



# ABOUT ELENA LANTERO ESCOLAR

 Spanish

 27/12/1991

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After 8 years of experience in Malaria Research, Elena has focused her career in the study of *Plasmodium falciparum* infection of hepatocytes. She loves flow cytometry assays, learning new techniques, seeing how parasites and cell cultures grow (and examining why they die, intentionally or not) and balancing her working hours to have some time to paint, walk or hike, or just enjoy a science-fiction book or mystery show

## EXPERIENCE

<b>Research Officer. Boddey lab.</b> The Walter and Eliza Hall Institute, Melbourne.	Jun 2023
<b>Research Fellow. Conway lab.</b> London School of Hygiene and Tropical Medicine, London.	Jul 2022 – Jun 2023
<b>Project Leader of 'PaMApDx: PanMalaria Aptamer-based Rapid Diagnostic Test', CaixaImpulse Validate Project.</b> NANOMALARIA Joint Unit, IBEC-ISGlobal, Barcelona.	Dec 2020 – Dec 2021
<b>Research stay: Analyzing nanoformulations loaded with atovaquone in parasite development in the mosquito by membrane feeding assays.</b> Instituto de Higiene e Medicina Tropical (IHMT), Lisbon.	Oct 2019 – Dec 2019
<b>Research stay: Studying parasite development in mosquito after using sulfated glycosaminoglycans in membrane feeding assays.</b> Instituto de Higiene e Medicina Tropical (IHMT), Lisbon.	Nov 2018 – Jan 2019
<b>Research project: Development of new targeting strategies for <i>P. falciparum</i></b> PhD project. NANOMALARIA Joint Unit, IBEC-ISGlobal, Barcelona.	Oct 2015 – Dec 2020
<b>Experimental Final Master Project in design and functionalization of nanoparticles for cell transfection.</b> NAP Group. Instituto de Nanociencia de Aragón (INA), Zaragoza.	Jan 2014 – Feb 2015
<b>Apprenticeship in nanoparticle functionalization for biomedical applications.</b> With the scholarship: 'Introducción a la investigación 2014' Instituto de Nanociencia de Aragón (INA), Zaragoza.	Jul – Sep 2014
<b>Apprenticeship in cell culture and molecular biology procedures for cancer research.</b> Fundación para la Investigación del Hospital La Fe, Valencia.	Jan – May 2013
<b>Experimental Final Grade Project in molecular biology for bacterial modification.</b> Microbacterial Genetics Group, Universidad de Zaragoza.	Jun – Sep 2012

## EDUCATION AND QUALIFICATIONS

<b>PhD in Biotechnology.</b> <i>Cum laude</i> , International Mention, Universitat de Barcelona	Oct 2015 – Dec 2020
<b>MSc in Nanostructured Materials for Nanotechnology Applications.</b> In English. Universidad de Zaragoza	Sep 2013 – Feb 2015
<b>BSc in Biotechnology.</b> In Spanish. Universitat de València	Sep 2009 – Jul 2013

## Short-term courses in:

- Research integrity for group leaders: supporting good research practice through leadership (IBEC training) June 2021
- TechTransfer Leadership in Life Science (Barcelona School of Management, UPF, & Fundació 'la Caixa'), including the Coimbra Learning Capsule (Instituto Pedro Nunes, Portugal) Sep – Dec 2020
- Scanning Electron Microscopy (IBEC training) Jan 2017
- Statistical Concepts for Research (IBEC training) Sep 2016
- Course in the use of animals in research [Capacities B+C+D according to ECC/566/2015.] Jan – Mar 2016
- Nanomaterials and environment. 10 hours–presential in Universidad de Zaragoza Apr 2015
- Dino 101: Dinosaur Paleobiology. 12 weeks, online course in www.coursera.org, by University of Alberta Jan – May 2014
- Genes and the Human Condition (from Behaviour to Biotechnology). 6 weeks, online course in www.coursera.org, by University of Maryland Apr – Jun 2013

