Roger Castells-Graells, PhD

Postdoctoral Fellow – Todd Yeates Lab – University of California Los Angeles
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Education

2015-19 **Ph.D. in Biochemistry, John Innes Centre - University of East Anglia**, Norwich, UK
Advisor: Prof. George Lomonossoff
Thesis: Viruses in motion: maturation of an insect virus-like particle – a nanomachine

2011-15 **Degree in Biotechnology (BSc), Autonomous University of Barcelona** (UAB), Spain

2007-15 **Music Professional Degrees** in Saxophone & Oboe**.** Music Conservatory of Terrassa

Fields of Specialization

Structural Biology, Biochemistry, Molecular Biology, Synthetic Biology, Protein Design, Virology, AI, ML

Research experience

2020-present **University of California, Los Angeles**, USA

Postdoctoral Research in the lab of **Todd Yeates, Ph.D.**
Research focus: Computational design and characterization of novel protein assemblies as imaging scaffolds for structural biology (cryo-EM) and *de novo* design of protein assemblies and nanomachines for biomedical applications (using AI-based tools).

2019-20 **John Innes Centre**, Norwich, UK

Postdoctoral Research in the lab of **George Lomonossoff, Ph.D.**
Research focus: Study and production of virus-like particles for biotechnology applications like vaccines and medicine. Horizon 2020 Pharma Factory project.

2015-19 **John Innes Centre – University of East Anglia**, Norwich, UK

Doctoral research in the lab of **George Lomonossoff, Ph.D.**
Research focus: Study of virus maturation using transient expression systems and biophysical and structural methods, including cryo-EM.

Collaborations with:
- Prof. Jack Johnson (The Scripps Research Institute, USA)
- Prof. Neil Ranson (The Astbury Centre for Structural Molecular Biology, UK)
- Prof. Tatiana Domitrovic (Universidade Federal do Rio de Janeiro, Brazil)

- Doctoral research - Rotation 1: Production of engineered mosaic virus-like particles from turnip crinkle virus in plants in the lab of Prof. George Lomonossoff.
- Doctoral research - Rotation 2: Study of starch synthesis in wheat grains in the lab of Alison Smith, Ph.D.
- Doctoral research - Rotation 3: Study of the alteration of host vesicular trafficking by an effector from *Phytophthora infestans* and study of the deletion of a gene cluster in tomato with CRISPR/Cas9 in the lab of Sophien Kamoun, Ph.D.

2014-15 **Centre for Research in Agricultural Genomics (CRAG)**, Barcelona, Spain

Research Internship - Undergraduate Research Programme
Research focus: Study of the structure of plant genomes - J.M. Casacuberta Lab

2014 **Ludwig-Maximilian University of Munich**, Munich, Germany

Research Internship - Amgen Scholars Undergraduate Summer Research Programme
Research focus: Study of chloroplast membrane protein OEP21 - J. Soll Lab

2013 **University of Zurich**, Zurich, Switzerland
Research Internship - International Biology Undergraduate Summer School Fellowship
Research focus: Study of the disease resistance genes from wheat – B. Keller Lab

Publications (*indicates equal contribution authors)

