
BIOGRAPHICAL SKETCH

NAME: Alberto ACQUADRO

eRA COMMONS USER NAME: N/A – to be assigned upon submission

POSITION TITLE: Full Professor of Plant Genetics, University of Torino, Italy

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Torino, Italy	M.Sc. (Magna cum Laude)	2000	Plant Biotechnology
University of Torino, Italy	Ph.D.	2004	Agricultural, Forest and Food Sciences
NIAB, Cambridge, UK	Marie Curie Fellowship	01/2002	Molecular Research (EU Vth FP)
PRI Wageningen, Netherlands	Visiting Scientist	09/2006	Plant Research
Agricultural Biotechnology Centre, Budapest, Hungary	Visiting Scientist	06/2001	Agricultural Biotechnology

A. Personal Statement

I am a Full Professor of Plant Genetics at the University of Torino, Italy, with more than 20 years of experience in plant genomics, molecular breeding, and bioinformatics.

My research focuses on the development of genomic tools for crop improvement, with specific contributions to: i) construction of reference genomes (e.g., globe artichoke), ii) application of next-generation sequencing technologies, iii) CRISPR/Cas9-mediated genome editing in Solanaceae and other horticultural crops.

I have authored over 114 peer-reviewed publications (h-index 33, >3300 citations, Scopus 9/2025) and served as editorial board member of the journal *Genes* and guest editor in *Frontiers in Plant Science*.

My teaching activities include Bioinformatics, Molecular Biology, and Plant Genetics, training the next generation of plant scientists. I have participated in EU-funded projects (e.g., G2PSOL) and coordinated national and regional projects (VINO, PROSPECT, DROUGHT, ValtiFRU), strengthening international collaborations in genomics and functional breeding.

B. Positions, Scientific Appointments, and Honors

Positions

2023 – present: Full Professor of Plant Genetics, DISAFA, University of Torino, Italy

2015 – 2023: Associate Professor of Plant Genetics, DISAFA, University of Torino, Italy

2005 – 2015: Researcher, DIVAPRA, University of Torino, Italy

2004 – 2005: Research Fellow, DIVAPRA, University of Torino, Italy

Scientific Appointments & University Roles

2025 – present: Director, School of Agraria e Medicina Veterinaria (SAMeV), University of Torino

2021 – 2024: Vice-Director, SAMeV Council

2011 – 2025: Member, Department Council (DISAFA), University of Torino

2020 – 2025: Member, Monitoring and Review Committee, MSc Plant Biotechnology

2024 – 2025: Member, Teaching Evaluation Committee (Paritetic Committee), SAMeV

2017 – 2025: Delegate for Inbound/Outbound ERASMUS

2024 – 2025: Member, Scientific Committee, Interdepartmental Center for Viticulture and Wine (CONViVi)

Honors

National Scientific Qualification as Full Professor (ASN 07/E1, AGR/07), 2016 – present

National Scientific Qualification as Associate Professor (ASN 07/E1, AGR/07), 2012 – 2017

Marie Curie Fellowship (EU Vth Framework Programme), NIAB, Cambridge, UK, 2001–2002

C. Contributions to Science

1. Genomics of globe artichoke and vegetable crops

I contributed to the sequencing of the **first globe artichoke reference genome** and subsequent **resequencing analyses**, linking genomic resources to breeding and functional genomics. This work paved the way for trait dissection and molecular prediction in horticultural crops.

Selected publications:

- Martina M., De Rosa V., Magon G., Acquadro A., et al. (2024). *Revitalizing agriculture: next-generation genotyping and -omics technologies enabling molecular prediction of resilient traits in the Solanaceae family*. *Frontiers in Plant Science*, 15:1278760. DOI: 10.3389/fpls.2024.1278760.
- Martina M., Zayas A., Portis E., Di Nardo G., Polli M.F., Comino C., Gilardi G., Martin E., Acquadro A. (2024). *BSA-seq identified genomic regions linked to male sterility in globe artichoke*. *BMC Plant Biology*, 24:5119.
- Rau D., Attene G., Rodriguez M., Acquadro A., et al. (2022). *Population structure of globe artichoke worldwide collection*. *Frontiers in Plant Science*, 13:898740. DOI: 10.3389/fpls.2022.898740.
- Scaglione D., Reyes-Chin-Wo S., Acquadro A., et al. (2016). *The genome sequence of the outbreeding globe artichoke constructed de novo incorporating a phase-aware low-pass sequencing strategy of F1 progeny*. *Scientific Reports*, 6:19427. DOI: 10.1038/srep19427.
- Acquadro A., Barchi L., Portis E., Nouridine M., Carli C., Monge S., et al. (2020). *Whole genome resequencing of four Italian sweet pepper landraces provides insights on sequence variation in genes of agronomic value*. *Scientific Reports*, 10:9189. DOI: 10.1038/s41598-020-66090-8.

