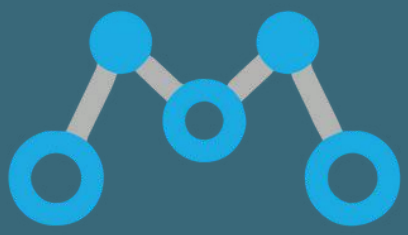


macrofarm

SPINOFF

UNIVERSITÀ DELLA CALABRIA

ALIGNMENT OF THE COMPANY MISSION
WITH THE CUSTOMER NEEDS!

who are we

who are we

Macrofarm Srl is a spin-off of the University of Calabria, founded in 2010 with the aim of transferring the expertise acquired during years of academic experience by some professors and researchers from the Department of Pharmacy and SNN of the University of Calabria to the industrial world.
The Macrofarm team possesses competencies in various scientific and professional fields, representing the true strength of the company.

Dr. Fabio Amone
CEO and Commercial Director

Prof. Francesco Puoci
Co-Founder and Advisor Board
Full Professor of Pharmaceutical Technology - Unical

Prof. Vincenzo Pezzi
Co-Founder
Full Professor of Cell Biology - Unical

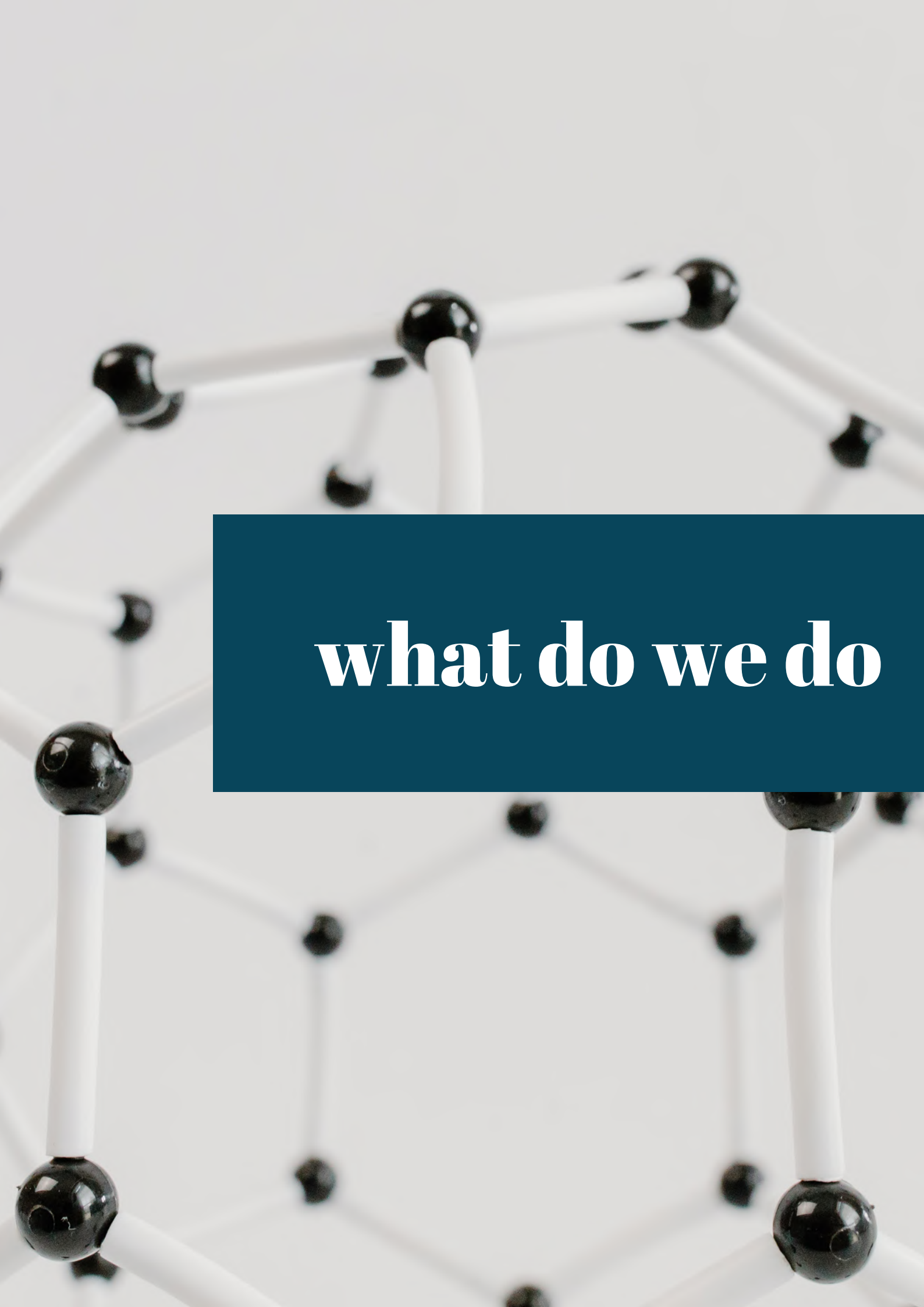
Dr. Ortensia Ilaria Parisi
Co-Founder and Technical Director