1. **Castells-Graells, R.**, Meador, K., Arbing, M.A., Sawaya, M.R., Gee, M., Cascio, D., Gleave, E., Debreczeni, J.É., Breed, J., Leopold, K., Patel, A., Jahagirdar, D., Lyons, B., Subramaniam, S., Phillips, C., Yeates, T.O. (**2023**). Cryo-EM structure determination of small therapeutic protein targets at 3 Å resolution using a rigid imaging scaffold. ***Proceedings of the National Academy of Sciences****, in press.*
BioRxiv (Preprint). https://doi.org/10.1101/2022.09.18.508009
2. Miller, J.E.*, **Castells-Graells, R.***, Arbing, M.A.*, Munoz, A., Jiang, Y.X., Espinoza, C.T., Nguyen, B., Moroz, P., Yeates, T.O. (**2023**) Design of Beta-2 Microglobulin Adsorbent Protein Nanoparticles. ***Biomolecules***, 13(7), 1122. https://doi.org/10.3390/biom13071122
3. **Castells-Graells, R.**, Ribeiro, J., Domitrovic, T., Hesketh, E. L., Scarff, C. A., Johnson, J. E., Ranson, N. A., Lawson, D. M., & Lomonossoff, G. P. (**2021**). Plant-expressed virus-like particles reveal the intricate maturation process of a eukaryotic virus. ***Communications biology***, 4(1), 619. https://doi.org/10.1038/s42003-021-02134-w
4. Thuenemann, E. C., Byrne, M. J., Peyret, H., Saunders, K., **Castells-Graells, R.**, Ferriol, I., Santoni, M., Steele, J., Ranson, N. A., Avesani, L., Lopez-Moya, J. J., & Lomonossoff, G. P. (**2021**). A replicating viral vector greatly enhances accumulation of helical virus-like particles in plants. ***Viruses***, 13(5), 885. https://doi.org/10.3390/v13050885
5. **Castells-Graells, R.**, & Lomonossoff, G. P. (**2021**). Plant-based production can result in covalent cross-linking of proteins. ***Plant biotechnology journal***, 19(6), 1095–1097. https://doi.org/10.1111/pbi.13598
6. Schreier, T. B., Fahy, B., David, L. C., Siddiqui, H., **Castells-Graells, R.**, & Smith, A. M. (**2021**). Introduction of glucan synthase into the cytosol in wheat endosperm causes massive maltose accumulation and represses starch synthesis. ***The Plant Journal****,* 106(5), 1431–1442. https://doi.org/10.1111/tpj.15246
7. Petre, B., Contreras, M. P., Bozkurt, T. O., Schattat, M. H., Sklenar, J., Schornack, S., Abd-El-Haliem, A., **Castells-Graells, R.**, Lozano-Durán, R., Dagdas, Y. F., Menke, F., Jones, A., Vossen, J. H., Robatzek, S., Kamoun, S., & Win, J. (**2021**). Host-interactor screens of Phytophthora infestans RXLR proteins reveal vesicle trafficking as a major effector-targeted process. ***The Plant Cell***, 33(5), 1447–1471. https://doi.org/10.1093/plcell/koab069
8. Johnson, J. E., Domitrovic, T., Matsui, T., **Castells-Graells, R.**, & Lomonossoff, G. (**2021**). Dynamics and stability in the maturation of a eukaryotic virus: a paradigm for chemically programmed large-scale macromolecular reorganization. ***Archives of virology***, 166(6), 1547–1563. https://doi.org/10.1007/s00705-021-05007-z
9. Berardi, A., **Castells-Graells, R.**, & Lomonossoff, G. P. (**2020**). High stability of plant-expressed virus-like particles of an insect virus in artificial gastric and intestinal fluids. ***European journal of pharmaceutics and biopharmaceutics***, 155, 103–111. https://doi.org/10.1016/j.ejpb.2020.08.012
10. Del Cerro, P., Ayala-García, P., Buzón, P., **Castells-Graells, R.**, López-Baena, F. J., Ollero, F. J., & Pérez-Montaño, F. (**2020**). OnfD, an AraC-Type Transcriptional Regulator Encoded by

Rhizobium tropici CIAT 899 and Involved in Nod Factor Synthesis and Symbiosis. ***Applied and environmental microbiology***, 86(19), e01297-20. https://doi.org/10.1128/AEM.01297-20

11. Wu, C. H., Adachi, H., De la Concepcion, J. C., **Castells-Graells, R.**, Nekrasov, V., & Kamoun, S. (**2020**). NRC4 Gene Cluster Is Not Essential for Bacterial Flagellin-Triggered Immunity. ***Plant physiology,*** 182(1), 455–459. https://doi.org/10.1104/pp.19.00859
12. **Castells-Graells R.**, Lomonossoff G.P., Saunders K. (**2018**) Production of mosaic turnip crinkle virus-like particles derived by coinfiltration of wild-type and modified forms of virus coat protein in plants. Virus-Derived Nanoparticles for Advanced Technologies. ***Methods in Molecular Biology***, pp 3-17. https://doi.org/10.1007/978-1-4939-7808-3_1
13. Steele, J.F.C., Peyret, H., Saunders, K., **Castells-Graells, R.**, Marsian, J., Meshcheriakova, Y., Lomonossoff, G.P. (**2017**). Synthetic plant virology for nanobiotechnology and nanomedicine**.** ***WIREs Nanomedicine & Nanobiotechnology.*** https://doi.org/10.1002/wnan.1447
14. Contreras, B., Vives, C., **Castells, R.**, Casacuberta, J.M. (**2015**). The impact of transposable elements in the evolution of plant genomes: From selfish elements to key players. Evolutionary biology: biodiversification from genotype to phenotype. ***Springer International Publishing***, pp 93–105. https://doi.org/10.1007/978-3-319-19932-0_6

