

PERSONAL INFORMATION

**Gennaro Carotenuto**



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Sex Male | Date of birth 26 May 1987 | Nationality Italian

PREFERRED JOB

Biologist

WORK EXPERIENCE

13 Jan 2015–30 Sep 2015

technical biologist

Arterra Bioscience srl

Via Benedetto Brin, 69, 80142 Napoli (Italy)

Maria Gabriella Colucci gcolucci@arterrabio.it +39 0816584411

Research activity in collaboration with the partner ISAGRO (group active in agropharmaceutical sector) to evaluate the potential biostimulat activity of several natural compunds on different culture (Arabidopsis, rice, maize and tomato) for induction of genes involved in: response to abiotic and biotic stresses, response to plant hormones and delay of senescence.

Identification of molecular target in insect and nematodes that can be interfered through RNA interference produced by transgenic plants transformed with Agrobacterium tumefaciens.

Production of calli from several plant species that can be used to obtain secondary metabolites which might have potential cosmetic applications.

2 Sep 2014–18 Dec 2014

Post-graduate apprenticeship

Arterra Bioscience, Via Benedetto Brin 69, Napoli (NA) (Italy)

www.arterrabio.it

Apprenticeship as part of the scholarship grant "GenoPom-pro". Conducted research activities for the study of the gene responses to biotic/abiotic stresses in model and agricultural interest crops.

1 Mar 2013–8 Sep 2013

Post-graduate apprenticeship for free

Ente Consiglio per la Ricerca e la Sperimentazione in Agricoltura - CAT Unit

Via P. Vitiello, 108, 84018 Scafati (SA)

Conducted research activities in plant protection and biology laboratory. Attained a good experience in lab management, molecular biology techniques and publications.

Business or sector Professional, scientific and technical activities

1 Jan 2012–20 Feb 2013

Apprendiceship

Ente Consiglio per la Ricerca e la Sperimentazione in Agricoltura - CAT Unit

Via P. Vitiello, 108, 84018 Scafati (SA) (Italy)

Conducted research activities in plant pathology, molecular biology and microbiology. In this period, have attained scientific results with thesis in. "Identification and characterization of the fungistatic/fungicide activity of plant extracts on plant pathogenic fungi".

Business or sector Professional, scientific and technical activities

1 Oct 2009–24 Feb 2010

Apprenticeship

Department of Experimental Medicine and Biochemical Sciences - University of Perugia  
Via del Giochetto, 06122 Perugia (PG) (Italy)

Conducted research activity in molecular biology and written the thesis in: "Isolation and characterization of adipose stem cell for regenerative medicine"

## EDUCATION AND TRAINING

1 Oct 2015–Present

PhD in Biology and Applied Biotechnologies

Doctoral School of Sciences and Innovative Technologies, Department of Life Sciences and Systems Biology, University of Turin. Tutor Prof. Andrea Genre  
andrea.genre@unito.it

Title of the research project: "Pre-symbiotic signalling and role of the endoreduplication in arbuscular mycorrhizal interaction".

The highlights of this project

- Gene expression analysis of *M. truncatula* roots involved in arbuscular mycorrhizal interactions.
- Evaluation of endoreduplication onset in wild type roots of *M. truncatula* in response to fungal exudates or purified chitin oligomers (symbiotic signals released by arbuscular mycorrhizal fungi).
- Confocal, optical microscopy and cytofluorimetry to analyze the occurrence of endoreduplication in wild-type and *dmi2/dmi3* mutant *M. truncatula* roots. Part of this work was done in collaboration with the IPN (Plant-Nematode interaction) research group located in INRA of Sophia-Antipolis (France), under the supervision of Janice de Almeida Engler; taking advantages of two COST FA grants for Short Term Scientific Missions.
- Analyzing the role of the rice LysM receptor-like kinase, OsCERK1, in the perception of the short chain chitin oligomers (Myc-COs) from AM fungal exudates.
- Testing the possibility of enhancing AM colonization in herbaceous crops by adding Myc-COs to agricultural soils.
- Investigation of plant-specific protein, such as TPLATE, in pre-penetration apparatus establishment (TPLATE-GFP signal and GUS analysis).

Environmental project:

- "AM for Quality" Project: enhancing forage plant mycorrhization to improve the supply chain quality of Piedmontese cattle breed; funded by Fondazione Cassa di Risparmio di Cuneo. Collaboration with C.C.S. Aosta and La Granda S.r.l.

1 Feb 2017– 7 Apr 2017

COST Action FA1206 "Short Term Scientific Mission"

UMR ISA-Institut Sophia Agrobiotech INRA -UNS-CNRS, Sophia-Antipolis, France. Tutor Janice de Almeida Engler

Janice.Almeida-Engler@sophia.inra.fr

Title of the research project: " Investigating the role of endoreduplication in arbuscular mycorrhizas".