Dott. Rocco Malivindi
Head of the Biological Laboratory

Dr. Anna Vattimo
Head of Research and Development and Regulatory Affairs

Dr. Angela Crusco
Production Manager

Dr. Carina Minervini
Graphic Designer



what do we do

what do we do

Our activities have always revolved around the development of cutting-edge technologies for obtaining polymer conjugates and functional products in the cosmetic, nutraceutical, and pharmaceutical fields.

Over time, Macrofarm has positioned itself as a bridge between research and industry, offering tangible benefits in the development of new raw materials and prototypes for cosmetics, nutraceuticals, and medical devices.

Currently, Macrofarm is a supplier of high-quality polymeric bioactives and plant extracts that can be used as active ingredients in cosmetic formulations.

Furthermore, our company provides a range of tests to support the effectiveness and safety of the developed raw materials.

research and development

research and development

Macrofarm carries out the following activities

- Research, development, and production of innovative raw materials with a high content of active principles for use in the cosmetic and nutraceutical fields.
- Research, development, and production of new cosmetic formulations.
- Research, development, and prototyping of new nutraceutical formulations and medical devices.
- Research and development in the pharmaceutical field.

Support for Companies

Macrofarm provides support to companies in the development and enhancement of innovative products through patent applications, trademark registrations, and scientific publications.


tailor-made

tailor-made

Macrofarm S.r.l.'s Research and Development Laboratory also offers an excellent service in the field of producing new **Functional Raw Materials**, tailored to meet the specific needs of customers and in full compliance with quality standards.

Having a unique cosmetic ingredient formulated in a **tailor-made manner** provides a clear competitive advantage for companies focused on developing new products.

Our specialized staff will create a **personalized** development project, meticulously overseeing **all process stages**, with a focus on fulfilling three fundamental aspects for our company:

- **quality**: through the development of new ingredients or technologies that best satisfy the customer's requirements.
- **safety:** by making continuous investments aimed at improving product safety
- **effectiveness:** through constant formulation research to develop ingredients with proven efficacy, demonstrated through in vitro and in vivo testing to support attributed claims.

Leveraging the knowledge and expertise acquired over years of experience, our team of experts accompanies the customer step by step from the initial idea to the realization of a new raw material.

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Our team will take care of all the process stages:

PHASE 1
Literature research

PHASE 2
INCI proposal

PHASE 3
Prototyping and pilot batch development

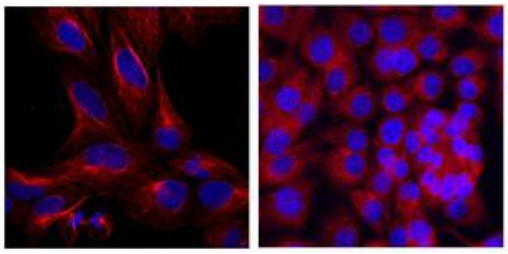
PHASE 4
Verification of chemical and physical parameters

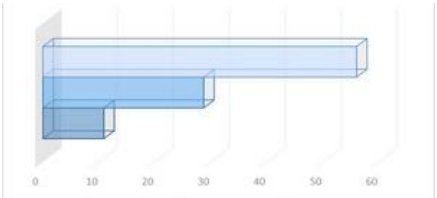
PHASE 5
Preparation of TDS, SDS, and informational materials

PHASE 6
Production of the new raw material

Optional:

- **Efficacy testing to support claims**
- **Development of scientific rationale related to the products and technologies developed**
- **Support for companies wishing to enhance innovative raw materials through patent applications, trademark registrations, and scientific publications.**





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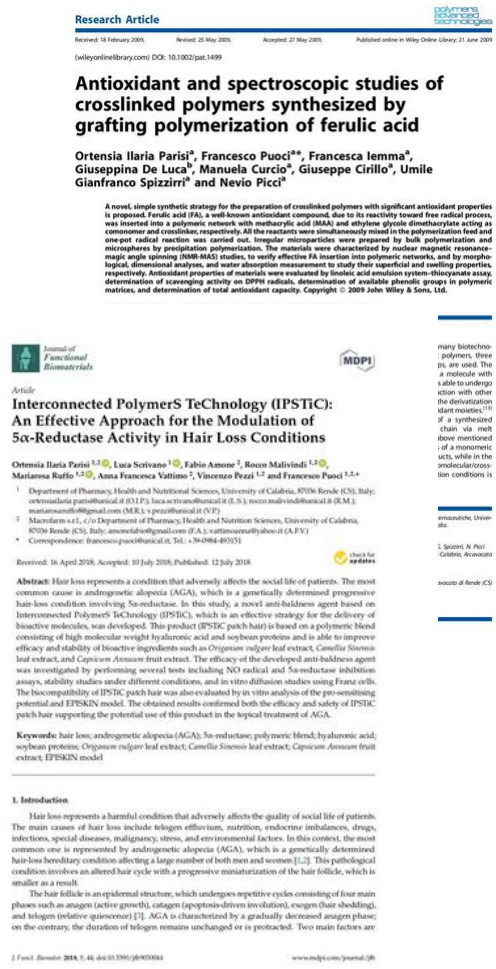
To date, our research, development, and prototyping activities have allowed us to create high-quality cosmetic, pharmaceutical, and nutraceutical solutions tailored to the specific needs of our clients. As a result, we have achieved **scientific publications** and **filed new patents**.

