

SCHOOL OF ADVANCED STUDIES- 2010 PhD programmes

Area of Studies

**CHEMICAL, PHARMACEUTICAL
SCIENCES AND BIOTECNOLOGIES**

Curriculum:	PHARMACEUTICAL SCIENCES AND BIOTECNOLOGIES
Prof. M. Giannella	<p>Research topic n. 1: NOVEL POTENTIAL TERAPEUTICALLY USEFUL G-PROTEIN COUPLED RECEPTOR LIGANDS</p> <p>The aim of this PhD project concerns the design, synthesis and pharmacological evaluation of novel molecules directed to muscarinic, 5-HT_{1A} serotonergic, and α-adrenergic receptors, potentially useful in the treatment of various disorders, in which these targets are involved. This research will be carried out starting from rational assumptions based on the knowledge of molecular requirements of the biological targets. The synthetic strategy will also be directed to the discovery of dualsteric and multi-target drugs.</p>
Prof. R. Ciccocioppo	<p>Research topic n. 2: SIGNIFICANCE OF NUCLEAR RECEPTORS IN THE MODULATION OF DRUG SELF-ADMINISTRATION IN THE RAT</p>
Prof. P. Di Martino	<p>Research topic n. 3: SYNTHESIS, FORMULATION AND CHARACTERIZATION OF NEW NANOPARTICLES FOR DRUG RELEASE AND TARGETING INTO THE CENTRAL NERVOUS SYSTEM</p> <p>The aim of this PhD's project is to develop and study carrier systems able to cross the blood-brain barrier (BBB) and thus deliver drugs into the CNS. The present project intends to perform nanoparticles as delivery systems for drug targeting and release. Nanoparticles will be prepared with polymers that must be biodegradable, biocompatible, non-toxic, non-thrombogenic, non-immunogenic, not expensive. This project will consist in synthesizing and characterizing a polymer possessing all the requested properties. Once prepared, nanoparticles will be characterized for physico-chemical properties and bioavailability.</p>
Prof. G. Cristalli	<p>Research topic n. 4: ADENOSINE RECEPTOR LIGANDS: SYNTHETIC APPROACHES</p>
Prof.G. Cristalli	<p>Research topic n. 5 : HUMAN HEALTH (STUDY AND TREATMENT OF CANCER AND DEGENERATIVE DISEASES WITH NEW APPROACHES DERIVED FROM THE KNOWLEDGE OF THE HUMAN GENOME)</p>
Prof. R. Ciccocioppo	<p>Research topic n. 6: UNDERSTANDING THE NEUROBIOLOGICAL AND PHARMACOLOGICAL BASIS OF ADDICTION</p> <p>Addiction to drugs of abuse is a chronic mental illness</p>

	<p>and represent one of the major burden of disease worldwide. The objective of this PhD program is to study at neurobiological and pharmacological level the basis of the disease. The final goal is the identification of innovative pharmacotherapeutic approaches for addiction treatment. A more general objective is to understand the neurobiological mechanisms of motivated behaviours and emotion.</p> <p>Research will be exploited trough a multidisciplinary approach using several behavioural techniques (i.e., stereotaxic surgery, operant self-administration, anxiety tests, learning paradigms, etc), gene and protein expression analysis, immunohistochemistry.</p>
Prof. Cappellacci	Research topic n. 7: INHIBITORS OF NUCLEOTIDE METABOLISM KEY ENZYMES AS CHEMOTHERAPEUTIC AGENTS: SYNTHETIC APPROACHES AND BIOLOGICAL EVALUATION
Prof. M. Perfumi	Research topic n. 8: IN VIVO STUDIES OF THE PHARMACOLOGICAL AND TOXICOLOGICAL EFFECTS OF NATURAL DRUGS AND HEALTH PRODUCTS
Prof. S. Vittori	<p>Research topic n. 9: FOOD SAFETY AND VALORIZATION OF TYPICAL FOOD PRODUCTS, WITH SPECIFIC ATTENTION TO LEGUMES, IMPORTANT CONSTITUENTS OF MEDITERRANEAN DIET</p> <p>The project is centered on the beneficial effects on consumer's health of regular consumption of legumes, specially lentils; also aspects related to lentil typization will be studied, to set up methods aimed at identification of geographical origin of commercially available lentils</p>
Prof. S. Vittori	<p>Research topic n. 10: APPLICATION OF NEAR INFRARED SPECTROSCOPY IN PHARMACEUTICAL MANUFACTURING CONTEXT: DETERMINATION OF CHEMICAL-PHYSICAL PARAMETERS DURING LIQUID AND SOLID FORMULATIONS MANUFACTURING</p> <p>The aim of the project is the development and validation of qualitative and quantitative analytical methods, based on Near Infrared Spectroscopy, to be applied as in process control tests, for determination of chemical – physical parameters, as water content, intermediate homogeneity, active principle ingredient assay, during manufacturing steps of solids and liquids pharmaceutical formulations.</p> <p>The project is interdisciplinary and requires a deep knowledge of different analytical techniques,</p>

	chemometrics and pharmaceutical solids manufacturing technologies.
Prof. M. Massi	Research topic n. 11: NEW STRATEGIES FOR THE PHARMACOTHERAPY OF EATING DISORDERS, LIKE BULIMIA NERVOSA AND THE BINGE EATING DISORDER
Prof. F. Palmieri	Research topic n. 12: FORMULATION AND CHARACTERISATION OF ORAL DRUG DELIVERY SYSTEMS AND SOFT MATTER NANOPARTICLES FOR DRUG TARGETING
Prof. S. Vittori	<p>Research topic n. 13: OPTIMIZATION OF LIQUOR PRODUCTION FROM HERBS AND SEEDS: FROM THE CHARACTERIZATION OF THE PLANTS TO THE RECOVERY OF HIGH VALUABLE BIO-ACTIVE COMPOUNDS FROM LIQUORS INDUSTRIAL BY-PRODUCTS.</p> <p>The project has two research lines. The first is the characterization of the different species and populations of the plants used in the liquors. The second is the characterization of bioactive molecules from extracts and wastes obtained by the processing of herbs during the production of bitters and liquors. The second line of the project is interdisciplinary as it requires the chemical and biochemical characterization of molecules and evaluation of their potential role in processes of biomedical interest. The project is co-funded by a private company.</p>