

## 1. Abstract

This habilitation thesis presents the professional and research achievements obtained during my academic and scientific activity in veterinary reproduction and translational medicine, since my PhD thesis defence in 2008, as well as my future academic career development plan.

The habilitation thesis called „**Modern investigation techniques in veterinary reproduction and translational medicine**” presents the most relevant results obtained in my recent scientific research, which were published in 40 original articles indexed in Web of Science, 5 proceedings papers indexed in Web of Science and 83 papers indexed in other international data bases, as first or co-author. All were performed by applying modern methods of investigation, including embryonic biopsy, polymerase chain reaction, in situ fluorescent hybridization, ultrasound or flow cytometry.

After a short introductory chapter, in section 2 (Scientific and professional achievements) the main research topics that represented the basis for this habilitation thesis are presented, namely: Modern investigation methods in veterinary reproduction and Modern investigation techniques in translational medicine.

Chapter 2.1 - Modern investigation methods in veterinary reproduction presents the results obtained during the research carried out on the use of polymerase chain reaction (PCR) and fluorescent in situ hybridization (FISH) for bovine embryo sexing, use of computer-assisted sperm analysis (CASA) and flow cytometry (FACS) as powerful tools for sperm quality assessment in domestic and wild animals, as well as utilization of ultrasonography (US) for fetal sexing in cattle. Thus, the studies presented here refer to bovine embryo and fetal sexing, improvement of bovine embryo biopsy methods, ram semen analysis and cryopreservation, bovine semen quality assessment as well as bear semen collection, evaluation and cryopreservation.

Chapter 2.2 - Modern investigation techniques in translational medicine, presents the studies regarding application of flow-cytometry (FACS) for the study of immune ontogeny and engraftment receptivity of human stem cells in the sheep fetus as well as application of molecular biology methods for the study of human-sheep chimeras.

My scientific research and publishing activity can be summarized as follows: contribution to the elaboration of 7 scientific books published in national publishing houses, 3 textbook and 4 practical work guides for students, 40 original articles indexed in Web of Science, 5 proceedings papers indexed in Web of Science and 83 papers indexed in other international data bases.

I also participated as a member or grant director in the successful completion of 22 national research grants (World Bank, Biotech, CNCSIS, CEEEX, Partnerships, Capacities, Ideas or Innovation checks).

Three of the scientific books were awarded important prizes by the Romanian Academy, or the Romanian Academy of Agricultural and Forestry Sciences, as follows:

In 2009 - ***Ion Adameșteanu prize*** of the Romanian Academy of Agricultural and Forestry Sciences for the book: Bogdan Liviu, Groza Ioan (coordinators), Muntean Mircea, Morar Iancu, Simona Ciupe, Pop Al. Raul, Cenariu Mihai – Veterinary Obstetrics, AcademicPres publishing house, Cluj-Napoca, 2009, ISBN 973-744-164-5;

In 2006 - ***Paul Riegler prize*** of the Romanian Academy of Agricultural and Forestry Sciences for the book: Groza Ioan (coordinator), Bogdan Liviu, Cătană Raul, Cenariu Mihai, Simona Ciupe, Ciupercescu Dorel, Morar Iancu, Muntean Mircea, Pop Al. Raul, Brîndușa Stegeran – Gynecology, Andrology and Veterinary Obstetrics – Compendium, Publishing house of the Romanian Academy, Bucharest, 2006, ISBN 978- 973-27-1445-4;

In 2004 - ***Traian Săvulescu prize*** of the Romanian Academy for the book: Groza Ioan, Morar Iancu, (coordinators), Muntean Mircea, Papuc Ionel, Bogdan Liviu, Oana Liviu, Morar Roman, Simona Ciupe, Pașca Ioan, Pop Al. Raul, Cenariu Mihai, Peștean Cosmin – Veterinary Andrology, Gryphon publishing house, Brașov, 2004, ISBN 973-604-012-7.

Sixteen of the original articles indexed in Web of Science were awarded by UEFISCDI in the frame of Awards for scientific research program. I also obtained 3 international awards and 3 national awards for various scientific endeavours, all related to the research activity carried out within the various groups of specialists.

The scientific articles that I published were given an appropriate international recognition, being cited by 372 papers indexed in Web of Science, therefore my Hirsh index, according to Web of Science, is 13.

The third section of the thesis presents the plan for future development of my academic career. In the academic field, it mainly refers to the continuous improvement from a theoretical and practical point of view by accessing the latest publications and reading scientific articles from my field of interest, as well as the improvement and permanent updating of course materials and practical works for students.

In the scientific field, the main objective is to increase the number of scientific papers published every year, but especially to publish in the best rated journals. Moreover, accessing national and international research grants remains a continuous goal, in order to attract funds for

research. Another aim is to participate in national and international symposia and get involved in organizing scientific events in our university.