These activities can be accounted for to obtain research and development tax credits.



Research Article

polymers advanced technologies

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Antioxidant and spectroscopic studies of crosslinked polymers synthesized by grafting polymerization of ferulic acid

Ortensia Ilaria Parisi[a], Francesco Puoci[a]*, Francesca Iemma[a], Giuseppina De Luca[b], Manuela Curcio[a], Giuseppe Cirillo[a], Umile Gianfranco Spizzirri[a] and Nevio Picci[a]

A novel, simple synthetic strategy for the preparation of crosslinked polymers with significant antioxidant properties is proposed. Ferulic acid (FA), a well-known antioxidant compound, due to its reactivity toward free radical process, was inserted into a polymeric network with methacrylic acid (MAA) and ethylene glycole dimethacrylate acting as comonomer and crosslinker, respectively. All the reactants were simultaneously mixed in the polymerization feed and one-pot radical reaction was carried out. Irregular microparticles were prepared by bulk polymerization and microspheres by precipitation polymerization. The materials were characterized by nuclear magnetic resonance-magic angle spinning (NMR-MAS) studies, to verify effective FA insertion into polymeric networks, and by morphological, dimensional analyses, and water absorption measurement to study their superficial and swelling properties, respectively. Antioxidant properties of materials were evaluated by linoleic acid emulsion system-thiocyanate assay, determination of scavenging activity on DPPH radicals, determination of available phenolic groups in polymeric matrices, and determination of total antioxidant capacity. Copyright © 2009 John Wiley & Sons, Ltd.

Journal of Functional Biomaterials

MDPI

Article

Interconnected PolymerS TeChnology (IPSTiC): An Effective Approach for the Modulation of 5α-Reductase Activity in Hair Loss Conditions

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Abstract: Hair loss represents a condition that adversely affects the social life of patients. The most common cause is androgenetic alopecia (AGA), which is a genetically determined progressive hair-loss condition involving 5α-reductase. In this study, a novel anti-baldness agent based on Interconnected PolymerS TeChnology (IPSTiC), which is an effective strategy for the delivery of bioactive molecules, was developed. This product (IPSTiC patch hair) is based on a polymeric blend consisting of high molecular weight hyaluronic acid and soybean proteins and is able to improve efficacy and stability of bioactive ingredients such as *Origanum vulgare* leaf extract, *Camellia Sinensis* leaf extract, and *Capsicum Annuum* fruit extract. The efficacy of the developed anti-baldness agent was investigated by performing several tests including NO radical and 5α-reductase inhibition assays, stability studies under different conditions, and in vitro diffusion studies using Franz cells. The biocompatibility of IPSTiC patch hair was also evaluated by in vitro analysis of the pro-sensitising potential and EPISKIN model. The obtained results confirmed both the efficacy and safety of IPSTiC patch hair supporting the potential use of this product in the topical treatment of AGA.

Keywords: hair loss; androgenetic alopecia (AGA); 5α-reductase; polymeric blend; hyaluronic acid; soybean proteins; *Origanum vulgare* leaf extract; *Camellia Sinensis* leaf extract; *Capsicum Annuum* fruit extract; EPISKIN model

1. Introduction

Hair loss represents a harmful condition that adversely affects the quality of social life of patients. The main causes of hair loss include telogen effluvium, nutrition, endocrine imbalances, drugs, infections, special diseases, malignancy, stress, and environmental factors. In this context, the most common one is represented by androgenetic alopecia (AGA), which is a genetically determined hair-loss hereditary condition affecting a large number of both men and women [1,2]. This pathological condition involves an altered hair cycle with a progressive miniaturization of the hair follicle, which is smaller as a result.

The hair follicle is an epidermal structure, which undergoes repetitive cycles consisting of four main phases such as anagen (active growth), catagen (apoptosis-driven involution), exogen (hair shedding), and telogen (relative quiescence) [3]. AGA is characterized by a gradually decreased anagen phase; on the contrary, the duration of telogen remains unchanged or is protracted. Two main factors are

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