

Elvira Martino

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Ph.D. Candidate in Pharmaceutical Sciences

Department of Chemistry and Drug Technologies, Sapienza University of Rome

City: Rome | **Country:** Italy | **Level in EQF:** EQF level 8

Master's Degree in Pharmaceutical Chemistry and Technology (LM-13)

Department of Chemistry and Drug Technologies, Sapienza University of Rome

City: Rome | **Country:** Italy | **Final grade:** 109/110 | **Level in EQF:** EQF level 7 **Thesis:** *Design, Preparation and Characterization of Niosomes: Optimization of the Stability*

and Efficacy of Antimicrobial Peptides

Scientific High School Diploma

"Salvatore Pizzi" Scientific High School

City: Capua | **Country:** Italy | **Final grade:** 100/100 | **Level in EQF:** EQF level 4 **Ph.D. Research**

My research activity focuses on the design, development, and physicochemical characterization of phospholipid and non-phospholipid vesicles as drug delivery systems (soft nanocarriers). My expertise includes the formulation of liposomes and niosomes for the delivery of small molecules and therapeutic peptides through different administration routes, including topical, oral, pulmonary, and brain-targeted delivery. I also prepared functional O/W nanoemulsions with essential oils (Neem, Thymus vulgaris, Syzygium aromaticum, Satureja montana L, almond oil) for topical or parenteral use, and chitosan- coated nanoemulsions for nose-to-brain and pulmonary delivery (exploiting chitosan's penetration enhancement and mucociliary clearance delay). I have extensive experience in physicochemical characterization of nanocarriers, including hydrodynamic diameter, ζ - potential, polydispersity index, colloidal stability, entrapment efficiency, membrane bilayer characterization by fluorescence spectroscopy, in vitro release studies, and in vitro/ex vivo permeation studies using Franz diffusion cells. Through a collaboration with Prof. Catia Longhi, I am also involved in evaluating the toxicological profile and biocompatibility of the developed nanocarriers using in vitro cellular models, including immortalized human keratinocytes (HaCaT cells). Moreover, my research focuses on the design and development of innovative nanocarrier-based pharmaceutical formulations for skin and buccal drug delivery. Particular attention is devoted to enhancing their adhesive or mucoadhesive properties through the incorporation of natural biopolymers and resins, such as chitosan and Chios mastic.