

**“CAROL DAVILA” UNIVERSITY OF
MEDICINE AND PHARMACY BUCHAREST
DOCTORAL SCHOOL
PHARMACY DOMAIN**

**THE THERAPEUTIC POTENTIAL AND BIOMEDICAL
APPLICATIONS OF SOME ENDOGEN-LIKE MOLECULES**

THE HABILLITATION THESIS ABSTRACT

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2019

The habilitation thesis entitled "The therapeutic potential and biomedical applications of some molecules endogen -like" is structured into three sections. The first chapter describes the personal, professional and academic achievements, the second chapter presents in detail the main scientific achievements after defending the PhD thesis and the last chapter presents the future plans regarding the evolution and development of the professional, scientific and academic profiles.

In the chapter entitled "Professional and Academic Achievements" I presented the entire academic and professional career during my 17 years of activity within the Clinical Laboratory and Food Safety department of the Faculty of Pharmacy, University of Medicine and Pharmacy "Carol Davila", Bucharest. During this period, I passed the exams for obtaining the academic titles and various degrees specific to the profession of pharmacist: resident, specialist, mayor. In 2009, I defended the PhD thesis in the field of Pharmaceutical Sciences. Professional training has been one of my main concerns with a multidisciplinary educational path adapted to the nature of the subjects taught. Thus, I obtained two master's degrees in the field of cellular and molecular biology within Faculty of Biology, University of Bucharest and Institute of Biochemistry, Romanian Academy.

Regarding the didactic activity, I have been involved in teaching the fourth-year students of Faculty of Pharmacy, residents of Clinical Pharmacy and Pharmaceutical Laboratory specialties and master students of the Nutrition and Food Safety programme. The didactic activity was not only focused on teaching but also on motivating and supporting pharmacy students in different scientific activities and sustaining the presentation of their results within scientific events and their bachelor thesis. I participated also as co-author to the improvement of the didactic materials and published 6 books in the field specific to the teaching subjects.

In the second chapter entitled "Scientific Achievements", I have detailed the main research directions sustained by the most important publications, as it follows:

- *The biological role and therapeutic potential of some cell endogen or endogen-like mediators.* This direction comprises several *in vitro* and *in vivo* studies regarding the prostamide and oleamide mediators. The regulatory role of prostamides as lipid mediators in cellular oxidative stress was demonstrated in both immune and cancer cell lines. Several preclinical experiments aimed to sustain the therapeutic potential of oleoylethanolamide and some oleamides with endogen-like structure in the treatment of obesity. The 3D conformation of some oleamide mediators was favorable for developing stochastic sensors with biomedical applications. The

method was validated in both preclinical and clinical studies for the early determination of the obesity risks. This research direction is sustained by ten ISI quoted scientific papers and one book.

- *Endogen-like molecules associated with drugs in some innovative pharmaceutical formulations with regulatory effect in the immune mechanisms involved in the first barrier defense.* Several formulations based on biopolymer and anti-inflammatory agents were selected after in silico and in vitro results for the preclinic studies. The therapeutic potential in the healing process was demonstrated in experimentally wounds induced to animals. This research direction was financed by scientific projects. This direction is sustained by six ISI articles, two BDI papers and two patent requests.

- *Natural or synthetic compounds with antimicrobial activity on some multi-drug resistance strains.* This research direction was focused on discovering new solutions for the treatment of infections with MDR strains. The anti-microbial potential of some vegetal extracts and synthetic molecules and the toxicity of drugs were published in six ISI papers. Also, some experiments were financed by one scientific grant.

The third chapter presents “Future plans regarding the development of the academic, scientific and professional activities”. The academic activities combine teaching and scientific research to ensure a high-quality education. The permanent improvement of the didactic activities is focused mainly on updating both the theoretical and practical activities on the fields specific for the teaching subjects and encouraging the new generation to improve their skills by participating in the scientific research.

The scientific directions which were previously described with significant results will be considered for the future, but I will also take into account the development of related directions. The main objectives are to develop partnerships in the priority areas for the design of innovative products and the development of new technologies within the research directions, to attract funding by future projects and to disseminate the results of the studies by publishing high impact scientific papers or by filing patents applications.

Both the academic and scientific activities are correlated with the professional direction which will be focused on maintaining an active involvement in the socio-professional activities specific for the pharmaceutical community.