

**"VICTOR BABEȘ" UNIVERSITY OF  
MEDICINE AND PHARMACY TIMIȘOARA  
DOCTORAL SCHOOL  
MEDICINE DOMAIN**



**MULTIDISCIPLINARY APPROACHES  
IN THE DIAGNOSIS OF PROSTATE CANCER  
AND IN FUNCTIONAL UROLOGY**

**ABSTRACT**

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## **ABSTRACT**

The next 15 years after the completion of my Doctoral Thesis in 2008 were full of achievements, both personally and in my career. It was the period when I developed professionally, addressed a multitude of research topics, had publications in journals with an increasing impact, and gained academic recognition at national and international level. The completion of the current Habilitation Thesis represents a recognition of these efforts, and an opening towards the future, with new bold research plans and objectives.

The Habilitation Thesis was thought as a synthesis of my professional, academic and scientific activity, being elaborated according to the recommendations of the Ministry of Education, of the National Council for the Attestation of University Titles, Diplomas and Certificates (CNATDCU), respecting the Guide for the Writing of the Habilitation Thesis, approved by the Council for Doctoral Studies of the "Victor Babeș" University of Medicine and Pharmacy, Timișoara.

The first part of the thesis contains a synthesis of my scientific achievements, subsequent to the completion of my Doctoral Thesis. The first topic approached was actually a continuation of my preoccupations during the doctoral period, being represented by the evaluation and elaboration of prediction tools with utility in the diagnosis, staging and prognosis of prostate cancer. In this regard, I was part of a multidisciplinary research team, together with colleagues from the Pathology Discipline of our University, participating to the elaboration of two monographs, including a guide of protocols for the diagnosis and prediction of evolution in prostate cancer. Subsequently, more than 10 years after previous publications, I have resumed my research in the field of artificial intelligence, assessing its role in the prediction of prostate cancer lesions with the help of shear wave prostate elastography. The project was developed in collaboration with colleagues from the West University of Timisoara, being published in the journal "Current Oncology", with an impact factor of 3.109.

The most important field of my scientific research was that of biomarkers in prostate diseases. First, I have published a review on the role of biomarkers of chronic inflammation in the diagnosis of prostate cancer and benign prostatic hyperplasia in the journal "Clinical Biochemistry", which was well received by the academic

community, being quoted 21 times. Next, in collaboration with colleagues from the Biochemistry Discipline of our University, we have published five articles (with a total of 16 citations) that investigated the role of several micro-ribonucleic acids (miRNA) in the detection of prostate cancer. Within the same multidisciplinary team, we also participated to the publication of two articles on the use of long non-coding ribonucleic acids as biomarkers in the diagnosis of prostate cancer.

The third section of the chapter of scientific achievements was focused on Functional Urology. At the beginning of this section, I have presented the development and validation of a Romanian language questionnaire used to assess urinary incontinence in women, through which the differential diagnosis between effort incontinence and urge incontinence can be made, respectively the diagnosis of mixed urinary incontinence can be established. A second study that I wanted to present analyzed the correlation between nocturia and the risk of hip fracture during the night, being conducted in collaboration with colleagues from the Second Orthopedics Discipline of our University. Next, I have summarized the results of the most interesting experimental study coordinated by myself, of direct bladder wall electrical stimulation, as a part of an international team; the study was completed in 2020, during the Covid-19 pandemic, and was published in a journal with an impact factor of 2.838. Another research project in the field of functional urology evaluated the effects of drug treatment of benign prostatic hyperplasia on the sexual function of patients, as the last section of the chapter on scientific achievements. At the end of this chapter, I have briefly presented other research projects finalized with the publication of articles in extenso, or with poster presentations at national or international urological events. In total, I have published in ISI indexed journals (with impact factor) 10 articles as lead author (first author, last author or first author of correspondence) and 18 articles as co-author, with a cumulative impact factor of 20.728 for articles published as lead author, and a Hirsch Index of 7, meeting the minimal required standards for obtaining the attestation of Habilitation.

In the second chapter of the thesis, I have realized a synthesis of my personal academical achievements. Shortly after completing my Urology residency training, in 2003 I have started my teaching career, winning by competition the position of Assistant Professor in the Urology Discipline of the "Victor Babeș" University of Medicine and Pharmacy Timișoara. In 2014 I promoted also by competition to the position of Senior

Lecturer, and since 2020 I am working in the same discipline as an Associate Professor. Throughout this period of 20 years of teaching activity, I have tried to increase my level of didactic competence by participating in specialized training courses in the teaching domain, including by graduating from the two semester modules organized by the Department for Didactic Training of the West University of Timisoara, in 2015.

