EDITORIAL

STUDIILE DOCTORALE DE MEDICINĂ ŞI BIOLOGIE, PREPONDERENT ŞTIINŢIFICO-APLICATIVE

PREVALENTLY SCIENTIFIC-APPLICATIVE DOCTORAL STUDIES IN MEDICINE AND BIOLOGY[1]

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Abstract

The paper "Prevalently Scientific-Applicative Doctoral Studies in Medicine and Biology was presented during the Danube Rectors' Conference (DRC), "The Sense of Belonging to the Danube Region", which was held in Novi Sad, Serbia (February 4 – 6, 2010).

The scientific doctoral studies at the "Vasile Goldiş" Western University of Arad is based on advanced scientific-applicative creation and research, contributing to the development of knowledge, competences and skills. The future of research in the fields of Medicine and Biology depends on the integration of interdisciplinary and transdisciplinary research in biomedical fields, with direct mid-term and long-term applicability.

Key words: *Medicine, Biology, doctoral school, centre of excellence, strategy*
Cuvinte cheie: *medicină, biologie, şcoală doctorală, centru de excelenţă, strategie*

Introduction

The "Vasile Goldiş" Western University (UVVG) of Arad is accredited as an Institution Organizing Doctoral Studies (I.O.D.S) in Medical Sciences and Biological Sciences and has obtained the mark "High degree of confidence" awarded by the Romanian Quality Assurance Agency in Higher Education (ARACIS).

UVVG Arad organizes and carries out doctoral studies of an applicative type, and doctoral candidates may obtain the title of doctor in Medical Sciences or Biological Sciences, with the following specializations: Internal Medicine, Family Medicine, Orthopedics – Traumatology, Urology, Radiology, Pharmacology, Psychiatry and Gastroenterology.

Our university's doctoral school is based on creation and advanced scientific-applicative research, contributing to the development of knowledge, competences and abilities.

General and specialized knowledge, competences and abilities enable graduates of scientific-applicative doctoral studies to:

- systematically and comprehensively understand the field of study and utilize the fundamental and applicative research methods associated with this field;
- design and initiate a research project and perform research management under the conditions of observing professional ethics and deontology;
- critically analyze, evaluate and synthesize new and complex ideas;
- communicate with the professional community and civil society in the context of their field of research;
- contribute to the progress of knowledge through original research with a national and international impact, proven through scientific publications;
- contribute to the promotion of technological, social and cultural development in the context of a knowledge-based society and economy.

[1] This text was presented at the Danube Rectors' Conference (D.R.C.) in Novi Sad, on February 4-6, 2010.

The doctoral school of Arad is organized and complies with European, national and internal regulations, by introducing regulations and internal procedures specific to doctoral school Thus, at the "Vasile Goldiş" Western University of Arad, the doctoral study programme in Medical and Biological Sciences is carried out in two phases, through the advanced academic study programme and through the scientific-applicative research programme, both forms of educational being compulsory.

The advanced academic training programme is carried out within UVVG Arad, based on educational curricula approved by the University Senate and has a duration of 2 semesters, whereas the scientific-applicative research programme has a duration of 6 semesters – Medical Sciences and 4 semesters – Biological Sciences.

The applicative character of the Doctoral School of Arad

The doctoral studies in the fields of Medicine and Biology, organized at the "Vasile Goldiş" Western University of Arad, have a pronounced scientific-applicative as they approach such topics for research and training as are recommended by the EUA Council for Doctoral Education, which is based on developing systematic and thorough understanding of knowledge.

As part of quality assurance mechanisms for advanced study programmes within UVVG Arad, apart from doctoral coordinators and other PhD professors, the studies also involve scientific researchers and experts that are active in other prestigious Institutions Organizing Doctoral Studies in the country and abroad, as collaborators. In this respect, the **Doctoral School addresses inter-disciplinary fields** by involving the various complementary medical and biological specializations, but also some fundamental preclinical disciplines, without which scientific research within the Doctoral School would be devoid of a basis and an advanced scientific value (Ex. Cellular and Molecular Biology, Histology and Histopathology, Physiology and Physiopathology, Biochemistry and Biophysics etc.)