The highlights of this project: confocal, optical microscopy and cytofluorimetry to analyze the occurrence of endoreduplication in *dmi2* and *dmi3* mutant *M. truncatula* roots inoculated by *G. margarita*.

## Curriculum vitae

- 1 Mar 2016– 30 Apr 2016 COST Action FA1206 “Short Term Scientific Mission”  
UMR ISA-Institut Sophia Agrobiotech INRA -UNS-CNRS, Sophia-Antipolis, France. Tutor  
Janice de Almeida Engler  
Janice.Almeida-Engler@sophia.inra.fr  
Title of the research project: " Investigating the role of endoreduplication in arbuscular mycorrhizas".  
The highlights of this project: confocal, optical microscopy and cytofluorimetry to analyze the occurrence of endoreduplication in wild-type *M. truncatula* roots colonized by *G. margarita*, an AM fungus.
- 20 Sep 2013–18 Dec 2014 Scholarship grant  
Department of Agriculture, University of Napoli, Federico II, Napoli (NA) (Italy)  
Partecipated to training project "GenoPom-pro" and have gained notions of advanced genomic and bioinformatic technologies for the genetic breeding of vegetables. I learned notions in:  
- Principles and methods for genetic breeding of vegetables (in particular of tomato's cultivar);  
- Reverse and forward genomics;  
- Trascrittomics, proteomics, metabolomics, comparative genomics, epigenomics;  
- Next generation sequencing of nuclear, mitochondrial and plastidial genomes;  
- Functional annotations, genetic mapping and genetic engineering  
- Bioinformatics: tools, databases, analysis and integration of omics data
- 29 Sep 2014–3 Oct 2014 SIGA "Statistic for traditional and advanced genetic breeding"  
Società Italiana Genetica Agraria, Salsomaggiore Terme (PR) (Italy)  
Acquisition of notions for the proper planning of the experiments and evaluation of the experimental data.
- Jun 2013 Qualification to exert the profession of biologist  
University of Sannio, Benevento (BN) (Italy)
- Oct 2010–20 Feb 2013 Italian Master Degree in Biology  
University of Salerno, Fisciano (SA) (Italy)  
Top grade with the thesis on "Identification and characterization of the fungistatic/fungicide activity of plant extracts on plant pathogenic fungi"
- Oct 2006–25 Feb 2010 Italian Bachelor Degree in Biology  
University of Perugia, Perugia (PG) (Italy)  
Top grade with the thesis on "Isolation and characterization of adipose stem cell for regenerative medicine"
- Sep 2001–Jul 2006 High school leaving qualification in scientific studies  
Liceo Scientifico "Caccioppoli", Scafati (SA) (Italy)

PERSONAL SKILLS

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Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B1	B2	B1	B2	B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
Common European Framework of Reference for Languages

**Communication skills** High integrity and honesty, determined and decisive, strong planning, organising and monitoring abilities, good communication skills gained from leisure activities (reading group) and developed through my university course.

**Organisational / managerial skills** Diligent and conscientious; enthusiastic in finding openings and opportunities. Active and dynamic approach to work and getting things done; strong planning, organising and monitoring abilities. Good ability to work well with others, to motivate and to encourage gained from leisure activities (football and basket), work and voluntary (steward in scout group).

**Job-related skills** Good knowledge of: laboratory instrumentation in microbiology (isolation and characterization of fungi); micropropagation in vitro culture of model crop; and main protocols of molecular biology (isolation of DNA, RNA and protein, PCR, RT-PCR, semiquantitative RT-PCR, molecular markers, electrophoretic gels, ELISA test, transformation of vegetable tissues by *Agrobacterium tumefaciens*)

**Digital competence** Good working knowledge of a range of Microsoft applications and others software packages, including Word, Access, Excel, Power Point, Photoshop, Movie Maker, Audacity, ImageJ. Regular use of the internet for research to consult genomic and post-genomic database and software (Entrez-NCBI, Ensembl, Tair, Sol genomics, Blast, Galaxy, Bowtie, FastQC)

**Other skills** Enthusiast for hobby as: reading of history books, team games (football, basket), volunteering in scout group, gardening and carpentry.

