ABSTRACT

The habilitation thesis is one of the most important and beautiful moments in the life of a researcher, a university teacher, it is a moment of fulfillment, which ensures an important research base, but also the ability to guide the youngest people in knowledge and research.

The first part of the thesis describes **my past activity** and includes personal, professional and academic scientific achievements, presented in a national and international context. After a brief introduction, I presented step by step each moment of my achievements as a doctor and researcher. I graduated the University of Medicine, and Pharmacy of Târgu Mureş in 2017 as **a valedictorian**. In 2021 I defended my **doctoral thesis** with the research "***The role of microRNA correlated with inflammatory markers in gastritis in children and adults***", a work carried out under the careful guidance of one of the most renowned gastroenterology professors in the country, Prof. Dr. Ecaterina Daniela Dobru. I became a pediatric specialist in November 2022. The academic path of my career began in 2018 when I started working as an Assistant Professor at the Pediatrics III Discipline, and later as a lecturer at the Medicine in English Faculty of the University of Medicine, Pharmacy, Science and Technology "George Emil Palade" of Târgu Mureş and at its extension, the UMCH Hamburg Campus. After finishing my doctoral school, and wanting to continue the research started during this period, I tried to develop myself in the direction of pediatric gastroenterology. I completed training courses in the field of pediatric gastroenterology and abdominal ultrasound. In parallel, I worked with great enthusiasm in the period 2023-2024 in the Research Ethics Committee of the George Emil Palade University of Medical Sciences in Tg. Mureş, and since September 2024 in the University's Ethics Committee. I have published monographs such as *Course notes in pediatrics*, *Rehabilitation in pediatrics* and I was a member of the team involved in the production of the volume *Synopsis in Medicine*.

Starting from my doctoral research, I continued to study gastritis in children, namely ***H. pylori* infection**, which is very important both due to its increasing incidence and due to its short- and long-term complications. Not only the diagnostic and treatment methods are relevant for childhood gastritis, but also **tissue miRNA expression**, evoking the role of genetic determinism in their production, as well as innate immunity in the pathogenesis of the immune response triggered by this infection, a process intensively studied, but which still requires further studies. Genetic implications also play a decisive role in other functional or organic gastrointestinal diseases (e.g. celiac disease) in children, but also in inflammatory bowel disease or irritable bowel syndrome in adults. Starting from these findings, in my post-doctoral research I evaluated the role of the **intestinal microbiota** in the determinism of irritable bowel syndrome or other allergic diseases such as bronchial asthma.

Obesity in children is a public health problem in our country and in the world, a scourge of the 21st century, which begins in the intrauterine period, continues druring childhood and can have multiple implications in adult life. The study of obesity and metabolic syndrome, as well as the associated complications, and the genetic aspects in the determinism of this disease represented another area of my research. The role of the intestinal microbiota and the immune response in obese patients concerned me in order to ensure adequate prevention and management of obesity in children.

Cardiovascular malformative pathology in children represented a challenge for me, which led me to study aspects related to the fine and high-accuracy ultrasound diagnosis of cardiac malformations, the role of speakle tracking and the role of molecular markers in the diagnosis and prognosis of these conditions.

Throughout my career, given the pandemic impact, I have also approached other pediatric pathologies such as **SARS-CoV-2 infection**, **influenza infection**, but also other facets of pediatric pathology, such as **micronutrient and vitamin deficiencies**, all generating complex and challenging pathologies.

My research on gastritis, gastroenteritis in children, the genetic implications of these effects, aspects of the gastric and intestinal microbiota, obesity in pediatrics, vitamin D, SARS-CoV-2 and influenza infection in children, or aspects related to speakle tracking or molecular markers in congenital heart malformations, represent my scientific achievements, materialized through more than 40 articles published in journals with impact factor > 1, most of them indexed on the Q1 or Q2 quartiles. The research results have been applied in daily diagnosis, for the benefit of our patients. The funds were obtained from various projects submitted either as a project director or as a member of research teams, or from personal funds.

The second part of this thesis is about **future directions**. In the future, I wish to conduct research in the fields of **molecular biology and immunohistochemistry, to evaluate the role of innate immunity in digestive pathology of children** (celiac disease, inflammatory bowel disease or even functional disorders in children); to evaluate **gene polymorphisms correlated with small intestinal bacterial overgrowth (SIBO) in overweight/obese children**; to investigate changes in **salivary microbiota in pediatric acid peptic diseases** (GERD, gastritis or gastropathy) and how the salivary microbiome differs between subjects infected with *H. pylori* versus those not infected; to analyze longitudinally the particularities of **pre- and post-pandemic viral infections**, as well as the role of **vitamin D in digestive pathology in children**. ***The art is to combine scientific activity with research and medical practice at the patient's bedside.***