

THESIS ABSTRACT

This habilitation thesis presents the most important postdoctoral activity achievements of the author, the scientific, professional and academic activity, highlighting the perspectives of career development in the final chapter.

The author's scientific research was oriented in two main directions: the study of biomarkers with prognostic role in urological neoplasm's, so that during the 4 years after obtaining the doctorate he managed to publish with the collaborators 12 ISI articles, of which 7 as the main author. The studies carried out focused on investigating the prognostic role in the urological neoplasm's of the neutrophil/lymphocyte ratio, Fascin-1, Survivin and Cholinesterase; and bladder cancer which represented the central theme of the doctoral thesis and continued in the post-doctoral research activity. In this field he has various collaborations and ongoing studies with colleagues from Switzerland, Italy and Austria.

The author has carried out with his collaborators several multicenter studies that have been published in prestigious journals in the field of urology and oncology, where he is the first author. He has demonstrated in a large group of patients with upper tract urothelial carcinoma the negative predictive value of an increased NLR regarding the aggressiveness of the disease and the cancer specific survival (Vartolomei et al. World Journal of Urology 2017). This association was also confirmed in the case of T1G3 non-muscle invasive bladder tumors (Vartolomei et al. Clinical genitourinary Cancer 2018) and by the results of two meta-analyzes (Vartolomei et al. World Journal of Urology and Urologic Oncology: Seminars and Original Investigations 2019).

As a senior author, the author published 3 ISI articles that investigated biological behavior and prognostic factors in bladder tumors, in a multicenter study showed that were independent predictors for identifying patients with G3 residual tumor after a complete first resection: tumor size, concomitant carcinoma in situ and a BMI ≥ 25 kg m² (Ferro et al. Journal of Cancer 2018); in 2 other mono-center studies he analyzed the survival at 10 years for TaG1/G2 bladder tumors (Balan et al. Medicine 2018) and the prognostic value of NLR for T1 bladder tumors (Martha et al. Romanian Journal of Laboratory Medicine 2017).

After obtaining the PhD, the author obtained numerous clinical scholarships won by competition: Fellow at IEO (Istituto Europeo di Oncologia), awarded by IEO Foundation (national competition) at Department of Urology headed by Prof. DeCobelli Ottavio in Milan, Italy; (01.10.2016-31.03.2017); EUREP 2016 (1-7/9/2016), Prague, Czech Republic; EUSP (European Urological Scholarship Program) clinical/ lab scholarship awarded by European Association of Urology (international competition) in January 2017- in Vienna at Prof. Shahrokh Shariat Department of Urology and Cancer Care - (01.07.2017-30.06.2018); Research grants: 3 as project director (one in international competition, 2 in UMF Târgu Mureş internal competition); has published 1 book and chapters in national and international books, 38 articles in ISI journals (19 principal author and 19 coauthor), with TCIF (total cumulative impact factor) of 92 points, 5 articles in BDI journals (4 principal author and 1 coauthor), over 130 citations in the Web of Science with a Hirsch Index of 7, five

articles published in Q1 journals and 23 in Q2 Journals and awarded by UEFISCDI; and received many distinctions for the research activity: 1. Young Researcher in 2017 awarded by UMF Tg. Mures 2. Best Scientific Researcher in 2018, awarded by UMFST Tg. Mures; 3. European Urological Scholarship Programme - Best Scholar Award for Clinical Research 2019, awarded by the European Association of Urology (EAU). Due to his research activity in the field of uro-oncology the site ExpertScape.com positions him as one of the experts in the field in Romania.

After obtaining the title of doctor in medical sciences and specialist in urology, the author's medical and academic professional activity has undergone a marked evolution by winning two clinical research scholarships at two renowned institutions in European uro-oncology: the European Oncology Institute (IEO) in Milan and the General Hospital (AKH) in Vienna. Within the two post-doctoral fellowships he managed to acquire new skills in terms of uro-oncological clinical practice and the development of new research directions. After completing the scholarships he returned to Târgu Mureș where he is currently a specialist doctor at the Urology Clinic of the Mureș County Clinical Hospital and Senior Lecturer at the Discipline of Cell and Molecular Biology of the University of Medicine, Pharmacy, Science and Technology "George Emil Palade" from Târgu Mureș.

Within the medical activity the author carries out a series of interdisciplinary collaborations with other medical specialties such as: medical oncology, dermatology, laboratory medicine and pathological anatomy. The medical and didactic activity was also accompanied by the activity in the academic community, since 2018 being a member of the admission committee to the medicine faculty. Also, starting from 2018 he is a member of the Scientific Commission of the University of Medicine and Pharmacy of Târgu Mureș, and since 2016 he is a permanent member in the Commission of Specialists - Urology of the Romanian College of Physicians. Since August 2019 he started training in the second specialty - medical oncology; order of the Minister of Health No. 1142 / 07.19.2019.

The career development plan aims to continue the previously developed research directions, but also to address new topics within research projects regarding: early detection of bladder cancer, biomarkers with prognostic role in urological neoplasm's, treatment response markers, the role of new technologies of administration of the intravesical chemotherapy on the oncological outcomes, immunotherapy and target therapy will be the proposed topics for the future PhD students. In the future, a major concern will be to obtain funding for various clinical and fundamental research projects, so that future doctoral students can be involved in feasible projects with generous funding that can answer key current questions in uro-oncology. Among the national funding sources identified by the author, applying for a Young Teams research grant is a priority for the near future, and in terms of attracting funds from external grants, ERA-Permed and European Research Council - Starting Grant calls. Another priority is the involvement in trans-national projects with external partners and the development of new connections with centers in each country of the European Union, with several centers in Asia (China, Japan, South Korea), Canada, Russia and the United States.

The main goals for the didactic activity will be updating of the courses and the elaboration of interactive textbooks, the proposal of new optional and post-university courses, the elaboration of scientific books in the field of molecular biology, uro-oncology and the continuation of involvement in

the academic life of the universities will be pursued. Also, the author wishes to develop the discipline of Cell and Molecular Biology within the Faculty of Medicine - English by introducing new teaching techniques: case-based learning, team-based learning and problem-based learning, introduction of courses and practical works focused on the needs of knowledge and the development of new skills of the students, and the design of a new course support and practical works in English for the students enrolled at the University campus in Hamburg, Germany where the author has his main didactic activities.