

Curriculum vitae

Luisa Lanfranco

Present position: Associate Professor at the University of Turin and Member of the Ph.D School Biology and Applied Biotechnology

Education

Laurea in Scienze Biologiche cum laude University of Turin

Ph.D in Biology and Biotechnology of Fungi, University of Turin

Teaching activities

Plant Biology, Plant Molecular Biology and Plant Biotechnology in I and II level courses

Scientific activities

The scientific activity has been focused on plant-microbe interactions with particular attention to the arbuscular mycorrhizal (AM) symbiosis which involves fungi belonging to the Glomeromycotina group and the roots of most land plants.

Current specific research topics:

- Characterization of plant and fungal molecular determinants, including small RNAs, at the basis of the symbiosis establishment
- Evaluation of the local and systemic effect of the AM symbiosis and its role in the response to biotic stress, in particular infection by viral pathogens, and abiotic stress
- Study of the role of strigolactones and apocarotenoid-derived signaling molecules on plant biology and biotic interactions
- Biodiversity of plant-microbe interactions in urban environments.

The scientific activities have been carried out within national (60%, PRIN, Progetti Regione Biobit, CIPE B74; Progetto Ateneo SLEPS; National Biodiversity Future Center, PNRR) and international (European projects IMPACT, GENOMYCA, FUNGIMYC, TOMRES, SOIL-HEAL) projects and within collaboration with Italian and foreign research groups.

Publications (2018-2022)

1. Votta C, Fiorilli V, Haider I, Wang JY, Balestrini R, Petřík I, Tarkowská D, Novák O, Serikbayeva A, Bonfante P, Al-Babili S, **Lanfranco L** (2022). Zaxinone synthase controls arbuscular mycorrhizal colonization level in rice. *THE PLANT JOURNAL* 111 (6), 1688-1700. IF: 7.091
2. Ito S, Braguy J, Wang JY, Yoda A, Fiorilli V, Takahashi I, Jamil M, Felemban A, Miyazaki S, Mazzarella T, Chen G-T, Shinozawa A, Balakrishna A, Lerqdar L, Rajan C, Ali S, Haider I, Sasaki Y, Shunsuke Yajima S, Akiyama K, **Lanfranco L**, Zurbriggen MD, Nomura T, Asami T, Al-Babili S (2022). Canonical strigolactones are not the major determinant of tillering but important rhizospheric signals in rice. *SCIENCE ADVANCES* 8 (44), eadd1278 IF: 14.136
3. Fiorilli V, Forgia M, de Saint Germain A, D'Arrigo G, Cornu D, Le Bris P, Al-Babili S, Cardinale F, Prandi C, Spyraakis F, Boyer F-D, Turina M, **Lanfranco L** (2022). A structural homologue of the plant receptor D14 mediates responses to strigolactones in the fungal phytopathogen *Cryphonectria parasitica*. *NEW PHYTOLOGIST*, vol 234(3), p. 1003-1017, ISSN: 1469-8137. doi: 10.1111/nph.18013. IF: 10.151

4. **Lanfranco L**, Bonfante P (2022). The need for phosphate: at the root of the mycorrhizal symbiosis. SCIENCE BULLETIN, p. 459-460, ISSN: 2095-9281, doi: 10.1016/j.scib.2021.11.018. IF: 11.780
5. Chialva M, **Lanfranco L**, Bonfante P (2022). The plant microbiota: composition, functions, and engineering. CURRENT OPINION IN BIOTECHNOLOGY, vol. 73, p. 135-142, ISSN: 0958-1669, doi: 10.1016/j.copbio.2021.07.003. IF: 9.74
6. Wang J Y, Alseekh S, Xiao T, Ablazov A, Perez de Souza L, Fiorilli V, Anggarani M, Lin P-Y, Votta C, Novero M, Jamil M, **Lanfranco L**, Hsing Y-I C, Blilou I, Fernie AR, Al-Babili S (2021). Multi-omics approaches explain the growth-promoting effect of the apocarotenoid growth regulator zaxinone in rice. COMMUNICATIONS BIOLOGY, vol. 4, p. 1222-1233, ISSN: 2399-3642, doi: 10.1038/s42003-021-02740-8. IF: 6.268
7. Chialva M, De Rose S, Novero M, **Lanfranco L**, Bonfante P (2021). Plant genotype and seasonality drive fine changes in olive root microbiota. CURRENT PLANT BIOLOGY, vol. 28, p. 1-9, ISSN: 2214-6628, doi: 10.1016/j.cpb.2021.100219. IF: 2.145
8. Venice F, Chialva M, Domingo G, Novero M, Carpentieri A, Salvioli di Fossalunga A, Ghignone S, Amoresano A, Vannini C, **Lanfranco L**, Bonfante P (2021). Symbiotic responses of *Lotus japonicus* to two isogenic lines of a mycorrhizal fungus differing in the presence/absence of an endobacterium. PLANT JOURNAL, p. 1547-1564, ISSN: 0960-7412, doi: 10.1111/tpj.15578. IF: 6.486
9. Miozzi L, Vaira AM, Brilli F, Casarin V, Berti M, Ferrandino A, Nerva L, Nerva L, Accotto GP, **Lanfranco L** (2020). Arbuscular mycorrhizal symbiosis primes tolerance to cucumber mosaic virus in tomato. VIRUSES, vol. 12, p. 675-694, ISSN: 1999-4915, doi: 10.3390/v12060675. IF: 5.048
10. Silvestri A, Turina M, Fiorilli V, Miozzi L, Venice F, Bonfante P, **Lanfranco L** (2020). Different genetic sources contribute to the small RNA population in the arbuscular mycorrhizal fungus *Gigaspora margarita*. FRONTIERS IN MICROBIOLOGY, vol. 11, p. 1-15, ISSN: 1664-302X, doi: 10.3389/fmicb.2020.00395. IF: 5.640
11. Fiorilli V, Catoni M, **Lanfranco L**, Zabet NR (2020). Editorial: Interactions of Plants With Bacteria and Fungi: Molecular and Epigenetic Plasticity of the Host. FRONTIERS IN PLANT SCIENCE, vol. 11, p. 1-3, ISSN: 1664-462X, doi: 10.3389/fpls.2020.00274. IF: 5.754
12. Bonfante P, **Lanfranco L**, Salvioli di Fossalunga A, Ghignone S, Volpe V, Fiorilli V, Perotto S, Balestrini R, Genre A (2020). Editorial: Proceedings of iMMM 2019 – International Molecular Mycorrhiza Meeting. FRONTIERS IN PLANT SCIENCE, vol. 11, p. 2079-2080, ISSN: 1664-462X, doi: 10.3389/fpls.2020.627988. IF: 5.754
13. Wang JY, Jamil M, Lin PY, Ota T, Fiorilli V, Novero M, Zarban RA, Kountche BA, Takahashi I, Martínez C, **Lanfranco L**, Bonfante P, de Lera AR, Asami T, Al-Babili S (2020). Efficient mimics for elucidating zaxinone biology and promoting agricultural applications. MOLECULAR PLANT, vol. 13, p. 1654-1661, ISSN: 1752-9867, doi: 10.1016/j.molp.2020.08.009. IF: 13.164
14. Chialva M, **Lanfranco L**, Guazzotti G, Santoro V, Novero M, Bonfante P (2020). *Gigaspora margarita* and its endobacterium modulate symbiotic marker genes in tomato roots under combined water and nutrient stress. PLANTS, vol. 9, p. 1-14, ISSN: 2223-7747, doi: 10.3390/plants9070886. IF: 3.935
15. Fracasso A, Telò L, **Lanfranco L**, Bonfante P, Amaducci A (2020). Physiological beneficial effect of *Rhizophagus intraradices* inoculation on tomato plant yield under water deficit conditions. AGRONOMY, vol. 10, p. 71-91, ISSN: 2073-4395, doi: 10.3390/agronomy10010071. IF: 3.417
16. Genre A, **Lanfranco L**, Perotto S, Bonfante P (2020). Unique and common traits in mycorrhizal symbioses. NATURE REVIEWS MICROBIOLOGY, vol. 18, p. 649-660-660, ISSN: 1740-1526, doi: 10.1038/s41579-020-0402-3. IF: 60.633

