

**Rubén GONZÁLEZ****Personal information**


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Birthplace and date	Vigo (Galicia, Spain) 02/06/1993
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**Education**


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04/2017 – 11/2021	<b>Ph.D. Biotechnology</b> Polytechnic University of Valencia (Valencia, Spain) Mentor: Prof. Santiago F. Elena Honours: <i>cum laude</i>
01/2021 – 04/2021	<b>Visiting PhD student</b> Institut de Biologie de l'École Normale Supérieure (Paris, France). Mentor: Prof. Marie-Anne Félix
09/2015 – 01/2017	<b>M.S. Plant Molecular and Cellular Biotechnology</b> Polytechnic University of Valencia (Valencia, Spain) Mentor: Prof. Santiago F. Elena
09/2011 – 07/2015	<b>B.S. Biology</b> University of Vigo (Vigo, Spain)
09/2014 – 01/2015	<b>Exchange student</b> University of Coimbra (Coimbra, Portugal)

**Research experience**


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11/2021 - ongoing	<b>Postdoctoral researcher</b> Institut de Biologie de l'Ecole Normale Superieure (Paris, France)
04/2017 - 09/2021	<b>Predocctoral researcher</b>
09/2018 – 09/2021	Institute for Integrative Systems Biology (Paterna, Spain)
04/2017 - 09/2018	Institute for Plant Molecular and Cell Biology (Valencia, Spain)
05/2016 - 12/2016	<b>Research Internship</b> ADM Biopolis (Valencia, Spain)
01/2015 - 07/2015	<b>Department research assistant</b> University of Vigo (Vigo, Spain)
06/2013 - 07/2013	<b>Volunteer Research Assistant</b> University of Vigo (Vigo, Spain)

**Additional professional activities**

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- **Scientific Committee** of the 2nd PhD Meeting in Plant Science (Online)
  - **Reviewer** for Peer Community in Evolutionary Biology and Plants.
  - **External examiner** for the PhD thesis of Joan Márquez Molins: “Novel insights of viroid biology and host responses to their infection”

## Funding and awards

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- 2021 **Postdoctoral Fellowship.** European Molecular Biology Organization (EMBO) “Microbiome impact on *Caenorhabditis elegans* viral infection and evolution of Orsay virus” (140.000€).
- 2021 **Research grant** “Dynamics of viral infection in simulated microgravity conditions”. Co-lead authors: Santiago F. Elena and Rubén González. Co-funded by European Space Agency and Spanish Research Council (180.682€).
- 2020 **Short-Term Fellowship.** European Molecular Biology Organization (EMBO) “Implementation of *Caenorhabditis elegans* as a model host system in virology research” (4.450€).
- 2020 **Exchange grant** FISABIO-Valencia University Chair for financing research stays in Europe (4.000€).
- 2020 **Honourable mention** Best Student paper published in GBE 2019 Awards. (500€).
- 2020 **Membership** AAAS/Science Program for Excellence in Science. Full membership in AAAS for one year.
- 2020 **Conference bursary** Wellcome Genome Campus (170€).
- 2017 **Research grant** for Research Personnel Training (FPI) (BES-2016-077078). MINECO-FEDER (92.750€).
- 2015 **Research grant** Department collaboration (BOE-A-2015-700). MINECO-FEDER (2.000€).
- 2014 **Exchange grant** ERASMUS+ exchange grant Xunta de Galicia’s Complement (1.100€).
- 2014 **Exchange grant** European Commission’s ERASMUS+ Fellowship (1.700€).

## Publications

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\* co-authorship      † corresponding author

1. Butkovic A\*†, **González R**\*† (2022) A brief view on factors that affect plant virus evolution. *Frontiers in Virology*. 2:994057. doi: 10.3389/fviro.2022.994057.
2. Butkovic A\*, Ellis TJ\*, **González R**\*, Jaegle B, Nordborg M†, Elena SF† (2022) A globally distributed major virus-resistance association in *Arabidopsis thaliana*. PREPRINT [bioRxiv]. <https://doi.org/10.1101/2022.08.02.502433>
3. Melero I, **González R**†, Elena SF† (2022) Host developmental stages shape the evolution of a plant RNA virus. *Philosophical Transactions of the Royal Society B*. In Press. <https://doi.org/10.1098/rtsb.2022.0005>.
4. Navarro R, Ambrós S, Butković A, Carrasco JL, **González R**, Martínez F, Wu B, Elena SF†. (2022) Defects in plant immunity modulate the rates and patterns of RNA virus evolution. *Virus Evolution*, veac059. <https://doi.org/10.1093/ve/veac059>
5. **González R**†, Elena SF. (2021) The interplay between the host microbiome and pathogenic viral infections. *mBio*. 12: e02496-21. <https://doi.org/10.1128/mBio.02496-21>

