* and *D. mojavensis*. Journal of Heredity 110 (1), 92-101. doi: 10.1093/jhered/esy041.

## Publications 2018 (cont.)

Fontdevila A. 2018. Hybrid Genome Evolution by Transposition: An Update. *J Hered.* 110(1):124-136. doi: 10.1093/jhered/esy040.

Fragata, I, Simões P, Matos M, Szathmáry E, Santos M. 2018. Playing evolution in the laboratory: from the first major evolutionary transition to global warming. **EPL (Europhysics Letters)** 122(3): 38001.

Giner-Delgado\* C., Villatoro\* S, Lerga-Jaso\* J, Gayà-Vidal M, Oliva M, Castellano D, Pantano L, Bitarello B, Izquierdo D, Noguera I, Olalde I, Delprat A, Blancher A, Laluez-Fox C, Esko T, O'Reilly P, Andrés A, Ferretti L, Puig M, Cáceres M. 2018. Functional and evolutionary impact of polymorphic inversions in the human genome. *BioRxiv* doi: <https://doi.org/10.1101/501981>.

Kapun M. et al. 2018. Genomic analysis of European *Drosophila* populations reveals longitudinal structure and continent-wide selection. *biorxiv* 313759; doi: <https://doi.org/10.1101/313759>.

Marin-Riera M, Moustakas-Verho J, Savriama Y, Jernvall J, Salazar-Ciudad I. 2018. Differential tissue growth and cell adhesion alone drive early tooth morphogenesis: An ex vivo and in silico study. *PLoS Comput Biol.* 14(2):e1005981.

Matamoro-Vidal A, Huang Y, Salazar-Ciudad I, Shimmi O, Houle D. 2018. Quantitative Morphological Variation in the Developing *Drosophila* Wing. *G3: Genes Genomes Genetics* 8(7):2399-2409.

Puig Giribets M, García Guerreiro MP, Santos M, Ayala FJ, Tarrío R, Rodríguez-Trelles F. 2018. *Mol Ecol.* 2018 Feb 7. doi: 10.1111/mec.14511.

Salvador-Martínez I, Coronado-Zamora M, Castellano D, Barbadilla A, Salazar-Ciudad I. 2018. Mapping Selection within *Drosophila melanogaster* Embryo's Anatomy. *Mol Biol Evol.* 35(1):66-79.

Savriama Y, Valtonen M, Kammonen JI, Rastas P, Smolander OP, Lyyski A, Häkkinen TJ, Corfe IJ, Gerber S, Salazar-Ciudad I, Paulin L, Holm L, Löytynoja A, Auvinen P, Jernvall J. 2018. Bracketing phenogenotypic limits of mammalian hybridization. *R Soc Open Sci.* 5(11):180903.

Stefanidis I, Tziastoudi M, Tsironi EE, Dardiotis E, Tachmitzi SV, Fotiadou A, Pissas G, Kytoudis K, Sounidakis M, Ampatzis G, Mertens PR, Liakopoulos V, Eleftheriadis T, Hadjigeorgiou GM, Santos M, Zintzaras E. 2018. The contribution of genetic variants of *SLC2A1* gene in T2DM and T2DM-nephropathy: association study and meta-analysis. *Ren Fail.* 40(1):561-576.

Teixeira JR, Dias GB, Svartman M, Ruiz A, Kuhn GCS. 2018. Concurrent Duplication of *Drosophila* Cid and Cenp-C Genes Resulted in Accelerated Evolution and Male Germline-Biased Expression of the New Copies. *J Mol Evol.* 86 (6): 353–364.

Teixeira JR, GB Dias, M Svartman, A Ruiz, GCS Kuhn. 2018. Concurrent duplication of the Cid and Cenp-C genes in the *Drosophila* subgenus with signatures of subfunctionalization and male germline-biased expression. *bioRxiv* 134817; doi: <https://doi.org/10.1101/134817>.