17. Fiorilli V, Wang JY, Bonfante P, **Lanfranco L**, Al-Babili S (2019). Apocarotenoids: Old and New Mediators of the Arbuscular Mycorrhizal Symbiosis. FRONTIERS IN PLANT SCIENCE, vol. 10, p. 1-9, ISSN: 1664-462X, doi: 10.3389/fpls.2019.01186. IF: 4.402
18. Miozzi L, Vaira AM, Catoni M, Fiorilli V, Accotto GP, **Lanfranco L** (2019). Arbuscular mycorrhizal symbiosis: plant friend or foe in the fight against viruses? FRONTIERS IN MICROBIOLOGY, vol. 10:1238, p. 1-9, ISSN: 1664-302X, doi: 10.3389/fmicb.2019.01238. IF: 4.236
19. Silvestri A, Fiorilli V, Miozzi L, Accotto GP, Turina M, **Lanfranco L** (2019). *In silico* analysis of fungal small RNA accumulation reveals putative plant mRNA targets in the symbiosis between an arbuscular mycorrhizal fungus and its host plant. BMC GENOMICS, vol. 20, p. 169-186, ISSN: 1471-2164, doi: 10.1186/s12864-019-5561-0. IF: 3.594
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21. Bonfante P, Venice F, **Lanfranco L** (2019). The mycobiota: fungi take their place between plants and bacteria. CURRENT OPINION IN MICROBIOLOGY, vol. 49, p. 18-25, ISSN: 1369-5274, doi: 10.1016/j.mib.2019.08.004. IF: 8.134
22. Chialva M, Ghignone S, Novero M, Hozzein WN, **Lanfranco L**, Bonfante P (2019). Tomato RNA-seq Data Mining Reveals the Taxonomic and Functional Diversity of Root-Associated Microbiota. MICROORGANISMS, vol. 8, p. 1-17, ISSN: 2076-2607, doi: 10.3390/microorganisms8010038. IF: 4.152
23. **Lanfranco L**, Fiorilli V, Gutjahr C (2018). Partner communication and role of nutrients in the arbuscular mycorrhizal symbiosis. NEW PHYTOLOGIST, vol. 220, p. 1031-1046, ISSN: 0028-646X, doi: 10.1111/nph.15230. IF: 7.299
24. **Lanfranco L**, Fiorilli V, Venice F, Bonfante P (2018). Strigolactones cross the kingdoms: plants, fungi, and bacteria in the arbuscular mycorrhizal symbiosis. JOURNAL OF EXPERIMENTAL BOTANY, vol. 69, p. 2175-2188, ISSN: 1460-2431, doi: 10.1093/jxb/erx432. IF: 5.360
25. Turina M, Ghignone S, Astolfi N, Silvestri A, Bonfante P, **Lanfranco L** (2018). The virome of the arbuscular mycorrhizal fungus *Gigaspora margarita* reveals the first report of DNA fragments corresponding to replicating non-retroviral RNA viruses in Fungi. ENVIRONMENTAL MICROBIOLOGY, p. 2012-2025, ISSN: 1462-2920, doi: 10.1111/1462-2920.14060. IF: 5.491