

Prof. Gianni Barcaccia, PhD: Curriculum vitae

Personal information

Date and Place of Birth: 27 July, 1965 – Perugia, Italy
Professional Website: www.giannibarcaccia.com

Current position

Full Professor of Plant Genetics (Scientific-Disciplinary Sector AGR/07)
Head of the Laboratory of Genomics for Plant Breeding
Vice Director of the Department of Agronomy, Food, Natural resources, Animals and Environment – DAFNAE
University of Padova, Italy

Education

1991 – M.Sc. in Agricultural Science with Magna cum Laude, Plant Breeding Institute, Faculty of Agriculture, University of Perugia, Italy
1995 – Ph.D. in Crop Science, Genetics of Plant Reproductive Systems, Faculty of Agriculture, University of Padova, Italy

Postdoctoral Research Training

1996 – 1997 Post Doctoral Fellow in Plant Population Genetics, University of Perugia, Italy

Academic Positions

1998 – 2003 Researcher, University of Padova, Italy
2004 – 2016 Associate Professor, University of Padova, Italy
2017 – present: Full Professor of Plant Genetics, School of Agriculture Sciences and Veterinary Medicine, University of Padova, Italy (www.unipd.it) and Adjunct Professor of Plant Breeding, University of Georgia, Athens, USA (www.uga.edu)

Main University Roles and Services

1999 – present: Member of the Doctorate Board in Crop Science, Representative of the Section of Plant Biotechnology, University of Padova
2012 – 2016 Vice Director of the School of Doctorate in Crop Science, University of Padova (www.sciproveg.com)
2015 – present: Vice Director of Department, Representative of the Third Mission Board and Coordinator of the Scientific Commission of Department, University of Padova (www.dafnae.unipd.it)

Teaching Activities

2001 – present: Professor of Plant Genetics, also in charge of Applied Genomics, Genetic Traceability of Food Products and Plant Breeding, School of Agriculture Science and Veterinary Medicine, University of Padova (www.agrariamedicinaveterinaria.unipd.it/en)

Research Topics

- 1) Plant reproductive systems, mainly genetic control of fertilization barriers (male-sterility and self-incompatibility) and seed formation (i.e. apomixis) in crop and model species
- 2) Genome analysis by means of PCR-derived molecular markers aimed at the construction of genetic linkage maps, identification of genes and marker-assisted selection (MAS)
- 3) Transcriptome analysis by means of mRNA profiling and NGS technologies, gene expression studies, and structural, bioinformatic and functional analysis of genes
- 4) Analysis of genetic diversity and marker-assisted breeding (MAB): characterization of varieties and natural populations belonging to crops, trees and livestock species
- 5) Development of molecular diagnostic assays for the genetic traceability of crop plants and fish derivatives using DNA fingerprinting and DNA barcoding

Research Funding and Main Projects

In the last 10 years, scientific collaborations have been developed and maintained with several Italian and International groups. Among the research programs coordinated, it is worth mentioning several Projects of Relevant National Interest funded by the Ministry of University and Research, the Ministry of Agriculture Food and Forest Policies and the so-called Strategic Projects of Athenaeum funded by the University of Padova. Furthermore, research contracts have been regularly stipulated with Italian Seed Companies, mainly dealing with horticulture crops, and with Veneto Agriculture, the regional agency dealing with agriculture, forestry and

food.

2008 – present: Research Leader of the Laboratory of Genomics for Plant Breeding, University of Padova. The laboratory has been performing R&D experiments through internal and external fund raising. In particular, since 2012, year of the constitution of DAFNAE, the total research budget administrated as PI amounts to about 700.000 euro, of which 40% derived from institutional funds for basic research and 60% acquired from commercial contracts for applied research.

2006 – 2007 Coordinator of the RU working on Apomixis PRIN 2005 (MIUR Project N. 2005071321_002)

2009 – 2013 Member of the COST Action FA0903 – Harnessing Plant Reproduction for Crop Improvement

2010 – 2011 Principal Investigator of the RU working on Olive self-incompatibility of the Strategic Project OLEA – MiPAAF (DM 27011/7643/10)

2010 – 2013 Member of the local RU of the Project AGER – SERRES on Grapevine (N. 01/07/2010)

2012 – 2015 Principal Investigator of the Strategic Research Project on Apomixis funded by the University of Padova (Project N. CPDA128282/12)

2013 – 2014 Chair of the WP Cereals and Member of the Executive Committee of the PSR Misura 214H: Regional Network on Biodiversity – BIONET (DGR 1604/2012)

2016 – 2019 Scientific Representative of the Department Research Agreement with Blumen SpA for developing F1 hybrids in Radicchio using male-sterility (Protocol N. 2055/2016)

2017 – present: Member of the RU in the bilateral Project of Great Relevance Argentina–Italy on Apomixis (Minister of Foreign Affairs and International Cooperation, Project N. PGR00853/PGR05135)