**Driving licence** B

ADDITIONAL INFORMATION

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International Conferences

- Carotenuto G., Carrieri R., Alfieri M. A., Leone A., De Tommasi N., Lahoz E., 2013. "Molecular bases of the fungistatic effect of a plant natural berberine-like molecule on *Botrytis cinerea*". *XVI International Botrytis Symposium*, Locorotondo, Italy, June 23-28, 2013. Abstract Book p. 48.
- Carotenuto G., Russo G., de Almeida Engler J., Genre A., 2016. "Investigating the role of endoreduplication in arbuscular mycorrhizas". *8th European Plant Science Retreat (EPSR)*, Barcellona, Spain, June 20-23, 2016. Poster presentation.
- Carotenuto G., Volpe V., Russo G., de Almeida Engler J. and Genre A., 2017. Investigating the role of endoreduplication in arbuscular mycorrhizas. 3rd Adam Kondorosi "Frontiers in beneficial Plant-Microbe Interactions" Symposium; Gif Sur Yvette, France, April 24-25, 2017. Poster session.
- Carotenuto G., Volpe V., Russo G., de Almeida Engler J. and Genre A., 2017. Endoreduplication and prepenetration responses in arbuscular mycorrhizas. Riunione annuale dei gruppi di lavoro della società botanica italiana "Biologia cellulare e molecolare & Biotecnologie e differenziamento"; Milano, Italy, June 14-16, 2017. Talk session.
- Carotenuto G., Volpe V., Russo G., de Almeida Engler J. and Genre A., 2017. Investigating the role of endoreduplication in arbuscular mycorrhizas. International Molecular Mycorrhiza Meeting, Toulouse, France, July 26-28, 2017. Poster session.
- Volpe V., Oddi L., Carotenuto G., Forte T. G., Giovannetti G., Barni E., Salvioli A., Lanfranco L., Bonfante P., Capaldo S., Bergese M., Siniscalco C., Genre A., 2017. AM for Quality - Use of chitin oligomers to enhance forage plant mycorrhization and crop quality. International Molecular Mycorrhiza Meeting, Toulouse, France, July 26-28, 2017. Poster session.
- Carotenuto G., Chabaud M., Miyata K., Capozzi M., Takeda N., Kaku H., Shibuya N., Nakagawa T., Barker D. G. and Genre A.; 2017. OsCERK1 is required for the perception of short-chain chitin oligomers in arbuscular mycorrhizal signaling in rice. International Molecular Mycorrhiza Meeting, Toulouse, France, July 26-28, 2017. Poster session
- Sciascia I., Carotenuto G., Genre A.; 2018. Assessing plant cell ploidy through confocal image analysis methods. Statistics and Data Science New Developments for Business and Industrial Applications, Torino, Italy, May 24-25. Talk session.
- Carotenuto G., Volpe V., Russo G., de Almeida Engler J., Genre A. 2018. Investigating the role of endoreduplication in arbuscular mycorrhizas. V International Plant Science Conference (IPSC), 113° Congresso della Società Botanica Italiana onlus, Fisciano Campus Universitario, Italy, September 12-15. Talk session.
- Volpe V., Carotenuto G., Oddi L., Politi M., Giovannetti G., Barni E., Salvioli A., Lanfranco L., Bonfante P., Capaldo S., Bergese M., Siniscalco C. 2018. AM for Quality - Use of chitin oligomers to enhance forage plant mycorrhization and crop quality. V International Plant Science Conference (IPSC), 113° Congresso della Società Botanica Italiana onlus, Fisciano Campus Universitario, Italy, September 12-15. Poster session.

## Publications

- Carrieri R., Carotenuto G., Lahoz E., 2013. "Characterization and pathogenicity of *Pestalotiopsis uvicola* causing black leaf spot on carob (*Ceratonia siliqua* L.) in Italy". *Eur J Plant Pathol*, 137, pp. 655-661.
- Carrieri R., Pizzolongo G., Carotenuto G., Tarantino P., Lahoz E., 2014. "First Report of Necrotic Leaf Spot Caused by *Plectosphaerella cucumerina* on Lamb's Lettuce in Southern Italy". *Plant Disease Journal*, 98(7), pp. 998.
- Carotenuto G., Carrieri R., Tarantino P., Alfieri M., Leone A, De Tommasi N., Lahoz E., 2015. "Fungistatic activity of *Zanthoxylum rhoifolium* Lam. bark extracts against fungal pathogens and investigation on mechanism of action in *Botrytis cinerea*". *Natural Product Research*, 29(23), pp. 2251-2255
- Carotenuto G., Chabaud M., Miyata K., Capozzi M., Takeda N., Kaku H., Shibuya N., Nakagawa T., Barker D. G. and Genre A.; 2017. The rice LysM receptor-like kinases OsCERK1 is required for the perception of short-chain chitin oligomers in arbuscular mycorrhizal signaling. *New Phytol.*, 214(4), pp. 1440-1446.
- Russo G., Carotenuto G., Fiorilli V., Volpe V., Chiapello M., Van Damme D., Genre A.; 2018. Ectopic activation of cortical cell division during the accommodation of arbuscular mycorrhizal fungi. *New Phytol.*, doi: <https://doi.org/10.1111/nph.15398>.

Date, 17/09/2018

Genaro Carotenuto