Unpublished work (Submitted/in preparation)

15. **Castells-Graells, R.**, Hesketh, E.L, Matsui, T., Johnson, J.E., Ranson, N.A., Lawson, D., Lomonossoff, G.P. Decoding maturation of a eukaryotic virus with cryo-EM structures of five intermediates.
16. **Castells-Graells, R.,** Sawaya, M., Yeates, T.O. Deviations in overall length scale and model strain in structures by X-ray Crystallography and Cryo-Electron Microscopy.
17. Meador, K., **Castells-Graells, R.,** Arbing, M.A., Aguirre, R., Sawaya, M.R., Sherman, T., Senarathne, C., Yeates, T.O. Creation of novel protein nanomaterials illustrates design principles for efficient engineering of multi-subunit complexes.
18. Arbing, M.A.*, **Castells-Graells, R.***, Yeates, T.O. Identification and structural characterization of DARPin-mediated inhibition of the SARS-CoV-2 main protease.
19. Meador, K., **Castells-Graells, R.**, Yeates, T.O. HelixDisplay: Automated pipeline for modelling polyvalent display of proteins and enzymes on protein assemblies.
20. **Castells-Graells, R.,** G.P. Lomonossoff. 3D printing in virology: tools for the lab and the classroom.
21. Cantero, M., **Castells-Graells, R.,** G.P. Lomonossoff, de Pablo, P.J. Biomechanical changes of insect virus-like particles during maturation.

Patent applications

1. Self-assembling tetrahedral protein cages (UC-2023-300-1)
   Co-Inventors: Todd O. Yeates, Kyle Meador, **Roger Castells-Graells,** Mark A. Arbing

2. A protein-based inhibitor of the SARS-COV-2 (covid-19) main protease (UC-2023-297-1)
   Co-Inventors: Todd O. Yeates, Mark A. Arbing, **Roger Castells-Graells**

3. Immunosorbent nanoparticle for removal of beta-2 microglobulin during hemodialysis (UC-2023-128-1)
   Co-Inventors: Todd O. Yeates, Justin Miller, **Roger Castells-Graells,** Mark A. Arbing, Aldo Munoz, Brian Nguyen

4. DARPin backbones and rigidified electron microscopy imaging scaffolds (UC-2023-035-1)
   Co-Inventors: Todd O. Yeates, **Roger Castells-Graells**, Kyle Meador

Awards and recognitions

2023 **Session chair** - 2023 West Coast Structural Biology Workshop in Asilomar

2022 **1st Prize Short Oral Presentation** - American Crystallographic Association Annual Meeting

2022 **Public Outreach Award** - ("Te presento mi investigación") - ECUSA and Ramon Areces Foundation

2021 **2nd Prize from the Public** - "Tu investigación en 3 minutos" ("Your research in 3 minutes")

2021 **People's Choice award** - UCLA PDA 3-Minute Research Pitch Competition.

2020 **1st Prize Oral Presentation** - SCB Virology Meeting 2020.

2019 **Best Oral Presentation Award** - Early Career Researchers Conference (ECRC) 2019**.**

2019 **Best Talk Award** at the 2019 Student Annual Science Meeting in Norwich.

2018 **John Innes Foundation Prize for Excellence in Science Communication.**

2017 **GENius of the Month Team Award**. Awarded to our BiotecYES team.

2017 **Best Poster Award** - V International Symposium SRUK/CERU.

2017 **Best Talk Award** - V International Symposium SRUK/CERU.

2017 **Poster Prize** - NanoBioMater Conference 2017.

2017 **University of East Anglia Engagement Award 2016/17.**

2017 **Poster Prize** - Decoding and Recoding Biological Systems Meeting.

2016 **Awarded** an **Open Plant Fund** for the "Accessible 3D Models of Molecules" project to develop 3D printed models and tools for scientific and outreach purposes.

2016 **Bryan Harrison Prize** winner for the best student presentation at the Association of Applied Biologists International Advances in Plant Virology conference.