Our doctoral candidates are actively involved in various research projects and programmes financed by national or European bodies, such as: the National Research-Development and Innovation Programme (PNCDI-I, PNCDI-II) Structural Funds, SOP-ENV programmes, SOP-HRD programmes (Human resources), grants of the Romanian Academy, cross-border Hungary-Romania PHARE programmes etc.

The involvement of doctoral candidates in these projects occurs since the phase of designing the financing request, of collecting the necessary bibliographical data for sustaining the idea of the project, but also in the implementation and development period of the project, by carrying out specific analyses and tests in the field in which the research project is financed. Doctoral candidates are also involved in terms of collecting and analyzing data that is necessary to phase reporting and final reporting. Through all these phases and steps covered throughout a project**,** doctoral candidates develop transferable abilities and competences**,** leading to an increase in the prospects of a career and of being hired in both the private sector and the public one.

We shall mention only a few of the **ongoing research projects**:

1) Cross-border PHARE CBC Project HU-RO 2009-2011, In vitro study of vegetal extract of a natural origin, with an emphasis on their potential antitumor effect; 2) PNCDI II Project, Exploration of the integrative biological system involved in the maximal muscular effort; 3) PHARE CBC Project, Cross-border clinical network for detection and research of rhino-allergic pathology, screening of metabolic diseases in the newborn; 4) POS-ENV Project, No. 991/2008-2011, Priority Axis 4: Elaboration of conservation strategies for monitoring and durable development plans for SCI Defileul Mureşului Inferior (Lower Mureş Defile); 5) PNCDI II no. 52158/2008-2011, PROGRAMME 4 PARTNERSHIPS: Identification and valuation research for bioforms of *Trichogramma* in agro - and silvo - ecosystems, the impact and management of introducing bioactive nanomaterials in the proliferation technology of the oophaga; 6) PNCDI II no. 52121/2008-2011, PROGRAMME 4 PARTNERSHIPS: New methods of evaluating the sanogenesis of fish products with a view to increasing food safety and securing sanitary – veterinarian protection; 7) PNCDI II no. 62072/2008, PROGRAMME 4 PARTNERSHIPS : Hepatoprotective nanoparticles with increased bioavailability; 8) PROJECT - HURO/0801/194 – Cross-border: Evaluation of the structure of habitats and services fro ecosystems in the valleys of the Mureş and Crişul Alb rivers.

Our university has designed and achieved **the extension of Doctoral School collaboration programmes between universities and industry (entrepreneurial dimension)** according to the issues debated at the EUA Council for Doctoral Education meeting in 2009. Thus, our doctoral candidates are active in research centers, state-owned and private clinics in the medical speciality in which their doctoral

studies are taken. To this end, the university offers its doctoral candidates its University Clinics, privately-owned Bio-Medical Clinics (with which the university had partnership agreements) and, last but least, the **Institute for Life Sciences** though its scientific research centres: the Centre for research and Treatment of the Alzheimer Disease (brought into being through an international partnership with a private medical entrepreneur and with the medical Del-Borsodi Consortium, Miskolc, Hungary), the Centre for Research in Experimental and Applicative Biology, the Centre for Research in Applicative Physiology and Molecular Biology (brought into to being under the aegis of the Romanian Academy) and the Centre for Botanical Research of Macea.

In the very near future we expect to establish a **Centre of Excellence in Electronic Microscopy** available to doctoral candidates, who will be trained in using electronic microscopes, obtaining and interpreting electronic microscopy images, cellular structure and ultrastructure, but also with respect to the obtainment of surface data and chemical compounds present in the analyzed object. In this respect we have a contract with the American FEI company and we have foreseen and reserved expenses, this year, for purchasing two state-of-the-art electronic microscopes (for transmission – Tecnai ad scanning – Quanta) from which our researchers, as well as our doctoral candidates, will benefit.

As regards the **mobility strategy for career development**, our doctoral candidates have been applying for various national and international programmes, and for mobility scholarships granted by the university. Expenses for mobilities within research projects for which doctoral candidates apply have also been foreseen. These mobilities serve to cover expenses regarding travelling abroad, access to international conferences in country and beyond, access to laboratoried and research centre abroad, as well as publishing scientific articles in ISI-rated journals with an increased factor of impact.

