



Webinar of the Polish Phytopathological Society
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Santiago F. Elena

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WORK PLACES

- 2018 – present, Institute for Integrative Systems Biology, CSIC, Professor
- 2008 – present, Santa Fe Institute (USA), External Professor
- 2002 – 2018, Institute for Molecular and Cellular Plant Biology, CSIC, Professor
- 1998 – 2002, Department of Genetics, University of Valencia, Associate Professor
- 1995 – 1998, Center for Microbial Ecology, Michigan State University, Postdoc
- 1991 – 1995, Department of Genetics, University of Valencia, PhD student

EDUCATION

- 1991 – 1995 University of Valencia, PhD Genetics
- 1991 University of Valencia, MSc Bioinformatics
- 1985 – 1990 University of Valencia, MSc Biochemistry

SCIENTIFIC INTERESTS

- Experimental virus evolution: genetic and ecological drivers of viral emergence and adaptation to new hosts
- Systems biology of host-virus interactions: identifying targets of viral adaptation and how virus' evolution modifies these targets
- Molecular epidemiology and phylogeography of plant viruses: describe macroscopic patterns of virus and test the roles of selection, drift and migration in the observed variability
- Mathematical and computational modeling of virus dynamics: role of complex and fluctuating fitness landscapes in the adaptive dynamics of viral quasispecies

PUBLICATIONS

- Butković, A., González, R., Rivarez, M.P.S., **Elena, S.F.** (2021) 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 Evol.* **7**: veab063.
- González, R., Butković, A., Escaray F.J., Martínez-Latorre, J., Melero, I., Pèrez-Parets, E., Gómez-Cadenas, A., Carrasco, P., **Elena, S.F.** (2021) Plant virus evolution under strong drought conditions results in a transition from parasitism to mutualism. *Proc. Natl. Acad. Sci. USA* **118**: e2020990118
- Corrêa, R.L., Sanz-Carbonell, A., Kogej, Z., Müller, S.Y., Ambrós, S., López-Mogollón, S., Gómez, G., Baulcombe, D.C., **Elena, S.F.** (2020) Viral fitness determines the magnitude of transcriptomic and epigenomic reprogramming of defense responses in plants. *Mol. Biol. Evol.* **37**: 1866-1881.
- González, R., Butković, A., **Elena, S.F.** (2020) From foes to friends: viral infections expand the limits of host phenotypic plasticity. *Adv. Virus Res.* **106**: 85-121.
- Da Silva, W., Kutnjak, D., Xu, Y., Xu, Y., Giovannoni, J., **Elena, S.F.**, Gray, S. (2020) Transmission modes affect the population structure of *Potato virus Y* in potato. *PLoS Pathog.* **16**: e1008608.