Fellowships and grants

CU Boulder Center for Cryo-ET (2022) - Research proposal awarded for microscope time and training

Pacific Northwest Center for Cryo-EM (PNCC) (2022) - Research proposal awarded for microscope time

Stanford SLAC Cryo-EM Center (S2C2) (2022) - Research proposal awarded for microscope time

ACA 2022 Meeting Travel Grant (2022)

EMBL Fee Waiver Fellowship (2020) – EMBO Workshop

Biochemical Society General Travel Grant (2018)

Open Plant Follow-up Funding (2017)

EMBL Fee Waiver Fellowship (2017) – Conference

Open Plant Fund (2016) - Accessible 3D Models of Molecules Project

John Innes Foundation Rotation PhD Programme (2015-2019)

LMU - Amgen Scholars European Programme Fellowship (2014)

U. of Zurich - Biology Undergraduate Summer School Fellowship (2013)

Youth and Science Programme Fellowship (2009-2011)

Teaching and Mentoring Experience

2023	Teacher in structural biology (cryo-EM) at University of California Los Angeles M230A – Single particle cryo-electron microscopy (cryo-EM)
2023	Teacher in cryo-EM data processing at University of California Los Angeles M230D – Structural Molecular Biology Laboratory
2021 – Present	Undergraduate and Graduate Students - University of California Los Angeles Mentored Morgan Gee, Chethaka Senarathne, Nika Gladkov, Roman Aguirre and Kyle Meador
2019	Youth and Science Programme Students Mentored Javi Rodríguez, Albert Puigdevall and Júlia Higueras
Summer 2019	Teacher at the Youth and Science Summer Programme Course: Molecular biology: from genetic engineering to nanomachines
2018	Youth and Science Programme Students Mentored Adrià Ferrer, Roc Bellostas, Alaïs Berthod and Míriam Álvarez
Summer 2018	Teacher at the Youth and Science Summer Programme Course: Molecular biology: from genetic engineering to nanomachines
2018	Teaching assistant at University of East Anglia BIO-4002B – Evolution Behaviour and Ecology
2017	Teaching assistant at University of East Anglia BIO-4002B – Evolution Behaviour and Ecology

Structural biology courses

- M230A and M230D Structural Molecular Biology Courses. University of California Los Angeles, January - February 2022.
- EMBO Workshop: In situ Structural Biology. Virtual, 6th-8th December 2020.
- Instruct Course on Model Building and Refinement for High Resolution EM Maps (4th Icknield Workshop). Harwell, Oxford, UK, 1st-4th May 2018.
- EMBO Practical Course: Image processing for cryo-electron microscopy. London, UK, Sept. 2017.

Participation in conferences and meetings (highlights)

Selected oral presentations

- **Castells-Graells R.** (2023). Novel designed rigidified imaging scaffolds for high-resolution structure determination of small proteins with cryo-EM. *Invited seminar, 3rd* ***April 2023****, Lawrence Berkeley National Lab (virtual).*
- **Castells-Graells R.** (2023). A designed imaging scaffold breaks the barrier to high-resolution structure determination of small proteins by cryo-EM. *West Coast Structural Biology Workshop, 19th-22nd* ***March 2023****,* ***USA****.*
- **Castells-Graells R.** (2023). Novel applications for designed protein cages: Breaking the size barrier to image therapeutic proteins by cryo-electron microscopy. *Invited seminar, 10th* ***January 2023***, *Institut de Biotecnologia i de Biomedicina,* ***Spain****.*
- **Castells-Graells R.** (2022). Novel applications for designed protein cages: Breaking the size barrier to image therapeutic proteins by cryo-electron microscopy. *Invited seminar, 21st* ***December 2022***, *Molecular Biology Institute of Barcelona,* ***Spain****.*
- **Castells-Graells R.** (2022). Novel applications for designed protein cages: Breaking the size barrier to image therapeutic proteins by cryo-electron microscopy. *Invited seminar, 19th* ***December 2022***, *Pompeu Fabra University,* ***Spain****.*
- **Castells-Graells R.** (2022). Novel applications for designed protein cages: Breaking the size barrier to image therapeutic proteins by cryo-electron microscopy*. Invited seminar, 30th* ***November 2022***, *University of British Columbia, Vancouver,* ***Canada****.*
- **Castells-Graells R.** (2022). Novel applications for designed protein cages: Breaking the size barrier to image therapeutic proteins by cryo-electron microscopy. *Invited seminar*, *10th* ***November 2022***, *Genentech, San Francisco,* ***USA****.*
- **Castells-Graells R.** (2022). A designed imaging scaffold breaks the barrier to high-resolution structure determination of small proteins by cryo-EM. *MBI meeting, 7th* ***September 2022,*** *Los Angeles,* ***USA****.*
- **Castells-Graells R.** (2022). Novel designed rigidified imaging scaffolds for high-resolution structure determination of small proteins with cryo-EM. *ACA annual meeting, 30th* ***August 2022,*** *Portland,* ***USA****.*
- **Castells-Graells R.** (2022). Designing novel imaging scaffolds for cryo-EM structure determination in vitro and in situ: modular tools for structural biology. *DOE-MBI meeting, 7th* ***April 2022,*** *University of California Los Angeles,* ***USA.***
- **Castells-Graells R.** (2021). Studying virus maturation with cryo-electron microscopy. *CNB - XXIX Workshop Advances in Molecular Biology by Young Researchers Abroad, 22nd* ***December 2021, virtual.***
- **Castells-Graells R.,** Lomonossoff G. P. (2021). Studying viral dynamics: the trouble with plants. *4th ISPMF Conference, 28th* ***September 2021, virtual.***