6. **González R**, Butković A, Escaray F, Martínez-Latorre J, Melero I, Pérez-Parets E, Gómez-Cadenas A, Carrasco P, Elena SF†. (2021) Plant virus evolution under strong drought conditions results in a transition from parasitism to mutualism. *Proceedings of the National Academy of Sciences of the United States of America*. 118, e2020990118. <https://doi.org/10.1073/pnas.2020990118>
7. Butkovic A, **González R**, Elena S.F†. (2021) Revisiting *Orthotospovirus* phylogeny using full-genome data and testing the contribution of selection, recombination and segments reassortment in the origin of new species. *Archives of Virology*. 166, 491–499. <https://doi.org/10.1007/s00705-020-04902-1>
8. **González R\***†, Butković A\*, Elena SF†. (2020) From foes to friends: viral infections expand the limits of host phenotypic plasticity. *Advances in Virus Research*, 106: 85–121. <https://doi.org/10.1016/bs.aivir.2020.01.003>
9. Butković A, **González R**, Rivarez MPS, Elena SF†. (2020) A genome-wide association study identifies *Arabidopsis thaliana* genes that contribute to differences in the outcome of infection with two Turnip mosaic potyvirus strains that differ in their evolutionary history and degree of host specialization. *Virus Evolution*, veab063. <https://doi.org/10.1093/ve/veab063>
10. **González R**†, Butković A, Rivarez MPS, Elena SF. (2020) Natural variation in *Arabidopsis thaliana* rosette area unveils new genes involved in plant development. *Scientific Reports*, 10,17600. <https://doi.org/10.1038/s41598-020-74723-4>
11. Butkovic A, **González R**, Cobo I, Elena SF†. (2020) Adaptation of turnip mosaic potyvirus to a specific niche reduces its genetic and environmental robustness *Virus Evolution*, 6: veaa041 <https://doi.org/10.1093/ve/veaa041>
12. **González R**, Butković A, Elena SF†. (2019) Role of host genetic diversity for susceptibility-to-infection in the evolution of virulence of a plant virus. *Virus Evolution*, 5: vez024. <https://doi.org/10.1093/ve/vez024>
13. **González R\***, Wu B\*, Li X\*, Martínez F†, Elena SF†. (2019) Mutagenesis scanning uncovers evolutionary constraints on tobacco etch potyvirus membrane-associated 6K2 protein. *Genome Biology and Evolution*, 11: 1207–1222. <https://doi.org/10.1093/gbe/evz069>
14. Rolán-Alvarez† E, Carvajal-Rodríguez A, de Coo A, Cortés B, Estévez D, Ferreira M, **González R**, Briscoe AD. (2015) The scale-of-choice effect and how estimates of assortative mating in the wild can be biased due to heterogeneous samples *Evolution*, 69: 1845–1857. <https://doi.org/10.1111/evo.12691>

## Invited talks

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| 01/2023 | <b>Impact of host developmental stage on virus evolution.</b> Key note talk at French National Plant Virus Symposium (Aussois, France).  |
| 03/2021 | <b>A plant virus evolves under drought conditions to promote host survival.</b> Department seminar at Centre for Microbiology and Environmental Systems Science, Universität Wien (Vienna, Austria). |

07/2020 **Virus evolution under drought conditions.** Ecology and Evolution of Infectious Disease Seminar, UC Berkeley (Berkeley, USA).