# Mutagenesis Group

## Members

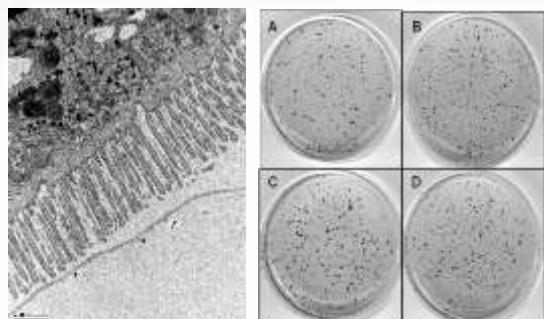
### Dr. Ricard Marcos (IP)

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  
Alba García  
Irene Barguilla  
Josefa Domenech  
Sandra Ballesteros



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 the genotoxic risk

## Publications 2018

- ✓ Pastor S., E. Coll, L. Rodríguez-Ribera, E. Stoyanova, Z.F. Corredor, R. Marcos. Effects of the administration of Carnicor, Venofer and Sevelamer to end-stage renal disease (ESRD) patients on their levels of DNA damage. *Environmental and Molecular Mutagenesis*, 59: 302-311 (2018). Índex d'impacte: **3,254**.
- ✓ Vila L., A. García-Rodríguez, C. Cortés, A. Velázquez, N. Xamena, A. Sampayo-Reyes, R. Marcos, A. Hernández. Effects of cerium oxide nanoparticles on differentiated/ undifferentiated human intestinal Caco-2 cells, as *in vitro* model of intestinal barrier. *Chemico-Biological Interactions*, 283: 38-46 (2018). Índex d'impacte: **3,296**.
- ✓ García-Rodríguez, A., L. Vila, A. Hernández, R. Marcos. Exploring the usefulness of the complex *in vitro* intestinal epithelial model Caco-2/HT29/Raji-B in nanotoxicology. *Food and Chemical Toxicology*, 113: 162-170 (2018). Índex d'impacte: **3,977**.
- ✓ Vila L., A. García-Rodríguez, R. Marcos, A. Hernández. Titanium dioxide nanoparticles translocate through differentiated Caco-2 cells monolayers without the induction of toxic/genotoxic effects. *Journal of Applied Toxicology*, 38: 1195-1205 (2018). Índex d'impacte: **2,909**.
- ✓ Marsà A., C. Cortés, A. Hernández, R. Marcos. Hazard assessment of three haloacetic acids, as by-products of water disinfection, in human urothelial cells. *Toxicology and Applied Pharmacology*, 347: 70-78 (2018). Índex d'impacte: **3,616**.

## Publications 2018 (cont.)

- ✓ Vila L., A. García-Rodríguez, C. Cortés, R. Marcos, A. Hernández. Assessing the effects of silver nanoparticles on monolayers of differentiated Caco-2 cells, as a model of intestinal barrier. *Food and Chemical Toxicology*, 116: 1-10 (2018). Índex d'impacte: **3,977**.
- ✓ Cortés C., R. Marcos. Genotoxicity of disinfection byproducts and disinfected waters: A review of recent literature. *Mutation Research (GTEM)*, 831: 1-12 (2018). Índex d'impacte: **1,996**.
- ✓ Rubio L., R. Marcos, A. Hernández. Antioxidant potential of nanoceria in tumoral and transformed cells. *Chemico-Biological Interactions*, 291: 7-15 (2018). Índex d'impacte: **3,296**.
- ✓ Demir E., R. Marcos. Toxic and genotoxic effects of graphene and multi-walled carbon nanotubes. *Journal of Toxicology and Environmental Health, Part A*, 81(14): 645-660 (2018). Índex d'impacte: **2,706**.
- ✓ Pastor S., L. Rodríguez-Ribera, Z. Corredor, M.I. da Silva Filho, K. Hemminki, E. Coll, A. Försti, R. Marcos. Levels of DNA damage (micronuclei) in patients suffering from chronic kidney disease. Role of GST polymorphisms. *Mutation Research (GTEM)*, 836: 41-46 (2018). Índex d'impacte: **1,996**.
- ✓ Demir E., R. Marcos. Antigenotoxic potential of boron nitride nanotubes. *Nanotoxicology*, 12: 868-884 (2018). Índex d'impacte: **5,811**.
- ✓ Carmona E.R., A. Garcia-Rodríguez, R. Marcos. Genotoxicity of copper and nickel nanoparticles in somatic cells of *Drosophila melanogaster*. *Journal of Toxicology*, 2018: 7278036 (2018).
- ✓ García-Rodríguez A., L. Vila, C. Cortés, A. Hernández, R. Marcos. Effects of different shaped TiO<sub>2</sub>NPs (nanospheres, nano-rods and nano-wires) on the *in vitro* model (Caco-2/HT29) of intestinal barrier. *Particle and Fibre Toxicology*, 15: 33 (2018). Índex d'impacte: **6,105**.
- ✓ Alaraby M., A. Hernández, R. Marcos. Systematic *in vivo* study of NiO nanowires and nanospheres: biodegradation, uptake and biological impacts. *Nanotoxicology*, 12: 1027-1044 (2018). Índex d'impacte: **5,811**. (**Q1,D1**).