- **Castells-Graells R.,** Yeates T.O. (2021). Designing novel imaging scaffolds for cryo-EM structure determination in vitro and in situ. *UCLA-DOE Science Mixer, 29th* ***July 2021****, University of California Los Angeles,* ***USA****.*
- **Castells-Graells R.** (2021). Designing molecular Legos: imaging scaffolds for small proteins. *DOE-MBI meeting, 3rd* ***June 2021,*** *University of California Los Angeles,* ***USA.***
- **Castells-Graells R.,** Domitrovic T., Matsui T., Scarff C.A., Hesketh E.L., Ranson N.A., Lawson, D.M., Johnson J. E., Lomonossoff G. P. (2020). Viruses in motion: a close look at virus maturation through cryo-electron microscopy*. SCB Virology meeting 2020, 29th* ***October 2020****,* ***virtual****.*
- **Castells-Graells R.** (2020). Viruses in motion: exploring virus maturation stages with an insect virus, plants, and cryo-electron microscopy. *Invited external seminar*, *7th* ***January 2020****, CRAG,* ***Spain****.*
- **Castells-Graells R.** (2019). Viruses in motion: a close look at virus maturation through cryo-electron microscopy. *Early Career Researchers Conference, 11th-13th* ***November 2019****,* ***Spain****.*
- **Castells-Graells R.** (2019). Movie premiere of "Viruses in Motion": Virus maturation revealed by cryo-electron microscopy. *Annual Science Meeting, 9th-11th* ***October 2019****, Norwich****, United Kingdom****.*
- **Castells-Graells R.** (2019). Viruses in motion: a close look at virus maturation through cryo-electron microscopy. *OpenPlant Forum, 29th-31st* ***July 2019****, Cambridge****, United Kingdom****.*
- **Castells-Graells R.,** Domitrovic T., Matsui T., Scarff C.A., Hesketh E.L., Ranson N.A., Johnson J. E., Lomonossoff G.P. (2019). Viruses in Motion: Studying the Maturation Stages of an Animal Virus. *Gordon Research Seminar in Physical Virology, 19th-20th* ***January 2019****, Ventura,* ***USA****.*
- **Castells-Graells R.,** Domitrovic T., Matsui T., Scarff C.A., Hesketh E.L., Ranson N.A., Johnson J. E., Lomonossoff G.P. (2018). Studying virus maturation stages with an insect virus. *Ninth International Virus Assembly Symposium, 6th-10th* ***May 2018****, Madeira,* ***Portugal****.*
- **Castells-Graells R.** (2018). The private "life" of viruses - Using plants to crack virus secret codes and build nanomachines. *Accessible Science Seminar, 25th* ***April 2018****, John Innes Centre,* ***United Kingdom****.*
- **Castells-Graells R.** (2018). Viruses in motion: Studying viral dynamics using an insect virus and cryo-electron microscopy. *Biological Chemistry Departmental Seminar, 6th* ***March 2018****, John Innes Centre,* ***United Kingdom.***
- **Castells-Graells R.** (2018). Building nanostructures with plant factories: From viruses to nanomachines. *Bitesize PhD seminar, 14th* ***February 2018****, University of East Anglia,* ***United Kingdom.***
- **Castells-Graells R.** (2017). Studying the dynamics of a virus-like particle and developing potential biotechnological applications. *Invited seminar at the Instituto de Microbiologia, 31st* ***October 2017****, Universidade Federal do Rio de Janeiro,* ***Brazil****.*
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2017). Studying viral dynamics with an insect virus. *Student talk at the EMBO Practical Course: Image Processing for Cryo-EM, 5th-15th* ***September 2017****, Birkbeck, University of London,* ***United Kingdom****.*
- **Castells-Graells R.** (2017). Generating virus-like particles for bionanotechnological applications. *OpenPlant Forum Flashtalk, 24th-26th* ***July 2017****, Cambridge,* ***United Kingdom****.*
- **Castells-Graells R.,** Lomonossoff G. P. (2017). Generating virus-like particles for potential bionanotechnological applications. *V International Symposium SRUK/CERU, 7th-9th* ***July 2017****, London,* ***United Kingdom****.*
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2017). Studying dynamic virus-like particles for potential bionanotechnological applications. Student talk at *NanoBioMater 2017 International Conference - University of Stuttgart, 28th-30th* ***June 2017****, Bad Herrenalb,* ***Germany****.*
- **Castells-Graells R.**, Saunders K., Lomonossoff G. P. (2016). The generation of modified plant virus-like particles for potential bionanotechnological applications. *Taming Plant Viruses - Fundamental Biology to Bionanotechnology, 8th-10th* ***November 2016****, Pitlochry,* ***United Kingdom.***
- **Castells-Graells R.,** Saunders K., Lomonossoff G. P. (2016). The generation of modified plant virus-like particles by transient expression for potential bionanotechnological applications. *International*

