

**„VICTOR BABEȘ” UNIVERSITY OF MEDICINE
AND PHARMACY FROM TIMIȘOARA
DOCTORAL SCHOOL
MEDICINE DOMAIN**



HABILITATION THESIS

INTERDISCIPLINARY APPROACH IN HEMATOLOGY: FROM MOLECULAR LEVEL TO CLINICAL PRACTICE

A B S T R A C T

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**Timișoara
2023**

ABSTRACT

My habilitation thesis entitled "Interdisciplinary approach in hematology: from molecular level to clinical practice" contains the most important professional, academic, and scientific achievements of my postdoctoral work, completed in 2009 with the thesis entitled "Clinical, Biochemical, Hematological and Immunological Prognostic Value Factors in Multiple Myeloma". During my 13 years of postdoctoral work, my research has focused on the development of innovative clinical-experimental methods (elements of innovative studies regarding coagulation disorders and also malignant hemopathies). All aspects of my profession, medical and teaching, managerial and last but not least, research, I considered to be equally important for the development of my career, so I have gone through the stages of development so far: from university preparator (at the Department of Hematology), now Assoc. Professor (Department of Hematology), respectively from trainee doctor to Hematology primary doctor. The results of my scientific work have been published in journals indexed in various databases (Clarivate Web of Science, Scopus, Index Copernicus, mediline, open access) quantifying 38 articles *in extenso*, indexed WOS, with a Hirsch Index of 13.

The thesis is written according to the guidelines for the habilitation thesis published by CNATDCU and legislated in the methodology of the "Victor Babes" University of Medicine and Pharmacy from Timisoara.

Chapter 1 - entitled "Scientific Achievements" is in close interrelation with the position of physician in the field of hematology. Most of my research activity has been carried out in an interdisciplinary scenario, in an innovative research nucleus organized within the university that includes hematology, intensive care, morphology, internal medicine, radiology, clinical pharmacy and pharmacology, neurology, laboratory medicine, cardiology, surgery, gynecology, nephrology, diabetes, functional science, endocrinology, psychiatry, biostatistics, genetics), specialists of high academic standing. Thus, we have disseminated this research through 74 Web of Science indexed papers (38 papers in extenso - of which 11 papers in extenso indexed Web of Science, main author; 27 papers in extenso indexed Web of

Science, co-author; 36 proceedings at scientific events), totalling a cumulative impact factor main author (FCIAP) 20.80. At the time of submission of the habilitation thesis, the Hirsch index is 13 in WOS. In this chapter are presented main research directions. Sub-chapter 1.2.1. entitled "Studies related to thrombophilia" reveals studies, full papers, on the effect of hypercoagulability state in thrombotic events. The complications in pregnant women diagnosed with thrombophilia, the correlation of this investigation with paraclinical laboratory data (I refer here to screening for thrombophilia correlated with the state of hypercoagulability that characterises any pregnancy), and clinical decisions should be made on a case-by-case basis. Subchapter 1.2.2 entitled "Research related to malignant diseases" presents a series of studies (clinical and preclinical) carried out in order to deepen the mechanisms involved in malignant processes: aspects related to diet and multiple myeloma, to Vitamin D and lymphoid malignancies, diagnostic criteria for chronic myeloid leukemia, experimental models for melanoma research, preclinical studies related to colorectal adenocarcinoma. Subchapter 1.2.3. entitled Research studies regarding other internal pathologies was purposed based on the proven link between microbes and tumors, studies were carried out regarding the activity of the gut microbiota and certain pathologies. The commensal microbiome influences the effectiveness of tumor treatment, and the exploitation of the properties of the microbiome in various pathologies, both malignant and non-malignant, represents current research of great interest. Chapter 1 ends with the presentation of books and book chapters, research projects and other relevant information related to scientific activity.

Chapter 2 - entitled "Academic Achievements", and Chapter 3 entitled "Professional activity" summarizes my teaching development, starting from 2003, when, based on the interest shown during the faculty for research activity, I was noticed by Prof. Univ. Dr. Ionita, under whose guidance, following a competition, I obtained the title of preparator in the discipline of Hematology. Then followed the period of university assistant in the same discipline, with the completion of the first PhD in 2009 (Doctor of Medicine, 64/06.05.2010, Seria G0004014) under the direction of Professor Dr. Hortensia Ionita, Correspondent Member of the Romanian Academy of Medical Sciences. During that period (2003-2008), I was working as a resident doctor of Hematology at City Emergency Clinical Hospital in Timișoara, becoming a specialist in Hematology in 2008. My professional activity has always

been based on continuous self-improvement in order to reach and maintain the professional standards required by the evolution of the discipline and the transmission of knowledge to all interested persons: students, young collaborators, residents, etc. In 2017 I become Head of the Department of Hematology, and from 2017 until now I work as a Assistant Professor in the same discipline. Since 2003, when I entered in "Victor Babes" University of Medicine and Pharmacy Timisoara, I have authored and co-authored more than 45 ISI peer-reviewed Articles, 6 IDB peer-reviewed Articles, 12 CNCSIS B and B+ peer-reviewed articles, 3 Books published in International Editors, 4 Books published in CNCSIS National Editors and 12 LITO Books, 68 abstracts in International Congresses and Conferences, 53 abstracts in National with International Participation Congresses and Conferences and 28 abstracts in National Congresses and Conferences. In the same period I've been involved in 4 Research Grants, in one as a Project Director Grant CNCSIS tip TD nr.22 – Clinical, Biological and Hematological Prognostic Factors in Multiple Myeloma, 2005 –2008.

