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UNIVERSITY OF MEDICINE AND FARMACY
BUCHAREST
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**Exposure to occupational risk factors—from theory to
medical practice**

ABSTRACT OF THE HABILITATION THESIS

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ABSTRACT

The habilitation thesis entitled "**Exposure to occupational risk factors—from theory to medical practice**" is structured in four sections, in accordance with the recommendations of the CNATDCU and national legislation.

The habilitation thesis integrates the results I have obtained in my scientific, teaching, and professional activity since obtaining my Doctor of Medicine degree in 2013. The last section is devoted to presenting my plan for the evolution and development of my academic career.

The first chapter of the thesis includes the scientific activity and achievements carried out within the Occupational Medicine Discipline, Faculty of Medicine, Carol Davila University of Medicine and Pharmacy in Bucharest, in close collaboration with colleagues from the department, other clinical and preclinical disciplines at the "Carol Davila" University of Medicine and Pharmacy (UMFCD), and colleagues from other universities and research institutions.

Throughout my career, from my doctoral studies to the present, I have pursued several lines of research, which I would like to detail below.

Starting with my doctoral studies in 2008, I approached one of the research directions that was focused on evaluating the effects of aluminum and its compounds on **the nervous system**. The topic, chosen under the supervision of Prof. Dr. Ion Fulga, combined clinical and experimental research, and the results led to the completion and defense of my doctoral thesis, "*Clinical and Experimental Research on Some Psychobehavioral Aspects of Aluminum*" in 2013. The importance of the effects of toxins and occupational stress on the nervous system continued to concern me, and I expanded my field of research by studying the effects of aluminum on humans and laboratory animals in greater depth. Given the increased general interest in stress in recent years, I studied possible links between stress and occupational exposure to aluminum. Considering that industrial activities involve the use of numerous chemicals that can act and produce acute, subacute, or chronic effects on the nervous system, I continued my research on other chemical agents. I have also been interested in studies on the mechanisms of cognitive functions, especially memory. Another topic that has sparked my interest in the context of research related to the

nervous system and with important implications in the life of every individual has been pain and its mechanisms, along with analgesic therapeutic possibilities.

Another area of research focused on **occupational respiratory diseases**, because the respiratory tract is the main route of entry into the body for dust, gases, and vapors in exposed workers. We structured our research activity into three themes: interstitial pathology, obstructive diseases, and malignant pathology. Within interstitial respiratory pathology, we addressed pneumoconiosis, silicosis, and asbestosis, which are the most common occupational diseases of the respiratory system in our country, as well as extrinsic allergic alveolitis. In the category of obstructive diseases, we studied occupational bronchial asthma and chronic obstructive pulmonary disease of occupational etiology, conditions that, if diagnosed early, have a good prognosis provided that the patient ceases exposure. Another priority for research was malignant pathology of the respiratory system, for which recognition of occupational exposure would allow for careful monitoring of workers exposed to carcinogens, the initiation of effective protective measures, and post-exposure assessment.

One of the study priorities was occupational **exposure to biological agents**, focusing in particular on healthcare workers, who are at high risk of contracting diseases while performing their duties. The COVID-19 pandemic has posed major challenges for the healthcare system, and we have addressed this area of research through studies conducted on healthcare personnel, focusing on the impact on the quality of healthcare and health status, both during the pandemic and in the long term.

Among the areas of research in which I participated was **multiple occupational pathology** in conditions of exposure to combinations of harmful substances. Industrial workers are frequently exposed to multiple hazards, depending on the specific activity, intensity, duration, and type of exposure throughout their working lives. The studies conducted aim to highlight the importance of understanding occupational risk factors and their influence on health, with a view to preventing occupational diseases.

The results of the research carried out during almost 13 years of postdoctoral university activity have materialized in the publication of 24 ISI articles, of which 11 as lead author and 13 as co-author, 10 BDI articles and 2 articles in ISSN journals, 3 studies published in abstract form in ISI Thomson Reuters-rated journals, 13 studies published in abstract form in journals and volumes of scientific events with ISBN/ISSN, over 70 papers presented at national and international scientific events, and participation as a guest lecturer at over 15 conferences. In Google Scholar, the total number of citations is 160, with a Hirsch index of 7, in Scopus (Elsevier), the total number of citations is 116, with a Hirsch index of 6, and in Web of Science Core Collection (Clarivate Analytics), the total number of citations is 106, with a Hirsch index of 6.

My experience in research is also confirmed by my participation as a member in 8 research projects, international and national studies, and educational projects.

Membership in scientific and professional organizations contributes to establishing collaborative relationships with colleagues in Romania and abroad in the field of interest. As a member of the Ministry of Health's Occupational Medicine Commission, a member of the Board of Directors of the Romanian Society of Occupational Medicine, and National Secretary for Romania in the International Commission on Occupational Health, I have the opportunity to increase the visibility of occupational medicine both nationally and internationally.

Chapter two of the thesis presents my academic career, which began in 2002, when, following a competition, I took up the position of University Assistant in the Department of Occupational Medicine. Subsequently, I was promoted through competition to the positions of University Assistant (2005), Head of Works (2014), and University Lecturer (starting October 1, 2023).

My teaching activity consisted of practical internships and courses with up-to-date information covering occupational pathology issues for Romanian-speaking and English-speaking students in their fourth year at the Faculty of Medicine, as well as for residents specializing in Occupational Medicine, Work Capacity Assessment, Allergology and Clinical Immunology, Dermatology, Hygiene and Public Health, and Management.

My academic contribution is reflected in the publication of chapters in eight specialist books and the coordination of a course for students.

Chapter three covers my professional career, which began as an intern, resident, and specialist, and continues to this day as a senior physician specializing in occupational medicine and head of department at the Colentina Clinical Hospital, Occupational Medicine Department.

Chapter four is dedicated to my academic, professional, and scientific research career development plan.

My future research will focus on deepening and expanding on previously investigated topics, but also on developing a diverse portfolio of new skills, knowledge, and competencies for research in multidisciplinary teams, with the aim of ensuring high-quality scientific results in the field of occupational medicine.

In the field of teaching, I intend to contribute to the development of study materials for students and residents, especially in the field of occupational medicine, an activity carried out, of course, in collaboration with members of the Occupational Medicine Department.

Professionally, I will continue my training and professional development, and I will be actively involved in the postgraduate training of doctors by organizing conferences and courses on current topics in occupational medicine, in close collaboration with the entire department team.

In conclusion, I intend to build my future career with the main goal of increasing the prestige of the specialty through integration into the academic community, transparency, feedback, maintaining a constant interest in the latest developments in my field, and expanding collaborations with other related fields. I hope that these goals, which I wish to pursue on an ongoing basis, will contribute to improving the quality of education and training valuable and professional graduates in the field of occupational medicine.