### Contributed presentations

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Presenter is underlined

- Evolutionary Biology of Caenorhabditis and Other Nematodes (Hamilton, Canada)  
Sensitivity of *C. elegans* to Orsay virus is suppressed by some bacteria and by a *haao-1* reduction-of-function polymorphism. (2022) **González R**, Richaud A, Bêlicard T, Martynow D, Alkan C, Félix M-A. Talk.
- Wellcome Genome Campus Evolutionary Systems Biology (Virtual conference) 2022. Assistance.
- Wellcome Genome Campus Virus Genomics and Evolution virtual conference (Hixton, UK)  
Plant aging increases susceptibility to Turnip mosaic potyvirus infection and influences virus evolution. (2021) **González R**, Melero I, de la Iglesia F, Elena SF. Poster.
- Worm-Virus meeting (Virtual)  
Setting up *C. elegans* as a host model system for experimental virus evolution, experimental epidemiology and systems virology (2020) Elena SF, **González R**. Talk.
- Wellcome Genome Campus Single Cell Biology (Virtual conference) 2020. Assistance.
- Wellcome Genome Campus 3rd meeting on Evolutionary Systems Biology (Hixton, UK)  
Mapping *Arabidopsis thaliana* genes involved in plant response to a turnip mosaic potyvirus (TuMV) infection. (2020) Butković A, **González R**, Elena SF. Talk.
- Wellcome Genome Campus 3rd meeting on Evolutionary Systems Biology (Hixton, UK)  
Virus evolution in the pathosystem turnip mosaic potyvirus – *Arabidopsis thaliana* under drought conditions selects for viruses who enhance the host tolerance to water deficiency. (2020) **González R**, Butković A, Martínez-Latorre J, Melero I, Pérez-Parets E, de la Iglesia F, Elena SF. Poster.
- Wellcome Genome Campus 3rd meeting on Evolutionary Systems Biology (Hixton, UK)  
Genome-wide association studies (GWAS) to identify genes involved in differential response of *Arabidopsis thaliana* to infection with generalist and specialist strains of a potyvirus. (2020) Butković A, **González R**, Rivarez MPS, de la Iglesia F, Elena SF. Poster.
- Experimental Evolution Workshop (Biar, Spain)  
Evolving towards mutualism: an experimental study on the virus-host interactions changes induced by the environment. (2019) **González R**, Butković A, Martínez-Latorre J, Melero I, Pérez-Parets E, de la Iglesia F, Elena SF. Talk.
- Conférences Jacques-Monod (Roscoff, France)  
Environmental stress shapes the evolution of a potyvirus towards a mutualistic relationship with its host. (2019) **González R**, Butković A, Martínez-Latorre J, Melero I, de la Iglesia F, Elena SF. Talk.
- XXies Journées Francophones de Virologie (Lyon, France)  
Evolution of virulence of an emerging RNA virus in homogeneous vs heterogeneous plant populations. (2019) **González R**, de la Iglesia F, Butković A, Elena SF. Talk.
- 10<sup>th</sup> Workshop in Virus Evolution (State College Pennsylvania, USA)

Evolving in drought conditions: consequences in the interaction between a potyvirus and *Arabidopsis thaliana*. (2019) **González R**, Butković A, Martínez J, Melero I, Elena SF. Poster.

- International Plant Virus Epidemiology Symposium (Seul, South Korea)  
Variability in resistance genes conditions the evolution of emerging plant RNA viruses. (2019) **Elena SF**, Martínez F, Butković A, Carrasco JL, de la Iglesia F, **González R**, Navarro R. Talk.
- XIII Reunión de Biología Vegetal (Puerto Varas, Chile)  
Host variability in resistance genes conditions the evolution of emerging plant RNA virus. (2018) **Elena SF**, Martínez F, Butković A, Carrasco JL, de la Iglesia F, **González R**, Navarro R. Talk.
- 24<sup>th</sup> European Meeting of PhD Students in Evolutionary Biology (Bubiión, España)  
Evolution of RNA viruses in hosts with variable susceptibility. (2018) **González R**, Elena SF. Talk.
- VI Spanish Worm Meeting (Valencia, Spain)  
Evaluation of *Caenorhabditis elegans* as experimental host for a thrip-transmitted plant RNA virus. (2017) **González R**, Martorell P, Ramón D, Elena SF, Ambrós S. Talk.
- Iberian Congress of Entomology (Lisbon, Portugal)  
Variación de las comunidades de insectos en el río Fragoso (Ourense, NO España) en relación con el impacto de las minicentrales: 2001-2015 (2016) **Álvarez-Troncoso R**, Fernández F, **González R**, Míguez C, Garrido J. Poster.

## Courses

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2021	<b>Research Integrity</b> Epigeum
2021	<b>YIP PhD course</b> EMBO
2020	<b>Program certificate in Data Analysis for Life Science</b> HarvardX
2017	<b>Ethics in research</b> Polytechnic University of Valencia
2017	<b>Statistics and mathematical methods for Research</b> Polytechnic University of Valencia
2017	<b>Rewriting science: Avoiding mistakes in written and spoken scientific English</b> Polytechnic University of Valencia

## Supervision

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### Co-supervision of research interns

Javier Martínez-Latorre (June – December 2018)

Izan Melero (February – April 2019)

Enric Pérez. (May – July 2019)

## Memberships

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<b>SEV</b>	Spanish Society for Virology	since May 2018
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<b>SMBE</b>	Society for Molecular Biology and Evolution	since July 2019
<b>ESEB</b>	European Society for Evolutionary Biology	since November 2019
<b>AAAS</b>	American Association for the Advancement of Science	since January 2020