

# Curriculum Vitae

## PERSONAL DATA

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**Surnames:** Zorraquino Salvo  
**Name:** Violeta  
**E-mail:** violeta@zorraqino.com  
[zorraqino@ucdavis.edu](mailto:zorraqino@ucdavis.edu)

## EDUCATION

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**2008-2013** PhD in Biotechnology, Universidad Pública de Navarra (Spain).  
- Supervisors: of Prof. Iñigo Lasa & Dr. Cristina Solano  
- Grade: *cum laude*.  
- Finalist in Three Minute Thesis competition.



**2006-2008** Master in Biotechnology, Wageningen Universiteit (The Netherlands).  
- Specialization: molecular and cellular biotechnology.  
- Supervisors: Dr. Fabian Blombach & Prof. John van der Oost  
- Thesis Grade: 9.



**2003- 2006** Agricultural Engineer, Universidad Pública de Navarra (Spain).  
- Thesis Grade: 10.



## WORK EXPERIENCE

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**08/2015 - Now** Postdoctoral Research Associate at UC Davis  
- Plant Sciences department  
- Supervisor: Prof. Eduardo Blumwald



**09/2013 – 07/2015** Postdoctoral Research Associate at UC Davis  
- In the Integrative Synthetic Biology group.  
- Supervisor: Prof. Ilias Tagkopoulos.



**07/2008-11/2012** PhD student at CSIC in molecular microbiology.  
- Supervisors: Prof. Iñigo Lasa and Dr. Cristina Solano.



**07/2006-09/2006** Laboratory technician at Inst. Agrobiotecnología  
- Microbial laboratory technical support.



**01/2005-06/2006** Teaching assistant at UPNA  
- Practical microbiology courses.



## TECHNICAL SKILLS

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**Molecular biology techniques:** DNA and RNA extraction from different biological samples, primer design, PCR, sequencing, quantitative PCR, RT-PCR, cloning, generation of genetic tools for protein expression, site directed mutagenesis, random mutagenesis, pCRISPR-Cas9 genome editing, RNA-seq and gDNA library preparation.

**Protein analysis techniques:** Production and purification of recombinant proteins, SDS-PAGE, Western blotting, Coomassie and silver staining, Far Western blotting, protein identification, pull-down assays for protein interactions, protein tagging, co-localization.

**Tissue culture:** Basic use of flow cytometry.

**Microscopy:** Immunofluorescence, image analysis, video recording, Basic use of confocal microscopy.

**Bioinformatics:** analysis of DNA and protein sequences, oligonucleotide design, statistical analysis, basics of Ubuntu.

## AWARDS AND HONORS

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- 2013** Finalist in the 3 Minute Thesis contest (UPNA)  
**2008 - 2012** Pre-doctoral grant (JAE Program, CSIC)  
**09/2007-12/2007** Introduction to Research Scholarship (II), (CSIC)  
**09/2006-06/2007** Erasmus Scholarship (UPNA, Government of Navarre)  
**07/2006-08/2006** Introduction to research Scholarship (I), (CSIC)  
**01/2005-06/2006** Collaboration Scholarship, (UPNA)

## PUBLICATIONS

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[1] Violeta Zorraquino, Semarhy Quinones-Soto, Minseung Kim, Navneet Rai and Ilias Tagkopoulos. *Deciphering the evolutionary potential and genetic basis of cross-stress protection*. 2014. Molecular Biology and Evolution. In submission. 2015

[2] M. Kim, V. Zorraquino, I. Tagkopoulos. *Microbial Forensics: Predicting phenotypic characteristics and environmental conditions from large-scale gene expression profiles*. Accepted, PLoS Comput Biol 2015. 11(3): e1004127

[3] Blombach F, Launay H, Snijders AP, Zorraquino V, Wu H, de Koning B, Brouns SJ, Ettema TJ, Camilloni C, Cavalli A, Vendruscolo M, Dickman MJ, Cabrita LD, La Teana A, Benelli D, Londei P, Christodoulou J, van der Oost J. *Archaeal MBF1 binds to 30S and 70S ribosomes via its helix-turn-helix domain*. Biochem J. 2014 Sep 1;462(2):373-84.