Chapter 4 - entitled "Academic and scientific perspectives" focusing on the three important areas: teaching activity, research activity and last but not least clinical activity. As future plans, clinical activity will be based on the acquisition of new knowledge, techniques and the development of new skills in the framework of ongoing or upcoming research projects/grants. For the didactic part, the use of resources and modern methods of teaching and interacting with them, learning through discovery, cooperation, problem solving, promotion, support of continuous feedback to students and full openness and transparency in the teaching and evaluation process are central elements of the teaching plan. A constant concern in the teaching activity will be the continuous adaptation of the courses to the level of knowledge of the students, without compromising the 8 quality and the requirements of the training of the future doctor. On the basis of my teaching experience gained in recent years, I will take into account the dynamics of the mentality of young people and their willingness to benefit from interactive and interesting courses. I also intend to coordinate the research work of students in student scientific circles. As far as research activity is concerned, it will be oriented towards the continuation of the research directions started, as well as the identification of new methods to optimise the management of different pathologies. I will participate in national and

international specialist events as I have done so far, and the results of my research will be materialised in the publication and dissemination of the results of the studies undertaken in nationally and internationally recognised journals, in book chapters or books that I will publish, as well as in research projects in which I will continue to participate with the same interest. The research directions developed so far will be continued, deepened, and exploited, and the new directions addressed will be linked to the current ones. Also, the scientific approach to quality management of the educational process and health research will be part of my future concerns. Academic career development for performance in the work of PhD coordinator will be put into practice through future participation in actions in university educational projects supporting doctoral and postdoctoral research both locally (I have already submitted a project) and through national and/or international partnership. The last section of the thesis includes bibliographical references related to the studies mentioned in the contents of the habilitation thesis. I believe that, based on the results of the studies carried out, the research undertaken so far, as well as taking into account the plans for the future, I hope that through what I have demonstrated so far to become a prominent member of the University of Medicine and Pharmacy "Victor Babeş" in Timișoara and through seriousness, rigour, conscientiousness and diversity to continue these activities.

LIST OF 10 REPRESENTATIVE SCIENTIFIC PAPERS

1. Jianu DC, Jianu SN, Iacob N, Dan TF, Munteanu G, Gogu AE, Sadik R, Motoc AGM, Axelerad A, Sirbu CA, Petrica L, **Ionita I**. Diagnosis and Management of Cerebral Venous Thrombosis Due to Polycythemia Vera and Genetic Thrombophilia: Case Report and Literature Review. *Life*. 2023; 13(5):1074. IF 2023: 3.2
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2. **Ionita I**, Grigorita L, Bacean Miloicov C, Petre I, Bernad E, Craina M, Diaconu M, Citu C, Radu F, Oros D, Boglut A, Furau G, Enatescu V. The Role of Thrombophilia in Pregnancy. *Rev Chim* 2016, 67(12):2643-2647. IF 2016: 1.232
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3. Borsi E, Serban CL, Potre C, Potre O, Putnokoy S, Samfireag M, Tudor R, **Ionita I**, Ionita H. High Carbohydrate Diet Is Associated with Severe Clinical Indicators, but Not with Nutrition Knowledge Score in Patients with Multiple Myeloma. *Int J Environ Res Public Health*. 2021 May 19;18(10):5444. IF 2021: 4.614
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5. Popovici DC, **Ionita I**, Ionita C, Marinita A, Moleriu RD, Ionita H, Iacob D, Chiriac VD, Petre I. Statistical Hierarchy of Diagnostic Criteria for Chronic Myeloid Leukemia. *Rev. Chim.*, 2017, 68(10):2463-2466. IF 2017: 1.412
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6. Popovici DC, **Ionita I**, Nedelcu M, Ionita C, Ionita H, Moleriu RD, Ilie CO, Iacob D, Constantin LT, Cheveresan A, Berceanu Vaduva D, Radu D. Complications of Tyrosine Kinase Inhibitors Therapy in Chronic Myeloid Leukemia - Chronic Phase. *Rev. Chim.*, 2019, 70(8):3017-3020. IF 2019: 1.755
LINK: <https://www.revistadechimie.ro/Articles.asp?ID=7477>

7. **Ionita I**, Malita D, Dehelean C, Olteanu E, Marcovici I, Geamantan A, Chiriac S, Roman A, Radu D. Experimental Models for Rare Melanoma Research-The Niche That Needs to Be Addressed. *Bioengineering (Basel)*. 2023 Jun 1;10(6):673. IF 2023: 4.6
LINK: <https://pubmed.ncbi.nlm.nih.gov/37370604/>
8. Susan M, Macasoi I, Pinzaru I, Dehelean C, Ilia I, Susan R, **Ionita I**. In Vitro Assessment of the Synergistic Effect of Aspirin and 5-Fluorouracil in Colorectal Adenocarcinoma Cells. *Curr Oncol*. 2023 Jun 27;30(7):6197-6219. IF 2023: 2.6
LINK: <https://pubmed.ncbi.nlm.nih.gov/37504320/>
9. Georgescu D, **Ionita I**, Lascu A, Hut EF, Dragan S, Ancusa OE, Ionita M, Calamar-Popovici D, Georgescu LA, Lighezan DF. Gallstone Disease and Bacterial Metabolic Performance of Gut Microbiota in Middle-Aged and Older Patients. *Int J Gen Med*. 2022 Jun 8;15:5513-5531. IF 2022: 2.3
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