

**"VICTOR BABEŞ" UNIVERSITY OF
MEDICINE AND PHARMACY TIMIŞOARA
DOCTORAL SCHOOL
MEDICINE DOMAIN**



HABILITATION THESIS

**MODERN TRENDS AND PERSPECTIVES OF
INTERDISCIPLINARY RESEARCH IN SURGERY**

A B S T R A C T

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SUMMARY

More than twelve years have passed since I publicly defended my PhD thesis, entitled "The complex treatment of multi-recurrent incisional hernias", in July 2008, a time during which evolution in all spheres of life, including surgery - which is my medical specialty, has shown a marked progress.

Progress in this specialty materialized in the technological development of the medical equipment, with the emergence of minimally invasive surgical methods, followed by the diversification of laparoscopic surgical techniques, and the invention and evolution of robotic surgery. These innovations in the surgical techniques succeeded both in shortening the patients' hospital stay and their very rapid reintegration into the professional environment and family, which are important goals for the maintenance of good health in the population and for the economy.

This paper presents in the beginning a summary of the thesis, in Romanian and in English, followed by my main scientific, academic and professional achievements, the plan and the perspectives of development of my scientific, academic and professional career, and, at the end, the bibliography mentioning the list of references that I inserted in the text and the list of 10 representative scientific papers for the habilitation thesis..

The scientific achievements include the list of the ten representative works that support the content of this thesis.

The thesis is elaborated in accordance with the recommendations of the Ministry of Education and Research (Order of the Minister of Education and Research no. 5229/17.08.2020), as well as with the Guidelines for the preparation and drafting of the Habilitation thesis within "Victor Babeş" University of Medicine and Pharmacy of Timișoara, elaborated based on CNATDCU recommendations.

These would be, in a nutshell, the general premises underlying the present study.

The topic was chosen considering the main research areas in which I conducted inter- and transdisciplinary studies, namely gallbladder and bile duct surgery, respectively liver pathology surgery, the arguments I make in the paper supporting that part of practice and literature that pleads for a multidisciplinary innovative fundamental research.

The first three chapters presents my scientific, academic and professional achievements, along with the evolution and modernization of the surgical procedures.

Chapter I - Scientific activity

Through all my scientific activity I have tried to bring my contribution to multiple surgical fields, scientific research also being a basic component and obligation of my academic activity.

The studies I carried out, the published scientific papers and the research projects in which I participated are presented extensively in my habilitation thesis.

The scientific achievements are presented according to my favourite surgical fields on which I mainly focused my attention: gallbladder and bile duct surgery, respectively liver and associated liver pathology surgery.

My scientific research activity centred around the implementation of new instrumental methodologies of physicochemical investigation in reference fields, such as: characterization of compounds of interest (analytical purity) underlying the composition of bile and gallstones (cholesterol and its derivatives, respectively bile acids and bile pigments); intraoperative collection of gallstones from patients and their preparation for analysis, respectively correlation of the composition with the therapeutic schemes and with the patient's medical history; characterization of compounds and pharmaceutical formulations used in the treatment and prevention of hypercholesterolemia; amelioration of symptoms in biliary pathology and reduction of the disease recurrence by using instrumental techniques; study of compounds of pharmaceutical interest which are used in the treatment of hydatid cyst (albendazole) or in the treatment of subcutaneous suppuration in the wound or drainage tubes (iodoform); study of the morphological variability of the intrahepatic bile duct system of the hepatic left lobe using corrosion preparations; study of solid state behaviour and degradation of the samples using non-isothermal kinetics as an innovative investigation method in this field.

The results published in articles included in international scientific journals are presented in detail, and those of lesser scope or in a preliminary state are mentioned briefly, but all of them are cited in the bibliography.

The studies are published in 20 papers in journals with an ISI impact factor, cited 113 times, according to the Web of Science website.

In order to document myself, I participated in dozens of national medical congresses and congresses with international participation, as well as in international congresses (being a member of the organizing board and the scientific committee in six of them, and a general secretary in three), courses, workshops, and expertise exchanges.

The scientific research I conducted in the field of surgery aims at expanding our knowledge capacity, as well as at generating new scientific knowledge, since it is only by understanding the mechanisms at a high level of detail that we can stimulate scientific research in the field of surgery.

Promoting the scientific activity is also a desideratum from the perspective of the didactics of the specialty, my research activity, as a teacher, being focused on increasing the visibility of "Victor Babeş" University of Medicine and Pharmacy, nationally and internationally, and on obtaining results that can be implemented in medical practice and medical pedagogy, but also on increasing the quality of our activity with students and the other beneficiaries, in order to provide graduates of long-term higher education with the necessary knowledge, skills and abilities.

Chapter II. Academic-didactic activity

I presented my academic achievements, with a chronological description of the stages of my career, from the academic rank of assistant professor to that of associate professor.

Between 2002 and 2018, I obtained, through open competition: the positions of assistant professor (2002), senior lecturer (2016) and associate professor (2018) at "Victor Babeș" University of Medicine and Pharmacy, Timișoara.

