UNIVERSITATEA DE MEDICINĂ ŞI FARMACIE

“CAROL DAVILA” BUCUREŞTI

ŞCOALA DOCTORALĂ

DOMENIUL MEDICINA

THE INVOLVEMENT OF THE CUTANEOUS AND INTESTINAL MICROBIOME IN THE PATHOGENESIS OF CHRONIC INFLAMMATORY SKIN DISORDERS

ABSTRACT OF THE HABILITATION THESIS

CANDIDATE:

Popa Liliana Gabriela, Senior Lecturer

Elias Emergency University Hospital, Bucharest

2025

The habilitation thesis entitled “The involvement of the cutaneous and intestinal microbiome in the pathogenesis of chronic inflammatory skin disorders” constitutes a synthesis of the results of the rigorous and sustained research that I have conducted following the doctoral thesis defense in 2012 in this cutting-edge, yet poorly explored field of major interest, highly relevant to current medical practice. Additionally, the thesis outlines the progression of my career to date, highlights my scientific and academic accomplishments and presents my future academic career development plan. The thesis is structured in two main sections, followed by a comprehensive list of references.

The first section of the habilitation thesis comprises 10 chapters. The first chapter provides a concise overview of the research directions addressed and the main objectives, which focused on the investigation of the role of the skin microbiome and the involvement of the gut-skin axis in the pathogenesis of chronic inflammatory skin diseases, the assessment of the bidirectional relationship between the host and the skin microbiome in patients with chronic inflammatory skin disorders and the evaluation of the influence of skin and gut microbiome modulators on the course of such diseases and their response to conventional treatments.

Chapters 2 to 4 offer a brief presentation of the current knowledge on the composition and function of the skin microbiome, the mutual influence between the host and the cutaneous microbiome and the involvement of the gut-skin axis in the development and progression of chronic inflammatory skin conditions.

Chapters 5 to 8 provide an overview of the theoretical concepts and the findings of the personal research regarding the role of the skin microbiome in the pathogenesis of psoriasis, hidradenitis suppurativa, atopic dermatitis and acne vulgaris, respectively.

Chapter 9 discusses the results of the studies performed so far that assessed the effects of skin and gut microbiome - targeted interventions on the evolution of these disorders and the established treatment outcomes.

The last chapter of the first section draws conclusions based on the research conducted, emphasizing the most important results, their relevance for daily medical practice and the future research perspectives in the field.

The second section of the habilitation thesis is further divided into 4 chapters. The first chapter offers a detailed account of my professional journey, from the decision to pursue a career

in dermatology to becoming a board-certified dermatologist and from the beginning of my academic career to achieving the rank of associate professor.

The second chapter provides a comprehensive description of my scientific endeavors, an overview of the research directions I have explored in the past two decades and the publications derived from the study of different, but equally interesting and important topics, such as the relationship between psoriasis and cardiovascular disease, the role of the skin and gut microbiome in the pathogenesis of a series of chronic dermatologic conditions, the host - microbiome interplay in chronic cutaneous ulcers, the various atopic dermatitis phenotypes and off-label treatments in severe cases of atopic eczema refractory to conventional therapies, the treatment of severe forms of pemphigus vulgaris, the cutaneous and mucosal manifestations in internal diseases, the dermatological manifestations in neuroendocrine disorders, skin cancers, the cutaneous manifestations associated with internal neoplasms, the dermatologic adverse effects of oncologic therapy, the pathogenesis and epidemiology of sexually transmitted infections, as well as the neurogenic inflammation and alternative therapies in dermatology. The systematic and sustained scientific research over time resulted in 20 articles published in extenso as main author and 37 articles published in extenso as co-author in ISI Thomson Reuters indexed journals, 62 articles published in extenso in PubMed or other international databases indexed journals, of which 11 as main author, 11 monographs and numerous chapters in national and international textbooks, as well as 135 scientific conference presentations. As a result of these publications, I have achieved a Hirsch index of 13 (Web of Science).

The third chapter outlines my academic accomplishments, the clear commitment to continuous improvement of both medical knowledge and teaching style and the strong focus on maintaining standards of professional excellence. It highlights my consistent effort to diversify teaching methods through interactive and regularly updated courses and practical demonstrations that combine innovation and tradition, to ensure a balance between theoretical instruction and practical exemplification, and to stimulate the students' interest for the study of dermatology.

The final chapter of the second section of the thesis is dedicated to my academic career development plan, which includes the refinement of teaching quality, maintaining a steady pace of scientific research and publication and the continuous enhancement of medical expertise and professional skills.

The thesis concludes with the list of references, the valuable scientific sources that formed the theoretical foundation of the research.