[4] Violeta Zorraquino, Begoña García, Cristina Latasa, Maite Echeverz, Alejandro Toledo-Arana, Jaione Valle, Iñigo Lasa and Cristina Solano. *Coordinated c-di-GMP repression of Salmonella motility through YcgR and cellulose*. Journal of Bacteriology. 2013 Feb;195(3):417-28.\*

\*Article highlighted by the American Society of Microbiology (ASM).

[5] Fabian Blombach, Helene Launay, Violeta Zorraquino, Daan C. Swarts, Lisa D. Cabrita, Dario Benelli, John Christodoulou, Paola Londei, and John van der Oost. *An HflX-Type GTPase from Sulfolobus solfataricus binds to the 50S Ribosomal Subunit in All Nucleotide-Bound States*. Journal of Bacteriology. June 2011 ; 193:2861-2867.

[6] Cristina Solano, Begoña García, Cristina Latasa, Alejandro Toledo-Arana, Violeta Zorraquino, Jaione Valle, Joan Casals, Enrique Pedroso and Iñigo Lasa. *Genetic reductionist approach for dissecting individual roles of GGDEF proteins within the c-di-GMP signaling network in Salmonella*. PNAS. May 2009; 106: 197997-8002

## PATENTS

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[1] Cristina Solano, Begoña García, Alejandro Toledo-Arana, Cristina Latasa, Violeta Zorraquino, Jaione Valle, Iñigo Lasa. PROTOCOL TO PRODUCE MULTIPLE MODIFICATIONS IN THE CHROMOSOME OF GRAM NEGATIVE BACTERIA AND SALMONELLA STRAINS DEFICIENT ON c-di-GMP PRODUCTION OBTAINED WITH THIS PROTOCOL. PCT/ES2008/070211. Expedition date: 11/20/2008.

[2] Cristina Solano, Begoña García, Alejandro Toledo-Arana, Cristina Latasa, Violeta Zorraquino, Jaione Valle, Iñigo Lasa. Procedimiento que permite producir modificaciones múltiples en el cromosoma de bacterias Gram negativas y cepas de Salmonella deficientes en síntesis de c-di-GMP obtenidas por el mismo. España 200703068. Expedition date: 11/21/2007.

## CONFERENCES

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[1] García, B., Solano, C., Latasa, C., Zorraquino, V., Penadés, J., and Lasa, I. *Análisis de la equivalencia funcional de las proteínas GGDEF de Salmonella enteritidis*. XXI Congreso Nacional de Microbiología. Sevilla (España). 17-20 de Septiembre. 2007.

[2] Fabian Blombach, Hao Wu, Lei Sun, Violeta Zorraquino, Stan Brouns, Xuejun Zhang, Zihe Rao, and John van der Oost. *HflX GTPases: interacting with the translation machinery*. Molecular biology of Archaea. University St Andrews (GB). 19-21 August 2008.

[3] Zorraquino, V., García, B., Latasa, C., Lasa, I. and Solano, C. *Estudio del papel de las proteínas GGDEF en la virulencia de Salmonella*. VII Reunión de Microbiología Molecular Cádiz (Spain). September 2008

[4] García, B., Solano, C., Latasa, C., Toledo-Arana, A., Zorraquino, V., Valle, J., Casals, J., Pedroso, E. and Lasa, I. *Análisis transcriptómico de la ruta de señalización del mensajero secundario c-di-GMP*. VII Reunión de Microbiología Molecular. Cádiz (Spain). September 2008

[5] C. Solano, B. García, C. Latasa, A. Toledo-Arana, V. Zorraquino, J. Valle and I. Lasa. *Dissection of c-di-GMP signalling in Salmonella*. Eurobiofilms 2009 Rome (Italy). September 2009.

[6] Violeta Zorraquino, Begoña García, Cristina Latasa, Jaione Valle, Alejandro Toledo-Arana, Iñigo Lasa and Cristina Solano. *Estudio de la regulación de la síntesis de c-di-GMP por las proteínas GGDEF en Salmonella*. SEM 2009. Almería (Spain). September 2009.