I completed the psycho-pedagogical training for the university teaching staff in 2005, at the West University of Timișoara, within the Department for the Teaching Staff Training, as attested by the Graduation Certificate awarded by the Department for the Teaching Staff Training series D no. 0039348.

I am currently an associate professor in the field of Surgery I within the X department.

As I have already mentioned, I am involved in training the students, starting from the surgery clinical internships, and the delivery of the surgery courses, to my contribution to the theoretical and practical training of the residents. I elaborated 4 surgery courses, as a co-author.

Specifically, I use modern didactic and educational means of communication with my students, both in the courses that I teach and in the clinical internships, but also on my personal website <https://www.mariusmurariu.ro>, where I post the PowerPoint courses for the IVth year students, the pdf courses, the schedule of the clinical internships and the courses, details of the teaching activity, the results obtained at seminars and at the exams, as well as other announcements to the students. On this website, I can also directly communicate with the students through the e-mail platform.

On my personal website: <https://www.mariusmurariu.ro>, residents can also find relevant information for their learning process and surgery demonstrations.

As concerns the course addressed to the students, I elaborated and published it, in 2021, as an author, and I also contributed to the posting of a much more elaborate and suggestive iconographic material that would facilitate their logical assimilation of the theoretical surgical elements.

I have taken part in the realisation and maintenance of a system of live streaming from the operating room, with the help of which we are broadcasting live surgeries we performed to the classroom of the Surgery Clinic I, so that they can be viewed by the students, residents or other surgeons.

Since 2012, I have contributed to the creation and organization of the surgery circle within the Surgery Clinic I. The number of students participating in this circle has increased each year ever since, starting from 25 students in 2012 to 60 in 2015: <https://www.mariusmurariu.ro>.

I coordinated the students during the XIVth, XVth and XVIth Romanian Congress of Phlebology with international participation, that took place in Timișoara, to present the results of their research on surgical topics in the STUDENT POSTERS section. On the occasion of student scientific events, I also coordinated the papers that were presented by the students.

I also took part as a coordinator in the workshops and interactive courses of surgical practice organized within the student scientific circle, in the sessions dedicated to presentations of cases and scientific reports by the students.

I participate in the coordination of educational programs for students in the field of surgery.

I coordinated 11 graduation papers of the students of "Victor Babeș" University of Medicine and Pharmacy of Timișoara.

I involved in the theoretical and practical training of resident doctors, being assigned to teach surgery courses to resident doctors, and I also contributed to their practical training in the daily surgical activity of our clinic and the emergency care service where residents actually participate as assistant surgeons, but can also expand their knowledge in the field of surgery by watching live broadcasts from the operating rooms in the classroom of the Surgery Clinic I.

I also delivered postgraduate courses at national scientific events.

Next, I present the role of interactive teaching strategies, of treating students and residents with academic honesty, the importance of their correct assessment, as essential aspects in the effort to prepare them as closely as possible to the realities of the medical career and the needs of the society in which they are going to practice medicine.

Chapter III. Professional activity

The professional activity I carry out as a doctor and teacher is related to the Faculty of Medicine within "Victor Babeș" University of Medicine and Pharmacy of Timișoara, from which I graduated in 1992.

I work as a doctor at "Pius Brînzeu" Emergency County Clinical Hospital Timisoara, in Surgery Clinic I of "Victor Babeș" University of Medicine and Pharmacy of Timișoara, where I am a primary doctor – surgeon.

My professional activity as a doctor is presented in the third part of the first chapter, where I describe my professional career as a doctor, starting from the position of resident doctor to that of primary doctor, and my surgery activity, initially focusing on classical, open, interventions, and, then, often, on laparoscopic minimally invasive methods.

I present my professional achievements according to the surgical fields on which I focused: hepato-biliary surgery, laparoscopic surgery, abdominal wall surgery, phlebological surgery and emergency surgery.

I pass on with honesty and enthusiasm my experience as a doctor and teacher to my young collaborators, students, and resident doctors, insisting on the idea that fundamental research is the key to understanding the disease mechanisms and the first step towards its early diagnosis and effective treatment.

Chapter IV - The plan and perspectives of development of my academic, scientific and professional career.

This part presents the plans and perspectives of development of my academic, scientific and professional career, for the purpose of elaborating realistic plans, that are adapted to the needs of the future.

I highlight my main academic achievements (publication of courses and presentation of results from the perspective of the teaching activity, academic ranks and degrees) and my scientific achievements (publication of books, studies and papers) after completing the doctoral studies; I also present the steps of my professional career as a surgeon, to which I have devoted, so far, twenty nine years since I graduated from faculty, this also being the reason why I intend to strengthen my participation in as many scientific, professional and teaching activities as possible, in Romania and abroad, in order to further improve my specialized and didactic knowledge, and to share the acquired experience.

I stress the importance of teamwork and the need for multidisciplinary research projects.

In this chapter, I further describe the intended future directions of my scientific, academic and professional career.

The bibliography section mentions 167 references concerning the publications of these studies.

The list of 10 representative scientific papers is presented at the end of the habilitation thesis.