Advances in Plant Virology conference, 7th-9th ***September 2016****, Association of Applied Biologists, University of Greenwich,* ***United Kingdom****.*

- **Castells-Graells R.**, Saunders K., Lomonossoff G. P. (2016). The production of mosaic virus-like particles in plants. *8th European Plant Science Retreat, 20th-23rd* ***June 2016****, Barcelona,* ***Spain****.*

Panel presentations and posters

- **Castells-Graells R.**, Meador K., Gee, M., Yeates T.O. (2022). Novel designed rigidified imaging scaffolds for high-resolution structure determination of small proteins with cryo-EM. *Gordon Research Conference - 3DEM,* ***June 2022****, Castelldefels,* ***Spain****.*
- **Castells-Graells R.**, Richards L., Saha A., Agdanowski M., Meador K., Eisenberg D., Rodriguez J.A., Yeates T.O. (2022). Enabling structure determination of challenging samples with new cryo-electron microscopy methods. *DOE Bioimaging Science Program Meeting*. ***1st March 2022, virtual.***
- Meador K., Agdanowski M., **Castells-Graells R.**, Arbing M., Yeates T.O. (2021). Designing Protein Scaffolds for Frontier Cryo-EM Problems. *UCLA-DOE IGP meeting, 21st* ***September 2021, virtual****.*
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2019). Viruses in Motion: Studying the Maturation Stages of an Animal Virus. *Gordon Research Conference in Physical Virology, 20th-25th* ***January 2019****. Ventura,* ***USA****.*
- **Castells-Graells R.**, Johnson J.E, Lomonossoff G. P. (2018). Exploring virus maturation stages with an insect virus, plants and cryo-electron microscopy. *JIC/TSL Annual Science Meeting, 10th-12th* ***October 2018****, Norwich,* ***United Kingdom.***
- **Castells-Graells R.***,* Johnson J. E., Lomonossoff G. P. (2017). Viruses in motion: Studying viral dynamics using an insect virus and cryo-electron microscopy. *Virus-like particle & nano-particle vaccines conference, 29th-30th* ***November*** *- 1st* ***December 2017****, Biopolis,* ***Singapore****.*
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2017). Viruses in slow motion: studying viral dynamics with an insect virus and cryo-EM. *EMBL Conference on Revolutions in Structural Biology, 16th- 17th* ***November 2017,*** *Heidelberg,* ***Germany.***
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2017). Studying viral dynamics with an insect virus. Student poster at *EMBO Practical Course: Image Processing for Cryo-EM, 5th-15th* ***September 2017****, Birkbeck, University of London,* ***United Kingdom****.*
- **Castells-Graells R.,** Lomonossoff G. P. (2017). Generating virus-like particles for potential bionanotechnological applications. *V International Symposium SRUK/CERU, 7th-9th* ***July 2017****, London,* ***United Kingdom****.*
- **Castells-Graells R.,** Johnson J. E., Lomonossoff G. P. (2017). Studying dynamic virus-like particles for potential bionanotechnological applications. Student poster at *NanoBioMater 2017 International Conference - University of Stuttgart, 28-30* ***June 2017****, Bad Herrenalb,* ***Germany****.*
- **Castells-Graells R.**, Johnson J. E., Lomonossoff G. P. (2017). Studying viral dynamics with an insect virus. *Physical Virology Gordon Research Conference, 29th* ***January 2017 –*** *2nd* ***February 2017****, Lucca,* ***Italy.***
- **Castells-Graells R.**, Johnson J. E., Lomonossoff G. P. (2017). Studying viral dynamics with an insect virus. *Physical Virology Gordon Research Seminar, 28th-29th* ***January 2017****, Lucca,* ***Italy.***
- **Castells-Graells R.**, Saunders K., Lomonossoff G. P. (2016). Generating virus-like particles for bionanotechnological applications. *JIC/TSL Annual Science Meeting, 12th-14th* ***October 2016****, Norwich,* ***United Kingdom.***
- Saunders K., **Castells-Graells R.,** Lomonossoff G**.** (2016). The generation of modified plants virus-like particles by transient expression for potential bionanotechnological applications. *International Society for Plant Molecular farming Conference. 25th-27th* ***May 2016****, VIB, University of Ghent,* ***Belgium****.*