Experiences as Academic Administrative

2015 – present: Vice Director of DAFNAE – University of Padova, Department that administrates a budget for research and development for an economic value of about 10.000.000 euro per year

2015 – present: Coordinator of the Scientific Commission of Department that annually manages and allocates internally funds for research projects and grants (DAFNAE – University of Padova, total budget 1.330.000 euro)

2018 – 2022: Member of the Executive Committee of the Project “Department of Excellence” (DAFNAE – University of Padova, total budget 8.675.000 euro)

Responsibilities of Service Laboratories

2007 – present: Inventor and Holder of BreedOmics, Services of Plant Genetics and Breeding, University of Padova

2014 – present: Founder and Leader of the University Spin-off GfB, Genomics for Breeding, University of Padova

Principal Investigator of advanced services laboratories of genomic analyses based on the use of molecular markers for breeding and protecting plant varieties, and for genetic traceability of food products and derivatives, where specific programs of research and development, including molecular tools and diagnostic assays, are also implemented for seed companies and food industries. The annual turnover is about 75.000 euro.

Academic and Scientific Supervision

Scientific Supervisor of 3 Post-doc students, 10 Ph.D. students and more than 50 M.Sc. and B.Sc. students belonging to the Doctorate in Crop Science and to the School of Agricultural Sciences, including Biotechnology courses, of the University of Padova.

Academic Representative of a Post-doc student winner of a biennial Project for Young Scholars (PGS year 2010, UNIPD) and a fixed-term Researcher winner of a triennial Project for the Scientific Independence of young Researchers (SIR year 2014, MIUR)

Seminars and Lectures

Seminar activities in domestic meetings and foreign countries. In particular, many oral communications as selected or invited lectures have been given in national and international conferences and congresses (e.g. Plant and Animal Genome, Sexual Plant Reproduction, Intl Botanical, Intl Apomixis, Eucarpia, Intl Society of Plant Reproductive Biologists, Italian Society of Agriculture Genetics, National Biotechnology Consortium, etc.)

Publications

More than 100 in extenso articles (96 and 101 records are available in both the Web of Science and Scopus databases, respectively, and 52 records in the NCBI PubMed database).

Scientific publications in international, peer-reviewed journals: 93 papers of which 65 (70%) as first or last author, and/or corresponding author.

Books and Book Chapters: 3 academic books (1st and 2nd editions) and 8 book chapters.
Scientific publications in Italian journals: 24 articles on national journals and 2 monographs.

Research Impact Metrics

Citations and Scientific production statistics: about 1.900 citations with H-index=26 in Scopus (35 in Google Scholar and 37 in Research Gate), total IF: 215

Selected Patents

Discovery and analysis of nuclear male sterility in leaf chicory (*Cichorium intybus* L). International Patent Application PCT/EP2011/058765 and European Patent EP2713705-B1 (<https://encrypted.google.com/patents/EP2713705B1>)

New male sterile *Cichorium* spp. mutant, parts or derivatives, where male sterility is due to a recessive nuclear mutation linked to a polymorphic molecular marker, useful for producing F1 hybrids. EU Patent WO2012163389-A1

New male sterile *Cichorium* spp. mutant used to produce chicory plants and seeds, with traits such as male sterility exhibiting cytological phenotype with shapeless, small and shrunken microspores in dehiscent anthers. USA Patent US20140157448-A1

Editorial and Reviewer Activities

Reviewer for several indexed scientific journals dealing with plant genomics, genetics and breeding. Academic Editor of Scientific Reports (NATURE publishing group), Member of the Editorial Board of Scientifica, section Genomics (HINDAWI publishing corporation) and Plants (MDPI Publisher of Open Access Journals).

Last Publications

Several original research articles and reviews were recently published in a Research Topic of Frontiers of Plant Science (www.frontiersin.org/research-topics/8183/genetics-and-genomics-of-plant-reproduction-for-crop-breeding), including Galla *et al.* (2019) Ovule gene expression analysis in sexual and aposporous apomictic *Hypericum perforatum* L. (Hypericaceae) accessions (doi: 10.3389/fpls.2019.00654), Alagna *et al.* (2019) The Paradox of Self-Fertile Varieties in the Context of Self-Incompatible Genotypes in Olive (doi: 10.3389/fpls.2019.00725), Palumbo *et al.* (2019) Genomics of Flower Organ Identity in Grapevine (*Vitis vinifera* L.) (doi: org/10.3389/fpls.2019.00316), Palumbo *et al.* (2019) Construction of the First SNP-Based Linkage Map Using Genotyping-by-Sequencing and Mapping of the Male-Sterility Gene in Leaf Chicory (doi.org/10.3389/fpls.2019.00276).

Padova, 22 May 2019

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