

**UNIVERSITY OF MEDICINE AND PHARMACY  
"CAROL DAVILA" BUCHAREST  
DOCTORAL SCHOOL  
MEDICINE**



**Searching for new markers and new therapeutic targets  
HABILITATION THESIS ABSTRACT**

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The habilitation thesis entitled "**Searching for new markers and new therapeutic targets**" includes the principal scientific, academic, and professional contributions that I made after obtaining a Ph.D. in medicine, as well as the plan for the evolution and development of educational, scientific, and professional careers.

The thesis is structured in 5 chapters. The first chapter has six subchapters, ending with the results and recognition of scientific research.

In the first chapter, I presented the main aspects of the scientific activity, the topics of interest, and the main scientific achievements. The entire research focused on normal and pathological histology as an integrative science. The three topics that make up the core of my scientific concerns are the ovary, thyroid, and osteoporosis. Apparently unrelated, these subjects intersect at the level of complex cellular regulation mechanisms whose dysfunction generates an extremely varied pathology. I believe that the results in this area demonstrate the ability to approach a wide range of topics and work in interdisciplinary teams.

*Subchapter 1* analyzes the female gonad from the perspective of neo-ovogenesis, a topic of great interest for reproductive medicine in the context of fertility conservation.

*Subchapter 2* addresses gonadal tumors, focusing on virilizing ovarian tumors with significant social, family, and personal impacts on the patient, with many associating phenotype changes.

*Subchapter 3* presents the personal experience related to endometriosis, benign proliferation that shares common characteristics with neoplastic processes (inflammatory condition, invasion of adjacent tissues, induction of angiogenesis, and resistance to apoptosis).

*Subchapter 4* is an incursion in the pathology of the thyroid gland from the perspective of histological changes, starting from the most common pathological condition of the thyroid gland, thyroid nodules, and reaching the first thyroid changes determined by SARS-CoV-2 infection.

*Subchapter 5* discusses the cells involved in osteogenesis and osteolysis in the context of osteoporosis, one of the few pathology conditions in which the clinical onset takes place through its main complication, fracture.

*Subchapter 6* highlights the participation in several studies in the fundamental research domain, including the role of microRNAs in brain development and degeneration, the identification of new biomarkers for the diagnosis and prognosis of glioblastomas, and

a new therapeutic approach to pancreatic cancer – the reprogramming of cancer-associated fibroblasts.

The final part of the first chapter presents the results, and the recognition of the scientific activity carried out so far.

The second chapter reflects academic achievements during over 35 years of continuous teaching activity in the same department. The academic career was natural, from assistant professor (1985) to lecturer (1996) and associate professor (2015). The main aspects related to this field were: the collaboration with the first and second-year students of the Faculty of General Medicine, both in the lectures and laboratory activity, the participation in writing didactic materials necessary for the educational process, involvement in admission to the "Carol Davila" University, license exams, competitions for the sustaining of doctoral thesis, for access to the doctoral school, for the promotion of teachers and Erasmus grants to students, participation in the evaluation and selection of papers presented at student conferences, coordination undergraduate theses, as well as in the organization and planning of the didactic activity within the department. Also, the participation as an invited professor, within the Erasmus program, in the didactic and research training from the departments of Histology, Molecular Embryology, and Pathology of several prestigious universities is mentioned.

As a member of the Council of the 2nd Preclinical Department - Morphological Sciences, I have been and continue to be concerned about increasing the quality and efficiency of teaching activity.

The third chapter reflects the activity and professional achievements in the medical field in the National Institute of Endocrinology "C.I.Parhon" as a senior physician in Endocrinology. In addition, as a full member of the Board of Directors of the Institute representing UMF "Carol Davila," I am directly involved in all decisions taken on a budget of the institution, acquisitions, and organization of work within this health unit.

The fourth chapter presents the strategy, directions, and priorities for academic, scientific, and professional career development. The first objective I set myself is to obtain the habilitation certificate, according to the criteria established by the National Council for awarding university degrees, diplomas, and certificates (CNATDCU). Obtaining the habilitation is both an aspiration and a desire to share my knowledge and experience with young doctoral students. Furthermore, during the doctoral thesis development, I would provide the necessary academic support to achieve rapid dissemination and implementation in the medical practice of research results.

Teaching activity will remain a priority. Out of respect for the status of a teacher, in the future, I will try to acquire new skills, knowledge, and competencies to strengthen my training required by the university environment.

A solid university career is founded and developed by intertwining teaching and educational activities with research and awareness of belonging to a team. Therefore, I will collaborate with colleagues from the department and those from the National Institute "Victor Babeş" and the Institute of Endocrinology "C.I.Parhon", thus combining fundamental with clinical research.

In the future, I will support my scientific activity on two principles: continuity and innovation.

I will continue to publish scientific papers in ISI-listed journals or in the volumes of national and international conferences that will increase my scientific work's visibility. I will continue clinical trials and the publication of case reports, carefully documented scientific observations that can contribute to the understanding of the etiopathogenesis, natural history, and treatment of rare diseases; they are a powerful tool for disseminating medical information and advancing medical knowledge, having at the same time an educational role. I also propose continuing the reviewer activity for the publications I already collaborate with, being open to other collaborations because this activity is a way to update medical information internationally. I will continue to investigate virilizing gonadal tumors, studies on the relationship between oncogenesis and endocrine autoimmune diseases, focusing on autoimmune thyroid diseases, and the study of serum markers used to diagnose and monitor brain tumors to validate the obtained results.

As a new goal, I aim to identify potential biomarkers for the early diagnosis and targeted therapy of postmenopausal osteoporosis, focusing on microRNAs and the new cell type recently entered the bone cell landscape, the morphogen cell.

And because we are still in the pandemic, the short-term and long-term effects of the SARS-Cov-2 virus on the endocrine system will remain in my attention and concerns.

The priorities for future clinical activity are related to increasing the quality of the medical act while respecting the requirements of good clinical practice and clinical guidelines for diagnosis and treatment.

The last chapter includes the list of bibliographic references used in writing the habilitation thesis, most of which are from journals with an impact factor.