

# Mattia Santoni, PhD

POST-DOC RESEARCHER

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## Profile

I am a Plant Biotechnologist deeply committed to embracing multidisciplinary and passionate about exploring cutting-edge technologies. Over the recent years, my expertise has been honed in the dynamic realm of Plant Molecular Farming, a biotechnological field that utilizes plants as versatile production platforms for high-value biological proteins. My primary emphasis has been on generating recombinant proteins with the aim of serving as essential reagents in the *in vitro* diagnosis of human diseases. Currently, I am actively contributing to groundbreaking research at a Biochemistry Laboratory of Bologna University. In this capacity, our focus revolves around conducting human intestinal cell cultures to meticulously assess nutrient availability in various foods. This research not only aligns with my professional goals but also underscores my dedication to advancing the understanding of crucial aspects within the realm of biotechnology.

## Hard Skills

<b>Molecular Biology</b>	Nucleic acids isolation and analysis
<b>Biochemistry</b>	Protein purification and characterization, human cell cultures techniques
<b>Biotechnology</b>	Cloning techniques
<b>Data Management and Analysis</b>	Statistical analysis softwares
<b>Spoken languages</b>	Proficient in English with a basic level of proficiency in Spanish

## Education

### Biotechnology Department - University of Verona

Verona, Italy

INDUSTRIAL PhD IN BIOTECHNOLOGY

Oct. 2019 - Sept. 2023

- Thesis title: "Plant-Made Proteinaceous Materials as Biotechnological Tools for Diagnostic and Therapeutic Applications"
- Grade: "Excellent"

### University of Verona

Verona, Italy

MASTERS DEGREE IN AGRI-FOOD BIOTECHNOLOGY

Oct. 2015 - Mar. 2018

- Thesis Title: "A plant-based approach in the development of diagnostic kits for allergies and autoimmune diseases".
- Grade: 110/110

### Alma Mater Studiorum - University of Bologna

Cesena, Italy

BACHELOR DEGREE IN FOOD TECHNOLOGIES

Oct. 2011 - Oct. 2014

- Thesis title: "Effects of cutting and plasma treatments on ready-to-eat fruit observed through 1H-NMR."
- Grade: 102/110

### Istituto Tecnico Agrario G. Garibaldi

Cesena, Italy

HIGH SCHOOL FOR AGRONOMISTS

Jul. 2011

- Agro-industry specialization
- Grade: 76/100

## Work Experience

### Department of Agri-food Sciences and technology - University of Bologna (Tutor Prof. ssa Francesca Danesi)

Cesena, Italy

DEPARTMENT OF AGRI-FOOD SCIENCES AND TECHNOLOGY - UNIVERSITY OF BOLOGNA

Dec. 2023 - Current

- Collaborator in the INFIRE project (PRIN 2022). Identification of the mechanism governing the inhibition of ferroptosis in *P. oryzae*.
- Collaborator in the GREEN-ER project, investigating the impact of titanium on cultured intestinal cells

### **Diamante srl (Tutor Prof.ssa Linda Avesani)**

RESEARCHER - INDUSTRIAL PHD STUDENT - H2020 PHARMA-FACTORY

Verona, Italy

Oct. 2019 - Sept. 2022

- Expression and purification of plant tissue-modified viral nanoparticles for diagnostic and therapeutic purposes.
- Expression and purification of viral subunits of the SARS-CoV-2 virus from plant tissue for diagnostic purposes.
- Production of recombinant proteins in plant tissues with subsequent characterization and functional assessment.

### **Department of Biological Chemistry - John Innes Centre (Tutor. Prof. George Lomonosoff)**

Norwich, UK

VISITING SCIENTIST - H2020 PHARMA FACTORY

Sept. 2019 - Dec. 2019

- Development of an expression system for viral nanoparticles to be employed as nanomaterial in in vitro diagnostic devices.
- In vivo assembly studies of viral nanoparticles.
- Development of a purification protocol for viral nanoparticles from plant tissue.

