

Curriculum vitae

Luisa Lanfranco

Date of birth: 07-02-1968

Nationality: Italian

Education: Laurea in Scienze Biologiche cum laude University of Torino (Italy), 1992

PhD in Biology and Biotechnology of Fungi, University of Torino

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

Teaching activities: Plant Molecular Biology and Plant Biotechnology in I and II level courses; Coordinator of the Master course in Plant Biotechnology.

Scientific activities

The scientific activity has been focused on the arbuscular mycorrhizal (AM) symbiosis which involves fungi belonging to the Glomeromycotina group and the roots of most land plants. The main objective is to study the molecular mechanisms at the basis of the plant-fungus interaction. Starting from the 90', L.L. has applied molecular biology tools to study of the genetic diversity of AM fungi. She has then developed genomics and functional genomics tools to characterize plant and fungal genes that control morphogenetic processes, nutrient acquisition and responses to stress in the AM symbiosis.

Current specific research topics:

- Characterization of plant and fungal molecular determinants, including small RNAs, at the basis of the symbiosis establishment
- Study of the role of strigolactones and apocarotenoid-derived signaling molecules in the AM symbiosis and of strigolactones perception/signalling in fungi
- 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 (i.e. combined nutrient and water limitation).

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

L.L. is referee for several national and international journals (Current Opinion in Plant Biology, New Phytologist, Fungal, Genetics and Biology, Molecular Plant-Microbe Interactions, Environmental Microbiology, Mycorrhiza...) and member of the Advisory board of New Phytologist.

Since January 2013 she is member of the board of the International Mycorrhiza Society.

Publications (2014-2019)

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, 10:1238.

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, 20:169.

Wang JY, Haider I, Jamil M, Fiorilli V, Saito Y, Mi J, Baz L, Kountche BA, Jia KP, Guo X, Balakrishna A, Ntui VO, Reinke B, Volpe V, Gojobori T, Blilou I, Lanfranco L, Bonfante P, Al-Babili S (2019) The apocarotenoid metabolite zaxinone regulates growth and strigolactone biosynthesis in rice. NATURE COMMUNICATIONS, 10(1):810.

Turina M, Ghignone S, Astolfi A, 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, 20(6):2012-2025.

Lanfranco L, Fiorilli V, Gutjahr C (2018) Partner communication and role of nutrients in the arbuscular mycorrhizal symbiosis. NEW PHYTOLOGIST, 220: 1031-1046.

Lanfranco L, Fiorilli V, Venice F, Bonfante P (2017) Strigolactones cross the kingdoms: plants, fungi, and bacteria in the arbuscular mycorrhizal symbiosis. JOURNAL OF EXPERIMENTAL BOTANY, 2175-2188.

Belmondo S, Marschall R, Tudzynski P, Lopez Raez JA, Artuso E, Prandi C, Lanfranco L (2017) Identification of genes involved in fungal responses to strigolactones using mutants from fungal pathogens. CURRENT GENETICS, 63: 201-213.

Romagnolo A, Spina F, Poli A, Risso S, Serito B, Crotti M, Monti D, Brenna E, Lanfranco L, Varese GC (2017) Old Yellow Enzyme homologues in *Mucor circinelloides*: Expression profile and biotransformation. SCIENTIFIC REPORTS, 7: 12093-12103.

Genre A, Lanfranco L (2016) Endophytic coming out: the expressorium as a novel fungal structure specialized in outward-directed penetration of the leaf cuticle. NEW PHYTOLOGIST, 211: 5-7.

Lanfranco L, Bonfante P, Genre A (2016) The mutualistic interaction between plants and arbuscular mycorrhizal fungi. MICROBIOLOGY SPECTRUM, 4: 1-20.

Belmondo S, Marschall R, Tudzynski P, López Ráez JA, Artuso E, Prandi C, Lanfranco L (2016) Identification of genes involved in fungal responses to strigolactones using mutants from fungal pathogens. CURRENT GENETICS, 63(2):201-213.

Fiorilli V, Belmondo S, Khouja HR, Abbà S, Faccio A, Daghino S, Lanfranco L (2016) RiEIP1, a gene from the arbuscular mycorrhizal fungus *Rhizophagus irregularis*, is preferentially expressed in planta and may be involved in root colonization. MYCORRHIZA, 26(6):609-21.

Belmondo S, Calcagno C, Genre A, Puppo A, Nicolas P, Lanfranco L (2016) NADPH oxidases in the arbuscular mycorrhizal symbiosis. PLANT SIGNALING & BEHAVIOR, 11(4):e1165379.

Belmondo S, Calcagno C, Genre A, Puppo A, Pauly P, Lanfranco L (2016) The *Medicago truncatula* MtRbohE gene is activated in arbusculated cells and is involved in root cortex colonization. PLANTA, 243:251-262.

Belmondo S, Fiorilli V, Pérez-Tienda J, Ferrol N, Marmeisse R, Lanfranco L (2014) A dipeptide transporter from the arbuscular mycorrhizal fungus *Rhizophagus irregularis* is upregulated in the intraradical phase. FRONTIERS IN PLANT SCIENCE, 3;5:436.

Manoli A, Begheldo M, Genre A, Lanfranco L, Trevisan S, Quaggiotti (2014) NO homeostasis is a key regulator of early nitrate perception and root elongation in maize. JOURNAL OF EXPERIMENTAL BOTANY, 65(1): 185-200.

Maffei G, Miozzi L, Fiorilli V, Novero M, Lanfranco L, Accotto GP (2014) The arbuscular mycorrhizal symbiosis attenuates symptom severity and reduces virus concentration in tomato infected by Tomato yellow leaf curl Sardinia virus (TYLCSV). MYCORRHIZA, 24:179-186.

Google Scholar citation index (July 13, 2019)

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