

**“VICTOR BABES” UNIVERSITY OF MEDICINE AND  
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**HABILITATION THESIS  
ABSTRACT**

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**2020**

## **ABSTRACT**

Clinical studies on different drugs raise many questions among the international public. These questions are most often referred to the necessity of carrying out these studies, their organization, quality control and different pressures to authorize medical products without real health benefits, exercised in order to obtain useful materials, despite the risks involved. On the other hand, there are also a number of unrealistic perceptions and expectations regarding some partial results of the researches in the field, regarded as rescuers. In this context, it is necessary to disseminate to the public opinion information related to conducting clinical studies on medicines, devices and medical procedures.

A clinical trial is important in its purpose, to demonstrate the quality of new drugs to cure or greatly improve the disease. Without these studies, accurate and measurable data on healing, indications and adverse reactions cannot be obtained. Once all phases of clinical trials are over, the drug can be approved and prescribed to patients safely.

A clinical trial is also important for physicians participating in it and the countries in which it is conducted, but it is most important for patients to benefit of the studied drug. Most pharmaceutical companies prefer to conduct clinical studies in countries with very well developed medical systems.

Over the years Romania has managed to impose itself more and more as a country with excellent capabilities for conducting clinical studies, a reason for pride for the medical community from our country.

In the last decade, the laboratory medicine has undergone major changes which, theoretically, have placed it at the forefront of medical specialties. Laboratory medicine assumes a leading role in ensuring a fluid functionality of the complex health care system and in meeting the patient's requirements. We are witnessing the increase of the role of the laboratory specialist in the care of patients. Unfortunately, the laboratory doctors represent a minority among the top medical professionals, especially since the laboratory sciences are not the exclusive competence of the doctors. However, the process of reforming the Romanian medical system, stimulated by EU integration, inevitably included the field of clinical laboratory. Currently, specialists in laboratory medicine can obtain the certificate of "European Specialist in Clinical Chemistry and Laboratory Medicine". The objective is to increase the quality of the training, as well as to ensure the free professional movement of doctors, biologists, biochemists and nurses in the European space.

This Habilitation thesis as a PhD scientific adviser in medical sciences comprises two distinct parts, namely:

- I. Contributions to biomarkers' science
- II. Personal data of Habilitation thesis author.

Just a few stages of medical research are truly accessible in our country. For the fundamental research we lack not only the equipment, the reagents, the cultures and, finally, the

money, but even the ideas and the researchers: many of them left where they were wanted, in centers abroad.

For the translational research, many national centers do not have bio-bases, access to laboratory animals is limited or completely absent and few institutions could (at least theoretically) support such an activity; how the research is funded, waiting for the money earned through a grant, animals have time to starve not only once, but several times.

Things are a bit simpler in the case of clinical trials. Existing medical structures may be used, but the correct application of protocols and compliance with all ethical rules regarding research on human subjects is required. Clinical trials are most often sponsored by companies producing a substance with the potential to become a drug, which results in significant gains for the centers and researchers involved in the studies.

The first part of this Habilitation thesis, shows different studies of the author in the following main research domains:

- the antimicrobial effects of someherbal extracts;
- the profile of patients with diaphyseal fractures;
- the heavy metals toxicity on specific organs;
- the pathways of interleukins interventions;
- the levels of IL-8 and TGF $\beta$ 1 in patients with different dental treatments;
- the effects of dose as local betamethasone injections in low back pain;
- the time frame of vascular remodelling in the course of type 2 diabetes mellitus;
- the evaluation of miRNA expression of podocyte-associated molecules at patients with type 2 diabetes mellitus;
- the evaluation of podocyturia significance in relation with proximal tubule dysfunction at patients with type 2 diabetes mellitus;
- the influence of atorvastatin (a lipophilic statin) on podocytes and proximal tube dysfunction;
- the identification of *Viscum album* components from aqueous and alcoholic extracts;
- the evaluation of collection and pipetting technique on cocaine concentration;
- the digestive disorders that are associated with QT interval prolongation;
- the evaluation of the total phenolic content and the antioxidant activity of *Momordica Charantia* extracts;
- the presence of bacteria at the subgingival level that causes an inflammatory periodontal pathology;
- the assessment of smoking impact on oral candidiasis;
- the in vitro evaluation of antiproliferative activity of fisetin, quercetin, and kaempferol as pure compounds and beta-cyclodextrin complexes;
- the determination of the composition of some essential oils (*T. vulgaris*, *T. pannonicus* and *S. montana*);
- correlation between the proximal tubule (PT) damage and the levels of the urinary nephrin and urinary VEGF excretion;

- the analysis of celecoxib in periodontal disease;
- the epidemiology of ascariasis, enterobiasis, and giardiasis in the Romanian largest county;
- a new approach in the characterization of a gemmotherapeutic extract of *P. ostratus*;
- the toxic effects exerted by advanced glycation end-products on the proximal tubule in patients with type 2 diabetes mellitus;
- the safety use of ceftriaxone during pregnancy.

The second part of this Habilitation thesis shows the following information about its author:

- education and training;
- work experience;
- personal skills, and
- academic development plan.

The teaching process involves, in addition to the teaching itself, a certain guidance of the student, of the steps he has to take from now on.

Thus, the responsibility towards the students increases, and the courses themselves will have a greater involvement than initially believed. The teacher will form not only ideas related to the subject they are teaching, but also opinions that must have logical support. The relationship between teacher and student is necessary to move forward and constantly grow, meant to teach both, new interesting and important things. Each course depends on the reaction of the students, their previous knowledge and how they can use the information received in a new context. We are developing together and this is perhaps one of the most important aspects of the university career - the close collaboration between teacher and student and the mutual respect that generates the bases of this collaboration.