## PUBLICATIONS

1. Hamelmann NM, Paats J-WD, Avalos-Padilla Y, **Lantero E**, Spanos L, Siden-Kiamos I, Fernàndez-Busquets X, Paulusse JMJ. Single-Chain Polymer Nanoparticles Targeting the Ookinete Stage of Malaria Parasites (2023) *ACS Infect. Dis.*, 9(1): 56–64. Doi: 10.1021/acsinfecdis.2c00336.
2. San Anselmo M, **Lantero E**, Avalos-Padilla Y, Bouzón-Arnáiz I, Ramírez M, Postigo A, Serrano L, Sierra T, Hernández-Ainsa S, Fernàndez-Busquets X. Heparin-Coated Dendronized Hyperbranched Polymers for Antimalarial Targeted Delivery (2023) *ACS Appl. Polym. Mat.*, 5(1): 381–390. Doi: 10.1021/acsapm.2c01553.
3. Avalos-Padilla Y, Georgiev VN, **Lantero E**, Pujals S, Verhoef R, et al. The ESCRT-III machinery participates in the production of extracellular vesicles and protein export during Plasmodium falciparum infection. (2021) *PLoS Pathogens*, 17(4): e1009455. doi: 10.1371/journal.ppat.1009455.
4. Borgheti LN, San Anselmo M, **Lantero E**, Lancelot A, Serrano JL, Hernandez-Ainsa S, Fernàndez-Busquets,X, Sierra T. Promising Nanomaterials in the Fight against Malaria. (2020) *J. Mater. Chem. B* <https://doi.org/10.1039/d0tb01398f>.
5. **Lantero E**, Aláez-Versón, CR, Romero P, Sierra T & Fernàndez-Busquets X. Repurposing Heparin as Antimalarial: Evaluation of Multiple Modifications Toward In Vivo Application. (2020) *Pharmaceutics*, 12(9), 825.
6. **Lantero, E**, Fernandes, J., Aláez-Versón, C. R., Gomes, J., Silveira, H., Nogueira, F., & Fernàndez-Busquets, X. Heparin Administered to Anopheles in Membrane Feeding Assays Blocks Plasmodium Development in the Mosquito. (2020) *Biomolecules*, 10(8), 1136.
7. Borgheti-cardoso, L N, Kooijmans, S. A. A., Gutiérrez, L, Biosca, A, **Lantero, E**, Ramírez, M, Avalos-padilla, Y., Crespo, I., Fernández, I., Fernandez-becerra, C., & Hernando, A. Extracellular vesicles derived from Plasmodium -infected and non-infected red blood cells as targeted drug delivery vehicles. (2020) *Int. J. Pharm.*, 587, 119627. doi:10.1016/j.ijpharm.2020.119627
8. **Lantero, E**, Belavilas-Trovas, A, Biosca, A, Recolons, P., Moles, E, Sulleiro, E, Zarzuela, F., Ávalos-Padilla, Y., Ramírez, M, & Fernàndez-Busquets, X. Development of DNA Aptamers Against Plasmodium falciparum Blood Stages Using Cell-Systematic Evolution of Ligands by EXponential Enrichment. (2020) *J. Biomed. Nanotech.*, 16(3), 315–334. doi: 10.1166/jbn.2020.2901
9. Aguiar, L, Biosca, A, **Lantero, E**, Gut, J., Vale, N, Rosenthal, P. J., Nogueira, F., Andreu, D., Fernàndez-Busquets, X, Gomes, P. Coupling the antimalarial cell penetrating peptide TP10 to classical antimalarial drugs primaquine and chloroquine produces strongly hemolytic conjugates. (2019) *Molecules* 24; 4559
10. Manconi M, Manca M.L, Escribano-Ferrer E, Martí Coma-Cros E, Biosca A, **Lantero E**, Fernàndez-Busquets X, Fadda A.M. Caddeo C. Nanoformulation of curcumin-loaded eudragit-nutriosomes to counteract malaria infection by a dual strategy: Improving antioxidant intestinal activity and systemic efficacy. (2019) *Int. J. Pharm* 566, 82–88; doi: 10.1016/j.ijpharm.2018.11.073.