### **Biotechnology Department - University of Verona (Tutor Prof.ssa Linda Avesani)**

Verona, Italy

RESEARCH FELLOW - H2020 PHARMA FACTORY

Apr. 2018 - Sept. 2019

- Development of an expression vector for viral nanoparticles in plants.
- Production of antigens in plants for use in in vitro diagnostic devices.

### **Diamante srl (Tutor Prof. ssa Linda Avesani)**

Verona, Italy

INTERN

Feb. 2017 - Mar. 2018

- Expression and purification of viral nanoparticles from plant tissues.
- Development of an in vitro diagnostic device for the diagnosis of autoimmune diseases.
- Expression and purification of recombinant allergens from plant tissue.

### **Department of Agri-food Sciences and technology - University of Bologna (Tutor Prof. Luca Laghi)**

Cesena, Italy

INTERN

Jan. 2014 - Sept. 2014

- Metabolomic analysis of ready-to-eat fruit using 1H-NMR.
- Multivariate statistical analysis.

## **Soft Skills**

My professional journey began at the age of sixteen with sporadic jobs in various fields, ranging from tourism and hospitality to working as a laborer in equestrian clubs and for a pest control company. This required a strong ability to **quickly acquire new technical skills**. Concurrently, pursuing my doctorate in a dynamic start-up environment necessitated the development of **problem-solving skills** that allowed for quick and effective resolutions. Additionally, while working in an academic setting, I mentored several students during the experimental phase of their theses, enhancing my knowledge of **junior figure management**.

## **Congresses**

### **5th International Society of Plant Molecular Farming Conference**

Rome, Italy

ORAL PRESENTATION

28 - 29 Sept. 2022

- Plant made diagnostic reagent for Rheumatoid arthritis, development, and validation

### **Vienna International Science Conferences and Events Association**

Vienna, Austria

POSTER

6 - 7 Jul. 2022

- SARS-CoV-2 RBD Plant Based Production for Serological Analysis

### **64th Annual Congress Italian Society of Agricolture Genetics**

Online

ORAL PRESENTATION

14 - 16 Sept. 2021

- Plant Virus Nanoparticles for Molecular Diagnostics Applications

### **Doctoral Conference "Margins and Forgotten Places"**

Verona, Italy

ORAL PRESENTATION

17 - 19 May 2021

- Plant Viruses as Nanobiotechnological Tools

### **63th Annual Congress Italian Society of Agricolture Genetics**

Verona, Italy

POSTER

25 - 28 Sept. 2018

- Plant Made Bet v 1 for Molecular Diagnosis

### **4th International Society of Plant Molecular Farming Conference**

Helsinki, Finland

POSTER

11 - 13 Jun. 2018

- Plant Made Bet v 1 for Molecular Diagnosis

## **Co-tutoring experiences**

## Master Student

ANDREA PUGGIA

LM-9

2018 - 2019

- Production and Biochemical Characterization of Plant Allergens in *Nicotiana Benthamiana*

## Master Student

ASIA MILANI

LM-9

2019 - 2020

- Set up of Standard Operating Procedures (SOPs) for the production of a diagnostic reagent

## Master Student

MELISSA ARENA

LM-9

2020 - 2021

- Production in a Plant-Based System of the Human Tear Lipocalin (LCN-1) and Preliminary Techno-Economic Analysis

## Courses

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Nov. 2019 **Corso Base di Autoimmunità**, Euroimmun

Padova

Oct. 2019 **La nuova disciplina e al tutela del know-how e delle informazioni commerciali riservate**, CCIA

Verona

## Other Interests

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Among my main interests, there are cooking and plant care. One of my passions is also music; currently, I play the bass in a band. Recently, I've taken up wave surfing. In December 2022, I volunteered at an after-school program for elementary school children. Since October 2023, I've been a volunteer in the ground crew of Forlì-Cesena for APS Mediterranean Savign Humans, and in January 2024, I participated in the 13th supply mission of the "MedCare 4 Ukraine" project in Lviv.

I authorize the processing of personal data contained in my *curriculum vitae* in accordance with Article 13 of the GDPR 679/16.