# PhD Thesis 2018

---

1. Coronado Zamora, Marta. "Mapping natural selection through the *Drosophila melanogaster* development following a multiomics data integration approach".
2. Hervás Fernández, Sergi. "Population genomics in *Drosophila melanogaster*: A bioinformatics approach".
3. Puig Giribets, Marta. "Evolució de la família gènica hsp70 a nivell de seqüència, organització genòmica i expressió gènica a *Drosophila subobscura*".
4. Marín Vilar, Maria. "Genetic and proteomic study of ERCC4/XPF in DNA repair and human diseases".
5. García Rodríguez, Alba. "The applicability of in vitro models of the intestinal barrier for the risk assessment of engineered nanomaterials used as food additives".
6. Rocafort Juncà, Muntsa. "Gut microbiome in HIV-1 infection".
7. Cardona, Maria Paula. "Study of the regulatory response in the control of the development of active tuberculosis".
8. Gimferrer Arriaga, Laura. "Vigilancia virológica del virus respiratorio sincitial humano: Epidemiología y caracterización molecular".
9. Pérez Varela, María. "Motilidad y virulencia en el patógeno nosocomial *Acinetobacter baumannii*".
10. Moure García, Zaira. "Serodiscordancia en el diagnóstico de la infección por *Trypanosoma cruzi* en área no endémica".
11. Graells Fernández, Tíscar. "Estudi epidemiològic i dels patrons antimicrobians del bacteri intracel·lular *Legionella* a l'ambient".
12. Martínez Servat, Sònia. "Fenotips de resistència a antibòtics en *Stenotrophomonas maltophilia*: Impacte en la susceptibilitat a la colistina".
13. Iglesias Torrens, Yaidelys. "Estructura poblacional y mecanismos de resistencia a antibióticos en *Campylobacter jejuni* aislados en humanos y aves".
14. Maroto Fernández, Enric. "Image analysis of bacterial colonies in classic and alternative gel-based growth media".
15. Gomes Fernandes, Meissiner. "Infecciones respiratorias por *Staphylococcus aureus*: Implicación clínica de factores de virulencia y persistencia".
16. Parladé Molist, Eloi. "Microbial communities driving emerging contaminant removal. Impact of effluents on the ecosystem".
17. Llorens Fons, Marta. "Study of the cytotoxic activity and immunogenicity of the differentiated morphotypes of the genus *Mycobacterium*, in relation with their cell wall composition".
18. Brosel Oliu, Sergi. "Interdigitated electrode arrays (IDEA) impedimetric transducers for bacterial biosensing applications".
19. Serna Romero, Naroa. "Development of self-assembling protein-only nanoparticles for targeted therapies".



---

**Edition:**

Department of Genetics and Microbiology

Universitat Autònoma de Barcelona

[http://www.uab.cat/departament/genetica-microbiologia/  
d.genetica.microbiologia@uab.cat](http://www.uab.cat/departament/genetica-microbiologia/d.genetica.microbiologia@uab.cat)

(int+34) 935813359

May 2019