11. Martí Coma-Cros E, Biosca A, **Lantero E**, Manca M.L, Caddeo C, Gutiérrez L, Ramírez M, Borgheti-Cardoso L.N , Manconi M. and Fernández-Busquets X. Antimalarial Activity of Orally Administered Curcumin Incorporated in Eudragit®-Containing Liposomes. (2018) *Int. J. Mol. Sci.* 19, 1361; doi:10.3390/ijms19051361.
12. Aláez-Versón C., **Lantero E** & Fernández-Busquets X. Heparin: new life for an old drug (2017) *Nanomedicine* 12(14), 1727–1744. doi: 10.2217/nnm-2017-0127.

## SCIENTIFIC COMMUNICATIONS

Lantero E, Krol J, *et al.* (Feb 2024) How to catch a parasite red-handed? Poster presentation for **Molecular Approaches to Malaria (MAM24) Conference** in Lorne, Australia.

Lantero E, Krol J, *et al.* (Nov 2023) How to catch a parasite red-handed? Poster presentation for **Malaria in Melbourne Conference** in Melbourne, Australia.

Lantero E, Fernandes J., *et al.* (May 2020) *Heparin blocks Plasmodium berghei development in the mosquito.* On-line poster presentation for the **BioMalPar XVI Conference**, on-line.

Lantero E, Belavilas A., *et al.* (June 2019) *Identification of DNA Aptamers against Plasmodium falciparum.* Poster presentation for the **Aptamers in Bourdeaux 2019 Conference**, in Bourdeaux, France.

Lantero E, Belavilas A., *et al.* (June 2019) *Targeting Plasmodium falciparum with DNA aptamers.* Oral presentation, **Spanish Conference on Biomedical Applications of Nanomaterials (SBAN2019)**, in Madrid, Spain.

Lantero E, Belavilas A., *et al.* (May 2019) *Identification of DNA Aptamers against Plasmodium falciparum.* Poster presentation for the **BioMalPar XV Conference**, in Heidelberg, Germany.

Lantero E, Moles E., *et al.* (May 2017) *Developing Aptamers against Plasmodium falciparum: Different Approaches to Overcome the Challenge.* Poster presentation, **BioMalPar XIII Conference**, Heidelberg, Germany.

Lantero E, Moles E., *et al.* (April 2017) *The Challenge of Using the Intraerythrocytic Parasite Plasmodium falciparum as Aptamer-Selecting Target.* Poster presentation for **Aptamers 2017 Conference**, in Oxford, UK.

PhD Symposiums from my organizations:

- **IBEC Symposium, September 2020.** Video presentation. [IBEC Symposium 2020 - Elena Lantero - Flash Presentation - YouTube](#)
- **ISGlobal Symposium, November 2019.** Video presentation.
- **IBEC Symposium, September 2019.** Oral presentation.
- **ISGlobal Symposium, November 2018.** Poster.
- **IBEC Symposium, September 2018.** Poster.
- **ISGlobal Symposium, November 2017.** Poster and Flash Talk.
- **IBEC Symposium, June 2017.** Poster.
- **ISGlobal Symposium, September 2016.** Poster and Flash Talk.
- **IBEC Symposium, June 2016.** Poster.

Lantero E, Hernández Y., Martínez de la Fuente J. (February 2015) *Funcionalización de Nanopartículas de Oro para Transfección Celular.* Oral presentation for the **III Congress in Biomedical Research (Congreso de Investigación Biomédica)**, in Valencia.

## SKILLS

<b>Molecular biology</b>	DNA and protein isolation and electrophoresis, PCR, qPCR, RT-qPCR, Western Blot, Cloning in <i>E. coli</i> , transfection, transduction with lentivirus
<b>Cell culture</b>	Eukaryotic cells (HC-04, HEK293T, VERO, HUVEC, BeWo and lymphoma cells), blood parasites ( <i>Plasmodium falciparum</i> ) and <i>E. coli</i>
<b>Animal work</b>	Experience in oral and intraperitoneal administration of mice and intracardiac blood extraction. Experience in malaria murine models: <i>P. yoelii</i> and <i>P. berghei</i>  Experience in experimental work with mosquitoes <i>Anopheles stephensis</i> . Membrane feeding assays and mosquito selection and dissection