Likewise, Our university offers doctoral candidates, **through partnership agreements concluded with various universities and institutions abroad,** the possibility to study at these universities through experience and student exchange programmes (master students, doctoral students). I would like to mention some of these institutions: University of Tubingen, Germany; Institute of Medicine in Hanau, Germany; University of Szeged, University of Debrecen, Hungary; University of Sciences and Technologies, Lille, France; University of Heidelberg, Germany; University of Novi Sad, Serbia and Montenegro; University of Padua, Italy and other prestigious universities in Europe and the world.

For the purpose of scientific recognition of the research conducted by them, **doctoral candidates are obliged to publish** at least 1-2 scientific articles in ISI-rated journals or 3-4 scientific articles in journals that are indexed in international databases. In order to sustain the publishing activity of our doctoral candidates, the university succeeded in its attempt at increasing the competitivity of its scientific journals. We shall mention only a few of the **journals of our university that are indexed in international databases**: *Studia Universitatis "Vasile Goldiş", Life Sciences Series* (indexed by Scopus, ProQuest, EBSCO, Index Copernicus), *Medical Journal of Arad* (Index Copernicus), *Studies of Science and Culture* (EBSCO and CEEOL) and *Studia Universitatis "Vasile Goldiş", Economic Sciences Series* (CEEOL).

With a view to obtaining data from specialized literature and for substantiating conducted research, **doctoral candidates have access to international databases**, such as **SpringerLink**, which is made available to doctoral candidates by the university, through an institutional access, by the agency of the Information Centre for Doctoral candidates. To this same end, through the "Tudor Arghezi" Library, doctoral candidates have access to books, reviews and journals in their respective fields of expertise, the library having a very rich book stock and journal exchanges, both nationally and internationally. As part of scolarships for YDC (young doctoral candidates) but also of research programmes accessed by them, expenses have been foreseen for doctoral candidates' personal access to other international data bases and purchasing subsciptions and scientific articles *in extenso*.

The students of the doctoral school in Arad actively participate in the **organization of scientific events with international participation**. Out of these events we mention: the Francophone Summer School, the International Gerontology Conference, the International Neurorehabilitation Conference, the International Conference on Aquatic Biodiversity, the Annual Scientific Paper Session of the Romanian Society of Cellular Biology.

An important place for our doctoral candidates is held by the **Francophone Summer School "Molecular Pathology and Pharmacology. Biotechnology"** , which has reached its 16th edition this year, organized in collaboration with the University of Sciences and Technology in Lille, France, under the auspices of the Academy of Sciences in Paris and of the Romanian Academy. At this event, doctoral

candidates can present the results they obtained, but also accumulate recent information and data presented by renowned researchers and professors from diverse universities and research units in France.

Apart from organizing these manifestations, doctoral candidates are also involved by presenting articles and studies that are part of the research topic and the results they obtained in the field.

Doctoral studies in Schools of Excellence

Through its actions, the "Vasile Goldiş" Western University of Arad adheres to and sustains the new project initiated by the National Council for Scientific Research in Higher Education (CNCSIS).

The purpose of this project is to create a national framework for evaluation of quality in national research, to structure a new programme of excellence in Romanian universities and to develop the capacity for publishing and scientific authorship, all the three components contributing synergetically to the attendance of Doctoral studies in Schools of Excellence.

For sustaining this project, UVVG Arad has determined to contribute to the elaboration, testing and implementation of a methodology that would secure the international evaluation of research quality in the university, the sustainment of the Doctoral School of Excellence, as well as the increase in the capacity of scientific publication at an institutional and individual level, with an impact on the quality of doctoral programmes.

Actions aimed at promoting Doctoral Schools in UVVG Arad (Conclusions)

The promotion of the Doctoral School of UVVG Arad is carried out according to the following directions of action:

- Rigorous regulation of the selection of doctoral candidates and the coverage of doctoral study programmes (granting of scholarships to the most valuable doctoral candidates);
- Establishment of highly topical subjects for doctoral theses, conduct of top research and promotion of research results (publication of research results ISI-rated publications or included in IDB);
- Posting of essential Doctoral School data on the university site (http://www.uvvg.ro) and their promotion in the mass-media;
- Continuous development of the documentary and research facilities of the Doctoral School.
- Creation of consortiums and networks with universities in the country and abroad through partnership agreements, doctoral studies in co-tutelage and inclusion of doctoral candidates in research collectives abroad.