2. Genome editing for stress tolerance in Solanaceae

My research group used **CRISPR/Cas9** to edit susceptibility genes (SIDMR6, DND1, PMR4), producing **resistant tomato and eggplant lines** with improved tolerance to *Phytophthora* spp. and powdery mildew.

Selected publications:

- Maioli A., De Marchi F., Valentino D., Gianoglio S., Patono D.L., Miloro F., Bai Y., Comino C., Lanteri S., Lovisolo C., Acquadro A., Moglia A. (2024). *Knock-out of SIDMR6-1 in tomato promotes a drought-avoidance strategy and increases tolerance to Late Blight*. *Plant Stress*, 13:100541. DOI: 10.1016/j.stress.2024.100541.
- Li R., Cui L., Martina M., Bracuto V., Meijer-Dekens F., Wolters A.A., Moglia A., Bai Y., Acquadro A. (2024). *CRISPR/Cas9 mutations in DND1 gene enhance tomato resistance to powdery mildew with low fitness costs*. *BMC Plant Biology*, 24:763. DOI: 10.1186/s12870-024-05428-3.
- Ferrero M., Valentino D., Milani A.M., Comino C., Lanteri S., Acquadro A., Moglia A. (2024). *DMR6–1 CRISPR/Cas9 knockout in eggplant enhances tolerance to Phytophthora spp.* *Plant Stress*, 14:100691. DOI: 10.1016/j.stress.2024.100691.
- Li R., Maioli A., Yan Z., Bai Y., Valentino D., Milani A.M., Pompili V., Comino C., Lanteri S., Moglia A., Acquadro A. (2022). *CRISPR/Cas9-Based Knock-Out of the PMR4 Gene Reduces Susceptibility to Late Blight in Two Tomato Cultivars*. *Int. J. Mol. Sci.*, 23:14542. DOI: 10.3390/ijms232314542.

3. Application of bioinformatics and -omics technologies

I applied **RNA-seq, SNP genotyping, and transcriptomics** in tomato, eggplant, and hazelnut to identify candidate genes for resilience traits. These approaches allowed integrating multi-omics for molecular prediction.

Selected publications:

- Valentini N., Pavese V., Martina M., Acquadro A., Torello Marinoni D., Botta R., Portis E. (2025). *Genomic investigation of traits associated with nut and kernel in hazelnut*. *Scientia Horticulturae*, 339:113871. DOI: 10.1016/j.scienta.2024.113871.
- Cerruti P., Campobenedetto C., Montrucchio E., Agliassa C., Contartese V., Acquadro A., Berteà C.M. (2024). *RNA-seq analysis supports mitigating effects of an algae-based biostimulant on drought stress in tomato plants*. *Physiologia Plantarum*, 176:e70007. DOI: 10.1111/ppl.70007.
- Martina M., Acquadro A., Portis E., Barchi L., Lanteri S. (2023). *Diversity analyses in Ranunculaceae using low-cost NGS*. *Frontiers in Plant Science*, 14:1187205. DOI: 10.3389/fpls.2023.1187205.
- Magon G., De Rosa V., Martina M., Falchi R., Acquadro A., Barcaccia G., Portis E., Vannozzi A., De Paoli E. (2023). *Boosting grapevine breeding for climate-smart viticulture: from genetic resources to predictive genomics*. *Frontiers in Plant Science*, 14:1293186. DOI: 10.3389/fpls.2023.1293186.
- Marino L.A., Pavese V., Ruffa P., Ferrero M., Acquadro A., Barchi L., Botta R., Torello Marinoni D. (2023). *Guardians of quality: advancing Castanea sativa traceability using DNA analysis*. *Scientia Horticulturae*, 325:112713. DOI: 10.1016/j.scienta.2023.112713.

D. Research Support (Ongoing and Completed)

Ongoing

- Project VINO (VIneyard management for viNeprOduction, NODES Flagship project) - Responsible for grapevine stress response module (Research Module 2).
- Project DROUGHT (POC accademico – NODES, 2023–2027) – PI, grapevine stress response.
- Project ValtiFRU 4.0 – Valorization of nut and fruit chains. Role: Research Unit Member.

Completed

- EU Project G2PSOL (2016–2021) – Collaborator, DISAFA budget €299,000.
- Project PROSPECT (U-02489-20181114-SAI-M) – PI, resistance in horticultural crops.
- Project RisEPP (2016–2019) – Collaborator, resequencing pepper ecotypes.
- Project OSMOS (2013–2015) – PI, omics in eggplant.
- Project ErRAnT (2014–2017) – Collaborator, resistance against thrips in eggplant.