Outreach and academic citizenship (highlights)

- **Exploring Your Universe.** Booth leader at the UCLA science fair. November **2022, UCLA.**
- **UCLA PDA Research Pitch Competition** – communicating science to the public. June **2022, UCLA.**
- **"Your research in 3 minutes"** outreach video contest (in Spanish). August **2021, virtual.**
- **UCLA PDA Research Pitch Competition** – communicating science to the public. June **2021, virtual.**
- **Science Km0:** Educational video about research for students (in Catalan). November **2020, virtual.**
- Presented a **science communication workshop** for graduate students and staff at the Centre for Research in Agricultural Genomics (CRAG). January **2020, Spain.**
- **Science mentor for 3 research projects** from high school students. September **2019** - January **2020.**
- Presented four **science communication workshops** for high school students at the Barcelona International Youth Science Challenge (BIYSC). July **2019, Spain.**
- **Science teacher** at the **Youth and Science Summer Programme,** June-July **2019, Spain.**
- Invited speaker at the **Pint of Science Festival** in Norwich. May **2017** and May **2019, UK**.
- **Science mentor for 4 research projects** from high school students. September **2018** - January **2019.**
- **Science teacher** at the **Youth and Science Summer Programme,** June-July **2018, Spain.**
- **Science educational video** about the production of virus-like particles in plants, June **2018, virtual.**
- Invited speaker for **Accessible Science Seminars,** John Innes Centre. April and October **2018, UK.**
- **Amgen Biotech Experience School Talk** (Ormiston Victory Academy Norwich). February **2018, UK**.
- Presented five **science communication workshops** for high school students at the Barcelona International Youth Science Challenge (BIYSC). July **2017, Spain.**
- Organizer of outreach activities for the **John Innes Centre Open Day**. September **2017, UK**.
- **Amgen Scholars Programme Students Mentor**. Summer **2017, UK**.
- Public engagement for Pint of Science with **Future Radio Norwich** (107.8 FM). April **2017, UK**.
- **STEM** (Science, technology, engineering and mathematics) **Ambassador**. March **2017, UK**.
- Volunteer and co-organizer of an **outreach activity** at the **Norwich Science Festival**. Oct. **2016, UK**.
- Founder of "**Whatlf**" (www.whatifnet.science), educational project that aims to bring science to students. **October 2014 – Present, virtual.**

Entrepreneurship

- **GapSummit 2018**. Voices of Tomorrow competition team finalist. Presentation of the project in R&D productivity at St. John's Divinity School, Cambridge. April 2018.
- **BiotechYES team finalist**. Presentation of the project at the Royal Society London. December 2017.
- **BiotechYES competition**. Team selected to go through to the Final with the "Active Plant Protection" project proposal. October 2017.
- **BiotechYES workshop**. Plant, microbial and environment. Syngenta, Jealott's Hill. October 2017.

Society memberships

- American Crystallographic Association (ACA)
- Association of Spanish Scientists in USA (ECUSA)
- Catalan Society of Biology (SCB)
- Catalan Association for Science Communication (ACCC)