Regarding the didactic activity by itself, in addition to the lectures and practical labs with the fourth-year students from the Romanian and English language sections, I have contributed to the training of Urology residents, both locally within the Clinic and nationally as a lecturer and later coordinator of the Summer School for Urology Residents. I also carried out a rich post-graduate teaching activity, participating as a tutor and lecturer in multiple courses organized both by our Clinic and by prestigious organizations, such as the European Association of Urology and its sections.

The third chapter of the thesis was about my professional activity. I have graduated the Faculty of General Medicine of the University of Medicine and Pharmacy "Iuliu Hațieganu" Cluj-Napoca in 1996, after which for a year I have worked as a trainee physician in the Deva County Hospital. Following the residency contest at the end of 1997, I was admitted as a Urology resident, training in the Urology Clinic of the Timisoara Emergency County Clinical Hospital. In 2003 I obtained the title of Urology Registrar, and I continued my activity in the same Urology Clinic. In 2004 I have obtained my Certification in General Ultrasonography, and in 2009 I became Consultant Urologist, passing the exam organized by the Romanian Ministry of Health.

Since coming to Timisoara, throughout my whole career, I have tried to continuously improve my level of professional training, and also to specialize in several areas that I considered of interest. In this regard, I have participated to numerous scholarships and training courses, from which I would like to mention the training in the field of Sexual Medicine, following which I obtained the title of Specialist Fellow of Sexual Medicine in 2012, and the training in the fields of Functional Urology and Pelvic Ultrasonography.

Currently, I work in the Urology Clinic of the "Pius Brînzeu" Emergency County Clinical Hospital Timisoara, as well as in a private practice, having as main professional interests Functional Urology, Urodynamics, Ultrasonography of the Pelvic Floor,

Endourology and Uro-Oncology. Since 2018, as a recognition from the urological community, I have also been appointed as a member of the Urology Committee of the Romanian Ministry of Health.

The last part of my Habilitation Thesis contains a synthesis of my personal plan for academic, scientific and professional achievements. Among the proposals to improve my academic activity, I would like to mention: the translation of the Urology Course into English language, the update of my teaching skills, which would focus on team-based learning, the increased use of the online learning platforms (Google Classroom and Moodle), the modification of student evaluation, attracting students to effective medical practice and scientific research activities. Also, the training activity of Urology residents should be significantly improved, by implementing a tutoring program, increasing their involvement in the surgical activity, and also helping them to obtain international certification. In addition, postgraduate courses and continuing medical education activities should be continued and developed, in full accordance with the academic development plans of the "Victor Babeș" University of Medicine and Pharmacy, Timișoara.

Regarding scientific research, I intend to continue my collaboration with the Department of Biochemistry of our University, investigating the usefulness of microRNAs as biomarkers for the diagnosis and prognosis of prostate cancer, the role of the urinary microbiome in the pathogenesis of various urological conditions, as well as the interaction between chronic inflammation and the pathophysiology of erectile dysfunction, benign prostatic hyperplasia, and prostate cancer.

Another future domain of scientific research will seek to identify clinical and pathophysiological correlations between diabetes mellitus, erectile dysfunction and secondary hypogonadism, in close cooperation with colleagues from the Department of Diabetes and Metabolic Diseases, respectively, from the Department of Endocrinology. Other topics of interest for scientific research, which I intend to address, benefiting from the help of my future doctoral students (from the moment I will become a member of the Doctoral School), will be functional urology, transperineal prostate biopsy guided by MRI-ultrasound fusion, multiparametric ultrasonography of the prostate, the role of artificial intelligence in the diagnosis of prostate cancer, respectively the translation and validation of significant patient-related outcome evaluation questionnaires.

The proposals for the development of my medical professional career include the establishment of a compartment of Neuro-Urology and Functional Urology, in close collaboration with the neurologists and neurosurgeons, and with the assistance of a physiotherapist, the continuation of my activity in the field of Urodynamics and pelvic floor ultrasonography, gaining experience in the laparoscopic treatment of urinary incontinence and pelvic organ prolapse in women, the recognition of our Department as a reference center for transperineal prostatic biopsy, and last but not least, the resumption of kidney transplantation in Timisoara, both from living donors and from donors in cerebral death.

The list of bibliographic references completes the Habilitation Thesis, which at the end also contains the list of my most significant scientific papers published in the period after the completion of my Doctoral Thesis.