<b>Aptamer selection</b>	Using cell-SELEX and FluMag procedures
<b>Flow Cytometry</b>	Discrimination between healthy and parasitized erythrocytes and hepatocytes and fluorescent labels for those, using FACSCalibur, Fortessa 4L HTS and Fortessa 5L from BDIS, and Novocyte Pentheon
<b>Nanoparticles</b>	Functionalization of gold nanoparticles surface. Preparation of liposomes
<b>Computer skills</b>	<ul style="list-style-type: none"><li>· Good command of Microsoft Office™ tools</li><li>· Good command of Photoshop tools and ImageJ</li><li>· Good command of databases as NCBI, EMBL-EBI and similar</li><li>· Good command of GraphPad Prism</li></ul>
<b>Languages</b>	<ul style="list-style-type: none"><li>· Spanish (mother language)</li><li>· English (professional level)</li><li>· French (basic level)</li><li>· Catalan (intermediate level)</li><li>· Portuguese (basic level)</li></ul>

## SUPERVISION EXPERIENCE

**BSc final projects supervised:** two students from BSc in Nanotechnology by Universitat Autònoma de Barcelona, Emma Portabella and Manel Mercader, 2021.

**Practice stays supervised:** Isabel González Nieto, 2021, MSc in Biomedical Engineering by Universidad del País Vasco.

## AWARDS, GRANTS AND OTHERS

**Universitat de Barcelona Extraordinary Thesis Award** in the course 2020-2021. This award is granted to the top ~10% Thesis across all university faculties in a scholar year.

Caixaimpulse Validate Grant awarded to the project: **PaMApDx: PanMalaria Aptamer-based Rapid Diagnostic Test** in 2020. 75000€ granted for a year of asset development from research products.

## REVIEWER EXPERIENCE

- *Communications biology*, one manuscript reviewed in 2024
- *EMBO Molecular Medicine*, one manuscript reviewed in 2023

## OUTREACH AND PUBLIC ENGAGING ACTIVITIES

**Bojos per la bioenginyeria 2021.** On line workshop-lecture for Highschool students about the use of nanotechnology as malaria therapy, characterization, applications and challenges. Within the programme: 'Bojos per la ciència' from Fundació Catalunya-La Pedrera. IBEC, Barcelona.

**Bojos per la bioenginyeria 2019.** Workshop-lecture for Highschool students about the use of nanotechnology as malaria therapy, characterization, applications and challenges. Within the programme: 'Bojos per la ciència' from Fundació Catalunya-La Pedrera. IBEC, Barcelona.

**Nit de la recerca 2018 in CosmoCaixa.** Workshop for general public about drug encapsulation. Barcelona.

**Bojos per la bioenginyeria 2018.** Workshop-lecture for Highschool students about the use of nanotechnology as malaria therapy, characterization, applications and challenges. Within the programme: 'Bojos per la ciència' from Fundació Catalunya-La Pedrera. IBEC, Barcelona.

**Recerca en Directe 2017.** 4-days workshop for Highschool students in malaria research and diagnosis: “Malditos parásitos. Estudiando la malaria”. CosmoCaixa, Barcelona.

**Salò de l’Ensenyament 2017.** Workshop for Highschool students about Malaria and diagnosis. Barcelona.

**TEDxZaragoza 2017.** TEDx Talk about ‘Interdisciplinarity’, the merge of different science fields for common goals. Zaragoza. ([In](#))[terdisciplinarietà | Elena Lantero | TEDxZaragoza - YouTube](#)

**YoMo (Youth Mobile Festival) 2017.** Workshop about Malaria for high and secondary school students. Barcelona.

**Lunes de Ciència 2016,** talk about nanotechnology used for malaria treatment “Nanotecnología contra la Malaria” in Barcelona. [Nanotecnología, una nova arma contra la malària - YouTube](#)

**Festa de la Ciència 2016.** Talk about the use of nanotechnology for malaria treatment. Barcelona.

## REFERENCE CONTACTS

**Ass. Prof. Justin Boddey**  
Supervisor at WEHI

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Supervisor at LSHTM

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**Ass. Prof. Xavier Fernàndez-Busquets**  
PhD supervisor at IBEC-ISGlobal, Barcelona

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**Ass. Prof. Fátima Nogueira**  
Supervisor at IHMT, Lisbon

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