- [7] Cristina Solano, Begoña García, Cristina Latasa, Alejandro Toledo-Arana, Violeta Zorraquino, Jaione Valle, Joan Casals, Enrique Pedroso and Iñigo Lasa. *Dissection of c-di-GMP signaling in Salmonella*. SEM 2009 Almería (Spain). September 2009.
- [8] Cristina Solano, Begoña García, Cristina Latasa, Alejandro Toledo-Arana, Violeta Zorraquino, Jaione Valle and Iñigo Lasa. *Contribution of GGDEF domain proteins signaling network to Salmonella biology*. Pathogenomics 2010. Pecs (Hungria). April 2010.
- [9] Violeta Zorraquino and Iñigo Lasa. *Identification of c-di-GMP targets involved in Salmonella motility*. Host-Microbes interactions (EMBO/FEBS Lecture course)..Spetses Island (Greece). September 2010.
- [10] C. Latasa, C. Solano, B. García, V. Zorraquino, A. Toledo-Arana, J. Valle and Iñigo Lasa. *Design of bacteria "à la carte" for the development of live attenuated Salmonella vaccines* Biospain 2010. Pamplona (Spain). September 2010.
- [11] C. Solano, J. Valle, A. Toledo-Arana, B. García, C. Latasa, M. Vergara, M. Villanueva, V. Zorraquino, I. Ruiz de los Mozos and Iñigo Lasa. *Biotechnology of biofilms: strategies to control the bacterial community life style*. Biospain 2010. Pamplona (Spain). September 2010.
- [12] A. Toledo-Arana, M. Villanueva, I. Ruiz de los Mozos, J. Valle, C. Solano, C. Latasa, B. García, M. Vergara, V. Zorraquino and Iñigo Lasa. *Unravelling the secrets of bacterial transcriptome for identification of new targets against bacterial pathogens*. Biospain 2010. Pamplona (Spain). September 2010.
- [13] J. Valle, B. García, C. Solano, A. Toledo-Arana, C. Latasa, M. Vergara, M. Villanueva, V. Zorraquino, I. Ruiz de los Mozos and Iñigo Lasa. *Micro-nano patterned surfaces for bacterial adherence control applications*. Biospain 2010. Pamplona (Spain). September 2010.
- [14] V. Zorraquino, Begoña García, Cristina Latasa, Jaione Valle, Alejandro Toledo-Arana, Iñigo Lasa and Cristina Solano. *Estudio del mecanismo de inhibición de la movilidad de Salmonella mediado por c-di-GMP*: VIII Reunión del grupo de Microbiología Molecular Barcelona (Spain) 10-12 Noviembre 2010
- [15] Zorraquino, V., García, B., Latasa, C., Valle, J., Toledo-Arana, A., Lasa, I. and Solano, C. *El nucleótido cíclico, c-di-GMP, coordina la movilidad y la síntesis de celulosa en Salmonella enterica ser. Enteritidis*. XXIII Congreso Nacional de Microbiología. Salamanca (Spain). 11-14 de Julio. 2011.
- [16] García, B., Solano, C., Latasa, C., Zorraquino, V., Echeverz, M., García, E., Gil, C., Valle, J., Toledo-Arana, A. and Lasa, I. *Análisis proteómico de la ruta de señalización del mensajero secundario c-di-GMP*. Salamanca (Spain). 11-14 de Julio. 2011.
- [17] Minseung Kim, Violeta Zorraquino-Salvo, Navneet Rai, Athanasios Tsoukalas, and Ilias Tagkopoulos. *Deep learning and predictive models of a multi-omics dataset for Escherichia coli*. Winter Q Bio Meeting. Hawaii (USA). February 17-20. 2014
- [18] Minseung Kim, Navneet Rai, Violeta Zorraquino, Xiaokang Wang and Ilias Tagkopoulos. *Multi-omics learning and optimal experimental design for microbial organisms*. Philadelphia (USA). November 15-18. 2015.

## REFERENCES

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**Prof. Iñigo Lasa Uzkudun**

Instituto de Agrobiotecnología  
ilasa@unavarra.es

**Prof. John van der Oost**

Wageningen Universiteit  
john.vanderoost@wur.nl

**Dr. Fabian Blombach**

University College London  
fabian.blombach@gmail.com

**Prof. Ilias Tagkopoulos**

University of California, Davis  
itagkopoulos@ucdavis.edu