

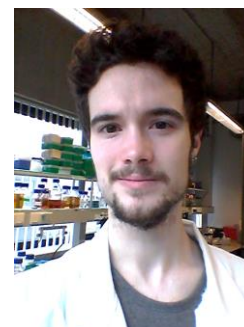
## Javier Cabello-Garcia, MSc.

Department of Bioengineering

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### Research aims.

Currently researching the selective production of polymers far-from-equilibrium. Focused in experimental biophysics and, in particular, DNA nanotechnology.

### Academic studies and awards that financed said studies.

- 10/2017 - Present **PhD in Bioengineering . Imperial College London (UK)**  
\*Financed by **Royal Society** (2017/10 -2021/10)  
**Thesis:** “*Building an autonomous Molecular Copying System*”
- 09/2016 - 07/2017 **Master’s Degree in Condensed Matter Physics and Biological Systems - Universidad Autónoma de Madrid (Spain)**  
\*Tuition fee covered by “*Universidad Autónoma Postgrad award*”  
**Thesis:** “*Characterization and optimization of functionalized surfaces for combined TIRF and Magnetic Tweezers.*”
- Use of Magnetic Tweezers combined with TIRF.
  - Construction and optimization of microfluidic chambers.
  - TIRF fluorescence and image analysis (ImageJ).
  - Different surface functionalization: PEG and polystyrene.
- 09/2012 - 07/2016 **Grade in Biotechnology - Universidad de Zaragoza (Spain)**
- 02/2016 - 07/2016 **Erasmus Program - KU Leuven (Belgium)**  
\*Financed by:  
-“Spain Ministry of Education Erasmus scholarship” (2015-16)  
-“Ibercaja Complementary Erasmus scholarship” (2015-16)  
**Thesis:** “*Genetic dissection of a QTL involved in diauxic lag phase in yeast*”
- Yeast cells culture and mating.
  - Tetrad dissection with micromanipulator.
  - Genetic engineering of yeast cells.
  - Beer chemical and sensory analysis techniques.
  - Several PCR methods and primer design.
  - Fluorescent mitochondrial activity assays.
  - High throughput growth assays and analysis (R).

### Publications

1. **Cabello-Garcia J**, Bae W, Stan G-BV, Ouldrige TE. Handhold-mediated strand displacement: a nucleic acid-based mechanism for generating far-from-equilibrium assemblies through templated reactions. bioRxiv. 2020:2020.05.22.108571.
2. Handa BS, Lawal S, Wright IJ, Li X, **Cabello-García J**, Mansfield C, et al. Interventricular Differences in Action Potential Duration Restitution Contribute to Dissimilar Ventricular Rhythms in ex vivo Perfused Hearts. *Frontiers in Cardiovascular Medicine*. 2019;6(34).

## Employment

- 07/2016 – 09/2016 **Researcher in training at CMPG – Genetics and Genomics/ VIB Laboratory of Systems Biology**  
KU Leuven (Belgium)  
\*Collaboration in the publication of: “**Belgian Beer Tested and Tasted**” by Miguel Roncoroni and Kevin Verstrepen ISBN:940145289X as testing panel manager.  
\*Financed by **Erasmus+ Internship Fellowship**
- 07/2015 – 10/2015 **Researcher in training ~ Biological nanomaterials characterisation at Group of Structural Mechanics and Material Modelling**  
I3A (Zaragoza, Spain)
- Cell culture (Glioblastoma / HUVEC) in flask and microfluidic device.
  - Cancer cell spheroids culture and extraction of HUVEC cells.
  - Widefield and confocal microscopy and image analysis (ImageJ).
  - Construction, testing and optimization of microfluidic devices.

## Teaching and science outreach activities

- 02/2018 - Present **Graduate Teaching Assistant.** ~ 180 hours of teaching  
Imperial College London, Department of Bioengineering (UK)  
Study Groups of 20 Bioengineering students and 1-1 tutorials:
- Modelling in Biology.
  - Mathematics (1<sup>st</sup> and 2<sup>nd</sup> year module)
  - Kinetics and Thermodynamics
  - Molecular Biology Laboratory
  - MATLAB workshops
- 01/2020 - Present **Master thesis supervision:** Weng Yian, Yu  
Imperial College London, Department of Bioengineering and Francis Crick Institute (UK).  
Advisors: Dr. Thomas E. Ouldrige and Dr. Radoslav Enchev
- 02/2018 - 02/2020 **Project Access – Mentor**  
Supporting applications of less advantaged students to top tier universities.
- 10/2018 – 06/2019 **Meng group project supervision: “Development of a Cargo Encapsulating DNA-Origami-Box Nanomolecule”**  
De Saint Victor, Adrien; Grison, Agnese; Guntoro, Jeremy B. E.; Haralampieva, Joanna; Occhipinti, Edoardo; Sridhar, Kaavya; Vanniasegaram, Divyen and Patel, Nishita.  
Imperial College London, Department of Bioengineering and Francis Crick Institute (UK)  
Advisor: Dr. Thomas E. Ouldrige
- 09/2015 **Exhibitor in “La noche de los investigadores 2015”**  
“Organ-on-a-chip demonstrations” – Zaragoza (Spain)
- 2014/09-2015/07 **Participation in “Mentorship Program” – 50 hours**  
**Universidad de Zaragoza (Spain)**

## Proceedings

**Javier Cabello-Garcia**, Wooli Bae, Thomas E. Ouldridge and Guy-bart Stan. Handhold-mediated strand displacement: a DNA-based mechanism to generate out-of-equilibrium complexes through templated reactions FNANO 17<sup>th</sup> 2020, *Oral presentation accepted (Congress cancelled due to COVID19)*.

**Javier Cabello-Garcia**, Wooli Bae, Thomas E. Ouldridge and Guy-bart Stan. Introducing handhold-mediated strand displacement: A new template-catalysed reaction for DNA nanotechnology. Physics Meets Biology (PMB) 2019, *Oral presentation*.

**Javier Cabello-Garcia**, Wooli Bae, Thomas E. Ouldridge and Guy-bart Stan. Introducing "Handhold-mediated strand displacement": Sequence-Catalysed strand binding for DNA nanotechnology. BioMedEng 2019, *Oral presentation*.

Fernandez, L. et al. Highly Resistant Capsules with Genipin-Cross-Linked Double Poly-L-Lysine Membranes For In Vivo Imaging In The Far-Red Fluorescence Range. PBP World Meeting 2016. *Collaboration in congress paper*.

## Courses

12/2017

### **SynbiCITE 4-Day MBA: More Business Acumen Course**

Imperial College London. 30 hours

- Commercial and investment planning for a company in the Bioengineering sector

04/2015

### **Nanomaterials and environment**

University of Zaragoza, Science Faculty. 10 hours

- Separation, characterization, detection and quantification of nanomaterials.

12/2014

### **Design, fabrication and use of microfluidic systems for cell culture: Theoretical and practical aspects**

EBERS Medical Technology.SL: 30 hours

- Introduction to the most common problems of design and fabrication of microfluidic systems
- Culturing techniques in microfluidic systems

## Languages

**Spanish:** Native

**English:** Working language. Last test: ETS' TOEFL (08/2017) Score:108/120

**French:** A1 level.

**German:** A1 level. German beginners 1 exam passed at Imperial College London (UK).